MUSHROOMS
RUSSIA AND HISTORY

BY

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VOLUME I

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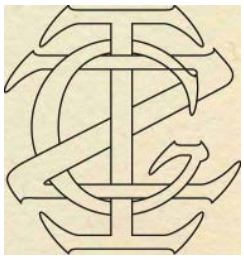

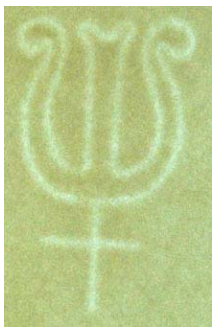

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MUSHROOMS, RUSSIA AND HISTORY

PREFACE

THIS book is addressed to those who love mushrooms, who love the whole rich world of wild mushrooms in the same way that many love the flowers of the field and the birds of the air. Our public is certainly one of the smallest in the English-speaking world, but no matter. We invite all to share our joys, and if few respond, we are not less happy for being few to savor the secret.

There is no shortage of writings about wild mushrooms. But in English and all other languages save French the thousands of pamphlets, books, and journals on this subject seem to fall naturally into one or the other of two clusters. Around one pole are gathered the manuals that teach beginners how to tell the species apart, and around the other are the treatises written by mycologists solely for other mycologists to read. Ours is one of the few books about mushrooms written for connoisseurs by amateurs. It is the first treatment in any language of the role played by mushrooms in the daily lives of the varied European peoples.

Strange disparities mark the attitude of these peoples toward mushrooms. There is a deep repugnance for 'toadstools' among the folk that dwell around the shores of the North Sea. The persistence of this repugnance bears witness, if witness were needed, to the extraordinary toughness of an emotional heritage coming down from remotest times. The 'mycophobia' of the North Sea peoples remains unshaken in the face of continuous exhortations, stretching over the past hundred years, from well-informed men of science. We suggest to the anthropologists that they will do well to include always in their cultural valuations the question whether a given people is 'mycophile' or 'mycophobe', and if 'mycophagous', what species they eat and love. Here is a subtle criterion for comparative observations all the more valuable because pitched on a lowly level, where man's superior faculties and conscious preoccupations seldom warp the ancient grain of impulses passed on to children in their early years.

Our essays began as a mere footnote on the gentle art of mushroom-knowing as practiced by the northern Slavs - a footnote in a larger work that was to have dealt with the Russians and their food. The footnote grew, and rose in status to a place in the body of the text, and then mushroomed into a whole chapter, and finally one chapter by fission made five. The manuscript has burst all its seams through successive revisions. If occasionally we wander from our theme, we hope the reader will be indulgent, bearing in mind that what we have written has been for our own pleasure in the spare hours of a busy life. And

besides, to play a variation on a familiar French saying, je reviens toujours a mes *mousserons;* which is to say, we always hark back to our mushrooms. In a time of troubles and darkness, we wish this book to be a garland offered in tribute to those warm, rich qualities of the Russian people that wicked tyrants strive in vain to crush and extirpate.

The reader who girds his loins and stays our course to the end will perceive a progress in the range and depth of information as he proceeds from chapter to chapter. This is because he is following in the authors' footsteps. The chapters have been composed over a number of years, roughly in the order in which they appear; and because they break new ground in subject and treatment, it has seemed best to let them stand as they were written, for the reader to share in the sense of adventure that the authors experienced in navigating along uncharted coasts of cultural history, never knowing what fresh discovery lay just ahead.

Our subject takes us into history and folklore, into mythology and philology. The interloper treads these thickly-mined areas at his peril. We accept the risk, armed only with the caution that accompanies a full awareness of danger. We have tried to take counsel with the best authorities, and to shade our statements to conform to the evidence. We are more aware than our readers will be of the many areas of our subject that we have failed to explore. We wish we might without presumption draw an analogy between our book and those paintings of Watteau's where only a few patches of the canvas are illumined against the broad expanse of an undefined and shadowy background.

It is altogether fitting for an author to set forth his indebtedness to others, and we should do so fully here, were not the list so long and weighty that it would be unseemly and misleading on our part to associate such names with our efforts. The extent to which we have leaned on persons more knowledgeable than we will be apparent to all who know us. The patience of the learned fraternity with our questions has amazed us. Doctors and lawyers and engineers ask fees for their professional advice. But it seems that men of learning, like men of God, stand above these others, bestowing their counsel and blessings freely on all who turn unto them. In the bibliography and notes we have tried to pay our debts in full, and also to meet the needs of the more curious reader.

Without my husband's enthusiasm and help this book would never have come to term, and I insist on making clear that he is personally responsible for the recondite lore concerning toads, vanished words, poisons, and many other matters in chapters IV and V. The first-person pronouns in our text shift occasionally, and in chapters IV and V regularly, from the singular to the

plural: there is method in this, for the plural pronouns usually evidence my husband's contributions to our joint undertaking.

We gladly make special mention also of our debt to Roman Jakobson, the Samuel H. Cross Professor of Slavic studies at Harvard University, who combines in equal degree vast erudition in things Slavic, exquisite standards of scholarship, and the infectious enthusiasm of the inspired teacher. Desiring to determine what the Basque language might have to contribute to our theme, we solicited the counsel of Professor Rene Lafon, holder of the Basque chair at the University of Bordeaux. Generously he lent us his collaboration in what he considered a novel area for research, and in a series of communications, admirable for their blend of imaginative insight and scholarly discipline, he undertook to explore with us, for the first time in Basque scholarship, the rich and tantalizing Basque mushroom vocabulary. Some of the fruits of that epistolary interchange will be revealed in the ensuing pages, but it is to be hoped that Professor Lafon himself will find time to incorporate the full results of our joint endeavors in a monograph that he alone is qualified to compose. We are specially beholden also to Robert Graves, novelist, scholar, and poet, who supplied to us, among other brilliant suggestions, the missing link that we had been seeking in order to round out our own conjecture concerning the death of the Emperor Claudius, and to render that conjecture not merely suggestive but (we make bold to hope) persuasive. We believe that by re-reading the age-worn texts in the light of present-day knowledge, we can state with some assurance exactly what lethal agents were used when, at the. behest of the Empress Agrippina, Locusta undertook to dispose of Agrippina's august spouse. We are under obligations to many libraries for their cooperation, but most of all to The New York Public Library, equally rich in its treasures and in its always courteous and efficient personnel-a unique institution, which the community on whom it depends fails to esteem at its priceless worth.

We reserve the last paragraphs of this preface for our illustrations. The whole world knows that Jean-Henri Fabre was a close observer of insects, a distinguished writer, and a person of rare spiritual quality. Only a few know that he devoted many hours of his life, in the decade that followed 1885, to painting mushrooms in water-color. His accurate observation was matched by his artistic sensibility. Today hundreds of these pictures he on the shelf of his study at Serignan in the Provence, as fresh in color as the day he painted them, on excellent stock, assembled neatly in the folders where he laid them. He painted all his mushrooms in their natural size, save one that was too big for his paper and that he never succeeded in identifying. During his life-time he sought a

publisher for them, but when he failed to obtain the assurance that the colors would be truly rendered, he chose to leave them, on the shelf. He wrote little about mushrooms, but in *The Life of the Fly* he said they were his botanical joys from his earliest youth, and he went on to predict sadly that the pile of hundreds of sheets of his paintings would eventually be shifted from cupboard to cupboard and from attic to attic, to become dirtied and stained and for rats to gnaw, until finally they would fall into the hands of some little grandnephew, to be cut into paper caps.

The home of Fabre is now the property of the State, and comes under the jurisdiction of the Museum National d'Histoire Naturelle, Paris. To that institution we turned, and through the intercession of the Director of the Laboratoire de Cryptogamie, Professor Roger Heim, Membre de 1'Institut, the Assemblee des Professeurs of the Museum graciously granted to us the privilege that we sought.

In May 1950 my husband undertook a pilgrimage to remote Serignan to see the Fabre water-colors, and he picked out more than a dozen for our book. Two years later, finding himself again in Paris, he called once more on Professor Heim, who by now had become the Director of the Museum National, a worthy successor in that great post to the illustrious Buffon. Indeed, he sits at Buffon's very table, in Buffon's very room, where the elegant i8th century furnishings have remained unchanged, the walls adorned with the graceful i8th century oils of Jean-Jacques Bachelier, depicting the birds of the several continents. The Museum National d'Histoire Naturelle is one of the fine expressions of French cultural achievement, wherein advanced research and teaching in the natural sciences are always suffused with a deep understanding of the humanities. In Professor Heim the Museum National has once again found a chief who combines in the highest measure those rare qualities of mind and heart that have long distinguished the faculty of that extraordinary institution.

Professor Heim proposed to my husband a second visit to Serignan, and this time he himself could go too. Thus it came about that in July 1952 I joined them, and together we set out for the Midi, driving by easy stages so as to enjoy the lovely and storied landscapes through which we passed, and the food and wines as well. (Alas, around mid-July there is a dead-spell in the procession of mushroom growths, and we found none on the menus of the hostelries where we stopped.) Finally we arrived in the village of Serignan.

When Fabre had acquired his *harmas,* as any miserable patch of arid land such as his was called in his native Proven9al tongue, it was a waste, but with the passing years the bushes and trees that he planted have grown to their full height, beneath their foliage his fountain plays quietly in the basin, and what was long

ago the parched *harmas* has grown into one of the most enticing, shaded recesses of the warm and caressing countryside of Provence. Fittingly, the property is in the custody of Henri Fabre's son Paul, and to this day it is called *I'Harmas,* though this is become a misnomer.

In Serignan, with Professor Heim's help, we selected ten additional water-colors. Henri Fabre had not of course our needs in mind, and so it happens that in his whole wonderful collection we found no examples of two species of mush-rooms about which we speak at length, the boletus asreus and the tricholoma georgii or gambosum. By way of compensation we reproduce a number of water-colors that are unrelated to our text, solely for their beauty. Professor Heim has been our guide in the scientific designations that we apply to the species pictured by Fabre.

At our request the Museum National handed over the water-colors that we had chosen to the atelier of Daniel Jacomet in Paris, for reproduction in their original size by the pochoir process. We should like to think that Henri Fabre, could he see the results, would be well pleased.

VALENTINA P. WASSON

New York, October 1953

VOLUME I

I

MUSHROOMS AND THE RUSSIANS

> Mushrooms... the poor man's food, the rich man's dainties.
>
> SAMUEL COLLINS, *erstwhile physician to the Tsar, in 1671.*

I CANNOT recall the time when our mother first began to send us out into the woods and fields to gather mushrooms for the family table. In the summer of 1909, when I was almost eight and my sister was nearly seven, we were spending our summer holidays at a village called Majorenhof, near Riga on the Baltic Sea. We were surrounded by pine groves, the ground carpeted with needles and with blueberry and bilberry bushes. What a delight it was for Tanya and me to ramble through the clean, fragrant woods, filling our baskets with those aristocrats of the mushroom world, the noble *belye griby* \

We were already proficient mushroom gatherers then, and we must have begun our apprenticeship long before. Our mother, Xenia Dimitrievna, was even more solicitous about her brood than most mothers, yet it never occurred to her to poison our young minds with warnings about 'toadstools'. All Russians know the mushrooms, not by dint of study as the mycologists do, but as part of our ancient heritage, imbibed with our mother's milk. A Russian nursery rime, tenderly humorous, tells of the mother who sends out her toddler to look for the *borovik.* Each time he returns with the wrong kind, perhaps a good kind, perhaps bad, but never the *borovik.* Each time she repeats her previous instructions, adding however an additional line of descriptive advice. In the end, off goes Mother herself, impatiently, and there, almost on her doorstep, she discovers a family of the ones she seeks.

We Russians love the whole mushroom world, and what a world it is! Almost endless in variety, every species expressing its individuality by its size and shape and stance, in the beauty of its evanescent colors, in the delicate perfection of its gills or pores or skin that are a joy to touch, and usually too in its scent and taste. The evil kinds, how they flaunt their wicked grace, like the harlots that they are! But we are fond even of them, in a way. Where is death more plainly writ than in the greenish pallor of the elegant amanita phalloides, the 'destroying angel' 2 Where is to be found a better portrait of the Scarlet Woman than in Europe's amanita muscaria, the 'fly amanita'2 (As ofttimes happens with scarlet women, worse things by far are said of this dazzling wanton of the mushroom

family than she deserves.) Mushrooms there are, such as the clathrus cancellatus, so strange of line and hue that he who for the first time sees them is struck incredulous: can such things really be?

This love of Russians for the earthy tribe of mushrooms is, I suggest, a distinctive trait of the Slavs and a significant one. In the face of an ever mounting flood of printed matter and talk about Russia, that land remains for the English-speaking world as deep an enigma as ever. If among those who seek the key to the enigma there be some with an understanding heart and a poet's insight, let them lay aside for a while most of what is written and uttered, and consider the lesson in Russian history and Russian ways that the mushroom has to teach. Here is evidence of our visceral attachment to the bounteous soil that is our Mother Russia. In America, the hospitable land of my adoption, we sing hymns to our rocks and rills, to our wooded hills, but many, I think, sing with their voices and not with their hearts, for our rills we pollute and in our great paper mills we are speedily converting those wondrous forests into the stuff of which comics are made.

In France and Italy the peasants know many of the mushrooms and possess a rich vocabulary for them. The Germanic peoples are less informed than the French, and there is evidence that what they know is of modern acquisition. But when the traveler reaches the lands of the northern Slavic peoples and the Lithuanians, the folk knowledge concerning mushrooms broadens and deepens until it reaches astonishing proportions. The Russians find it as natural to know the mushrooms and to avoid the deadly kinds as do most Americans to distinguish poison ivy from other creepers. Take our family for instance. We were Muscovites. My parents belonged to the Russian intelligentsia, and were city bred. We children spent most of our childhood in the immense cities of Moscow and St. Petersburg, and only our vacations in the country. Yet to no one in all Muscovy could it have seemed strange that Tanya and I, and all our little playmates, made ourselves useful, when in the country, by gathering various kinds of mushrooms and bringing them home in childish rivalry and glee to the kitchen. When we were naughty, our mother would punish us by forbidding us to go mushrooming.

The Catskill Mountains in August are filled with mushrooms, exquisitely beautiful. (We Russians are always finding mushrooms wherever we go, even where our American friends tell us there are none.) In 1927 I had just married my American husband, and we were spending our first holiday in the lodge of Adam Dingwall, a friend, near Big Indian. With what astonishment my husband saw me, on our first walk, dart with ecstasy to this fungus and that,

PLATE I

Jean-Henri Fabre. Boletus edulis Fr. ex Bull.
French: *cepe de Bordeaux;* German: *Steinpilz;*
Italian: *porcine;* Russian: *belyi grib.*

PLATE II

Jean-Henri Fabre. Coprinus comatus Fr. ex Miill.
French: *pisse-chien.*

and on bended knee strike what seemed to him poses of adoration! With what horror he strove, unsuccessfully, to keep me from bringing home and eating a mess of fragrant *lisichki*! He behaved, as we both at once perceived, like the hen that has hatched ducklings and sees them swim away.

An absorbing work, perhaps rich in historical significance, needs to be written on the role of the mushrooms in the life of the peoples of Europe. There are already many scientific treatises on mycology, as the study of the fungi is called, but none on the cultural implications of the mushroom world in the history of our European ancestors. For every region there should be determined which mushrooms are familiar to the people of the locality, and what names they use, and how they prepare them for food, and the folklore attaching to them. Our theme is elemental, reaching back into the folkways of pre-history, and such a mushroomic map of Europe might well confirm folk-ties hitherto merely suspected, and disclose others. If only one could travel today throughout the Slavic lands in the mushroom months, traveling close to the moist Mother Earth, gathering mushrooms with the peasants, identifying them by their local names, eating them according to local recipes, assembling the folklore about them, and trying to catch their delicate beauty of line and color with paint and brush! When I was a child, anyone with the inclination and leisure could have indulged in this idyllic pursuit to his heart's content.

To what a world of wonder and delight the fungal vocabulary of Russia transports us! Every mushroom, good or bad, comes under the general name of *grib.* When the farm-boy of the American prairies returns home after a hard day hungry for his 'grub', he is using in all likelihood a word with the same origin as the Russian peasant child who gathers his *griby* in the woods. Both words go back to a prehistoric root of the Indo-Germanic tribes that expressed the scratching and stirring and rooting and grubbing of the soil which gave to primitive man his vegetable food. Our archeologists piece together meanings deduced from the rubbed and worn artifacts of peoples who died long before the spoken word could be committed to posterity by writing. But the very words that those peoples spoke also come down to us, Likewise rubbed and worn, their sounds and meanings slowly changing on the tongues of numberless generations, yet still identifiable. In the linguistic cousinship of 'grub' and the Russian *grib* we see one example, out of an infinite number, of the common cultural heritage that unites at the deepest levels the Slavs and the West, kindred stock of one great Indo-European family.

Of the poisonous mushrooms, only one species in the Russian language bears a common name - the *mukhomor* or fly-killer, the amanita muscaria of science.

In America this knave wears a yellow cap necked with warts, but throughout Europe its color is a splendid red, and only one blind to nature's warnings could be seduced by its meretricious allurements. All merely tasteless or insignificant mushrooms we dismiss with affectionate contempt under the term *poganki,* the 'unworthy ones' or, as some interpret the word, 'little pagans'.

On the lowest level of culinary value we lump together a miscellaneous lot of gilled mushrooms by the name *syroezhki.* They can be eaten raw, as the name says, though seldom are they so eaten. To this humble group rightly belongs the common field mushroom, a poor thing owing its undeserved renown to a weakness in its character that makes it unique - it alone in the mushroom world of Europe and America stoops to man's will by lending itself to commercial cultivation in a big way.[1] Among Great Russians, this people pre-eminent in 'mycophagy' or mushroom-eating, the field mushroom enjoys little standing, not even possessing today a commonly used native name, being called *champignon* after the French. When gathered fresh in breeze-swept pastures, it still possesses traces of distinction, but through mass production on shelves in darkened cellars under controlled and uniform conditions the market product has long since lost such virtue as its wild ancestors once had, until today it is truly the slattern of the mushroom world, a sickly simulacrum of what mushrooms should be. (Actually, the cultivated mushroom and the field mushroom belong to different though closely related species. The beginnings of commercial cultivation offer a minor mystery. The French discovered the secret around Paris, whence the name *champignons de Paris,* but the exact time is unknown. There is a reference to them in *Le jardinier fran^ois,* a book by N. de Bonnefons published in 1651. It seems likely that the art had sprung up in the previous half century. When Francis Bacon assembled his data for his *Sylva Sylvarum,* published in 1626, this well informed Englishman had never heard of cultivated mushrooms, for he wrote that a strange property of mushrooms is 'that they come up so hastily, as in a night, and yet they are unsowne'. It is clear also that John Parkinson when he wrote his *Theatrum Botanicnm,* published in 1640, was similarly unaware of the procedures for inducing field mushrooms to grow.)

Of the distinguished mushrooms, the first to appear in the spring of the year are the *smorchki,* or morels. They are not uncommon in America too, but in the New World they are gathered and relished almost solely by transplanted sons of Europe. This is especially remarkable since no one could mistake so

I. We are aware that the Italians in certain localities raise the clitocybe catinus and the polyporus tuberaster, but only on a modest scale. In Japan, however, the cultivation of the excellent *shiitake* is as important as the champignon industry in the West.

distinctive a mushroom, standing erect as it does with its honey-combed top-knot exposing its windows to the breezes.

Through summer and fall the variety of succulent mushrooms that Russians gather is considerable. In ascending order of excellence, we begin with the *opjonki,* the mushrooms that nourish on dead tree stumps. These are of various kinds, but the classical *opjonok,* or *opjonka,* is the common ink-cap, a delicate and lovely mushroom, the perfect expression in color and texture and line of transitory grace. For the span of a few hours these beautiful creatures, their highly convex bonnets supported on spindly legs, toss jauntily in the air, and then, by the action of their own enzymes, they curl up and dissolve into inky fluid. Large numbers often grow in a single colony, each day bringing forth a new generation. They must be cooked the instant they are gathered. More substantial is a second kind *of opjonka,* the armillariella mellea of the mycologists. Large and fleshy, they lend themselves to drying.They too grow in family clusters, but less populous than the ink-caps; in Italy the peasants by happy inspiration call them, with an affectionate diminutive, the Holy Family - *famigliola buona.*

The mushrooms with a moist and sticky surface, which the English-born person is quick to scorn as "slimy', the Russians by a reverse semantic twist praise as the 'buttery ones'- the 'fat-of-the-earth', as Samuel Collins, erstwhile physician to the Tsar, put it in his book, *The Present State of Russia,* published in 1671. These are the *masljonki* and *masljaniki* of the Russian kitchen, from the word *maslo,* meaning butter. Perhaps somewhat higher in the scale of merit are the *Hsichki* and the *ryzhiki* - the 'little foxes' and the 'rusty ones'. The former are the chanterelles of the West. Few are the sights that nature offers more gladdening to the eye of man than a colony of chanterelles on the shaded floor of an evergreen forest, their brilliant yellow cups spattering a carpet of dry, dun-colored needles. True, they dance not, but for Russians they laugh like dancing daffodils. With fluted stems, they look like yellow parasols, blown inside out. Good as they are to eat, their beauty in their native setting transcends their taste. With Russians the chanterelle holds a more humble place in the hierarchy of mushroom values than among some of the Western peoples who know their mushrooms less well. The folk of Norway and Sweden - countries that abound in mushroom life - think of the chanterelle as the one edible mushroom of the forests, which goes to prove that an abundance of mushrooms does not suffice to bring about familiarity with them. The chanterelle is common in America. It is pungent and unpalatable until cooked.

For the table, in my opinion, the chanterelle must yield pride of place to the *ryzhik* - identified by the lexicons with the lactarius deliciosus but in fact

embracing several of the edible lactarii - a fleshy mushroom whose funnel-shaped cap is handsomely marked by concentric rings of red. We Russians love our *ryzhiki.* This is the famous mushroom that we gather in immense quantities and eat with affection and gusto. We prepare it in many ways, but chiefly we like it salted and pickled. By tradition the various Finnish peoples are not mycophagous, but the peoples of Finland and Estonia have learned from the Russians in modern times to harvest the *ryzhiki* of the forests and add them to the family menu. *Ryzhik,* as we have said, means the 'rusty one', a name derived from the color of the cap. At the other end of Europe the Catalans in their language have hit on the identical figure of speech: thus the *rovello* of Barcelona is our *ryzhik* - the word means the same thing, and the mushroom is almost the same. The Catalan prizes this mushroom highest of all: he honors it above the *cepe de Bordeaux.* He puts his mess of *rovellons* into a frying pan of very hot oil, and on top of the mushrooms he adds tomatoes and garlic and parsley and sausage made from pork, and after cooking the whole for ten minutes or less over a slow fire, he sits down to a dish that he considers fit for the gods. In Spanish the name of this classic mushroom is the *mizcalo,* apparently a pre-Latin word, indigenous in Iberia, its verbal kinships lost in antiquity. The very antiquity of this word bears witness to the hold that the mushroom has on the people of Castile. The peasants in the noble Sierra de Credos, to the west of Madrid, know the *mizcalo* well: they harvest it regularly and sell the crop to gentlemen who come out from Madrid to buy it for re-sale elsewhere in Spain and abroad.

As I said before, the lexicons tell us that the *ryzhik* is the mushroom known to science as the lactarius deliciosus. I shall let this identification pass for the present, merely remarking that a strange confusion bedevils the terminology here, a confusion that must be laid at the door of a naturalist who blundered. Later I shall try to untangle the error.

The *gruzdi* are another famous mushroom tribe in northern Russia. This is the name properly belonging to the large, white, fleshy lactarius piperatus, but apparently some Russians also use it for other lactarii and even some russulae. The word itself is peculiar to the Russian language (including White Russian and Ukrainian), being unknown elsewhere in the Slavic world. It is an honored name in our mushroom vocabulary, though rather for its role in folklore and proverbs, where the *gruzd'* is the captain of the mushroom host,[1] than as a table delicacy.

i. There is the famous proverb: *Nazvahja gruzdjom, polezaj v kuzov;* which is to say, "If you call yourself a *gruzd',* into the basket you go!"; in other words, "If you give yourself airs, take the consequences."

With the *ryzhik* and the *gruzd'* we leave behind the whole tribe of gilled mushrooms and ascend the scale of values to the best varieties of the numerous genera of boleti. These are the mushrooms that, instead of radial gins on the underside of the cap, display sponge-like pores. Two of them that are esteemed by all Russians are the *berjozovik* (or *podberjozovik)* and the *podosinovik,* and concerning them there is a singular fact to be disclosed.

In recent times the mycologists of the West have discovered that an intimate tie of mutual help links certain mushrooms to certain kinds of trees, each of such mushroom species being thus related to one or more kinds of trees. These mushrooms may assume a slightly different appearance according to the kind of tree the individual specimen lives with. For this relationship to be understood, one must keep in mind that the mushrooms we see in woods and fields are merely the fruit thrown to the surface when all conditions are right: the life of these elementary organisms goes on chiefly underground; indeed, in the case of truffles, entirely so. Just as the therapeutic potency of certain moulds has been discovered only in this century, so the importance of mushrooms in life's great round begins now to be discerned. We know that the rootlets of many trees are often locked in symbiotic embrace with the subterranean 'mycelium' of the mushroom, and for this intimacy the mycologists have invented their special word - 'mycorrhiza', from the Greek words for fungus and root.

The painstaking observations of mycologists have proved that between the birch tree and the boletus scaber there is such a relationship, and similarly between the aspen and the European boletus rufus. Now it is an arresting fact, of which mycologists in the West are usually unaware, that the folk names in Russian for these very species of mushrooms are keyed to those same trees: the *berjozovik* lives with the *berjoza,* or birch tree; and the *podosinovik* grows under the *osina,* or aspen. The *berjozovik* is the boletus scaber, and *the podosinovik* is the boletus rufus. The scientists now confirm what the peasants of Eastern Europe have sensed from time immemorial. The *berjozovik,* incidentally, is abundant in America, but in my opinion the true *podosinovik* does not occur here, and those that are gathered and eaten as such by Russians in the United States belong to other species somewhat resembling the red-capped aspen-mushroom of Europe. There is also in Russia a rare blue-capped *podosinovik,* whose scientific name I do not know: it would be interesting to identify it, to see whether the mycologists have yet confirmed its link with the aspen tree.

Ranking above all the mushrooms so far mentioned come those aristocrats of the mushroom world, the *belye griby* or 'white mushrooms', known to the French as the *cepes de Bordeaux* and to the mycologist as the boletus edulis.

These are the most famous of common mushrooms, the delight of epicures, the 'cep' of English gourmets. The Russians call them 'white', not primarily because their flesh is white, but because in the Russian language 'white' connotes excellence.

And right here we come upon another of the strange parallels in fungal imagery that recur between peoples geographically and culturally remote from one another. We have seen that both the Russians and Catalans speak of certain lactarii as the 'rusty ones'. Now we observe that the Basques of Guipuzcoa, Upper Navarre, and the Labourd refer to the dun-colored cep as the 'white mushroom', just as the Russians do, the Basque term being *ondo zuri.* We have said that 'white' connotes excellence, but perhaps this is an understatement. There is an abundance of evidence that the primitive peoples of the Eurasian land mass, no matter how different culturally, were prone to associate whiteness and brightness with divinity, with the 'White Goddess' (as Robert Graves calls this creature), who possessed myriad shapes and names. Is it possible that in the 'white mushroom' of the Russians and Basques we discover a survival of a primitive divine kinship>

Truly senatorial in girth and mass, the splendid white mushroom or cep is supreme in fragrance and taste. It lends itself to pickling and drying, so that it keeps indefinitely and then may be served in soups and sauces. This is the mushroom that Russians used to eat in Lent in lieu of meat: little wonder that no one shrank from Lenten fare![1] This is the mushroom, packaged in cellophane envelopes, that is to be found on sale in the little Jewish food shops of New York. (How lovable are those shops, in the immense variety of their stores and the warmth of the welcome that the owners, hailing as they almost always do from Eastern Europe, extend to appreciative customers, and especially to Russians!) During the recent war with Germany, the importation of these mushrooms was interrupted, but new sources sprang up in Chile. The quality, however, was not the same, and with the return of peace, the flow of mushrooms from Poland and Italy was resumed. In New York there is one firm, the Reliable Mushroom Company in Rivington Street, that confines its business to dealing in these imported dried mushrooms. In November 1948 I priced the various grades that Mr. Fessel was offering: the shredded Chilean mushrooms were $2.75 a pound and the Italian were $4.00; but the long and handsome strings of dried Polish ceps were $6.00. In December 1950 the Polish product had risen to $8.00, and for caps alone (the stems being considered inferior and removed)

I. These mushrooms were allowed by the Russian Church during all fasting periods save Holy Week - a subtle line of demarcation in religious discipline that will delight all amateurs of ethno-mycology.

the price was $12, but a year later, in October 1951, the market for these caps had fallen to $8.

In New York the cep is for sale only in its desiccated state, though it grows throughout the wooded countryside; and those who know it only dried will never divine the delicacy and richness of its taste when pickled in brine, or marinated, or preserved by boiling and sealing in jars, or better far, when fried fresh in butter, or, finally and best of all, sauteed in sour cream.

I respectfully suggest to the Wine and Food Society that some day they arrange to serve to their members, artfully prepared, a selection of all the mushrooms I have mentioned, accompanied of course by appropriate wines, and I predict that by a vote resembling a Soviet election the choice will run to the incomparable *belye griby.* I am not unmindful of the difficulties in arranging such an extraordinary culinary event. All the mushrooms must be served fresh, to do them all equal justice. A generous mess of the most ephemeral - the *opjonki* - would have to be rushed in at the last moment from close by, of course with motorcycle escort, sirens whining. A chef would be cooking them in a chafing dish en route. Other kinds of mushrooms would hail from Europe by plane. The chef in charge would thoroughly understand the personality of each of the kinds, and possess the skill to evoke its proper character. Nobly served, what a memorable spread we should have, and what a tribute to the folk-cookery of the Slavs!

I have one more name to add to the honor roll of the Russian mushroom world. If the *belye griby* are the aristocrats of that world, then the serene dignity of Prince must be bestowed on the *borovik.* By ancient tradition and common consent, it leads the roster. The Czechs, who vie with us in our enthusiasm for it, call it the Regal Mushroom, or *hfib krdlovsky.* Some Frenchmen know it too. They use for it various names - *tete de negre, cepe polonais, gendarme noir,* and *cepe bronze.* The name that the mycologists use is boletus asreus. Apparently it does not occur in the New World.[1] It is rare in Russia, so rare that many Russians apply the famous name erroneously to its close relative, the *belyi grib.* Perhaps it is not a distinct species, but only a variant of the other, a variant linked symbiotically with some kind of pine tree, for *bor* means pine-forest. The *borovik* owes its supreme rating with us to its rarity and to its breathtaking beauty: its 'head' (for one refrains from speaking of the 'cap' of such a majestic creature) is a deep brown approaching black, and in size and weight and

I. A European mycologist has reported finding the *borovik* in Florida. See 'The Boletoideae of Florida', by Rolf Singer, in *The American Midland Naturalist,* January 1947, pp. 22-24. Until others confirm his findings, I hesitate to accept them.

stature it is the equal of the *belyi grib.* In fragrance and taste, perhaps only the most knowing epicures can distinguish the two, but however closely related the two kinds may be, and however much they look alike, to the *borovik* belongs the dignity of first place in the whole mushroom world.

The Russians never discuss the weather to make conversation, and our lack of interest in golf scores and sporting events generally, both amateur and professional, is complete. But mushrooms are different. They are not only raw material for the kitchen, they are a theme for endless discussion. They are ever present in our minds, even when we are not discussing them. They are so taken for granted that Russian authors seldom stop to discuss them systematically. But references to them are scattered everywhere in Russian literature - in poetry, fiction, essays. Three times in *Anna Karenina* does Leo Tolstoy bring them into his narrative, and the episodes, for the perceptive reader, are extraordinarily revealing. In one, a nursery full of tearful little children is turned in an instant from tears to joyous excitement with the announcement that they are to go mushrooming. The second episode, for our purpose, is even more startling. A land-owner is preparing to propose to a girl he loves, and with this intention goes into the woods to join her where she is gathering mushrooms. But he never gets to the point of proposing, for they begin by discussing mushrooms, and though both are longing to speak of love, once they are on mushrooms, like a cracked record they cannot get off that subject! In Appendix I we offer to our readers a rendering of these two passages from *Anna Karenina.* The third episode, though slight, is perhaps the most touching. The land-owner Levin goes out into his fields, where his peasants are mowing the hay, to join them in their labor. The day is hot and long and the work is hard, but they all press on to finish a big stint. As twilight comes they find themselves cutting grass among the trees of a wood where birch-mushrooms abound, big fellows that have fattened on the moist humus of the grassy places. In their rhythmic sweep the scythes cut the mushrooms as well as the grass. Levin, exhausted though he is by his unwonted effort, nevertheless notices that the oldest of the peasants, a grand old man who excels all the others in grace and endurance, never fails to lean over and pick up the mushroom that his blade has severed, then tucking it away in the fold of his blouse. "Another present for my old woman," he says. His scythe does not miss a single blade of grass, nor does a single mushroom escape him.

There are delightful verses about mushrooms in the poems of two of Russia's more accomplished poets, Lev Alexandrovich Mej and Viktor Vladimirovich

PLATE III Jean-Henri Fabre.

Clathrus cancellatus Lin. ex Tournef.

Khlebnikov. I like particularly Khlebnikov's apostrophe to the mushrooms of the forest. The poetic virtue of his lines is lost in this literal translation:

> Here are *syroezhki* and the russet *ryzhik*
> With raspberry blood,
> Yellow *gruzd",* round and shaggy,
> And you, *pecheritza,*
> Simple and white like snow,
> And the firm white ones with the thick caps.

The 'firm white ones' are ceps of course, the thick-capped *belye griby.* Of special interest is Khlebnikov's description of the *ryzhik* as 'raspberry-blooded'. All the lexicons say that the *ryzhik* is the lactarius deliciosus, a mediocre mushroom that exudes saffron drops. It is clear that the *ryzhik* of Khlebnikov is a variant, a lactarius that drips raspberry blood - *malinovaja krov'.*

Yet another Russian author, Sergej Timofeevich Aksakov, late in his life wrote about mushrooms in a lovely essay that is little known. It merits attention for several reasons, and hi Appendix II we present what we believe is the first translation of it.

The addiction to mushroom gathering is not a badge of politics or ideology. There was Aksakov, a superb figure of Old Russia. But there was also Lenin, whose fanaticism brought endless woe on Russia and the world, but whose dedication to wild mushroom hunting during one brief spell shows him hi a more winning light. His wife Nadezhda Krupskaja wrote in a letter hi 1916 that he pretended to know nothing about wild mushrooms and to care less, but in fact he was seized at that time with a veritable passion for mushroom gathering. (He was possessed of a *razh',* as she put it.) One day hi that fateful summer of 1916 they were hurrying along a mountain trail near Zurich to catch their train. A drizzle soon turned into a downpour. Suddenly among the trees Lenin caught sight of ceps. At once he turned aside after them, paying no attention to the wet. "We were drenched to the very marrow of our bones and of course missed our train." He did not quit until his sack was full and his *razh'* was quenched.[1]

By the Russian scale of values, all the wonderful golf courses of vast America are inviting more for the mushrooms that grow on them and in the woods along their well-tended borders, than for the game. You can always tell a Russian when you see her hi wooded country: she progresses slowly, stooping

i. This curious episode is told by N. Valentinov in his *Meetings with Lenin (Vstrechi c Leninym),* Chekhov Publishing Co., N. Y., 1953, p. 211.

and peering to right and left, with a low, circular, sweeping glance, as though she has lost something. She is armed with a hamper and a walking stick to poke here and there; and she springs forward occasionally with a happy pounce and kneels to gather in the prize.

When the Russian child learns his alphabet, he sees by a picture that 'g' stands for *grib;* this has been habitual at least since the zyth century. In his primer he reads of mushrooms. In his school he is like to find a playmate whose family name is taken from some mushroom, a boy named Gribov, for example, or a Gribunin, or a Borovikov, or a Gruzdjov, or aRyzhikov, or an Opjonkin, or a Syroezhkovskij, or a Lisichkin. The Maslenikovs are common, but that name might also be derived from the trade of the butter-churner. I am told that in Russia there are even Mukhomorovs, but I myself have never run into this equivocal name. In the time of Catherine the Great there was a famous painter named Borovikovskij, and a generation later the leading playwright was Griboyedov, 'Mr. Mushroomeaterson'. Was there ever such a name in English, or a Mycophagenes in ancient Greece ? In English the only parallel that I recall is the fine old medieval family name of Norman origin, still current I believe, of Muschampe, named after some field or meadow famous for its *mousserons* or mushrooms. At the imperial University of St. Petersburg there used to be a professor of law named Gribovskij who would sign his articles with the pseudonym 'Muketov', thus giving a Greek twist to his Russian name.

Before long the Russian youngster learns by heart the stanzas of the childish mushroom marching poem, 'Panic among the Mushrooms'[1], wherein Colonel *Borovik,* Commander-in-Chief of the mushroom host, summons his minions to war. The red-coated *mukhomory* decline to serve, for they are senators. The *beljanki* say no, for they are aristocratic ladies and exempt. The *opjonki* refuse, since they must do duty as ladies-in-waiting. The morels beg off, for they are gray-headed oldsters. The *maslyata* say they are needed in the factories, the ink-caps point to their spindly legs, the *volnushki* call themselves old dowagers, and the *lisichki* profess to be nuns. The *ryzliiki* are just simple peasant folk and useless as soldiers, and the *volui* duck their duty by reminding the Colonel that they are nothing but the village loafers. Then up step the valiant *gruzdi,* willing fellows, who will gladly go to war and smite the enemy. And so, with a loud 'Oo-rah! oo-rah! oo-rah!', off they march. These stanzas with their shrewd comments on the diverse species are the didactic and mnemonic device by which a people's rich mushroom lore is passed on to the next generation.

I. The Russian name is *Perepolokh sredi gribov.* It exists in many variants and can be found in many Russian anthologies.

Based I think on them, I recall a children's ballet and chorale impersonating the mushroom population; was it not composed by Cesar Cui, or perhaps Rebikov ? The Czech composer Leos Janacek near the end of his opera, *Li ska Bystrouska,* 'The Cunning Fox', has the Forester sing a lovely aria to the mushrooms as he goes through the woods.

No people talk and write more, or more enthusiastically, about good food than the Russians, and soon or late their conversation turns to mushrooms. Has the season been good ? Who has found the biggest lot of the best kinds ? What about the best ways of preserving and cooking > In the Russian language the common term for a warm, soft rain in summer is 'mushroom-rain' *-gribnoi dozhd'* - used even when mushrooms are not under discussion. Among the country-folk, by immemorial right, the peasant who discovers a spot where morels or 'white mushrooms' abound, enjoys thereafter a first claim on the crop in that area. City folk who summer in the country eye one another furtively on their mushroom sorties, like rival spies intent on each other's secrets, and those who hit on good colonies often guard their secret jealously. The Czechs are also notable fanciers of mushrooms, vying in their enthusiasm with the Russians, and the Poles do not lag far behind. The outstanding Polish poet, Adam Mickiewicz, in the third book of his masterpiece, *Pan Tadeusz,* devotes some lines of unforgettable beauty to the gathering of wild mushrooms. But as a Russian I remark that he pays obeisance only to the *Hsichki,* the *boroviki,* and the *ryzhiki.* Of the others he goes on to say that the people despise them. Not thus does a Russian speak. Another Pole, Stanislaw Trembecki, a conspicuous literary figure in the Polish classicist period in the late i8th century, penned an astonishing diatribe against mushroom-eaters. He was a learned crank, to be sure, but belligerency on this theme has no parallel among Russians, not even Russian cranks.[1] Of course it is wrong to generalize from the utterances of intellectuals, and the peasants of Poland may well be free from the mycophobia that has infected Polish men of letters, but we are constrained to point out that as early as the iyth century that eminent Polish poet, a master of the baroque school, Waclaw Potocki, in 'The Unweeded Garden' discusses wild mushrooms at some length, and the tenor of what he says is that mushrooms are an esoteric business, best left to the few who know the secrets!

Close to forty years have passed since I last gathered mushrooms in Russia,

I. The attack on mycophagists appeared posthumously in an article entitled *Pokarmy* [Food], edited from the writer's autograph by Franciszek Grzymala and published in *Astrea, **Pamlftnik** Narodowy Polski,* Warsaw, 1822, Vol. n, pp. 136-152. It was republished in *Pisma tvszystkie,* edited by Jan Kott, Warsaw, Panstwowy Instytut Wydawniczy, 1953, Vol. n, pp. 206-7.

and reveled in the mushroom lore that we all shared. As I re-read the lines I have written, I become aware of receding planes of memory, on the periphery of my consciousness, strewn with visions of mushrooms that I can no longer identify by name, and with names of mushrooms that are no longer attached to clearly defined images. What were those *beljanki* that refused to go to war because they were aristocratic ladies? The ***volui*** of the poem - *vol* means 'ox', and these are therefore 'bovine-mushrooms' - were, I remember, a lowly species, unwholesome until cooked, and utilized only in the absence of anything better. Then there were the *volnushki,* which might mean the 'wavy ones', but are more likely another 'bovine' species; the *sinjushki* or blue-capped ones; the *svinushki* or swine-mushrooms; the *bolotovik* or swamp-mushroom; the *dubovik* or oak-mushroom; and the *elovik* or balsam-mushroom. There was the *mokhovnik* or moss-mushroom. There was a big, ugly mushroom that grew in isolation and was never gathered: the *kozjol* or goat. The puff ball was the Devil's pepper-pot - *chortova perechnitza.* There was *thegolubetz* or pigeon mushroom, and the *obabka,* of which only the name floats uncertainly to me. From earliest childhood I recall another curious name - the *skripitza,* or screeching mushroom: what could it have been? Gogol's immortal character in *Old World Squires,* Pul'kheria Ivanovna, once started to tell how to preserve in vinegar a mushroom that she called the *travjanka.* She had just reached the point where she had lined her keg with oak leaves and saltpeter and added some blossoms of the bird-cherry tree, the Russian *cherjomukha,* which the botanists call the padus avium, when she was diverted. (What can the world do about mischievous Persons from Porlock?) Never shall we know the rest of that enticing recipe, but someone at least can identify for us the *travjanka.*

One of the loveliest mushroom stories is the legend about their origin that we find in Bohemia, which we retell from the recension recorded by the Czech folklorist, Mrs. Bozena Nemcova.[1] It seems that Jesus and Peter were passing through a Czech village and heard the sound of wedding music in a humble cottage. They joined the party, but not before Jesus had warned Peter to accept no food save only bread and salt, for the people were poor. Jesus and Peter were made most welcome. They partook of the bread and salt that were offered to them, declining however the cakes *[koldce].* But a little later, when no one was looking, Peter slipped some cakes into his pouch. After a while Jesus and Peter continued on their way, Jesus immersed in his thoughts and Peter lagging behind, that he might nibble on his cakes. But at each bite, Jesus would wheel around and ask him what he was eating. Peter would spit out the mouthful

i. *Ndrodni bdchorky a povesti,* Prague, 1880, vol. n, pp. 302-4.

PLATE IV Jean-Henri Fabre. Collybia fusipes Fr. ex Bull.

and reply, "Nothing." This happened again and again, until there was no cake left. Then Jesus said to Peter, "Go back, and pick up all that you have spat out, and I will wait for you." When Peter returned he said to Jesus, "I found nothing except this that I show you. I thought it was food, but lo! it was a growth, rooted in the soil." Jesus said, "It is a growth, and it grew from the food you threw away." Then Peter asked for forgiveness, and it was granted to him. Then they went to the cottage of a poor woman and asked her to cook what Peter had found, and it turned out to be mushrooms, and they were good. Because the mushrooms had sprung from the food of poor people, Jesus bestowed them on the poor, and he taught the poor woman where to seek them. And because poor people need help, mushrooms multiply and abound. And because Peter, eating them, nevertheless remained hungry, mushrooms are not filling.

When we consider how gingerly even mycologists in America ofttimes handle the run of miscellaneous mushrooms gathered in fields and woods, the self-assurance of Russians as they by-pass the poisonous and foul-tasting ones, and grade the others according to their edible merits, and consume these wild mushrooms with impunity as an important ingredient in their daily diet, seems astonishing to other peoples. Here is a notable instance where folk-wisdom anticipates and overreaches the savants. I have surely strained the patience of my readers with the Russian vocabulary that I have recalled for the mushroom tribe, but there must be an endless glossary of other names that I have forgotten or never known. The wealth of the Russian nomenclature for the mushrooms is a measure of the role they have played in the social history of the Russian people. The names evoke for Russians the edible qualities of the various kinds, but semantically they refer primarily to the habitat and essential character of the species. Several of the folk-names for mushrooms in the Russian language could have come into acceptance only after age-long intimacy. The scientific nomenclature of the Western mycologists, devised over the past century, is superficial by comparison with some of the Russian common names, the pseudo-classical terms of the scientists being keyed often to accidental attributes, the aspects that the untutored eye of the early mycologist first remarked.

In the English language the very word 'fungi' is an ugly, half-assimilated alien, detached and cold in its emotional personality; and apart from it there are in the common speech only 'mushroom' for the species that lends itself to cultivation and 'toadstool' of evil aura. 'Toadstool' has no precise meaning, but in ordinary usage it embraces all the wild mushrooms that the person born in the English-speaking world does not know and therefore fears and loathes.

CHAPTER ONE

It is a word that most of those who love mushrooms refrain from using. Even if viewed as a fanciful term, it is inept, surviving only through the inadvertence of a great people whose attention has been elsewhere. With this single word 'toadstool', soaked in condescension and repugnance, the English-speaking world lumps together and dismisses without a second glance some of the richest and most varied embroidery doing honor to wild nature's glorious vesture.

II

MUSHROOMS AND THE ENGLISH

> Beware of musherons, moch purslane, gourdes, and al other thinges, whiche wyll sone putrifie.
>
> SIR THOMAS ELYOT *in 'The Castd of Helth', 1541, folio 93.*

THERE is no doubt about it: from, earliest times the English have had little use for mushrooms. The *Crete Herball* of 1526, a translation from the French, voiced the hostility of both peoples:

Fungi ben mussherons. . . There be two maners of them; one maner is deedly and sleeth them that eateth of them and be called tode stooles, and the other dooth not. They that be not deedly haue a grosse gleymy [slimy] moysture that is dysobedyent to nature and dygestyon, and be peryllous and dredfull to eate & therefore it is good to eschew them.

In the 16th century scientific thought had hardly begun to shake itself loose from folk-beliefs of unfathomed antiquity, and compilations such as *The Crete Herball* are a treasury of such beliefs. The printing press, fresh on the scene, captured and preserved for us the common content of men's minds at that moment in history when the Western World was beginning its slide into the modern era of big changes. And in the case of mushrooms, let us here salute a singular example of the tenacity with which even a great people sometimes clings to its primitive notions. For that naive division of the mushrooms between the 'two maners of them', the one deadly and the other not, and even these latter to be avoided - that elemental antipathy, captured for us in the text of the first comprehensive English herbal, has carried on with undiminished vigor through four centuries more, down to the present day. Learned mycologists write treatises and preach an enlightened gospel, but what do all their knowledge and all their cautious advice weigh? Small cliques of amateurs exist, but the public is not stirred. In a recent elaborate American work on mushrooms the author[1] brings himself to write a chapter on 'mycophagy', but confesses that he himself almost never lets mushrooms enter his mouth! Not thus does one inspire appetite in others. The repugnance for 'toadstools'

1. Alexander H. Smith in his *Mushrooms in their Natural Habitats* (Sawyer's Inc., Portland, Oregon, 1949) says as he engages in a lengthy discussion of mycophagy, pp. 121-2: "It is impossible for me to discuss the edibility of even the highly recommended species authoritatively from my own experience since I seldom eat them myself".

is sometimes an aggressive thing. I have seen the English governess, her charges in tow, advance on the enemy (a lovely and innocent russula, as it happened), kick it over, and with shudder and grimace crush it with the heel of her big, low-heeled shoe; turning then to the children, she shepherded them away from the unclean thing. Thus by an unspoken lesson this creature unwittingly seared their young minds with the branding iron of an ancient curse. Where she and her tribe see, in the words of the herbalist, a slimy toadstool, a Russian beholds 'the fat of the earth'.

As the 16th century drew to a close, in 1597, John Gerarde brought out his famous *Herball or General! Historie of Plantes,* an immense and delightful book. What he says of mushrooms may differ little in substance from *The Crete Herball,* but his opulent manner of expressing the same thing deserves the accolade of the reader's attention. The Englishman is venturesome in most things save food, and never before Gerarde nor since has that peculiar dietary conservatism of the race received more elegant and curious endorsement:

> Many wantons that dwell neere the sea, and haue fish at will, are for change of diet to feede vpon the birds of the mountaines; and such as dwell vpon the hils or champion grounds, do long after sea-fish; many that haue plenty of both, doe hunger after the earthie excrescences, called mushrums; whereof some are very venemous and full of poison; others not so noisome; and neither of them very wholesome meate . . .

Master Gerarde then proceeds to describe one kind that is not bad and straightway a dozen that he condemns, saying about a certain species that grows in "mossie and shadowie woods" that he does "the more briefly passe them ouer, not purposing to vse many words about such fruitlesse matters". Finally he comes to his sweeping and memorable conclusions:

> Galen amrmeth that they are all very colde and moist, and therefore do approoch vnto a venemous and murthering facultie; and ingender a clammie, pituitous, and colde nutriment if they be eaten.
>
> To conclude, fewe of them are good to be eaten; and most of them do suffocate and strangle the eater. Therefore I giue my simple aduice vnto those that loue such a strange and newefangled meates, to beware of licking honie among thornes, least the sweetenes of the one do not countervaile the sharpnes and pricking of the other.
>
> [pp. 1384-6 of first edition]

A few years after Gerarde, in 1609, Sir Michael Scott said his say about mushrooms in *The Philosophers banquet,* and here and now we give to his words new wings:

. . . Sow-beard[1] or Mushrome, according to Rasis [the Arabian physician] is cold and grosse, and being taken raw ingenders flegme, and the chollike, and windinesse in the guts; neither is it to be eaten but with hot sauce or meate, but the red are not to be eaten at all. The Todestoole is much worse then the Mushrome: for it hath choaked and killed many that haue taken it, and the best that it doth, is to breed flegme in the body in aboundance . . . [Verso of folio 36, wrongly numbered 33]

These famous herbalists whom I have quoted were leaning on the authority of Dioscorides, Galen, and Rhazes, but they elaborated richly on their sources, going far beyond the Greek and Arabic writers in maligning the mushroom tribe, and invoking the oracles only to clothe with their authority the loathing of the English, which they undertook to express in their full-bodied prose.

Half a century after Gerarde it was still possible for a well-born and educated Englishman to reach man's estate without having heard of truffles. John Evelyn at the age of 24 made their acquaintance in France. On September 28, 1644, he found himself in Vienne, a day's journey by river from Lyons, and there, as he says in his diary, he "supped and lay, having amongst other dainties, a dish of truffles, which is a certain earth-nut, found out by a hog trained to it, and for which those animals are sold at a great price. *It is in truth an incomparable meat."* (The emphasis is mine.)

The Englishman in Evelyn was being diluted by travel. His hospitality to strange and newfangled meats found no echo in his countryman Jeremy Taylor, who in 1650-1, in his *Holy Living and Dying,* strikes the less liberal note:

Fly from all occasions, temptations, loosenesses of company, balls and revellings, indecent mixtures of wanton dancings, idle talk, private society with strange women, starings upon a beauteous face, the company of women that are singers, amorous gestures, garish and wanton dresses, feasts and liberty, banquets and perfumes, wine and strong drinks, which are made to persecute chastity; some of these being the very prologues to lust, and the most innocent of them being like condited [seasoned] and pickled mushrooms, which, if carefully corrected and seldom tasted, may be harmless, but can never do good. [Chap. 2, 'On Christian Sobriety', Sec. in, 'Remedies against Uncleanness']

It was Jeremy Taylor's privilege to believe in the mortification of the flesh, but why did he vent his spleen on the humble mushroom? I hope to show on a later page that he and the herbalists were voicing, unbeknownst to themselves, a pre-Christian tabu shared by all the peoples who dwell on the shores

I. Sow-beard = sow-bread; unreported in the Oxford Dictionary in this sense of mushrooms, but familiar as a name for the cyclamen. In Latin *tuber* meant both 'truffle' and 'cyclamen', and in Giuseppe Baretti's Italian-English dictionary, 1832, *tartufo* is translated by 'sow-bread, a kind of mushroom growing underground'. The addiction of pigs, especially sows, to underground fungi justified the use of this name for truffles.

of the North Sea. The passage about the condited and pickled mushrooms follows hard on another that perhaps my readers will thank me for recalling. The stern author is listing his remedies against 'uncleanness', and here is what he recommends about food in general:

> A spare diet, and a thin coarse table, seldom refreshment, frequent fasts, not violent, and interrupted with returns to ordinary feeding, but constantly little, unpleasant, of wholesome but sparing nourishment: for by such cutting off the provisions of victual, we shall weaken the strengths of our enemy.

Is it uncharitable to venture the opinion that this exhortation to consume unpleasant food, from Jeremy Taylor's day even unto now, has been more honour'd by his countrymen in the observance than the breach?

Apparently the Stuarts on recovering the throne of England brought back with them from across the Channel an appetite for the mushroom world. How else shall we explain that before the end of the century the Englishman was commonly referring to the good earthy 'trubs' ? A little later both truffles and morels began to figure in the cookbooks. For example, Patrick Lamb, who was for "near fifty years" master-cook to Charles II, James II, William and Mary, and Queen Anne, in his *Royal Cookery or the Compleat Court-Cook* (London, 1726) includes in his menus mushrooms (which he fails to identify), morels, and truffles. In the extracts filling five volumes that have been published of Parson James Woodforde's prodigious diary, he refers repeatedly to pickled mushrooms, to truffles, to morels. Toward the end of the i8th century they had become a regular feature of this country clergyman's fare, brought to his door by the folk who had gathered them. Gilbert White in his *Observations on Vegetables* reports that a truffle-hunter had called on him "having in his pocket several large truffles" found in the neighborhood of Selborne; the man was offering them to him at half a crown a pound. White speaks casually of the dogs that the truffle-hunter was using to smell out the truffles. It is clear that truffle hunting was no novelty for him. One might have expected to find the gentlemen of England in that urbane century relishing the table delicacies familiar to the French and Italians; and since they were also steeped in the classics, they must have known of the addiction of the epicures of ancient Rome to mushrooms. But it is startling now to discover from the casual observations of two rural clergymen that the English rustics in their time were gathering morels and truffles for the market. In the whole of the English-speaking world today, does there survive a single truffle-hunter e (Truffles grow in America also, but few pay attention to them, rarely even

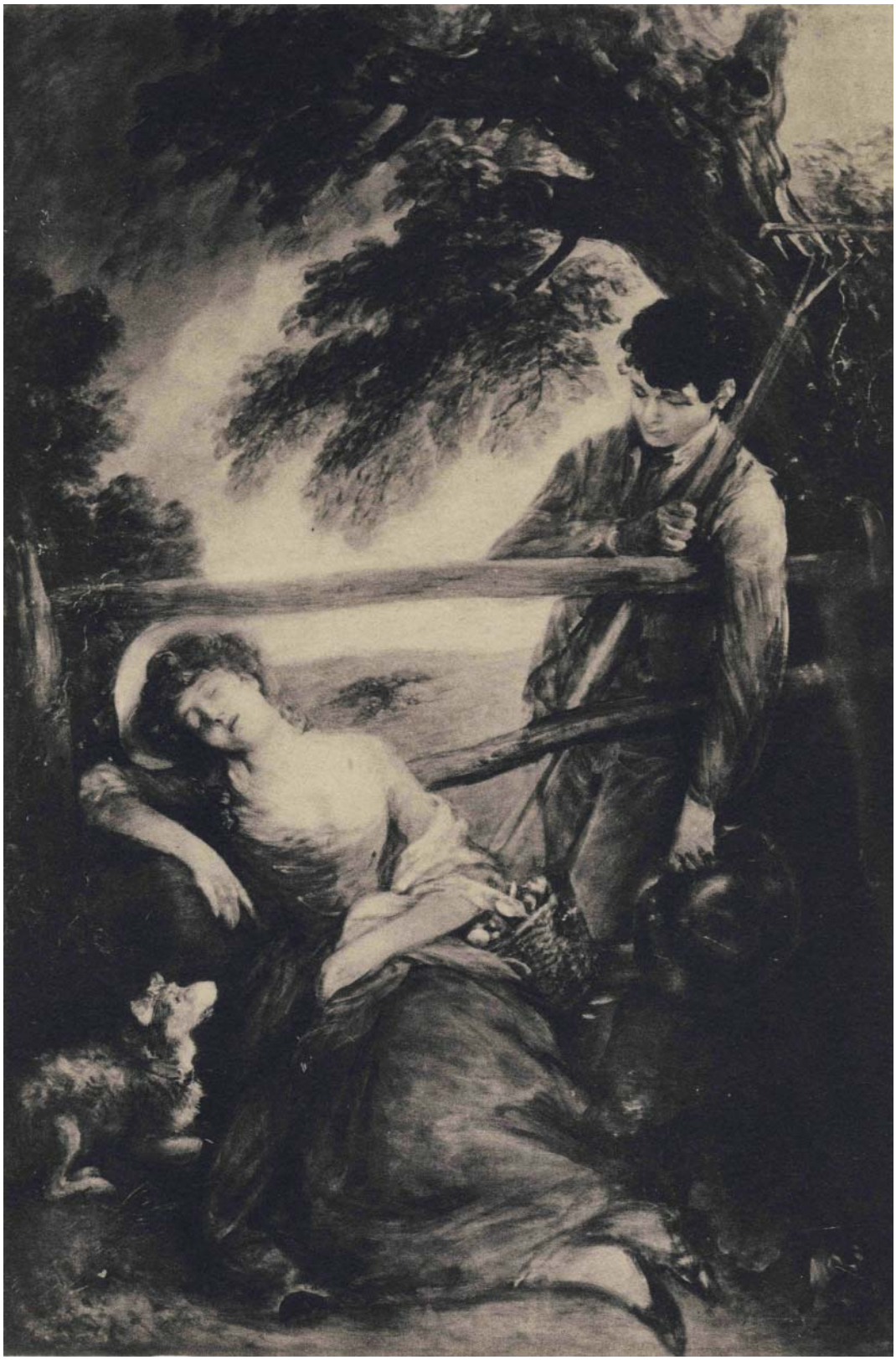


PLATE V. Thomas Gainsborough. The Mushroom Girl. *Boston (Mass.), Museum of Fine Arts.*

the mycologists. They are one of the New World's still untapped resources.) That strange false dawn of mycophagy which marked England's i8th century even attained expression in art when Thomas Gainsborough painted his *Mushroom Girl,* a sample of bucolic sentimentality typical of its time and milieu. Is not this the only occasion in the history of English art when a painter of the first rank has acknowledged the existence of the fungal world ? And in this case the basket filled with field mushrooms is only a detail in the composition, an excuse for a title. There exists in a private collection a second work by Gainsborough with the same title, a wholly different composition, showing a child, close up, as she reaches out for mushrooms growing in a field.

Having once taken hold, why did this Arcadian pursuit, so noble in its simplicity, die out? Morels and truffles added variety to the Englishman's fare, but they were destined to vanish from his table in the course of the strange decay that overcame the English cuisine in the glorious Victorian era. In 1847 the mycologist Badham was saying of mushrooms that "England is the only country in Europe where this important and savoury food is, from ignorance or prejudice, left to perish ungathered."[1] Half a century later,in 1891, another mycologist who bore the arresting name of Mordecai Cubitt Cooke, in a delightful treatise on the edible fungi pointed out that "in the time of our grandfathers it was almost universally believed that our islands produced but one kind of fungus which was edible."[2] His words implied a growth in enlightenment in his own lifetime that few other observers have detected either then or since his day. Apart from occasional remarks in the writings of mycologists, the English have paid little attention to their blindspot concerning mushrooms. So far as I know, even among the mycologists only one has done justice to the subject, inveighing against his countrymen's prejudice -William Delisle Hay, who published *An Elementary Text-book of British Fungi* in London in 1887. His voice crying in the solitudes deserves to be recalled. Speaking of the fungi near the beginning of his book, he says:

> Among this vast family of plants. . . there is but one kind that Englishmen condescend to regard with favour. All the rest are lumped together in one sweeping condemnation. They are looked upon as vegetable vermin, only made to be destroyed. No eye can see their beauties; their office is unknown; their varieties are not regarded; they are hardly allowed a place among nature's lawful children, but are considered something abnormal, worthless, and inexplicable. By precept and example children are taught from earliest infancy to despise, loathe, and avoid all kinds of 'toadstools'. The individual who

1. *A Treatise on the Esculent Funguses of England,* p. vii.
2. *British Edible Fungi,* p. 17.

desires to engage in the study of them must boldly face a good deal of scorn. He is laughed at for his strange taste among the better classes, and is actually regarded as a sort of idiot among the lower orders. No fad or hobby is esteemed so contemptible as that of 'fungus-hunter' or 'toadstool-eater'.

This popular sentiment, which we may coin the word 'fungophobia' to express, is very curious. If it were human - that is, universal - one would be inclined to set it down as an instinct, and to reverence it accordingly. But it is not human - it is merely British. It is so deep and intense a prejudice that it amounts to a national superstition. Fungophobia is merely a form of ignorance, of course; but its power over the British mind is so immense, that the mycologist, anxious to impart the knowledge he has gleaned to others, often meets with scarcely credence or respect. The superstition strikes deep. He who would write or lecture about Fungi can scarce find readers or hearers. The English scientist investigates every domain of nature, but leaves this one coldly alone. The English medical man disdains to inquire into the chemical constitution of Fungi, and is indifferent to and unknowing of their relations in regard to medicine, toxicology, diet, or hygiene. It is surely high time that English intelligence should rise superior to this peculiar phase of ignorance. . . .

It is a striking instance of the confused popular notions of Fungi in England, that hardly any species have or ever had colloquial English names. They are all 'toadstools', and therefore are thought unworthy of individual baptism. Can anything more fully demonstrate the existence of that deep-rooted prejudice called here 'fungophobia'; … In the countries of the Continent the greater number of species have each their particular local names. Even the Redskin of America and the Maori of New Zealand have specific names for their common Fungi. Only we prejudiced Britons have none.

More than six decades have passed since the above lines were penned, and though the English-speaking world has produced numbers of good mycologists since then, the substance of the indictment is as true today as when William Delisle Hay raised his voice in protest.

Hay could have cited Charles Darwin to illustrate his point. This observant and knowledgeable scientist, in that supreme book of travel, his diary of the voyage of H. M. S. BEAGLE, remarked in the entry for June i, 1834, that the natives of Tierra del Fuego relied on a certain arboreal fungus (a species of the genus cyttaria) for an important part of their diet; and then, almost as though to supply me with a singularly happy illustration for my argument, our learned young man showed the limitations of his learning. "At the present time," said Charles Darwin in 1834, "I think Tierra del Fuego is the only country in the world where a cryptogamic plant [i.e., a fungus] affords a staple article of food." The young Charles Darwin knew more about the Fuegians than about the northern Slavs and Catalans.

As to mycophagy, Darwin revealed a strange lapse in knowledge that amount-

ed to a failure of perception. In him the mycophobia of the English was a mild affliction, a recessive trait. Sometimes this racial infirmity erupts with terrifying ferocity. Let the reader consider the following quotation from Mrs. Gwen Raverat's *Period Piece,* a book of Victorian reminiscences published in 1953. Here we learn what mushroom gathering a 1'anglaise can sometimes mean, to what mad purpose the gentle art of mushroom knowing may be perverted:

> In our native woods there grows a kind of toadstool, called in the vernacular THE STINKHORN, though in Latin it bears a grosser name [the phallus impudicus, of course]. The name is justified, for the fungus can be hunted by the scent alone; and this was Aunt Etty's great invention: armed with a basket, and a pointed stick, and wearing a special hunting cloak and gloves, she would sniff her way round the wood, pausing here and there, her nostrils twitching, when she caught a whiff of her prey; then at last, with a deadly pounce, she would fall upon her victim, and poke his putrid carcass into her basket. At the end of the day's sport, the catch was brought back and burnt in the deepest secrecy on the drawing-room fire, with the door locked; *because of the morals of the maids.*
>
> [pp.135-6]

Who was Aunt Etty ? She was Charles Darwin's daughter!

In all the enchanted pages about England's rural life that W. H. Hudson gave to the world around the turn of the present century, there are scarcely a half dozen references to mushrooms. Once he conveys in a sentence or two the magic spell cast on the perceptive beholder when he first discovers a 'fairy-ring' - those meadow mushrooms that ofttimes grow in perfect circles, the circles expanding by tiny stages each year through decades and even perhaps centuries. Elsewhere Hudson speaks of his having gathered mushrooms, but from the colorless reference it seems clear that he was speaking only of the ordinary field mushroom. Thus even Hudson, with ah[1] his sensibility to nature, never opened his eyes to the mushroom world.[1]

Thoreau did somewhat better. His allusions in *Walden* are trifling, but in his superb *Journals* he speaks of the fungi time and again. In passages of luminous beauty he vibrates to their visual appeal: suddenly he is off with a theme like this: "The most interesting domes I behold are not those of Oriental temples and palaces, but of the toadstools." He ponders over and over again on the strangeness of these lowly organisms. He philosophizes, and with his teetotaler's bias not always happily: "The life of a wine-bibber is like that of a fungus..." In all that Thoreau says of the mushrooms, for a Russian something is lacking. He views the mushrooms as he contemplates the stars, without touching or smelling or tasting them. Not once does he convey to the reader a carnal sensation. Somehow

i. *The Hind in Richmond Park,* Chap, ix; *The Book of a Naturalist,* Chap. xv.

we cannot picture Thoreau greedily stirring a stew of savory mushrooms over his stove in his hermitage at Walden; that man's saliva never runs. There is something of the eunuchoid aesthete about him. He is too pure to be fun.

But a similar insensibility afflicts even those whose business it is to discuss culinary matters. As recently as 1943 an eminent American gourmet in a book about food declared that there were two schools when it came to preparing fresh mushrooms for the table - those who peeled them and those who didn't.[1] For the Russians, how irrelevant is this 'either-or' dichotomy as a key to the culinary possibilities of the multitudinous world of the mushrooms! It is as though a critic of music should say that when it comes to making music, there are two schools of performers - those who stand and those who sit. Whenever there is discussion of Russian cooking, it is easy, by a few discreet inquiries about mushrooms, to discover those who know whereof they speak.

Ihe herbals of old served as botany books, medical books, and cookbooks; they were not composed as contributions to the *belles lettres.* It might be thought that in the flood-tide of English literature, the poets with their heightened insight would have shown themselves aware of the sensuous beauty of the mushroom world. Not at all. On this subject the English poets missed their chance to be emancipators. Chaucer and Milton ignore the mushrooms, and so I think does Wordsworth, the poet of nature and humble things. Thomas Gray seems to have overlooked those that adorned his country churchyards. Robert Burns brings them in, but only once, in his verses to William Creech, and they serve merely to turn a rime:

> Now gawkies, tawpies, gowks, and fools. . .
> May sprout like simmer puddock stools;

'puddock' meaning toads.

Shakespere refers perfunctorily to mushrooms once, in *The Tempest,* and in *Troilus and Cressida* a character dismisses another with 'Toadstool!' as an epithet. Indeed, for Shakespere the two words serve little use beyond swelling his already immense vocabulary count. Apparently 'toadstool' was an accepted term of abuse in the lyth century: William Penn in the hot flush of his then recent religious conversion denounced the Vice-Chancellor of Oxford as 'Thou poor mushroom!' - a form of address that a Russian would surely misconstrue as a term of endearment.

i. Richardson Wright, *The Bed-Book of Eating and Drinking,* Lippincott, Philadelphia, 1943, p. 26.

In the 18th century the British continued to belabor the poor fungal tribe with a cold, unrelenting hate marvelous to see. Tobias Smollett in 1757 produced in Drury Lane an extravaganza called *The Reprisal; or, the Tars of Old England,* a feeble satire on patriotism and the conventional ideas about the French. The villain is the commanding officer of a French frigate, on whose ship the action is laid. He is a "musty, vain, French martinet", a ridiculous cad, and he carries the name of Monsieur le Marquis de Champignon!

For this aspersion on mushrooms Smollett was to be repaid in kind, and with interest. He published his famous *Travels through France and Italy* in 1766, a narrative memorable for its angry comments on everything that the irascible Scottish physician saw and experienced. The critics took him to task especially for his inability to perceive any artistic virtue in the Pantheon or the Medicean Venus. Two years later, almost as a riposte to Smollett's book, Laurence Sterne brought out his sensationally successful *Sentimental journey,* and there near the beginning he pays his compliments to Smelfungus, the pseudonym that he bestows on Smollett and that Smollett to his dying day never lived down. The name is a key to the Englishman's attitude toward mushrooms: knowing Smollett as we do and Sterne's feelings about him, we discover what fungi and their smell meant for them and for Sterne's popular following. The earthy smell of decaying leaves and compost heap, of dank mushrooms growing in rich clusters, the smell that the French call 1'odeur du terreau, is pleasing to all who love simple and genuine things. Moreover, the mushroom tribe in fact offers the widest range of smells, not just one and that one foul. Indeed, as connoisseurs know, each species breathes its individual olfactory signature. There was of course a phonetic echo of Smollett's name in Sterne's insulting epithet, the kind of punning suggestion that Sterne loved.

Here, then, is salacious Sterne on Smollett:

> The learned *Smelfungus* travelled from Boulogne to Paris - from Paris to Rome - and so on-but he set out with the spleen and jaundice, and every object he pass'd by was discoloured or distorted -. He wrote an account of them, but 'twas nothing but the account of his miserable feelings.
>
> I met Smelfungus in the grand portico of the Pantheon - he was just coming out of it - *'Tis nothing but a huge cock-pit,* said he - I wish you had said nothing worse of the Venus of Medicis, replied I - for in passing through Florence, I had heard he had fallen foul upon the goddess, and used her worse than a common strumpet, without the least provocation in nature.
>
> I popp'd upon Smelfungus again at Turin, in his return home; and a sad tale of sorrowful adventures had he to tell, "wherein he spoke of moving accidents by flood and field, and of the cannibals which each other eat: the Anthropophagi" - he had been flea'd

alive, and bedeviled, and used worse than St. Bartholomew, at every stage he had come at -- I'll tell it, cried Smelfungus, to the world. You had better tell it, said I, to your physician.

In his next paragraph Sterne takes another traveler to task, some Croesus whom he dubs Mundungus, a word, now fallen into disuse, that meant 'offal', 'refuse', 'filth'. A few years later, in the lySo's, Sterne's Smelfungus and Mundungus turn up again, in a satirical poem, *The Children of Thespis,* by 'Anthony Pasquin', the pen-name of a shady journalist named John Williams. He too vents psychopathic loathing on the inoffensive fungi:

> Thus scarceness gives value to dirt and mundungus,
> And dignifies that Nature meant as a fungus.
>
> But fungus and filth have their uses and buyers,
> Hence oceans of urine are purchas'd by dyers;
> And lawyers, who liv'd but to generate strife,
> May serve when they're dead for th'Anatomist's knife.

Let not the squeamish reader shrink from the stench of Sterne's Smelfungus: it curls upward from the very viscera of the Englishman's mycophobia. Contrast that smell, if you please, with the Russian's scale of values. On August 22, 1851, Alexej Konstantinovich Tolstoy penned a letter[1] from the country to the young woman whom he later married and his subject was the odor of mushrooms:

> I have just returned from the forest where I went gathering mushrooms and found many. Once you and I discussed how odors evoke the memory of things forgotten for many a year. For me the smells of the forest possess this faculty more than any others, but perhaps this is only because I passed my whole childhood in the woods. Just now I smelled a *ryzhik,* and as in a flash of lightning I saw my whole childhood, in all its details, up to the age of seven. The vision came and was gone in a thousandth part of a second. Each kind of mushroom has its own odor, but always it brings back to us the past . ..

The common English names for the wild plants are rich in poetry, and perhaps no English poet of standing has made use of a wider variety of such names than John Clare, the farm-laborer who passed most of his adult life within the confines of a lunatic asylum. Yet in the two volumes of poor Clare's published poems I have discovered only one casual reference to 'mushroom buttons'. True, most of his verses still lie unpublished, and we must not exclude the possibility that this observant and original rustic poet somewhere paid

I. See his collected works, *Sobranie Sochinenii Izdanie,* St. Petersburg, 1908, edited by A. F. Marks, vol. iv, p. 37.

fitting obeisance to the mushroom world. Possibly his learned editors, in making their selections, rejected some eloquent paean to the fungi, considering the mere choice of such an outlandish theme sure evidence of a weak mind wrestling with an access of lunacy.

On those rare occasions when the great English poets deign to pay serious attention to mushrooms, they habitually link these lovely creatures with death and decay. Keats refers to the 'cold mushrooms' in *Endymion,* and how deathly cold he makes them sound! Browning in *Paracelsus* strikes the same distressing mortuary note:

> … as in the autumn woods
> Where tall trees used to flourish, from their roots
> Springs up a fungous brood sickly and pale, Chill
> mushrooms coloured like a corpse's cheek.

Tennyson in *Gareth andLynette* is as unpleasant about mushrooms as so decorous a poet knows how to be. The beautiful Lynette believes that Sir Gareth, the knight assigned to champion her cause, is a mere kitchen scullion, and she vents her contempt for him:

> . .. She thereat, as one That
> smells a foul-flesh'd agaric in the holt, And deems
> it carrion of some woodland thing, Or shrew or
> weasel, nipt her slender nose With petulant thumb
> and finger, shrilling, 'Hence!'

'agaric' meaning a gilled mushroom. How clear in this recurring image of the famous poets is the echo of that folk detestation which the herbalists first recorded ! Keats and Browning and Tennyson may have recalled Edmund Spenser's lines, when in *The Shepheardes Calendar,* to heighten the sense of winter's gloom, he forces mushrooms to grow, contrary to nature, in cold dark December. Of course living fungi can sometimes be found in mid-winter but no observant person would think of associating the whole rich panoply of the mushroom world with the dying year. Spenser is contrasting the winter scene with summer:

> Where I was wont to seeke the honey Bee
> Working her formall rowmes in Wexen frame:
> The grieslie Todestool growne there mought I see
> And loathed Paddocks lording on the same. And
> where the chaunting birds luld me asleepe, The
> ghastlie Owle her grievous ynne doth keepe.

If Spenser is fantastical, just listen to Shelley. In a strange and disturbing poem entitled 'The Sensitive Plant', wherein he, exactly like Spenser, contrasts the beauty of a summer garden with its desolate winter state, he also does violence to nature by associating early winter with the growth of loathed weeds and fungi. England's poets of the romantic period have long been praised for their close attention to nature, but in the light of these stanzas of Shelley's, one is tempted to ask how far their observations went. Did they merely know more than their predecessors? However that may be, Shelley in this poem was so successful in inspiring disgust that his widow in 1839 took it upon herself to suppress one of the stanzas, which we print below in italics, and it was not restored to the canon of his works for almost a century. That long-suppressed stanza exhales the triple distillate of the Englishman's loathing for toadstools: it is the supreme literary expression of this violent Anglo-Saxon prejudice. Ariel, who at other times had caught in flight the skylark's ecstasy and divined the secret of the wild West Wind and breathed the magic spirit of Night, here chooses to plumb the abysses of physical revulsion, and in the very climax of his frenzy, the imagination of this Englishman calls forth rotting mush-rooms! Yes, and rotting mushrooms make him think of rotting human flesh! How bizarre for a Russian is this association of ideas that is forever recurring in the English poets!

Between the time of the wind and the snow,
All loathliest weeds began to grow,
Whose coarse leaves were splashed with many a speck,
Like the water-snake's belly and the toad's back.

And thistles, and nettles, and darnels rank, And
the dock, and henbane, and hemlock dank,
Stretch'd out its long and hollow shank, And
stifled the air till the dead wind stank.

And plants, at whose name the verse feels loath,
Filled the place with a monstrous undergrowth,
Prickly, and pulpous, and blistering, and blue,
Livid, and starred with a lurid dew.

And agarics and fungi, with mildew and mould,
Started like mist from the wet ground cold; Pale,
fleshy, as if the decaying dead With a spirit of
growth had been animated!

Their moss rotted off them, flake by flake, Till the thick stalk stuck like a murderer s stake, Where rags of loose flesh yet tremble on high, Inspecting the ***winds*** *that wander by.*

Spawn, weeds, and filth, a leprous scum,
Made the running rivulet thick and dumb,
And at its outlet, flags huge as stakes
Dammed it up with roots knotted like watersnakes

And hour by hour, when the air was still, The vapours arose, which have strength to kill: -At morn they were seen, at noon they were felt, At night they were darkness no star could melt.

Emily Dickinson, though dead, has become a major poet of our times, having emerged like a nova in our literary sky long after she herself had sunk back into darkness. Her idiom has caught the fancy of the modern world, but did she do more than clothe old emotions in a new dress ? Among her poems is one about mushrooms, written around 1874 and first published in 1891. It consists of five quatrains, of which the last distils the essence of the whole. Listen to those concluding lines, and you will hear only the old, the benighted theme:

Had nature any outcast face,
Could she a son contemn, Had
nature an Iscariot, That
mushroom - it is him.

For 'Iscariot' there is a variant that reads 'Apostate'.

1 he mere thought of fungi seems enough to arouse loathing in an Englishman's breast. This revulsion is so dependable that when a novelist seeks to invoke horror, he need only drag in the toadstools. By this device A. Conan Doyle launches the story of *Sir Nigel,* on the eve of the Black Death, in October of the year 1348:

. . . the rain had ceased at last, and a sickly autumn sun shone upon the land which was soaked and sodden with water. Wet and rotten leaves reeked and festered under the foul haze which rose from the woods. The fields were spotted with monstrous fungi of a size and color never matched before - scarlet and mauve and liver and black. It was as though the sick earth had burst into foul pustules; mildew and lichen mottled the walls, and with that filthy crop, Death sprang also from the water-soaked earth.

How different would be the description of such a scene by a Russian, who loves his moist Mother Earth, the autumn haze, the 'mushroom-rain', the humus rotting in the woods, and above all a splendid crop of monstrous mushrooms! The Russian reader would put imperious questions to Conan Doyle. Would he please describe those mushrooms more satisfactorily. Were there four kinds each of a single color, or were all the specimens exhibiting all four colors? Precisely what species are we dealing with? Were not most of them edible or even delectable ? Why did not the English countryfolk turn to and gather and preserve them, by drying or pickling, to fortify their larder for the winter, the better to stand off any perils that the season might bring? . . . 'Foul pustules', forsooth!

In the whole rich world of English literature, I have happened on only two references to mushrooms that express an affection for the 'earthie excrescences' of the unfriendly herbalist, the 'corpse's cheek' of the poet. The writers of these lines were never famous and are now almost forgotten. The first was William Parkes, the author of one little book, *The Curtaine-Draiver of the World,* published in 1612 in London. His reference to mushrooms is slight, but who that loves them will ever forget this vignette, truly observed, of the mushrooms clustered around the trunk of a cedar tree:

> . . . that Caedar . . .
> Under whose girdle, nay beneath whose knee,
> The little Mesrumes louingly agree, [p. 20]

The second was a cobbler named James Woodhouse who in 1787 penned an autumnal ode, to be found in a volume entitled *Norbury Park,* in which he first described the common field mushrooms which

> proudly spread their bonnets blythe, With
> coverings form'd of silk and snow And lin'd
> with brightening pink below.

He then goes on to the 'toadstools', in whose forms and hues this Englishman concedes that he finds 'some solace'. Their

> tapering stems, robust, or light, Like
> columns catch the searching sight; Like fair
> umbrellas, furl'd, or spread, Display their many-
> colour'd head; Grey, purple, yellow, white, or
> brown, Shap'd like War's shield, or Prelate's
> crown —

> Like Freedom's cap, or Friar's cowl, Or
> China's bright inverted bowl -And
> while their broadening disks unfold Gay
> silvery gills, or nets of gold, Beneath
> their shady, curtain'd cove, Perform all
> offices of love.

Whatever their failings as poetry, these verses reveal an independent mind, an observant eye, and a sympathetic heart.

It is said that there are counties in England, notably in the Midlands, where the rhodopaxillus nudus is regularly gathered and offered in the market-places under the lovely name of blewits or blue-caps. The country-folk concerned with this humble harvest must possess some knowledge of wild mushrooms handed down from long ago. They might see the humor, invisible to most of their compatriots, in the following episode as told to me by Eric Whittle, an understanding English friend: "One day one of our lady audit assistants came in with a bag of what I identified afterwards as ceps, which she had bought from a hawker. She observed that they were unusual mushrooms but the hawker had said they were edible. After a discussion amongst my colleagues they were thrown into the dustbin. For my part I was a new member of the Staff and my opinion was not asked." (The French *cepe* is often called in English the 'edible boletus', a heavy and unappetizing name, and a misleading one, implying as it does that all other boleti are inedible. My friend in his anecdote has wisely rendered *'cepe'* as 'cep', an example that our book follows.)

Robert Graves has passed on to me another anecdote. During the recent war against Germany a Soho restaurateur called Bozzini went gathering ceps in Epping Forest near a secret site of the War Office. When charged with spying he said, "I'm an innocent mushroom collector." "Show me the mushrooms!", replied the policeman. Bozzini produced a suitcase full. "That proves you're a spy," said the constable. "Them's toadstools!"

In 1943, when England was beset by mortal enemies, John Ramsbottom, the English mycologist, tried to augment and diversify the spare menu of his countrymen by a series of sensible lectures on the edibility of many wild fungi. EDIBLE TOADSTOOLS was the caption used by the great *Times* on September 29, 1943, in reporting one of these talks. Could a more uninviting headline be devised; Things that are merely edible may be scarcely palatable, and toadstools by the innermost meaning of the word are unfit for the table. Had a Russian been charged with editing that news item, he would have enticed his readers with some such headline as WILD MUSHROOMS IN FINE COOKERY.

CHAPTER TWO

For almost four centuries the Russians and the English-speaking world have been eyeing each other, and at one point or another, on one level or another, intermingling. Yet among all the many commentaries on Russia published in the course of that long association, I know of only four that draw attention to the Russian passion for mushrooms. The earliest was by an English traveler,

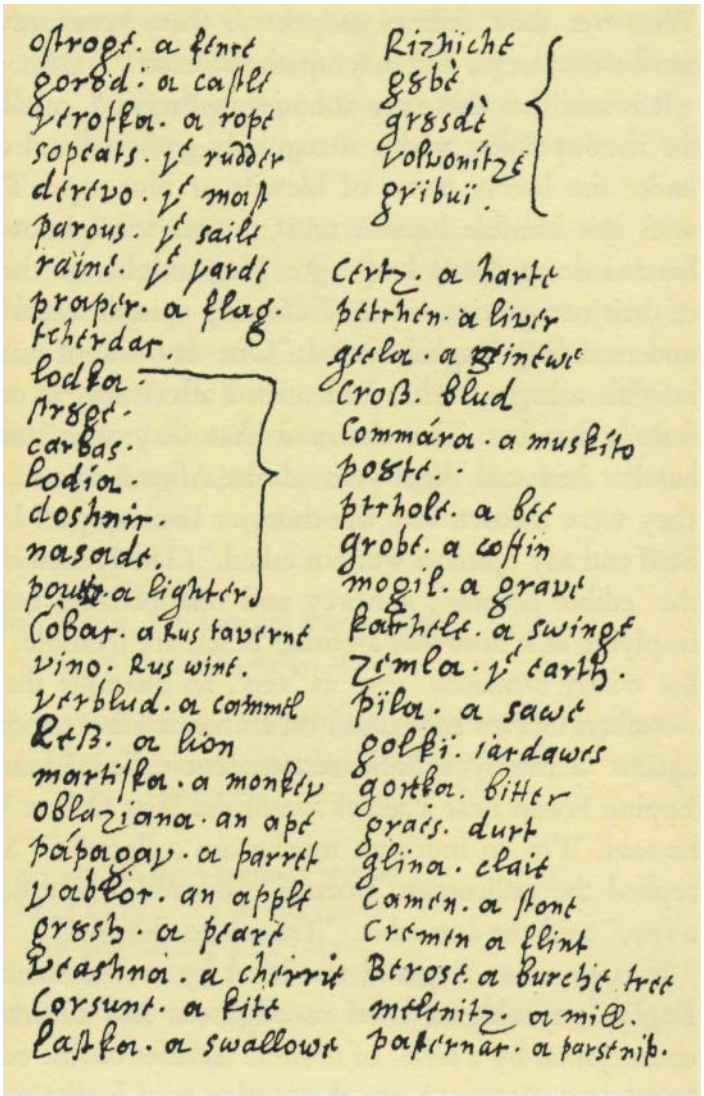

ostrogt. a fence
gorod: a castle
Verofka. a rope
sopcats. y^e rudder
derevo. y^e mast
parous. y^e saile
raini. y^e yard
praper. a flag.
tcherdar.
lodka.
Strugt.
carbas.
lodia.
doshnir.
nasadt.
poustt. a lighter
Cobar. a kus taverne
vino. Rus wine.
verblud. a camell
Rtsb. or lion
martiska. a monkey
oblaziana. an ape
papugay. a parrot
yabloka. an apple
grush. a peare
Veashnoi. a cherrie
Corsunt. a kite
Laska. a swallow
Rizhiche
gsbè
grssdè
volvonitze
gribui.
Certz. a harte
petrhen. a liver
gesla. a Winter
Cross. blud
Commára. a muskito
postt.
ptrhole. a bee
grobt. a coffin
mogil. a grave
kabrhelt. a swinge
Zemla. y^e earth.
pila. a sawe
golki. iardawes
gorka. bitter
grass. durt
glina. clait
Camen. a stone
Cremin a flint
Berost. a burchie tree
meltnitz. a mill.
paternar. a parsenip.

Fig. i

EARLIEST REFERENCE TO RUSSIAN FUNGI IN ENGLISH

Page from Russian-English word-list of Richard James, 1619, citing five kinds of mushrooms without English equivalents:

ryzhik, guba, gruzd', volonitsa, grib

Bodleian, ms. James 43*

Richard James, who in 1619, while visiting Muscovy, composed an extensive glossary of the Russian language, representing the Russian sounds by a system of transliteration of his own devising. He translated all of the Russian words into English, but when he came to the various kinds of mushrooms, he had to admit defeat: he lists five words and gives no translation! His glossary has

never been published in full: the manuscript lies in the Bodleian Library.

From 1660 to 1669 the Tsar Alexei maintained at his court an English physician, Samuel Collins, whose valuable little book, *The Present State of Russia,* appeared in London anonymously in 1671. The author, unfortunately, died before the manuscript was completed, and the concluding chapter, entirely devoted to Russian mushrooms, appears to have suffered peculiarly from the ministrations of an unhappy literary executor. The text of this chapter is a mixture of scientific pretensions and fancy, and the illustrations are quaint aberrations.

Of a different order are the observations of an English clergyman, William Coxe, who embarked on a tour of Eastern Europe in 1773 and who in 1784 brought out in three volumes his *Travels into Poland, Russia, Sweden and Denmark.* He was an honest, laborious, and careful observer, whose pedestrian mentality saved him from tincturing his observations with fancy. In the opening chapter of Book IV he describes the condition of the Russian peasants as he saw them. He brings in the mushrooms, and both for this reason and because the whole tenor of his favorable comments about the muzhiks runs counter to the preconceptions of the West on this subject,! shall quote the passage with its context:

> The peasants are well clothed, comfortably lodged, and seem to enjoy plenty of wholesome food. Their rye-bread, whose blackness at first disgusts the eye, and whose sourness the taste of a delicate traveller, agrees very well with the appetite; as I became reconciled to it from use, I found it at all times no unpleasant morsel, and, when seasoned with hunger, it was quite delicious: they render this bread more palatable by stuffing it with onions and groats, carrots or green corn, and seasoning it with sweet oil. The other articles of their food I have enumerated on a former occasion; in this place I shall only observe that mushrooms are so exceedingly common in these regions, as to form a very essential part of their provisions. I seldom enter a cottage without seeing great abundance of them, and in passing through the markets, I was often astonished at the prodigious quantity exposed for sale: thek variety was no less remarkable than their number; they were of many colours, amongst which I particularly noticed white, black, brown, yellow, green, and pink. The common drink of the peasants is quass, a fermented liquor, somewhat like sweet-wort, made by pouring warm water on rye or barley-meal; and deemed an excellent anti-scorbutic. They are extremely fond of whiskey, a spiritous liquor distilled from malt, which the poorest can occasionally command, and which their inclination often leads them to use to great excess.

The worthy Archdeacon Coxe seems not to have asked himself the reason for the abundance of mushrooms in the peasants' fare, whether it was owing to a greater abundance of fungi in the woods and fields of Russia, or simply to the habitual gathering of a normal crop. There is no reason to suppose that Russia produces more mushrooms than the United States or England.

CHAPTER TWO

Almost forty years after Mr. Coxe published his *Travels,* another English physician, Dr. Robert Lyall, brought out in 1823 a volume entitled *The Character of the Russians,* in which he dwelt at length on the Russians' addiction to mushrooms. He even undertook to record the common names used by the Russians and to identify them.

The knowledge of edible mushrooms [said Dr. Lyall], like a tradition, has been handed down, in Russia, from parent to child, through a series of ages; and the discrimination of these, from the hurtful or poisonous mushrooms, is learned by practice, in the years of infancy and youth... Indeed [he goes on], mushroom-gathering or hunting forms a great part of the occupation of the Russian peasants, boys and girls, as well as of the women at times, and is an amusement, in the country, of the nobility, males and females, old and young, who make short excursions to the woods in tbe neighborhood of their estates, and spend a few hours in selecting one of the greatest delicacies of the epicures.

With a rare perception of the realities of Muscovite life, Dr. Lyall continued:

Besides tbe enormous quantities of mushrooms which are brought fresh to market during the summer months, and which are immediately bought up, the better sorts by the nobility, the inferior kinds by the lower classes and the peasantry, a great abundance is preserved by the peasants in the country, who, after retaining a quantity sufficient for their own consumption, bring the surplus to town. They are brought throughout the whole year, in a dried state on strings, in cart-loads, and sold in all the provision markets,... and in all the small grocery-shops in the city. Sometimes even salted and pickled mushrooms may be bought.

After a courageous effort to identify the various kinds of mushrooms, Dr. Lyall discusses mushroom cookery:

Mushrooms are eaten fried, boiled or pickled, while their season endures, by all classes. . . . They are fried on hot ashes, or in a frying-pan; they are boiled alone; they are boiled with *shchi* or cabbage soup; they are roasted with butter alone, or oftener with butter and *smetana* or sour cream. They also enter into the composition of some puddings and pies. The latter are generally eaten with soup or with *shchi.* Mushrooms are often served up with beef-steak, or roast beef sliced, either alone or mixed with potatoes, carrots, turnips, cabbage, asparagus, &c., and sauce. They are excellent when prepared with cutlets and rich sauce, duly seasoned.

Transfixed with apprehension, the Western world seems today in a horrid trance, stop-watch in hand, as it gazes on Russia. It is wholesome to read the many fine books about Russia that were written in less anxious times, when authors and readers were relaxed, and when there were opportunities for deliberate observation.

PLATE VI

Jean-Henri Fabre. Armillariella mellea (Fr. ex Vahl) Pat.
French: ***pivoulade.***

Ill

MUSHROOMS AND HISTORY

When mushrooms abound, there'll be war around.
An old Russian belief.

... And to be briefe, only the Moscouites may seeme that nation which hath not felte the commodities of peace.
RICHARDS EDEN *in* J555.[1]

All this talk of mushrooms would be idle, were the contrast between Russian and Anglo-Saxon attitudes a random thing. But these mushrooms hint at the answer to bigger questions, far beyond food and cookery. A people who have always had an abundance of other foods are little tempted to brave the initial perils of the mushroom world. However, in the desperate exigencies of all-out war, of chronic war through decades and generations and centuries, of defensive warfare with homes ravaged and farms left untended, where the unslaughtered remnants of the population hide from the pitiless invader in woods and swamps and fields - under these conditions, I suggest, men and women will discover the humble mushroom, and will prove the various kinds by trial and error, and make friends among them in time of need. For mushrooms, springing up almost overnight, will be God's manna to a people driven from their homes into the wilderness. And the knowledge thus gained, joined with emotions of gratitude born of the circumstances, will not be soon lost. During the blessed intervals of peace when the fields yield their normal increase, the various mushrooms, along with the wild berries and fruits and the cultivated crops, will be assigned in men's minds their appointed stations in the annual procession of the seasons, and will be clothed with fond associations, and in every kitchen, on every stove, sundry ways will be devised to bring out the virtue peculiar to each friendly kind. There is an old belief in Russia that when mushrooms abound, war is in the offing. The thoughtless intellectuals of the world despise such homely sayings, which on the surface are nonsense. But ofttimes those sayings are the cryptic expression of experience graven deep in the recesses of a people's past. Mushrooms are not harbingers of war: it is the other way round. When the dogs of war are running loose across the fair countryside of Russia, the people, hard-pressed,

i. *Notes upon Russia,* Hakluyt Society, ist Series, vol. 12, p. 197.

know that mushrooms may soon be their mainstay.[1] Our theory finds disturbing support in a book published in Prague just as the Communist curtain was about to descend on that city. The book dealt with Czech folk food. A peasant speaking of a mushroom called *horyl* (from *hofeti,* 'to burn'), said that it burnt the mouth even when thrice boiled, yet in the 'great hungers' it was always eaten, and when hunger and the pest would return, again it would be eaten.[2]

This link between war and mushrooms can be detected, albeit faintly, in the Anglo-Saxon world. It is said that during the final phases of the American Civil War the people in the devastated stretches of the South turned to mushrooms for sustenance. Certain it is that a famous botanist living at that time in the Carolinas, the Rev. M. A. Curtis, wrote how "during the late war I paid no attention to Botany, except to the edible mushrooms, from which I have gotten many a substantial and luxurious meal."[3] He gladly shared his esoteric lore with the neighbors, who, food being scarce, were apt pupils, and such was his success that he embarked on a book to spread the useful tidings. It was to be called ***Mycophagia*** *Americana,* but by the time it was ready, the war was over and publishers were not interested.

In England during the recent war there were public and private efforts to increase the consumption of wild fungi. We know one elderly Russian lady who for a time made good money gathering *belyegriby* onWimbledon Common, in full sight of the wondering English. She pickled or precooked them and sold them to a fashionable restaurant. But, although England's peril was acute, there was, as things turned out, little actual hunger; and furthermore, when measured against the long history of a people, the crisis was brief. The times were not bad enough for mushrooms to take hold. Today there are those who fear that England's bitterest trials lie ahead, in her peace-time efforts to feed herself. If chronic want, real want, should for the first time in history beset the English people, there will be the mushrooms to turn to, and a precious reserve they will prove to be.

More than a century ago a famous French chef, Louis Eustache Ude, propounded an ingenious and amusing theory to explain the lackadaisical attitude of the English toward food and cookery - an ingenious theory it was, but, as I shall show, completely unsound. He began by denouncing physicians as 'enemies of the art' of cooking, and then he went on:

1. But the Russian saying seems to be widely current in Europe. Consult the entry 'Pilze' in*Handworterbuch des Deutschen Aberglaubens,* by E. Hoffmann-Krayer, 1935-6, where we find the German dialectical *Viel Schwamma - vieljamma,* the Italian *anno fungato - anno tribolato,* and the French *an de cepere - an de misere,* reported in the Basses Pyrenees.
2. See Mrs. M. Ulehlova-Tilschova's *Ceskd strava lidovd,* Prague, 1945, p. 57.
3. Neil E. Stevens quotes Curtis in *The Scientific Monthly,* August 1919, p. 162.

I am greatly concerned at being obliged to combat a still more powerful, though amiable, enemy to Cookery. The Ladies of England are unfavorably disposed toward our art; yet I find no difficulty in assigning the cause of it. It is particularly the case with them (and indeed it is so in some measure with our own sex) that they are not introduced to their parents' table till their palates have been completely benumbed by the strict diet observed in the nursery and the Boarding Schools.[1]

The baneful influence of the nursery and the boarding school is doubtless all that the author said, but one would have liked to remind the great Maitre that the rudiments of any distinguished cuisine grow out of the people, the whole people, and nothing but the people; that the leisure class merely spin refinements for the most democratic of the arts; and that the people by and large have never known either nursery or boarding school. If the English in general seem to the rest of us indifferent to good food, and some of them even disapproving of the fine art of pleasing the palate - if the English bill of fare lacks variety and the good ingredients are spoiled in preparation - these shortcomings of a noble people must go back to deeper, broader causes than the childlife of the well-to-do. For a thousand years England never knew war - war as others and especially the Russians suffered it - and England has never known prolonged, desperate want. Hardship is the school in which people forget food tabus, and acquire that deep reverence for food and its preparation that inspires a great cuisine. Everyone who knows anything about Russia will recall that simple and moving ceremony of hospitality in which bread and salt, symbols of food, are offered on a tray to the honored guest. That ceremony is an ancient, almost sacramental expression of reverence for food, and Russia's history gives meaning to that reverence. In the Anglo-Saxon world only prolonged want will, some day perhaps, bring about a comparable respect for food. If England, that land unique in moral resources and spiritual unity, be destined to endure privation over the coming generations, the hardships will most certainly give birth to new and lustrous chapters in her history, chapters of stirring and triumphant drama - and incidentally, I predict, they will bring about at last a worthy English cuisine. Perhaps the reader by now is protesting that I have overlooked England's famous warrior past. Oh, yes, I know that her history is studded with decisive battles. Crecy and Blenheim and Trafalgar and Waterloo, glorious victories and sometimes glorious defeats. But they were all fought abroad, by a handful of men at sea or in other people's homes. They were fought way down yonder among the heathen, somewhere off Flores in the A9ores. Those wars were like

I. *The French Cook,* by Louis Eustache Ude, one-time cook to Louis XVI and the Earl of Sefton. This work went through many editions in both England and the United States. The early editions carried an essay entitled, ' On Cookery and its imputed ill effects on health', whence I take my quotation.

big-game hunting, stepped up another dimension. Of course there were civil wars also, back in the lyth century, and the I5th, and under King Stephen, and there were border frays along the way. But civil wars, however cruelly fought, lack the ultimate sting, for, whoever wins, members of the family retain possession of the homestead. No intruder takes over the patrimony. These comments about wars go for the United States too; broadly speaking, the tally until our own generation adds up to two civil wars (including the War of Independence) and a few brief expeditionary ventures.

Yes, whoever seeks seriously to understand Russia must make the needed effort of intellect and imagination to comprehend the full and awful meaning of war in the history of the Slavs. This is the first and great imperative. (In the winter of 1939-40, when the Finnish army seemed for a time to hold its own with heroic courage against the Russian forces, how often did my American friends remark to me that, after all, the Finnish successes were not surprising, since Russia had had no warrior past!) As compared with the West, and especially the English-speaking world, war for the Russians has been a calamity of a wholly different and greater order of magnitude. Pause for a moment and consider this. In the wide range of the English vocabulary are there words of more awful potency than 'Huns' and 'Tartars'? It was in the fourth century that the Huns burst like a rocket out of Asia into Europe, and the Mongol hordes followed them seven centuries later. This was all long ago and far away. The Huns in the end were stopped on the fields of France, and the Tartars never got into the West. Yet the mere names of these far-off peoples of ages past still trail clouds of terror in the minds of nations then unborn, in continents then unknown. The earliest description of the Tartars by an unidentified Englishman who sojourned among them will explain in some measure the fearful impact of that strange and pitiless people on the European mind:

> They be hardie and strong in the breast, leane and palefaced, rough and hufshouldred, having flatte and short noses, long and sharpe chinnes, their upper jawes are low and declining, their teeth long and thinne, their eye-browes extending from their foreheads down to their noses, their eies inconstant and blacke, their countenances writhen and terrible, their extreame joynts strong with bones and sinewes, having thicke and great thighes, and short legs, and yet being equall unto us in stature: for that length which is wanting in their legs is supplied in the upper parts of their bodies.[1]

The Slavs, let us remember, met the Huns face to face, and the Russians bowed to the yoke of the Tartars for three full centuries. Nowadays we hear

i. Richard Hakluyt's *Principal Navigations,* Hakluyt Society, extra series, Glasgow 1903-4, vol. I, pp. 50, 53.

PLATE VII

Jean-Henri Fabre. Rhodopaxillus nudus (Fr. ex Bull.) R. Maire.
English: *blewit; French: pied bleu.*

glib talk of 'genocide', a new word meaning the murder of a people; but the Slavs dwelt for centuries on the highways of the Great Migrations, and, had their powers of survival been less, they would have been absorbed or exterminated many times over. Other nations and tribes did disappear in the ethnic maelstrom of the Steppes.

'Huns' and 'Tartars' are not the only linguistic contribution to the West of the Asiatic invaders. No one knows for sure the origin of the word 'ogre'; it probably comes to us from the people called Ugri, known to us as the Hungarians, who drove or were pushed into the Danubian plain in the pth century. Our word 'horde' comes from the language of the Tartars. For them (as for the Russians to this day) *ordd* is simply the headquarters of a marching host, and the Golden Horde was the supreme headquarters on the Volga of the Tartars who subjugated the Slavs of the steppes and of Moscow. In a lexicon that comes down to us from the library of the poet Petrarch (the *Codex Cumanicus)* we learn the curious fact that the Asiatic invaders referred to the Holy See of Rome as the Horde *(ordd)* of Christendom. The West in taking over the word changed its meaning to cover the swarms of ferocious invaders. In India the same word, now *Urdu,* came to mean the language of the nomad camps.

The Steppes - those moist, fertile plains that fan out to the north of the Black Sea - are the monumental stage on which from the beginnings of history East and West have clashed, in an historical drama of epic grandeur. Like the whirling waters of a rising tide that contend from divers directions for the mastery of a level beach, through thousands of years a succession of migrating tribes from East and South and West have flowed into the Steppes, and overrun them, and battled with each other for possession; and then with the passing of time have vanished into the earth. In recent centuries the Turks made their vain bid for title; before them, the Tartars, speaking a kindred dialect. Before the Tartars came the Polovtsi, and before them the Pechenegs. These last-named warrior peoples are scarcely known to Westerners, but they left dreadful, indelible scars on Russian memories. Before them came out of Asia the hard-riding Avars, and before the Avars the Huns. The Avars and the Huns made general use of bridles, stirrups, and saddles. With their horses these mounted warriors revolutionized warfare, and rendered the famed Roman legion obsolete. Before the Huns, from the Baltic, there swept down into the Steppes and Crimea the Visigoths, the Ostrogoths, and the Goths. Those Goths were securely settled in the Crimea by 250 A.D., and there they lingered on for a thousand years. In the middle of the idth century a famous traveler, de Busbecq, encountered in the Turkish dominions a few individuals who still

could recall some words of their ancestral Teutonic tongue. And down even to our own days, in the Caucasus, there is a fair-haired people whose neighbors call them, erroneously, the Goths. Before the Goths, the Sarmatians, of Persian origin, ruled the Steppes for centuries, and before them the Scythians, who were dwelling in the land when the Greek historian Herodotus went sightseeing up the Dniepr River. And before the Scythians legend tells us of the shadowy Cimmerians.

In thus spanning the millenniums we have omitted many famous peoples: the Scandinavians, who swept down from the North through the waterways of Russia to the very gates of Byzantium; the Greek and later the Italian colonial empires in the Black Sea; the Ugri or Magyars who crossed the Steppes to settle in what we call Hungary; the Bulgars who once dwelt in the Volga valley and now till their cherished Balkan soil; the strange and mighty Khazar Empire on the northern slopes of the Caucasus, whose sovereign had to be Jewish by religion; the Alani, and the Assi who gave their name to the Sea of Azov; and many another tribe of uncouth name - the Utiguri, the Kutriguri, the Onoguri - who lived out their day and vanished.

Compared with those Homeric dramas of the past, how fleeting and insignificant was Hitler's stab across the Steppes to Stalingrad. In the presence of those Great Migrations, the history of Western Europe, at least up to the Age of Exploration, seems to be acted out in miniature, and to give off a slightly foetid odor as of a hot-house. Viewed in the light of all human history, how unusual must be the introspective, intensively developed culture of the communities clustered along the Western fringes of the Eurasian Continent. The world is destined to devote ever more attention to the peoples of Eastern Europe and the Black Sea Basin, and if the West will unflex its intellectual muscles, and exercise its capacity for wonder, and lengthen the focus of its mental vision, what a panorama filled with color and drama will unroll itself!

In the folds of the Caucasus mountains there dwell to this day a score of isolated peoples, with strange languages many of them as curious as the Basque of the Pyrenees. Like the Ark on neighboring Mount Ararat, these peoples have survived the floods of Indo-European and Turkish migrations. They are the ethnographic moraines of the world that was old before the Old World was born. Sarmatians, Scythians, and Cimmerians - those ancient peoples are perhaps mere infants alongside these secluded tribes, whose secrets, if we but succeed in deciphering them, will make the millenniums seem like centuries. Little by little our scholars, in our own times, are piecing together the bits of evidence, and with their aid revising the perspectives in which we view

both ancient Greece and Rome (and that means us their progeny also), against the background of earlier, Eastern cultures of unfathomed antiquity.

The Black Sea is a deep basin. Its deeper waters are so infused with chemicals that they sustain no life, and are a graveyard for the detritus of human cultures that have passed away. Its stormy surface waters forever rotate in a counter-clockwise flow, suggestive of the human tides that have wheeled around its shores as around a hub from time immemorial. Behind Greece and Rome loom more and more, as our study of the past progresses, the cultures of the Black Sea basin; and the Black Sea becomes the enigmatic eye of history.

The peoples of the Great Migrations erupted into the Steppes explosively, and then in course of time faded away. The Slavs followed different tactics. Their entrance on the stage of history was inconspicuous - an odd thing for the Dramatist to have devised, when you consider the role they were destined to play. Emerging from the neighborhood of the Vistula, they stole imperceptibly into the consciousness of men. Perhaps they figure among the numerous tribes that Herodotus mentions, but he did not make the identification sure. Tacitus in 98 A.D. described the Slavs in his book on Germany, and that was their formal debut in history. A few centuries later, they had spilled out into the Balkans, and by the pth century the Russians emerge securely established in Kiev. They were a prolific tribe of farmers, spreading like wire-grass along the water-courses. Geographically they were of course European, as European as the Anglo-Saxons. They were European settlers reaching out to the Eastern frontier, and bearing the brunt of Asiatic attacks. (How ironic it must sound in Asiatic ears when uninformed Westerners decry the Slavs as 'Asiatics'! In the course of ten centuries these European Slavs have pushed the Asiatics out of Europe, and then overrun their own vast Continent to the very shores of the Pacific.) Unlike the looting nomadic warriors from the East, they were a sedentary folk. They belonged to the land and the land belonged to them. There is evidence that in their pagan religion they deified the processes of nature, and above all their Moist Mother Earth. Their attachment to the fertile earth is a thing that Westerners, and especially the English-speaking world, can hardly grasp. The old religion perhaps still runs through their blood. It is the Russian in me that makes me love to plunge my bare hands in the moist warm fertile earth, mother earth, the earth that yields us our daily bread, the food that we reverence as a divine gift, that we worship in the Host. Perhaps we love our mushrooms the way we do because they seem the earthiest of nature's growths. From those pagan times a thousand years ago down to now, the Russians feel themselves attached to the earth viscerally, as by an umbilical

cord. In the early Slavonic chronicles the Russians are depicted always as farmers, not traders or warriors, and their enemies habitually took advantage of this dependence on the soil to attack their homesteads and villages at harvest time. The Slavs were already then old hands at taking refuge in the woods, just as in the recent war, and those were the circumstances under which, ages earlier, they must have first come into intimate communion with their friends the mushrooms. As the successive waves of nomads spent their initial force, the Slavs resumed their steady pressure and retook the beloved land and pushed on. They were the resistant, tenacious, pushing tortoise, and the invaders were the showy, easy-come-easy-go hares. The Slavs made some progress in the West also, and as late as a few centuries ago, the peasants in Holstein and on the Baltic island of Bornholm were still speaking a Slavic tongue. To this day the Slav-speaking Wends survive in villages south of Berlin. Many of the place-names of Germany are Slavic; Stettin means bristles, and it was the port through which this commodity was exported; and Pomerania is merely Pomorjane - 'inhabitants of the sea-shore'.

The Russians today are a singularly uniform people, as compared with the extreme mixtures in Western Europe. The traits of the Russians are the traits of an Indo-European peasant people indigenous to Europe, first Christianized and civilized under Byzantine influences, and politically shaped by the stern necessity of waging incessant warfare on all sides for the sheer privilege of survival. It fell to them to occupy and defend a desirable land devoid of natural defenses, a rich, land-locked inheritance surrounded by covetous and arrogant enemies. One reason ofttimes given for the relative uniformity of the Russian people has been the absence of mountain barriers in their homeland: the geographical circumstances have encouraged a cultural and ethnic fluidity. But this explanation proves too much: for precisely the same reason they could have lost their identity in the vast steppes, exposed forever as they were to alien peoples on every side, tugging them in every dkection. They survived as a homogeneous ethnic group and a cultural entity because, for reasons deeply hidden in the racial strain, they chose to resist foreign encroachments. This struggle has been the theme of Russia's history - the continual temptation to assimilate foreign influences, leading to violent rejection in the interests of self-preservation, and ending in every instance with a deepened sense of their folk identity, but an identity molded by the ordeal of the never-ending struggle, molded positively by acceptance in some measure of foreign influences, and negatively by the self-inflicted effects of violent resistance.

In one of the earliest accounts of Muscovy written by an Englishman, in

Queen Elizabeth's time, there is an observation concerning the Tsar's wars that could have been repeated with other names at almost any other period:

> His enemies with whom he hath warres for the most part are these: - Litto, Poland, Sweden, Denmarke, Lifland, the Crimmes, Nagaians, and the whole nation of the Tartarians, which are a stoute and a hardie people as any under the Sunne.[1]

A Continental traveler, Sigismund von Herberstein, writing in Latin a half century earlier, had remarked of the Russians and their horses that "rest is seldom given them, for either they are waging war against the Lithuanians, or the Livonians, or the Swedes, or the Tartars of Cazan; or, if no war is going on, the prince generally appoints 20,000 men every year in places about the Don and the Occa, as guards to repress the eruptions and depredations of the Tartars of Precop."

We saw in the recent war the tough soldier that the Russian makes. His qualities were not born overnight, nor were they the fruit of a single generation. He was the heir to an old fighting tradition. Read, if you will, this account of the same soldier four centuries ago:

> They are a kinde of people most sparing in diet, and most patient in extremitie of cold, above all others. For when the ground is covered with snowe, and is growen terrible and hard with the frost, this Russe hangs up his mantle, or souldiers coate, against that part from whence the winde and Snowe drives, and so making a little fire, lieth downe with his backe towards the weather: this mantle of his serves him for his bed, wall, house and all: his drinke is colde water of the river, mingled with oatemeale, and this is all his good cheere, and he thinketh himselfe well, and daintily fedde therewith, and so sitteth down by his fire, and upon the hard ground, rosteth as it were his wearie sides thus daintily stuffed: the hard ground is his feather bed, & some blocke or stone his pillow: and as for his horse, he is as it were a chamberfellow with his master, faring both alike. How justly may this barbarous, and rude Russe condemne the daintinesse and nicenesse of our Captaines, who living in a soile & aire much more temperate, yet commonly use furred boots and clokes >

It is safe to assume, I think, that this hardy Russ knew his mushrooms.

I. Richard Hakluyt's *Principal Navigations,* op. tit., vol. n, p. 438; also, *Notes upon Russia,* Hakluyt Society, first series, vol. 10, p. 95. The concluding quotation in this chapter is also from *Principal Navigations,* vol. n, pp. 258-9.

IV MUSHROOMS FOR MURDERERS

> Exquisitum aliquid placebat, quod turbaret mentem et mortem differret.
>
> TACITUS *on the death of Claudius, Annals, Book XII, Chap. 66.*

FOR murderers there is only one kind of mushroom worth considering: the amanita phalloides. Almost everyone who dies from mushrooms dies from it; and most of those who have eaten it have died from it. Even a small piece of the cap may kill a grown man. Specimens are easy to identify and easy to find in season - from August into October. Their poisonous virtue survives cooking, freezing, and drying. To speak more accurately, the deadly species are three in number, for we must add the amanita verna and the amanita virosa, but all three resemble each other so closely both in appearance and toxic properties that the murderer, whose ends after all are empirical, will disregard the distinctions as academic. He looks for white gills, veil (or ring), and volva, taking care not to be misled by any of the innocent amanitas, such as the citrina. On the autopsy table the victim shows pathological lesions of the viscera, but unlike arsenic, the pathologist cannot isolate the lethal agent, whose identity he must infer from the case history supplied by the attending physician, plus such evidence as can be assembled to show that the victim had eaten the lethal fungi. From the murderer's point of view, the deadly amanita suffers from one shortcoming : some victims, after days or weeks or even months of shattering illness, slowly recover and return to circulation. True, they are only frail replicas of their former selves, but they are alive and have foiled the murderer's coup. On the other hand, if the murderer also hates his victim, and if success attends his undertaking, his worst instincts and hopes will have been more than quenched by the slow progress and horrible suffering that attend the victim's downward course into the grave. The symptoms of poisoning by the deadly amanita are distinctive, dramatic, and terrifying.

To begin with, the lethal amanitas taste good - on this the abundant testimony of victims shows no dissenting voice. Nothing arouses suspicion as the greedy diner consumes his fateful dish; nor does he suspect anything for many hours thereafter. Indeed, the distinctive mark of this poison, its 'veritable signature' as Dr. Dujarric de la Riviere has aptly called it, is the period of absolute quiescence that follows the ingestion of the mushrooms, a period that never lasts less than

six hours, and usually ten or twelve, sometimes twenty or even forty or more. The victim goes about his affairs blissfully unaware that the fingers of death already entwine him. Perhaps he speaks with relish of the mushrooms he has eaten, even returning to another dish of the same kind at the next meal. If they have been served to him intentionally, his murderer, standing by, eyes him with wicked and dissembled solicitude, alert for the inevitable moment. Of a sudden the victim is gripped by appalling abdominal distress, followed by vomiting and *diarrhoea fcetida.* Neither emetics nor purgatives can help him now, for his system has absorbed the venom, during the long period of silent invasion. The initial seizure is followed by utter prostration, which in turn is succeeded by another paroxysm like the first, and this alternation continues, perhaps for many days, until the victim, his pulse fast and weak, succumbs, usually after a delirious phase. The appearance of the patient meanwhile is marked by what the physicians describe as the Hippocratic facies - eyes sunken and staring as though with anxiety or even terror, skin over the cheekbones taut and parched, nose pinched, temples hollow, ears leaden and cold, their lobes turned out, lips relaxed, the whole face livid - an appearance that is clear harbinger of imminent dissolution.

Our lugubrious, even sinister, approach to the toxic fungi presents the elementary facts that should be known to any detective story craftsman who resorts to mushroom poison as a device in the construction of a plot. The art of the detective story is a minor literary genre proliferated by the English-speaking peoples. Its leading exponents are often conscientious in their scientific research. But when they invoke mushroom poisoning, they seem incapable of artistic performance, as though the mycophobia peculiar to the Celtic and Anglo-Saxon races inhibited all inquiry into the dark recesses of the repellent subject. Mushrooms remain a mystery even to mystery writers.

Before examining the texts, we must mention two other kinds of toxic mushrooms. First and foremost there is the amanita muscaria, erroneously regarded by many laymen as *the* poisonous mushroom. Its evil reputation far outruns its deserts. It gives its name to 'muscarine', the agent that most physicians and even medical examiners in the English-speaking world regard as synonymous with mushroom poisoning. But the facts are that muscarine is seldom if ever fatal, that it is destroyed by cooking, and that it exists in the amanita muscaria only in traces, being much stronger in the amanita pantherina. The hallucinations and muscular exertions inspired by the amanita muscaria, followed by a period of stupor, are attributable to the presence of a wholly different compound, which resembles atropin. The victim (or beneficiary) of this intoxicating mushroom

PLATE VIII Jean-Henri Fabre. Boletus duriusculus Kalchbr.

is imbued with a new sense of dimensions, of physical powers, of miraculous mobility.

Of the remaining toxic mushrooms, there is a peculiar mystery about the gyromitra esculenta, a common species much eaten (as its name suggests) in Europe. Certain it is that at intervals cases occur where an individual dies from it. The explanation may not yet be surely known, but if the best opinion available today proves right, the gyromitra esculenta offers us a notable fungal peculiarity. It seems that everyone may eat this tasty mushroom with impunity for the first time. But there are rare individuals who, if they return to a mess of the same species shortly thereafter, and if the mushrooms are fresh rather than dried, suffer a dangerous and even fatal anaphylactic shock.

Dorothy L. Sayers with Robert Eustace in *The Documents in the Case* produced the supreme example in English of a mystery story based on fungal poisoning. An eccentric Englishman, George Harrison, made wild mushrooms his hobby (he was obviously eccentric), and in the end was found dead (as normal Englishmen would expect) in a lonely shack. The evidence indicated that he had recently eaten a mess of stewed mushrooms prepared by himself. The coroner after chemical analysis of the uneaten remains of the stew put the death down to accidental muscarine poisoning. The victim's son, Paul, was not satisfied, because he was certain his father, a careful man and excellent amateur mycologist, could never have confused the amanita muscaria with an edible species, and in the end he ran down the real culprit, a lover of Paul's step-mother, a villain named Robert Lathom, who in due course was proved to have introduced synthetic muscarine into the stock that had served for the mushroom stew. He was tried, convicted, and hanged. The story is well told, with delightful touches revealing the mycophobic habits of mind of the run of Englishmen. But it suffers from one defect: muscarine is destroyed by cooking and could not have caused the victim's death. True, the muscarine here involved is synthetic, but no evidence is produced to show that, in resistance to heat, the synthetic product differs from the natural. Furthermore, the toxicity of fresh muscarine is exaggerated: the chances were excellent that Harrison would survive an uncooked dose. Lathom should have used amanitine, not muscarine - the amanita phalloides, not the amanita muscaria - and for informed readers, his execution was a painful miscarriage of justice, a tragic sequel to an incompetent performance by Defense Counsel.

Miss Sayers and Mr. Eustace used, or misused, a genuine mushroom. More often English authors create fictional species, tailored to fit their plots. Ernest Bramah in *The Eyes of Max Carrados* tells a story entitled 'The Mystery of the

Poisoned Dish of Mushrooms'. It hinges on the peculiar properties of a non-existent fungus on which he bestows a name unknown to mycology, the amanita bhuroides. (This name sounds like a misspelled derivative of Burrhus, a personage in attendance at the imperial court of Claudius and Nero.) It is so deadly that the victim expires within a half-hour of his seizure.

More remarkable than the amanita bhuroides is the panseolus sherriffoides, as we shall call the mushroom that the playwright R. C. Sherriff devises for his drama *Miss Mabel.* His plot is unhappy, for we are expected to sympathize with a kindly, somewhat demented heroine who poisons her wealthy and hateful sister, the widow Fletcher. The mycophile watches with astonishment as the author, by a very act of creation, invents his mushroom and clothes it with precisely those attributes that the plot requires. It appears in the spring: the daffodils are in bloom and Easter is yet to come. (In nature there are almost no mushrooms then.) It grows fast, progressing noticeably in the course of a night's rain. A cluster of nine serves as the lethal dose, but the playwright suggests that fewer would have sufficed. When cooked, these mushrooms smell like hot rubber, but the smell is successfully overlaid with onions and tomatoes. Most remarkable are the toxic properties. These fungi are a powerful narcotic and put the victim to sleep at once. The widow Fletcher departs this life without pain, her ugly, resentful face assuming in death 'a look of such peace and gentleness' that the audience is presumably reconciled to her hurried departure at the hands of her sister.

Yet another inventor of mushrooms is H. G. Wells, in his short story, *The Purple Pileus.* Here a mild-mannered, milktoast of a man named Coombes, lower middle-class, finds himself browbeaten by his wife and her odious friend, Clarence, to the point of desperation and suicide. He rushes from the house into the woods. He thinks of drowning himself, but suddenly notices all the varied mushrooms around his feet. A purple pileus catches his eye, "a peculiarly poisonous looking purple", slimy, shining, emitting a sour odor but not disgusting. Coombes breaks off a piece, and the creamy white of the inside changes in ten seconds to a yellowish-green color. He remembers that his father had described this very species to him, and they were the deadliest poison. He tastes the thing. It is pungent and he almost spits it out, but then it seems merely hot to the taste and full-flavored, a kind of German mustard with horse-radish. He swallows it. There ensues a curious tingling sensation in his finger-tips and toes. His pulse quickens. The blood in his ears sounds like a mill-race. He loses his balance and falls, and forgets everything. While he lies there unconscious, a peculiar transformation takes place in his personality, for after a while he wakes up feeling bright

and cheerful, his complexion a livid white, his eyes large and bright, his pale lips drawn in a cheerless grin. The mild little man is now a lion, fit to be the master of his house. He goes home, and in a scene of violent retribution he imposes his will on his wife and that noisome friend of hers. He is so successful that the reformation in his household proves lasting, and the whole course of Coombes's life is changed for the better.

Coombes's violence might suggest that he ate the amanita muscaria, but Wells expressly distinguishes his purple pileus from that other species, "the red ones with white spots". Furthermore, the fly agaric produces a sleepy stupor after the spell of exhilaration, not before it. Wells, like Bramah and Sherriff, fills out the necessities of a given plot by inventing the needed mushroom, on which we here bestow the name of boletus wellsoides.

Have English authors ever invented flowers or bushes or trees with which to adorn the English countryside? It seems unlikely. Surrounded by mushrooms that they never truly see, they usually ignore them, and on the rare occasions when 'toadstools' are needed, they blithely misrepresent them, to make them serve an odious or exotic purpose.

With Wells and Sherriff and Bramah, we observe a peculiar aspect of the mycophobia of the English in its unconscious and spontaneous workings. Doubtless many other examples could be assembled, and we shall mention a few. But first let us note and celebrate one exception. Anne Parrish in her novel *The Perennial Bachelor* dispatches one of her characters by means of a dish of mushrooms. Unlike ah[1] the other writers about whom we speak, she shows herself thoroughly versed in the properties of the deadly amanita. The episode is only incidental to her plot, and this makes the accuracy of her details even more astounding. It is not as though she had worked hard on mushrooms in order to hang her story on them.

In December 1949 *Ellery Queen s Mystery Magazine* published a yarn by August Derleth in which the murderer killed his victim by substituting for morels some specimens of the gyromitra esculenta - a species that no villain bent on murder would ever rely on. In *Murder with Mushrooms,* Gordon Ashe has his victim die the same night that he dines on poisonous mushrooms - a tragic sequel that could not occur. In R. T. M. Scott's *Ann's Crime,* the victims inhale spores of the amanita phalloides that have been concealed in a cheese cloth inside a pillow, and forthwith they die, for no doctor, we are told, could save a person whose head had once touched that pillow! . . . Has there been a single writer of detective or mystery stories who has done justice to the genuine drama hidden in the properties peculiar to the amanita phalloides; The German

author Gustav Meyrink in his *Bal Macabre* deals with mushroom intoxication. The story is drenched with a pathological atmosphere artfully contrived. There is much about mushrooms in the narrative, but the hallucinations that hang over the whole story seem to us to be best explained by the effects of alcohol, an alcoholic's nightmare about toxic mushrooms. Meyrink reveals no knowledge of fungal toxicology. The prolific American writer Percival Wilde in his *Tinsley's Bones,* published in 1942, introduces as a witness a knowledgeable female mycologist who seems to be addicted to mushrooms of the genus panaeolus as a substitute for cocktails, the author and his character displaying thereby an astonishing command of mushroomic esoterica; but mushrooms in this yarn were not the agent used for the murder.

The facts about lethal mushrooms are to be found, not in standard medical reference works, but in mycological publications. They are well summarized in John Ramsbottom's *A Handbook of the Larger British Fungi,* an indispensable reference book, which however still characterizes the amanita mappa (i. e., citrina) as poisonous, ignoring the work done by the French with this species. Good case histories in English of poisoning by the deadly amanitas appear in a Canadian Government publication, *Mushrooms and Toadstools,* by H. T. Gtissow and W. S. Odell. Certainly the best worked up case history in any language is the account of the tragic end of a Madame Boyer and her daughter Elodie, more than a century ago, retold with dramatic suspense and pathos by Camille Fauvel in his delightful little book, *Le Champignon aui tue,* published in Paris in 1926. The best single source of information about all the toxic mushrooms is, we believe, *Les Champignons Toxiques* (Paris, 1938), compiled jointly by Dr. R. Dujarric de la Riviere of the Pasteur Institute, and the mycologist Professor Roger Heim. Dr. Dujarric de la Riviere's promising efforts to produce an antitoxin for the deadly amanita were interrupted by the second World War, and intravenous injections of glucose are the only readily accessible palliative available to physicians today.

Mycologists are prone to exaggerate the importance of mushroom poisonings in history. In their writings we repeatedly find a list of eminent persons who have died allegedly from eating poisonous mushrooms, a list that they copy from each other without verification. Sometimes we read that Euripides lost his wife and two daughters thus, an assertion unsupported by any ancient text, apparently based on a misreading of Athenaeus. We read that Pope Clement VII - he who is remembered chiefly for his troubles with Henry VIII of England - was a victim of poisonous mushrooms. This Pontiff died on September 25, 1534. The

date falls in the season of the deadly amanita, but the records show that Clement's symptoms first manifested themselves many months earlier, on May 30, and the course of his fluctuating illness from that moment is well documented. We discover in the record no trace of the telltale stigmata. As his biographer Emmanuel Rodocanachi wisely observes, "In accordance with the custom of those times, people attributed his death to poison."[1]

More remarkable still is the persistence in mycological writings of the assertion that Tsar Alexis of Russia or his widow died from mushrooms. Sometimes the texts name him, but more often her. As to the Tsar himself, the circumstances of his death are well known and are unrelated to fungi. His widow was an outstanding woman, the mother of Peter the Great, Natalija Naryshkina by name. She died on January 25,1694 (Russian style), after an illness of five days. Neither contemporary records nor the historians of the period tell us the nature of her ailment. If mushrooms were the cause, they must have been dried or pickled specimens from the previous autumn. What has given rise to the tradition among mycologists that mushrooms brought about her end ? We believe the source is to be found in a footnote that appears on page in of Jean-Jacques Paulet's classic *Traits, des Champignons,* published in Paris in 1793, reading as follows:

> L'accident arrive a la veuve du czar Alexis, qui s'empoisonna avec des champignons qu'on avait gardes pour le careme, et rapporte par Miiller, est de notre siecle.
>
> The accident that befell the widow of the Tsar Alexis, who was poisoned by mushrooms that had been set aside for Lent, as reported by Miiller, belongs to our century.

The Miiller to whom reference is made can only be Gerhard Friedrich Miiller, a prolific i8th century writer about Russia who died in 1783. But his numerous works available to us make no mention of the death of Natahja Naryshkina, and Paulet's footnote remains uncorroborated.

Finally there was the case of the German Emperor Charles VI, father of Maria Theresa of Austria. He had been worried and run down. "On the loth [of October] at night his complaint was increased by an indigestion, occasioned by a dish of mushrooms stewed in oil, of which he eat voraciously". So wrote that admirable man Archdeacon William Coxe, the same whom we quoted earlier, in his *History of the House of Austria.* Ten days later, on October 20, while the doctors were still arguing about the diagnosis, he surprised them by dying. The clinical details that Coxe supplies to us, including the patient's sudden death,

I. *Histoire de Rome: Les Pontificals d'Adrien VI et de Clement VII,* Librairie Hachette, Paris, 1933. See also Ludwig Pastor, *The History of the Popes,* London, 1910, vol. 10.

are compatible with poisoning by the deadly amanita. There were no allegations that the poisoning, if such it was, was deliberate. If fungi were the agent, he is the one modern personage thus killed. His end precipitated war and Voltaire declared that "a pot of mushrooms changed the history of Europe".

So much for the famous men and women whose deaths have been attributed rightly or wrongly to mushrooms. This mortuary procession of alleged mushroomie victims would be incomplete if we did not here add the murders revealed by 1'afFaire Girard. In this case, the victims were persons of no consequence: their very names are forgotten. But the circumstances that brought them to their deaths are, for mycophiles and epicures of crime, both instructive and fascinating.

The standard mushroom manuals of France, like those of England, have always been saturated with mycophobic caution. By overstating the toxic dangers of various species, they have aimed at assuring the safety of their readers. But, through a strange conjuncture of events, that very bias once contributed to the disastrous end of a man who trusted his mushroom manual too much. This is the lesson to be learned from Faffaire Girard.

Girard's murders would doubtless have drawn wide attention if the press stories had not broken at the precise moment of the great spring offensive of 1918, the final year of the first World War. Girard was a Parisian, and his accomplices were his wife and his mistress. He murdered only his friends, after insuring their lives in his own favor. Poisons were his instrument, and among other poisons he used toadstools gathered for him in the forest of Rambouillet by an old hobo known as le pere Theo, whose testimony later was damning to the accused. From time to time Girard would order from Theo a mess of amanitas: they had to have white gills, veil, and volva - the stigmata of the deadly amanita, but also of the amanita mappa or citrina. Girard and his wife would serve these fungi to their victims at sumptuous dinners in their own apartment. Sometimes the guest went home and died, but on other occasions, doubtless to the surprise and discomfiture of the Girards, the intended victim suffered no ill effects whatever! Indeed, a number of them lived to give their evidence to the police.

In 1918 the standard mushroom manual of France was Paul Dumee's. Like all of the over-cautious manuals of that time, it condemned the amanita citrina as deadly. Girard had not thought it necessary, therefore, to distinguish the two amanitas when instructing old Theo about the mushrooms to gather. Thus it came about that when Theo brought in a mess of the amanita phalloides, the victim would enjoy a dish of tasty mushrooms and later die. But when Theo

produced specimens of the innocent amanita citrina, the intended victim must have found them a little unpleasant to the taste, and that was the end of the matter. For the deadly amanita makes a delectable dish, whereas its relative the innocent citrina scarcely rises palate-wise to the mediocre level.

Thus it may be said that Girard was deceived and misled by Dumee's over-cautious manual, with the result that some of his friends and intended victims unwittingly survived his honest efforts to do them in, and he in turn was fatally entangled in the law's toils. Now that the French manuals have improved, Girard's mistake is unlikely to be repeated. Had Girard hailed from Serignan, Henri Fabre's village in the Provence, he would have known from childhood not to rely on Dumee, for these peasants need no manuals.

Girard's crimes would have been forgotten, had it not happened that Camille Fauvel, that prodigious mycophile, was a *Commissaire de Police* in Paris at the time, and though he was not handling the Girard case, having lately been charged with the more famous and important but less interesting Mata Hari dossier, he followed it with expert attention, even interviewing Girard in Fresnes prison after the conviction, in the interests of mycological lore. Fauvel published an admirable narrative of the affair many years later, in the *Supplement* to the issues of June and August, 1936, of the *Revue de Mycologie,* and we have drawn our facts from his account. It should be added that Girard died in his prison bed of tuberculosis a few days after he was interviewed, never having admitted his guilt nor that he had relied on the unsound advice of Dumee. But Fauvel's inference is based upon evidence that leaves little room for doubt.

All that we have set forth in this chapter up to now - the description of the singular properties of lethal mushrooms, the inadequacy of mystery writers when they deal with this theme, our comments on alleged poisonings of eminent personages and the niushroomic murders of unimportant folk-has had only one purpose: to equip the reader for a reconsideration of the death of the Emperor Claudius in A.D. 54. On that occasion, for once in the course of recorded history, the whole of a great Empire and the known world swung on a dish of mush-rooms. The accounts in the ancient writings of that famous event are an old, old story, familiar to all students of antiquity. Those texts have been parsed by students, dissected by historians, pondered by moralists for close on to twenty centuries. It would seem that by now every conceivable interpretation must have been hit upon, and the resources of scholarly inquiry exhausted. Indeed, the signs of exhaustion are not lacking: in our own generation Guglielmo Ferrero in his *The Women of the Ccesars* has not only struggled to exonerate

Agrippina of the dreadful charge laid at her door, but to portray her as a noble Roman matron!

It would be surprising if at this late date fresh evidence shedding light on Claudius's death were discovered, and yet this is what we think we have done. We rely solely on the same worn texts, and we entrust our fate to the verdict of scholars far more learned than we. Perhaps those old texts have a message to deliver to us that can be discerned only by one who is a lover of mushrooms, a physician, and above all an amateur of venomy - amateur in the sense of a critical but passive observer of those who have practiced that subtile art.

Let us recall the background of the crime. Claudius succeeded Caligula as emperor in the year 41, at the age of 51. By his third wife, Messalina, he had had a son, Britannicus, born the year before his accession. After executing Messalina for adultery, he married his niece Agrippina, who by a previous marriage had a son of her own, three years senior to Britannicus; and her son was destined to worldly immortality as the Emperor Nero. Indeed, Agrippina's motive in murdering her husband was to assure the succession to Nero, in which endeavor success crowned her efforts. Claudius at the time of his death was said to be favoring Britannicus, and it was even rumored that he had bequeathed the Empire to Britannicus in a will that Agrippina destroyed.

The young man who was to be known as Nero had as his tutor from A.D. 50 on the famous Seneca, and at the time of the crime Seneca was an intimate of the imperial circle, privy to all that went on. He could have left us an eye-witness account of what happened, but instead he veils his remarks in satire - a prudent evasion of one who undoubtedly knew too much. Three of the ancient historians have given us accounts of the event. Tacitus, who was probably born in the year after Claudius's death, wrote his narrative about sixty years later; Suetonius's version came a few years after that; and Dio Cassius told the story again almost two centuries after the event. These three secondary sources differ among themselves in details, which gives to their agreement on essentials a stamp of verisimilitude. In the main they were not copying each other, and they probably had the important facts right.

Claudius was exceedingly fond of mushrooms *(boleti),* and a plausible tradition has it that his favorite kind was what we know today as the amanita caesarea. The dish of mushrooms that he ate on the fateful day consisted of *poisoned,* not poisonous, mushrooms. On this all three of the ancient historians agree, in different words. None identifies the poison that was used, but they are abundantly clear that poison was added to the Emperor's favorite dish. Here is Tacitus, Book XII, Chap. Ixvii of the *Annals* in the Loeb edition:

PLATE IX

Jean-Henri Fabre. Arnanita csesarea Fr. ex Scop.
French: *orange;* Italian: *ovolo.*

Adeoque cuncta mox pernotuere, ut temporum illorum scriptores prodiderint infusum delectabili cibo boleto venenum.

So notorius, later, were the whole proceedings that authors of the period have recorded that the poison was sprinkled on an exceptionally fine mushroom.

Suetonius gives alternative versions, in Book V, Chap, xliv, in the Loeb edition:

Et veneno quidem occisum convenit; ubi autem et per quern dato, discrepat. Quidam tradunt epulanti in arce cum sacerdotibus per Halotum spadonem prsegustatorem; alii domestico convivio per ipsam Agrippinam, quae boletum medicatum avidissimo ciborum talium optulerat.

That Claudius was poisoned is the general belief, but when it was done and by whom is disputed. Some say that it was his taster, the eunuch Halotus, as he was banqueting on the Citadel with the priests; others that at a family dinner Agrippina served the drug to him with her own hand in mushrooms, a dish of which he was extravagantly fond.

Suetonius places the poisoned mushrooms only in his second version, but mushrooms could have been the vehicle that Halotus used too, and this may be implied. Dio Cassius comes down to us in a Greek summary. In Book LXI he accuses Agrippina of having put the poison into "one of the vegetables called mushrooms", using for mushroom the Greek word μύκης. A few pages later Dio Cassius refers again to the same poison when he says:

Agrippina was ever ready to attempt the most daring undertakings; for example, she caused the death of Marcus Junius Silanus, sending him some of the poison with which she had treacherously murdered her husband.

What poison did Agrippina use? We think the answer is clear. She turned for advice and aid to a woman named Locusta, an experienced artist in the preparation of poisons, as Tacitus tells us; a famous dealer in poisons, as Dio Cassius puts it. According to Tacitus, the instructions of the Empress to Locusta were narrowly defined. The poison was not to be sudden and instantaneous in its operation, lest the desperate achievement should be discovered. On the other hand, if the effect were slow and consuming, Claudius as his end approached might discover the treachery and take steps to thwart the perpetrators in their ultimate purposes. (He might, that is to say, proclaim Britannicus as his heir.) Something subtle was needed, which would take time but also deprive the victim of his faculties. As Tacitus goes on to say, by Locusta's skill the desired poison was prepared. This passage in the *Annals* of Tacitus being a crux in our argument, we give it in full:

CHAPTER FOUR

Turn Agrippina sceleris olim certa et oblatas occasionis propera nee ministrorum egens, de genere veneni consultavit, ne repentino et praecipiti facinus proderetur; si lentum et tabidum delegisset, ne admotus supremis Claudius et dolo intellecto ad amorem filii rediret. Exquisitum aliquid placebat, quod turbaret mentem et mortem differret.

It was then that Agrippina, long since bent upon the impious deed, and eagerly seizing the present occasion, well furnished too as she was with wicked agents, deliberated upon the nature of the poison she would use, whether, "if it were sudden and instantaneous in its operation, the desperate achievement would not be brought to light: if she chose materials slow and consuming in their operation, whether Claudius, when his end approached, and perhaps having discovered the treachery, would not resume his affection for his son." Something of a subtle nature was therefore resolved upon, "such as would disorder his brain and require time to kill." [Oxford translation, *Annals,* Book xn, Chap. 66]

There was only one poison available to the ancients that would fulfill Agrippina's requirements - the poison of the deadly anianita. The victim would not give away the game by any abnormal indisposition at the meal, but when the seizure came, he would be so severely stricken that thereafter he would no longer be in command of his own affairs. For one familiar with the properties of the amanita phalloides the text in Tacitus seems transparently clear. But for others than mycophiles there might remain a doubt: is it legitimate for us to infer that Locusta knew the deadly amanita and its secret virtue to which even now, after nineteen centuries, few are privy?

This question troubled and challenged us, not because we were uncertain but because it would be hard to carry conviction with an uninitiated public. Once more we reviewed all the principal sources, all the stray allusions in the classical writers. We concentrated especially on Seneca. After all, he was a witness whose testimony would have been competent in our own courts of justice; he was articulate, and had he not carried the secret etched sharp in his memory from that fateful October day in A.D. 54 until his death eleven years later? Somewhere, if only by inadvertence, he must have talked, and perhaps his revealing words had survived, their esoteric meaning hitherto unperceived. We embarked on a reading of ah[1] his extant writings. We began with his later works, composed after the death of the Emperor, and tried to orient each sentence toward that event. Suddenly one day we came upon the tell-tale phrase: it leaped at us from the page, fairly shouting at us. Yes, whether with sly intention or by inadvertence, Seneca had blurted out the fateful secret, imparting it to all knowing readers. And before us not a single commentator had ever caught the inner meaning of the plain words.

We refer the reader to Letter xcv that the old Stoic wrote to his friend Luci-

lius nine or ten years after the death of the Emperor and one or two years before he took his own life on Nero's orders. In it he describes and deplores the excesses of the Roman upper class. He refers to the late Emperor's gluttony:

> Di boni, quantum hominum unus venter exercet! Quid 2 Tu illos boletos, voluptarium venenum, nihil occulti operis iudicas facere, etiam si prsesentanei non fuerunt.
>
> Good gods! What a number of men does one belly employ! But can you think those mushrooms (a tasty poison) do not secretly and gradually operate, though no bad effect is immediately perceived from them ? [Loeb translation]

Here is proof that Seneca knew the amanita phalloides. The period of silent invasion, that *veritable signature* of the lethal mushroom, was familiar to him, and he even took pains to mention how tasty the wicked mushroom was! How much guilty knowledge packed into a few words! Read in conjunction with the Empress Agrippina's instructions to Locusta, we believe it clinches our case. The poison in the dish of Caesar's amanitas was the poison of the deadly amanita. Two of our authors, Suetonius and Tacitus, give us grounds for supposing that the administration of the poison was entrusted to the eunuch Halotus, whose office it was to taste the Emperor's food before serving it to him. Tacitus says that Halotus poured the poison into the dish of mushrooms. It would have been easy for Locusta to prepare a sauce from the deadly specimens, and by enlisting the aid of Halotus, no suspicion would be aroused by the failure to serve it to others at the feast. However, this is a detail, important at the time to the participants of course, but secondary to the primary fact that the ancient writers are telling us exactly how Locusta handled the assignment with which Agrippina charged her. We believe that the secret of those two fearless and wicked women is withheld from us no longer. (For Latinists and mycologists it is interesting to note that Seneca uses the word *boletus* for the deadly amanita: it was clearly the term for all amanitas, not merely the amanita cassarea.)

We rest our case on the knowledge shown by Seneca and the quoted passage from Tacitus, taken together. But there is additional circumstantial evidence compatible with our theory. The crime was committed on October 12 - in the season when the deadly amanita could be easily found around Rome. On the morrow after Claudius had eaten the mushrooms and while he was yet alive, comedians were introduced into his presence to solace and delight him, as Suetonius says. Since any such kind intention was foreign to Agrippina's nature, and *a fortiori* at the dreadful moment that we are considering, we may assume that her purpose was different: the comic actors were to bear witness in the public market-place that the Emperor had not been killed but was in truth desperately

ill, and the Hippocratic facies that we know he must have manifested gave them full warranty for such a report. Immediately after Claudius's death, he was proclaimed a god-a posthumous honor for emperors to which Romans were accustomed. Afterwards, when Nero was in secure possession of his imperial office, he was present at a certain banquet where mushrooms were brought in, and someone remarked that they were the gods' food, *cibus deorum.* To this Nero is said to have replied: "True enough: my father was made a god by eating a mushroom." (This story is told by Suetonius, Dio Cassius, and Petrus Patricius.) Nero's remark is more apt if he was referring to the deadly amanita, and not merely to a dish of edible mushrooms that had been poisoned; and Nero was in a position to know.

In spite of Locusta's artistry, we know that her bold stroke was botched, and this leads us to the second part of the crime. The time schedule alone tells us that something went awry. Claudius sat down to his fatal banquet at about 2.30 p.m. on October 12. At or shortly after noon the next day he was dead. The lethal amanitas do not kill so quickly. We do not know at what stage in the lengthy banquet he ate his mushrooms, but probably not at the beginning. His seizure could not have taken place before 9 p.m., and probably not before midnight or later, which would mean that his agony lasted only twelve hours! On its face this is impossible. We pointed out earlier that, for a murderer, the amanita phalloides labors under one defect: occasionally a victim recovers. Agrippina could not afford this risk, and even if we had no evidence to support our theory, we might assume that she and Locusta, as their imperial patient lay at their mercy, resorted to direct methods to dispatch him. Fortunately, our texts come to our help.

"The victim of the plot," says Dio Cassius, "was carried from the banquet apparently quite overcome by strong drink, a thing that had happened many times before." Suetonius's version is hesitant: "Of those accidents also which ensued hereupon [after eating the mushrooms] the report is variable. Some say that straight upon the receipt of the poison he became speechless, and continuing all night in dolorous torments died a little before day. Others affirm that at first he fell asleep, and afterwards, as the meat flowed and floated aloft, vomited all up." (If it is true that in his usual drunken stupor he threw up, this was enough to send the two women into a panic, for he might have rid himself of the fungal poison!) Tacitus is explicit: "Agrippina therefore became dismayed; but as her life was at stake, she thought little of the odium of her present proceedings, and called in the aid of Xenophon the physician, whom she had already implicated in her guilty purposes. It is believed that he, as if he purposed to assist Claudius

PLATE X

Jean-Henri Fabre. Amanita phalloides Fr.
French: *orange cigue verte.*

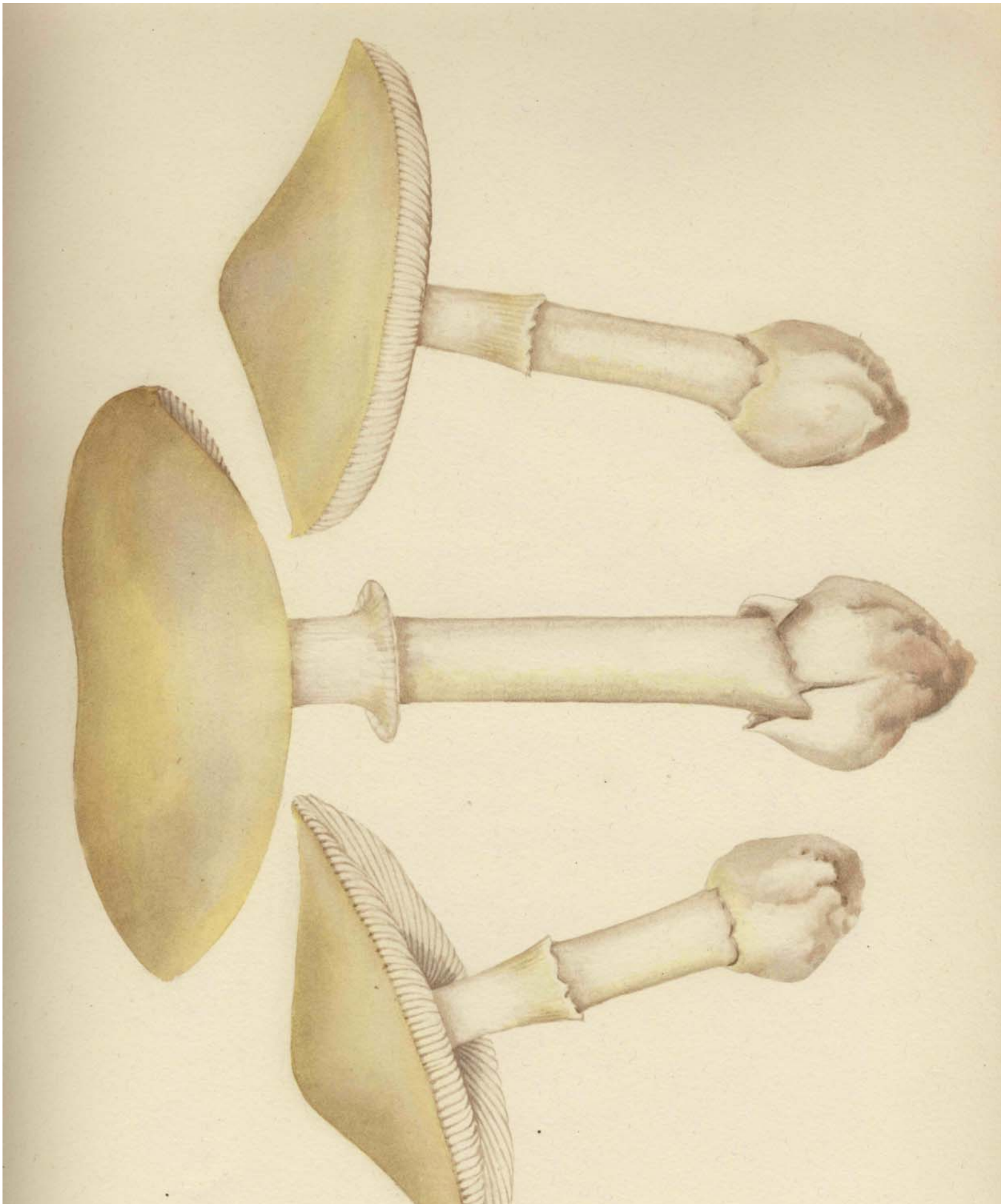


PLATE XI

Jean-Henri Fabre. *Danse Macabre.* Amanita verna Fr. ex Bull.
French: *orange cigue blanche.*

in his efforts to vomit, put down his throat a feather besmeared with deadly poison; not unaware that in desperate villainies the attempt without the deed is perilous, while to insure the reward they must be done effectually at once." There was thus a second poisoning, with the Greek physician Xenophon replacing Locusta. Suetonius says that, according to one report, the second poisoning was by clyster.

What was that poison to which Xenophon had hurried recourse? Robert Graves in private correspondence offers us an answer that fits the circumstances perfectly. Not long after Claudius's death, Seneca published a satire on the emperor's deification to which he gave the title of *Apocolocyntosis,* an artificial word telescoping *apotheosis* and *colocynthis.* The colocynth (as we call this gourd in English) is far from being a pumpkin, and the traditional translation of this title, the *Pumpkinification* of Claudius, is indeed as insipid as the classical scholars have considered it. But if Mr. Graves is right, and we believe that he is, the scholars have missed the point.

The colocynth is not edible. It is exceedingly bitter, whence its name, 'the bitter gourd'. It is not native to Italy, but was imported from the arid areas of the Near East, notably Palestine. This is the famous gourd that responded to Elisha's miraculous powers in II Kings, Chapter 4, verses 38 to 41 :

> And Elisha came againe to Gilgal, and there was a dearth in the land, and the sonnes of the Prophets were sitting before him: and hee said unto his seruant, Set on the great pot, and seethe pottage for the sonnes of the Prophets,
>
> And one went out into the field to gather herbes, and found a wild vine, and gathered thereof wilde gourds his lap full, and came and shred them into the pot of pottage: for they knew them not.
>
> So they poured out for the men to eat: and it came to passe as they were eating of the pottage, that they cried out, and said, O thou man of God, there is death in the pot. And they could not eate thereof.
>
> But he said, Then bring meale. And he cast it into the pot: And he said, poure out for the people, that they may eat. And there was no harme in the pot.

In minimal doses the colocynth is a violent purgative; in larger doses it is lethal. It happens that we know the history of this drug in surprising detail. In the first century of the Christian era the upper classes of Rome were much concerned with their health: hypochondriasis was rampant, and miracle drugs were being discovered one after the other.[1] Early in the reign of Claudius

i. Some of the drugs used in imperial Rome have survived iii use until recent times. One such is the agaric, and another is colocynth, this latter having been the base for 'general issue" purgative pills in the British army in the first world war. We too, in the mid-2Oth century, are witnessing a spate of miraculous pharmaceutical discoveries. Will a single one of them be remembered in A.D. 3850?

an apothecary named Scribonius Largus enjoyed immense vogue; possibly he attended Messalina, the mother of Britannicus and predecessor of Agrippina as wife of the Emperor. In the middle 40'$ of that century he assembled and published a collection of prescriptions that was destined to become famous, and among them was a formula, or *hiera,* that he had discovered among the papers of a deceased colleague, Paccius Antiochus. One of its ingredients was colocynth, a novel drug that thereupon quickly became the rage in the upper crust of Rome, a few years before the events that we are discussing. In the desperate extremity of that turbulent night of October 12, A.D. 54, when the Greek physician Xenophon was called in consultation and permitted himself to become a *particeps criminis,* it was natural for him to come to the rescue of Locusta and Agrippina by dispatching Claudius with an overdose of colocynth, administered by mouth or clyster or both. This explains the name that Seneca gave to his satire. Claudius's last words, as attributed to him by Seneca, were *Vce me! puto, concacavi me,* which would be apt for either colocynth or the deadly amanita.[1]

If then our reading of the texts is right, Claudius was done in with a one-two knock-out, first a dose of the deadly amanita, and then a dose of colocynth. As a pun on 'apotheosis', the name of Seneca's satire *Apocolocyntosis* at last becomes clothed with wit: the deification of an emperor is reduced to a repulsive scatological metamorphosis. When, later, Agrippina did away with Marcus Junius Silanus (as Dio Cassius tells us), it was the deadly amanita that she used, and not colocynth; for colocynth proclaims its presence by its bitterness, and an intended victim would spew it out forthwith.

At noon on October 13 the gates of the imperial palace in Rome swung open, and Nero, then a youth of 17, emerged and presented himself as the new emperor to the army detachment that was on guard there. The Emperor Claudius was dead, or *in extremis.* There could have been no reason, only danger, in prolonging the interval between the death of the old emperor and the assumption of authority by the new.

And so we bring our review of Claudius's death to an end. The three ancient historians who tell us the story were not clinicians. Their accounts, differing sharply in the unessential details, give us a surprisingly clear and consistent overall clinical picture. This is circumstantial evidence of virtually conclusive weight that they were telling the truth. They could not severally have invented a combination of symptoms, and a sequence of events, that two thousand years later would speak for themselves.

i. For information concerning the early use of colocynth in Rome, the best source is Wilhelm Schonack's scholarly study *Die Rezeptsammlung des Scribonius Largus,* published in Jena in 1912.

Our sources say that a curtain of secrecy had shrouded the palace during the illness of Claudius. It is tempting to try to reconstruct the scenes in the imperial palace before and during the crime. The plot had been laid earlier in whispered conversations between Agrippina and Locusta in some safe spot to which Locusta had been furtively summoned. How stirred Locusta must have been by her great assignment: the world offered none bigger for a person in her line of work. Locusta, if she possessed imagination as well as art, may well have leaped with excitement at the thought that this deed, artfully accomplished, would bring her immortality; and indeed it has done so. But during that fateful night the tension must have been unbearable. Had their victim foiled their efforts prematurely from drunkenness, by vomiting before the poisonous amanita had done its damage? Might he survive and resume the exercise of his imperial functions? Was Locusta vexed, her professional pride hurt, when Xenophon was called in, or was she relieved ? With what anxious eyes Locusta and Agrippina must have searched each other's ill-lighted faces as the hours crept on! But in any case, with his enemies in command at his bedside, Claudius stood no chance.

The triumph of Agrippina and her fellow conspirators bestowed on them all power. They may well have gloated in their success, and were so situated that they could talk with a large measure of impunity. In the writings of Seneca and the three historians, one seems to hear echoes of veiled boasting, as though Locusta and Agrippina were dying to tell just how they had contrived their ends. Their words were veiled, in homage to virtue, but thinly, and lend themselves to understanding by the initiated, if only across a chasm of nineteen centuries.

V

THE RIDDLE OF THE TOADSTOOL AND OTHER SECRETS MUSHROOMIC

> [Fungi] quod comesti frequenter oppilant vias spirituum animalium in capite, et inducunt insaniam.
>
> ALBERTUS MAGNUS, *De vegetabilibus.*

TOADSTOOL is a strange term, and doubly strange because no one in our word-conscious times seems to have paused to look at it. Toads do not sit on wild fungi, nor under nor around them; neither do they eat them. Indeed toads and frogs have no direct physical or biological link with toadstools. Our word, with roots deep in our folkways, is not, in any way obvious to us, a distillate of man's observation of nature. The Oxford Dictionary says it is a 'fanciful' name, and thus sidesteps a riddle. Not infrequently commercial artists and fanciful illustrators of children's books represent toads with toadstools, and occasionally even photographers contrive by trickery[1] to juxtapose the two. In every such instance they draw their inspiration from the word, not from nature.

Why 'toadstool'; This question sank its spurs in us some years ago and pricked us onwards, until soon we found ourselves launched on a pilgrimage to far-off places and remote times, to the frontiers of men's knowledge and beyond, where we sought to discern vistas behind the beginnings of recorded history. Through the worn faces of familiar words we re-discovered things that civilized men had forgotten. We may have found, in the end, successive answers to our toadstool riddle, layer beneath layer, as well as answers to a number of other fungal mysteries that reared their challenging heads along our path. The measure of our success will be the cogency of certain problems of larger scope that seem to emerge from our argument, problems that we gladly bequeath to others.

I. Thus on Nov. 8, 1930, *The Times* published a sequence of six photographs showing a toad as it approached a boletus, clambered up on the cap, and finally sat there. Dr. John Ramsbottom reprinted four of these in his *Mushrooms & Toadstools,* Collins, London, 1953, facing p. 287. The photographer, Neville Kingston, died in the I93o's. *The Times* kindly supplied us with his original series of seven photographs, and by internal evidence it is clear that they do not record a spontaneous happening in nature. Innocent and playful in intent, and delightful as one more example of man's undying loyalty to cherished error, these photographs must be docketed as nature fakes. Toads when slightly chilled become lethargic and lend themselves to posing, a secret undoubtedly known to Kingston.

1

THE VENOMOUS TOAD

> He ordenit hir to hing, roist, and drop ane taid, and to lay the droppis of the taid in his hienes [=Highness'] way, for his hienes distructioune.
>
> *Testimony in trial of Barbara Napier, May 8, 1591.*

The sinister mark of the toad is not confined to the English fungal vocabulary. You will find it in Norwegian and Danish, though not in Swedish; in Low German, Dutch, and Frisian; in Breton, Welsh, and Irish. The romance languages know it not, except for traces in French. Nor does it survive in standard High German, though it lingers on in High German dialects. Thus the citadel of the 'toadstool' is in the ring of peoples who dwell around the shores of the North Sea, a gigantic and evil Fairy Ring, as it were, embracing fringes of the Teutonic peoples and the surviving Celts, along with the French. (The Bretons, let it be remembered, emigrated from Britain to their present home across the Channel in the fifth and sixth centuries after Christ, and are thus remote heirs, folkwise, of old Britain.)

Not all of these peoples use the figure of the toad's stool. The Norwegians and Danes speak of the toad's hat; the Low Germans, of the frog's stool; the Dutch say toad's stool; and the Frisians refer to an old fungus as a toad's hide. The Irish term is the frog's pouch; the Welsh, toad's cheese; the Bretons, toad's cap, but by the addition of a single initial sibilant, their term becomes toad's stool, and this is a recognized variant in their language. Here are the words in these tongues: in Norwegian and Danish, *paddehat;* in Low German, *poggenstohl*; in Dutch, *paddestoel;* in Frisian, *poddehud;* in Irish, *bolg losgainn,* with *bolg* meaning pouch; in Welsh, *caws llyffant,* with *caws* meaning cheese; in Breton, *kabell tousec,* and also *skabell tousec.* The Pennsylvania Dutch speak a dialect of High German that comes down from the language of the Palatinate in the i8th century, and in Pennsylvania Dutch we find both toad's stool and toad's foot: *grottestuhl* and*grottefuss.* We know that toad's bread,*pain de crapault,* was used for wild fungi in i6th century France, and this same expression has been reported in modern times in the Calvados region of Normandy. The amanita muscaria, with its red cap flecked by warts, is called *crapaudin* in some parts of France and this word in the form *grapaoudin* has been reported as far south as the Herault, on the Mediterranean.[1]

I. Our source for the French mushroom vocabulary is *Flare Populaire ou Histoire Naturelle des Plantes dans leurs Rapports avec la Linguistiaue et le Folklore,* by Eugene Rolland, Paris, 1914; vol. XI, pp. 129 ff.

All these words, in varying degrees, exhale a bad odor. They designate wild fungi that the speaker considers, rightly or wrongly, inedible and dangerous. The English toadstool, freighted with evil, is typical of the class. In the dialects of England there are numerous variants, and these are interesting because they echo the figures of speech that are current in our list of foreign words. Thus we find toadcheese or taddecheese, toad's bread, toad's cap or toadskep, and toad's meat. For the toad itself there is an ancient variant, pad or paddock, which gives us paddock-stool and puddock-stool. This 'pad' is the same word for toad that the Dutch and Frisians, the Norwegians and Danes, use. This is the witches' word in the opening scene of *Macbeth:*

> Padock calls anon: faire is foule, and foule is faire,
> Hover through the fogge and filthie ayre.

Here in our argument we interrupt its course for a necessary diversion.

Today civilized men have a kindly feeling for the toad. Lewis Carroll and Kenneth Grahame have planted the seeds of their benign influence in the minds of successive generations of well brought up English-speaking children. The Victorians were inclined to foster sympathy for the whole animal world. (Was this because the industrial revolution released increasing numbers of men from slavery to the soil, from intimate conflict with cantankerous nature?) As for the toad, there has been an additional influence: men of science have undertaken to show that it is the farmer's friend.

Far different was the repute of the toad in times past. There was no other member of the animal kingdom that inspired such revulsion and fear. Chaucer spoke of the 'foule tode', and Spenser of the loathly and venomous toad. 'A pad in the straw' was what our ancestors said when they meant 'a nigger in the woodpile'. (Now that this last phrase is banned in polite society and perhaps vanishing, why not revive the earlier expression?) Shakespere reveled in the toad as a potent term of abuse. In *Richard III* the toad is a recurring theme, as is fitting for a play about a king described as:

> That bottel'd Spider, that foule bunch-back'd Toad.

Among all of Shakespere's many references to the toad, there is not one that is neutral, much less friendly. Edgar in *King Lear* denounces Edmund as 'a most toad-spotted traitor'; and the witches in *Macbeth,* when they concoct their hellish brew, give to the toad pride of place in the cauldron:

> Toad, that under cold stone Days
> and nights hast thirty-one

CHAPTER FIVE

> Swelter'd venom sleeping got, Boil
> thou first i' the charmed pot.

Not only were toads venomous: to the medieval mind they were also a symbol of lechery, as were warts and moles, with which toads were supposed to be covered. We shall return to this matter of lechery; for the present we only direct the reader's attention to the visual use of the toad in this sense by Hieronymus Bosch, in his *Seven Deadly Sins,* of which we reproduce the pertinent detail in Plate xm.

The evil repute of the toad is not yet dead. There are English circles where 'Toad!' flung in anger would be a fighting insult now. The derivative 'toady' brings to mind the sycophantic and hypocritical squat of the creature, with its upturned watchful eyes. The bad name of the toad survives among untutored countryfolk in England and the United States, where farmers cling to the belief that the spittle of toads is poisonous, and that warts will grow on the skin where a toad has touched. French peasants down to recent times, and perhaps even now, put toads to death by methods shocking for their cruelty, methods that reveal an ingenuity in torture ordinarily reserved by man for his fellow-men.[1] The venom-spitting toad in all his horrible lineaments was painted for us by Hieronymus Bosch in a detail of his *Judgment Day.* Summoned from his grave, a nude Cardinal (his worldly office proclaimed by his hat) is floating away to everlasting damnation as a squatting toad directs a shaft of his deadly saliva at the passing corpse.

Toads were closely linked with witchcraft. In France all witches harbored toads as their familiars, and this was common in England and Scotland too. In 1591, trials held in North Berwick elicited from the members of certain witches' covens clear testimony that they had tried to murder King James VI of Scotland, and that one of their plans had been to drop toad's venom on his head or body, and to smear his small clothes with it.[2] Presumably the poison was to invade the person of the king through abrasions of the skin, which in those days of absent hygiene and parasitic insects were taken for granted. From the contemporary records of this case we learn that 'to drop a toad' was the idiom used at that time for the milking of a toad's venom - a meaning of the verb 'to drop' that the Oxford Dictionary fails to record - and in one of the

1. See *Le Folklore de France,* by Paul Sebillot, vol. in, *La Faune et la Flore,* Paris, 1906; pp. 280 ff.
2. See *The Witch-cult in Western Europe,* by Margaret Alice Murray, Clarendon Press, Oxford, 1921, p. 53; also *Life in Shakespeare's England,* an anthology compiled by John Dover Wilson, published in 1911 by the Cam bridge University Press and reprinted repeatedly since then. For additional references to toad poisoning in England, see Miss Murray's latest work, *The Divine King in England,* 1954, Faber & Faber, London, p. 40; also p. 61.

accounts of the trial we even learn the details of the method used. Here is a paraphrase of the testimony of Agnis Tompson, a defendant, as published in *Newes from Scotland Declaring the Damnable Lif and death of Dr. Fian,* printed in London for William Wright in 1591:

> She confessed that she took a blacke Toade, and did hang the same up by the heeles, three dales, and collected and gathered the venome as it dropped and fell from it in an Oister shell, and kept the same venome close couered, untill she should obtaine any parte or peece of foule [soiled] linnen cloth, that had appertained to the Kings Maiestie, as shirt, handkercher, napkin or any other thing which she practised to obtaine by meanes of one John Kers, who being attendant in his Maiesties Chamber, desired him for olde acquaintance betweene them, to helpe her to one or a peece of such a cloth as is aforesaide, which thing the said John Kers denyed to helpe her too, saying he could not help her too it.
>
> And the said Agnis Tompson by her depositions since her apprehension saith, that if she had obtained any one peece of linnen cloth which the King had worne and fouled, she had bewitched him to death, and put him to such extraordinary paines, as if he had beene lying upon sharp thornes and endes of Needles.

It comes as a shock to modern man to learn that his ancestors considered the common toad venomous as the adder. It comes as a double shock to him when he learns that these ancestors were probably right, and that on this subject they were better informed than he is. The toad has no fangs and cannot bite. But on his coarse skin are scattered numerous glands that look like warts or pustules; and when the creature is frightened or in pain, these glands exude a milky fluid, which is powerfully toxic. Hidden inside the skin, invisible to the naked eye, is another set of glands, which lubricate the skin with a slimy mucoid secretion, easily perceived by the human hand but perhaps not poisonous. The witches who kept toads as their familiars knew the wicked properties of the toad's milky secretion, and it is a fair surmise that the singular tortures reserved for toads by some countryfolk were originally devised to milk the toads of their deadly drops. The venom of the toad cannot penetrate healthy human skin, but takes hold of any mucous membrane, and if swallowed or absorbed through an abrasion of the skin, might well be lethal. Among those who work with toads, it is common knowledge that their secretions, if accidentally brought into contact with the eyelid, cause an acute burning irritation. (The inflamed swelling of the sebaceous gland at the margin of the eyelid, commonly known in English as a stye, is called in vulgar Dutch *paddescheet,* 'toad's excrement', even when no toad is involved.)

In the 15th century Chronicle of St. Albans there is an account of the death of King John of England that possesses extraordinary interest both for its own sake and for the role played in it by a toad. History relates that the King in

the year 1216 was making his way north with his retinue, dogged by his enemies and ill. In crossing the Wash he lost much of his baggage train, to his great sorrow, and after lying at the Cistercian monastery at Swineshead, he progressed some distance beyond to the castle at Newark-on-Trent, where he died on October 19, on "the morrow after St. Luke's Day". The Chronicle of St. Albans says that his death was precipitated by a draught of poisoned ale served to him at Swineshead. Though perhaps the scribe was only giving currency to a malicious canard, this scarcely affects the interest of his narrative for us, because he was writing what he and his contemporary readers were ready to accept, and the role in the affair that he assigns to a toad conformed to common beliefs and probably to esoteric knowledge. The provocation that the scribe reports for the alleged regicide is curious. The King swore a great oath, says the chronicler, that if he was spared another six months, the loaf of bread then worth a ha'penny would be selling at 20 shillings! A modern reader may be excused if this passage conjures up for him the specter of runaway inflation, but for the chronicler and his public it meant famine and panic in the market place. Why should King John have foreseen famine and panic as the inevitable sequel to his own survival > And why should the chronicler, as well as the monk of Swineshead, have considered this sequence so obvious that it called for no explanation? Miss Margaret Murray in *The Divine King in England* uncovers the strange beliefs that seem to have underlain the King's great oath and justified the monk's deed in his own eyes and his superior's, a vignette of medieval behavior baffling for us but clear and simple then.

Here, then, is the story of King John's death as put down about the year 1483, more than 250 years after the event, by the chronicler of St. Albans:[1]

The Kyng came by the Abbey of Swynesheade, and there hee abode two dayes; And as he sate at mete, he axed a Monke of the house, How moche that loof was worth that was sette before hym uppon the table > And the Monke said, That the loof was worth but an half-penny. O said the Kinge tho [then], Here is grete chepe of brede; Now sayd he tho, And [=if] I may lyve ony while, such a loof will be worth xx. shillinges or half a year be gone. And so whan hee sayd this worde, moche hee thought, and often hee sighed, and toke and etc of the brede, and sayd; By God, the worde that I have spoken, it shall be soth. The Monke that stode before the Kynge was for this worde full sory in his herte, and thought rather hee would hymselfe suffre deth, and thought yf he might ordeyne therefore some manere remedye. And anone the Monke wente unto his Abbot and was shriven of him, and tolde the Abbot all that the Kynge had sayd; And prayed his Abbot for to assoyle [absolve] him, for he would yeve the Kynge such a drynke, that all Englonde

I. The extract from the *Chronicle* is copied from the *History of King John,* by William Prynne, London, 1670, pp. 36-7.

PLATE XII. Hieronymus Bosch. The Last Judgment. Detail: Spitting toad.
Munich, Bayerische Staatsgemaldesammlungen.

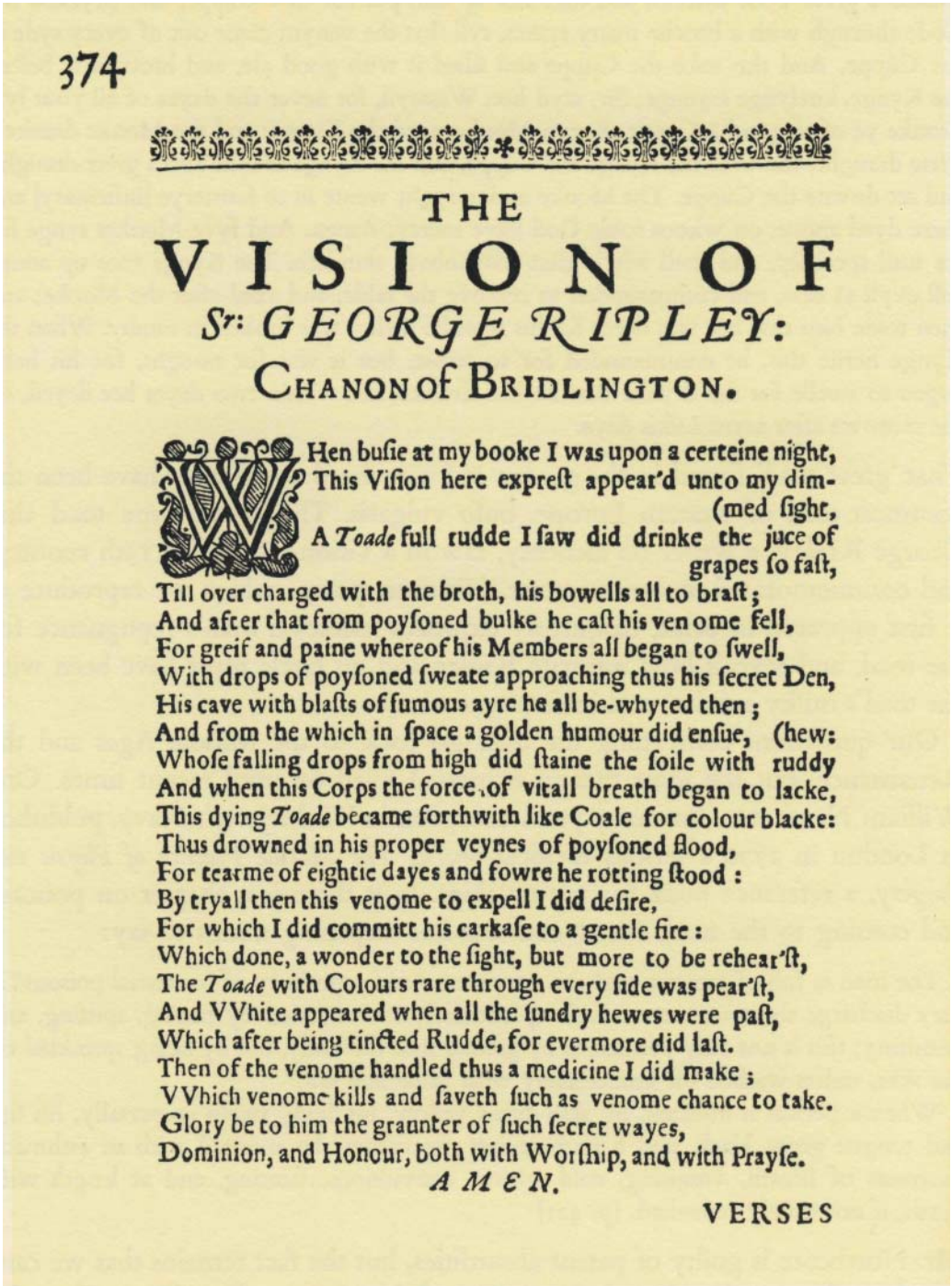
sholde be glad thereof and joyfull. The[n] yede [went] the Monke into a gardeyne, and founde a grete Tode therein, and toke her up and put her in a Cuppe, and prycked the Tode thorugh with a broche many tymes, tyll that the venym came out of every syde in the Cuppe, And tho toke the Cuppe and filled it with good ale, and brought it before the Kynge, knelynge sayenge; Sir, sayd hee, Wassayll, for never the dayes of all your lyfe dronke ye of so good a Cuppe. Begyn Monke, sayd the Kynge: and the Monke dranke a grete draught, and toke the Kynge the Cuppe, and the Kynge dranke also a grete draught, and set downe the Cuppe. The Monke anone ryght wente in to farmerye [infirmary] and there dyed anone, on whoos soule God have mercy, Amen. And fyve Monkes synge for his soul specially, and shall whyle that the Abbaye standeth. The Kynge rose up anone full evyll at ease, and commaunded to remove the table, and axed after the Monke; and men tolde him that hee was deed, for his wombe [belly] was broken in sundre. Whan the Kynge herde this, he commaunded for to trusse, but it was for nought, for his belly began to swelle for the drynke that he had dronke, and within two dayes hee deyed, on the morowe after saynt Lukis daye.

That 'great toad' found in the garden at Swineshead could only have been the common toad of western Europe, bufo vulgaris. This is the same toad that George Ripley, a writer on alchemy, saw in a vision late in the I5th century, and commemorated in curious verse. His short poem, which we reproduce as it first appeared in print, eloquently expresses medieval man's repugnance for the toad, and reveals how intimate Ripley and his circle must have been with the toad's milky exudate and its fearsome virtue.

Our quotations concerning the toad go back to the Middle Ages and the Renaissance, but the ideas therein expressed lived on until recent times. One William Northcote, for many years a surgeon in His Majesty's Navy, published in London in 1770 a serious medical work, *The Marine Practice of Physic and Surgery,* a reference book for use on ships. In it there is a chapter on poisons, and coming to the toad, Mr. Northcote has surprising things to say:

> The toad is full of venom, and the very centre and repository of terrestrial poisons... they discharge their venom on herbs (particularly strawberries) by pissing, spitting, and vomiting; this is not only pernicious by getting into the body, but by being sprinkled on the skin, unless washed off immediately with urine and salt.
>
> When a person is infected, his skin turns yellow, his body swells universally, his lips and tongue grow black, and a stammering supervenes; he is seized with an asthmatic shortness of breath, vomiting, cold sweats, convulsions, fainting, and at length with death, if not timely remedied, [p. 421]

Mr. Northcote is guilty of patent absurdities, but the fact remains that we cannot deny for sure his clinical description of the victims of toad poisoning, for modern medical records offer us no histories of such cases. This seasoned practitioner of the 18th century was closer than we, chronologically, to the era when



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THE
VISION OF
Sr: GEORGE RIPLEY:
CHANON of BRIDLINGTON.

WHen buſie at my booke I was upon a certeine night,
This Viſion here expreſt appear'd unto my dim-
(med ſight,
A *Toade* full rudde I ſaw did drinke the juce of
grapes ſo faſt,
Till over charged with the broth, his bowells all to braſt;
And after that from poyſoned bulke he caſt his venome fell,
For greif and paine whereof his Members all began to ſwell,
With drops of poyſoned ſweate approaching thus his ſecret Den,
His cave with blaſts of fumous ayre he all be-whyted then;
And from the which in ſpace a golden humour did enſue, (hew:
Whoſe falling drops from high did ſtaine the ſoile with ruddy
And when this Corps the force of vitall breath began to lacke,
This dying *Toade* became forthwith like Coale for colour blacke:
Thus drowned in his proper veynes of poyſoned flood,
For tearme of eightie dayes and fowre he rotting ſtood:
By tryall then this venome to expell I did deſire,
For which I did committ his carkaſe to a gentle fire:
Which done, a wonder to the ſight, but more to be reheat'ſt,
The *Toade* with Colours rare through every ſide was pear'ſt,
And VVhite appeared when all the ſundry hewes were paſt,
Which after being tincted Rudde, for evermore did laſt.
Then of the venome handled thus a medicine I did make;
VVhich venome kills and ſaveth ſuch as venome chance to take.
Glory be to him the graunter of ſuch ſecret wayes,
Dominion, and Honour, both with Worſhip, and with Prayſe.
A M E N.

VERSES

Fig. 2. From *Theatrum chemicum Britannicum,* by Elias Ashmole, London, 1652.

men knew the properties of the toad's venom, and his account of the symptoms is the only one emanating from a medical pen known to us. It stands thus uncorroborated and unchallenged, a wisp of dubious expert testimony in what would otherwise be a scientific vacuum.[1]

1 here exists an additional body of evidence of a different order testifying to the toad's sinister grip on the popular imagination in times gone by. Men take refuge in euphemisms when they talk about things that move them profoundly. People 'pass away' rather than 'die', and Satan becomes the 'Evil One'. Abhorred creatures are called out of their names, or else their names are subjected to irregular distortions in sound.

In the languages of Europe few creatures can compete with the toad for evasive nomenclature. The measure of this tabu lies in the number of etymologically unrelated words for it, not to speak of the variety of dialectical variants for each word. Here are a few of the important ones: in Latin *bufo,* and in Italian, *rospo* and *botta;* in Spanish, *sapo* and *escuerzo;* in French, *crapaud* and *hot;* in German, *Krote;* in Russian, *zhaba;* around the North Sea, *padde;* and in English, 'toad'. An abundance of diverse names like this makes difficulties for the philologist, who has more to show for his efforts when he goes coursing through the Indo-European languages after words like 'wolf and 'fox', words that turn up in more or less regular mutations in various languages. Some of the words for 'toad' defeat the philologists completely. Take 'toad' itself. It exists in several variations in English, of which 'tad', as in 'tadpole', is the most important. It is genetically related to the three-syllabled variants in Anglo-Saxon, *tadie* and *tadije.* There the trail is lost: no remoter ancestry is known for the word, and it has no kin in other tongues.

We believe that all, or almost all, of the words for 'toad' in Europe can be explained, if we look for the figures of speech that are latent in them by focusing our attention on the creature itself. Instead of attacking the 'toad' problem by frontal assault, let us approach by a postern gate, viz., through the Celtic languages. We know the words for 'toad' in five Celtic languages, and, as befits a creature veiled by tabu, the five words appear to be unrelated to each other. From ancient Gaul *craxantus*[2] survives in a single citation. In Cornish the

1. In the second century before Christ an Ionian Greek, Nikander of Colophon, composed a metrical essay entitled *Alexiphartnaca* on poisons and their antidotes, and in lines 567-594 he discusses toad poisoning. His observations are obscure, perhaps deliberately so, but in tone they are not far removed from Mr. Northcote's.

As we go to press we learn that Howard F. Fabing, M. D., of Cincinnati, has been giving intravenous injections of bufotenine, the toxic agent secreted by the epidermal glands of the toad, to volunteers in the Ohio State Penitentiary.

2. See *Franzosisches Etymologisches Worterbuch,* by Walther von Wartburg.

toad was *croinoc* or *cronec,* and this meant 'the skin' or 'the hide', from *croin,* meaning skin. The Cornishman referred to the toad by its skin, covered as it is with pustules, and notorious for the way the creature blows itself up with air like a sac when making its eerie call. In Welsh the toad is the *llyffant;* this appears to mean 'the slimy one,' with obvious reference to the slippery secretions of the skin. The common toad does not exist in Ireland, and the only toad reported there is the bufo calamita, known in English as the natterjack. Its range in Ireland is so limited that almost no natives have ever seen a toad: the natterjack has been found in historic times only over an area of some twenty square miles, around Castlemaine Harbor at the head of Dingle Bay in Kerry. The expression for 'toad' in Irish is 'the poisonous frog' - *losgann nimhe;* and since the word for frog - *losgann* - means 'the burning one', we arrive ultimately at 'the poisonous burning one' - a doubled reference to the toxic, stinging secretion of the pustules.

Now we turn to the Breton language, and here perhaps we discover a loose end to Ariadne's thread, a possible clue to our problem. The word for toad in Breton is *tousec.* It comes from the Latin *toxicum,* and therefore means 'the poisonous one'. On an earlier page we said that the standard word for 'toadstool' in Breton is *kabell tousec,* wherein *kabell* (from the Low Latin *cappa* and *capello]* means 'cap'. When the early Bretons spoke of the toadstool as the *kabell tousec,* the term meant to them 'the poison cap', as well as the toad's cap; and the variant *skabell tousec* could have meant 'the poison stool' as well as the toad's stool.[1]

In Britain, the island that the Bretons had left behind, are we surprised to discover that the Anglo-Saxon word *tosca* meant toad ? It is, we submit, identical to the Breton word, offspring of *toxicum,* and another example of'the poisonous one'. We have mentioned the English name for the bufo calami ta - the natterjack. We believe that the root of this word is to be found in the Anglo-Saxon word for poison -*ator;* a word that as 'etter' survived in English for centuries, and still circulates in dialect, to designate the venom of a reptile, and the corrupt matter that oozes from a suppurating ulcer or abscess. An 'attercop' is an old word for a (supposedly poisonous) spider. In modern Dutch *etter* still means pus. If we are right, what we now call 'a natterjack' was once 'an atterjack', the shuttling V being a well known linguistic quirk. The jack' is simply the same element that we find in the jumping-jack'. The 'atterjack' is then a 'poison jack', and an Anglo-Saxon rendering of the Latinism *tosca.*

Let us pause on *tosca,* that long forgotten word for the toad. It had a doublet

I. See *Lexique Etymologique du Breton Modcrne,* by Victor Henry, Rermes, 1900; p. 268.

in Anglo-Saxon, *taxe,* which survives in a single citation. The alternation in the vowels reminds us of 'toad' and 'tad', and also of a parallel in Latin: *toxicum* meaning 'poison' and *taxus,* 'yew'. In antiquity the yew was notorious as a poisonous tree, and the adjective *taxicus* was popularly associated with *toxicum.* In Greek TO^OV meant 'bow' and 'arrow' and 'bow-and-arrows'. Philologists are inclined to deny a link between the Greek and the Latin words, and even between the Latin words themselves, but concede that the problem is unclear. Until we know more about the role of bows and poisoned arrows in early magic and myth, it is well to suspend judgment. Bows were made of yew, and arrow-heads were smeared with poison, perhaps from yew. Robert Graves has pointed out[1] that arrow-heads were sometimes knapped with double tangs to resemble the yew. The making of such arrow-heads demanded far more patience and skill than the simple willow-leaf and elder-leaf points, and would be less effective in hunting or fighting. They must have been ceremonial in function and were undoubtedly bathed in *mana.* As we look back in recorded history, our 'toad' or 'tad' emerges from the Anglo-Saxon world as the venomous helpmeet of sorcerers. The very name of the creature, *tousec* or *tosca* or *taxe,* is redolent with poison, potent with *mana.* Down through the Middle Ages and into modern times the toad was still freighted with this primitive cargo of evil. *Tosca* and *taxe* may have contributed to the shaping of our words 'toad' and 'tad'. As we said before, the etymology of 'toad' is unknown. We must consider the possibility that, by steps that may forever remain obscure, the Anglo-Saxon words come down to us in 'toad' and 'tad' by lineal descent. The irregular mutation of *-sc-* and *-x-* into 'd' could have been a euphemistic substitution.[2]

If 'toad' descends etymologically to us from *toxicum,* then in English as in the Breton tongue a 'toadstool' in its ultimate meaning is a 'poison stool', and the idea of poison, rather than the toad, may have been dominant in the minds of those who first applied this term to the wild fungi in the Anglo-Saxon world. In any case, whatever the etymology, the cultural soil in which 'toad' had its beginnings explains that aura of abhorrence which bathes the word to this

1. See his *White Goddess, a Historical Grammar of Poetic Myth,* Creative Age Press, New York, 1948, footnote on p. 320; also p. 38.

2. If Latin *-x-* became *-s-* in *tosca,* then the Anglo-Saxon word results from the omission of the middle syllable, *toxicum* becoming *tos'ca.* But if *-x-* by phonetic transposition became *-sc-* we arrive directly at *tosca* by the ero sion of the last syllable. If *taxe* or a hypothetical *toxe* became by euphemistic mutation *tadse* or *todse,* the evolu tion into 'toad' or 'tad' is easy, the sibilant being lost by a popular back-formation of an erroneous singular; cf. 'toad's stool' which becomes 'toad-stool'; also 'pea', 'asset', 'shay', 'sherry', 'cherry', etc., all of which have lost the sibilant with which they originally ended. The mutation of 'c' into 't' is not altogether conjectural. In the Anglo-Saxon dictionary of Joseph Bosworth and T. Northcote Toller, under *tosca,* we find a quotation in which the plural of *tosca* appears with 't', - *tostan.*

day in the English language. We discover why the Oxford Dictionary fails to satisfy us when it dismisses the problem of the toadstool by calling it a 'fanciful' term. We realize why the headline in *The Times,* EDIBLE TOADSTOOLS, shocks us as a contradiction in terms.

We have already observed that the Irish word for 'frog' is the 'burning one'. Here again the reference is to the secretion of the epidermal glands of the amphibian, the secretion that stings when it comes into touch with a mucous membrane. This Irish word has its parallels in certain of the Germanic languages. In Old High German the verb 'to burn' was *zusken,* and by regular mutation of sounds this explains the Danish word for the toad, *tudse,* in which today the letter *d* is silent. In Swedish the corresponding word is *tossa,* with dialectical variants *tosk* and *tusk;* and there also survives a citation from 1652 in the form *tadza,* pronounced perhaps as 'totsa' would be in English. In all these words the toad is called the 'burning one', as the frog is in Irish. These words find their semantic parallel in the vulgar Dutch term *paddescheet,* the stye with its burning sting, to which we called attention earlier. In Greek the word for toad, eppOvo?, is usually explained as meaning 'the brown one', but brown is the burnt color, and Professor Andre Martinet has suggested that cpptivoc; may refer to burning rather than to the color.

We know that the secretion of toads was used by the practitioners of witchcraft. We know that in ancient Rome the lethal properties of the wild fungus known as the deadly amanita or destroying angel or death cup were familiar to the practitioners of venomy, as we choose to call the art of murder by poison. But no positive evidence survives, so far as we know, to show that in the practice of witchcraft the secrets of the fungi were utilized; no evidence, that is, beyond 'toadstool' itself, this humble folkword with its secret message. Does the absence of positive evidence mean that the toadstool was not used in the practices of the Old Religion, or that the secret was successfully kept? For the present we leave the answer to the reader.

2

BASQUES AND SLOVAKS

In research it is often the small remainder of unexplained evidence that points the road to further discoveries, and even perhaps to an abrupt step-up in the scope and thrust of the inquirer's purpose. We believe that we may have discovered for the first time the explanation for the 'toadstool', the secret lying in the original but now forgotten sense of'poison-stool'. But our answer to this question leaves certain tantalizing facts unreconciled. Why do the Danes for 'toadstool' say *paddehat,* rather than *tudsehatt*[1] Of their two words for 'toad', why do they link with the wild fungi the one that does not refer to the poisonous secretion? In English too we find paddock-stool. In Dutch there exists no name for the toad, so far as we know, that means 'the poisonous one'; yet the Dutch also say *paddestoel.*

In short, while we have perhaps explained the word 'toadstool', we have not answered the whole of our question, for we find toads linked with fungi where poison is not involved. We must ask ourselves whether there was not a deeper and broader association between toads and mushrooms, whether the two orders of living things did not possess in common some other attribute that originally struck the primitive fancy and led to verbal kinship. If this be so, then the words based on the common attribute of poison may have been a late development, restricted in area, superimposed on an older and broader verbal stratum, a verbal variation on an exceedingly ancient theme. The use *oftoxicum* in the context of toads and fungi may have been merely a Latinism devised by practitioners of an esoteric witchcraft cult around the North Sea basin in the early centuries of the Christian era.

It turns out, indeed, when we look further afield, that the toad-fungus link is not confined to the North Sea countries. In two areas of the Continent, far removed from each other in every sense, the same semantic tie occurs. First, there is the Basque country of Spain (not France), where in the Basque language several names for wild mushrooms involve the Basque word for toad, which is *zapo* or *apo* or (in certain combinations) *amo.*[2] The amanita muscaria, which in parts of France is sometimes called *crapaudin,* carries a Basque name in parts of the Biscay and Guipuzcoa country that is an exact semantic equivalent of the French word: viz., *amoroto.* In a contiguous area *apontto*

1. *Tudsehat,* reported in the Danish lexicons, appears to be obsolete and to have been always rare. But a reliable informant tells us that in the Low German dialect of Holstein *tutzenstol* is in current usage.
2. The mutation of *p* into *m* is well recognized in Basque; e. g., Pentecost becomes Mendekoste.

is the name bestowed on a certain distrusted wild fungus, and this word also serves thereabouts as a term of personal abuse. The root is *apo,* 'toad', in both these words. Two excellent species of wild mushrooms, marasmius oreades and marasmius urens, are rejected by the Basques of the same provinces, who call them 'viper-fungus' and 'toad-fungus' - *suge-perretxiko* and *zapo-perretxiko.* (Note this our first encounter with the viper theme.) Except in the Basque country, we have found no trace of the toad figure in the fungal vocabulary of Spain, but we possess one straw of evidence indicating that formerly it was in use. Dr. Stephan F. Borhegyi, the Hungarian archeologist working in Guatemala, on a visit to the village ofJocotan in the Department of Chiquimula, discovered that the Spanish-speaking people in that community used neither *hongo* nor *seta* for 'mushroom': their pejorative term for species believed to be poisonous is *sombrilla de sapo,* 'toad's parasol'. Remote Jocotan is known to linguists for the Spanish archaisms that survive there, and one assumes that the *sombrilla de sapo* is a fossilized survival of an expression current somewhere in 16th century Spain.

Far from the Basque country, in the Ukraine, the natives speak of any wild mushroom that they reject as *zhabjachyj hryb* - the toad-like mushroom. A little to the West, in Slovakia near Tatra, a native informant reports to us that such despised fungi are variously called *zabaci huby,* the toad-fungi; *had'ad huby* and *had'unke huby,* both meaning viper-fungi; or *salene huby,* mad fungi. We are unable to circumscribe the area in the Slav world where the toad theme survives in the mushroom vocabulary. It is unknown in Great Russia.

The semantic analogies between the Basque terms and those used in the Ukraine and Slovakia, combined with the evidence around the North Sea, suggest a profound substratum of folk associations between fungi and toads in the Indo-European world, a substratum that is today everywhere silted over except for the three outcroppings on the map of Europe[1]. This inference finds support in a further surprising fact. Throughout the Slav world the most beloved general word for the edible mushroom of forest and field is, in its Russian form, *grib.* In the Slavic mind there is no association between this happy word and the creature we call *zhaba,* the toad. But now turn to the Catalan language. There we find that the word for toad is *gripau.* No Catalan connects it with wild fungi. Yet it seems clear that the etymological root of Catalan *gripau* and of Russian *grib* is identical! That root, surviving virtually unchanged

I. In the Romansch language pawn *de pdder,* meaning 'monk's bread', is the general term for fungi. Could *pdder* be a folk corruption of Dutch *padde?* If so, the term is identical semantically to the French *pain de crapaud. Padde,* coming from Dutch, spread far beyond the confines of Low German, being recorded for Frankfurt and Leipzig as far back as the i6th century.

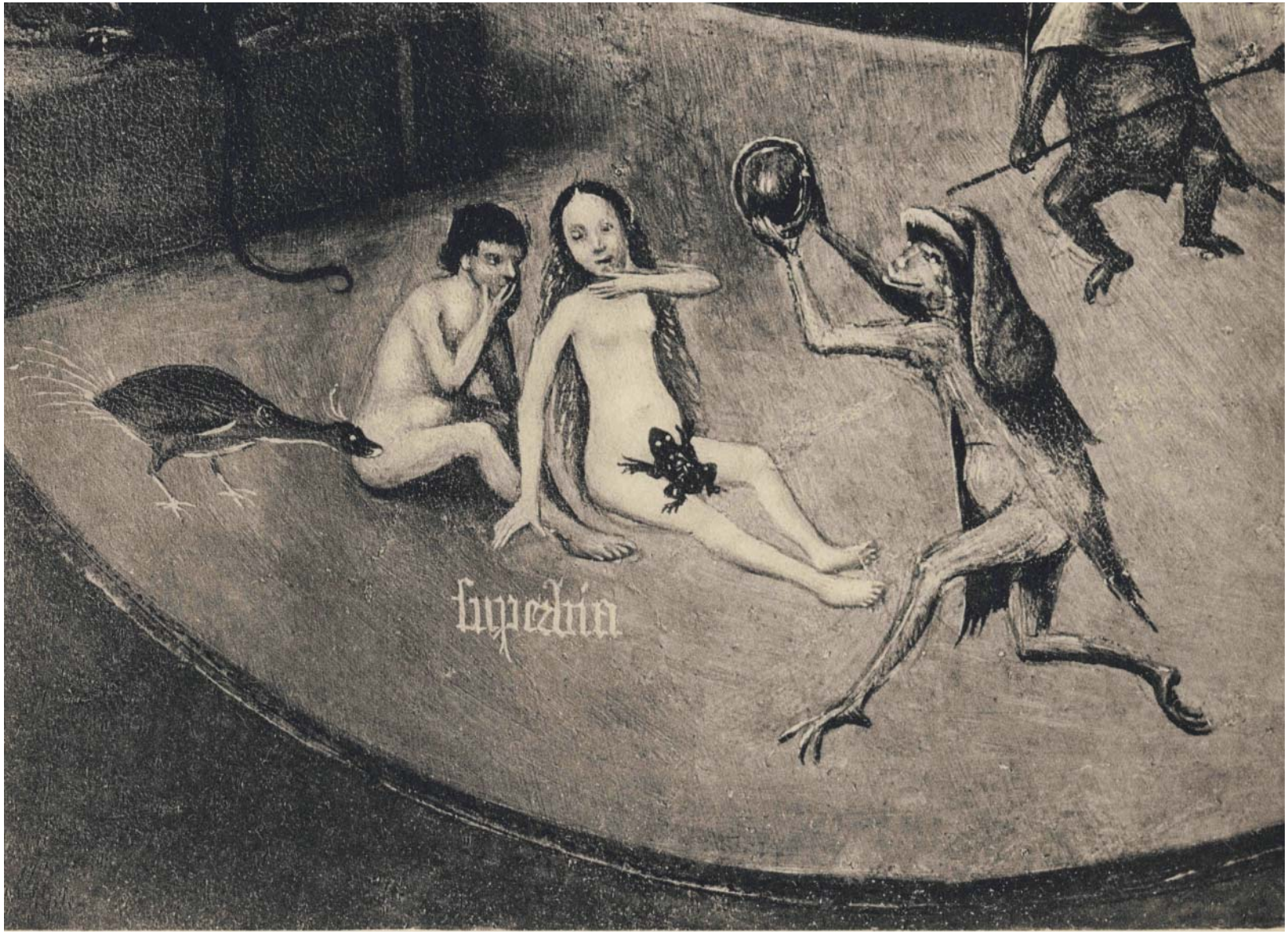


PLATE xiii. Hieronymus Bosch. The Seven Deadly Sins. Detail: Superbia. *Madrid, Prado Museum.*

from remote times in two widely separated languages in words with wholly different meanings, carries the sense of gripping, grabbing, seizing, scraping, grubbing, digging. Here is no allusion to poison, no kinship with *toxicum.* If 'toad' evolved from *toxicum,* it is a late and geographically circumscribed intruder in verbal history, by comparison with the perspectives that we now contemplate. Only by a kind of linguistic triangulation into the past can we arrive at a reconciliation of Russian *grib* and Catalan *gripau.* And we must defer this until we have explored certain other matters.

It would be easy to spin an argument that in the early European mind toads and fungi shared a chthonian existence - toads hibernating in soft earth and then thrusting themselves to the surface; fungi living out the better part of their existence hidden in the soil, but, when circumstances are propitious, shouldering their way through the soil's crust to the light of day. One could even postulate a primitive earth-cult with its focus of worship in the earthy toad and the toadstool. But perhaps we can find a more solid basis for inquiries than such facile and unsubstantial speculations.

3

THE CRIPPLE, THE TOAD, AND THE DEVIL'S BREAD

In the Middle Ages the French viewed the toad somewhat differently from the English, and in this section we shall digress briefly to clarify the distinction. With the French the emphasis was not directly on the venom but on the creature as an incarnation of Satan.

In Old French there was a curious word, *le lot,* which according to the dictionaries meant 'toad', and they add that it fell into disuse in the 15th century. For a time it lingered on in a single phrase: *enfle comme une bote,* 'blown up like a female toad', a phrase that beyond the Loire had already become *enfle comme un crapault.* (The female is much bigger than the male, and the older simile thus carried a double superlative.) *Bot* in the sense of toad survives to this day in many regional dialects of France and also in the Italian *botta.* The word in a different meaning still circulates in standard French, in the fossilized term, *pied bot,* 'club foot'. What links toads to club feet?

The origin of this word is not in doubt. *Bot* comes down from a Germanic root meaning 'blunted', 'malformed', 'clumsy'. It exists in an English form: the pudgy, clumsy hands of babies are 'puds', as are the forefeet of certain animals. 'Puddifoot' is a family name, originally a nickname for a cripple. But why should a toad, with its delicately articulated extremities, be called a cripple ?

We believe that the history of this little word is a chronicle of successive metaphors, and that its primary role was as a euphemism for Satan. The Foul Fiend in the Middle Ages possessed certain sharply defined attributes. He wore horns. He had a tail. For hands he showed claws. He was enveloped in the hairy hide of an animal. He was sometimes represented as glorying in shameless priapism. Finally, he was a cripple, one leg ending either in a club foot, or a splayfoot, or a bird's talons, or a paw, or a hoof- a cloven hoof. To this day horns and cloven hoof are familiar metaphors for wickedness in English. There are low circles in which 'cripple' serves as an epithet of singular viciousness, beyond anything that mere lameness justifies. Eric Partridge in his *Dictionary of Slang* cites what he calls a senseless phrase used by English schoolboys to spur their teammates to greater efforts: " Go it, you cripple!" Sometimes the language of children preserves words and phrases that have disappeared among adults, and we believe these schoolboys are in hopes that the very Devil will possess the players on their side. Perhaps our suggestion explains another folk belief

that is still current, the notion that cripples are capable of more than normal sexual prowess.

In the first instance, then, *le hot* meant 'the Cripple', a euphemism for Satan.[1] In this sense it survived into the i6th century in the oath, *Vrai lot!* - 'by the very Devil'. Elizabethan England borrowed this French oath intact. The Oxford Dictionary gives as its earliest citation the following, dated 1584: "A bots on thy motley beard!", and the final citation is from 1719:

> Bots on them all Both
> great and small!

Unaccountably, the Oxford Dictionary says the origin of 'bots' is unknown.

Satan's sinister limp seems to have vanished today from men's memories. It was vanishing already in Napoleon's time. His coadjutor Talleyrand, notorious for his loose life and lack of scruples, limped from his earliest years; and this physical deformity did not escape his enemies, who dubbed him *le (liable boiteux,* 'the limping devil'. *(Boiteux,* by the way, is unrelated etymologically to *le hot.)* In ear her times either the noun or the adjective would have been redundant. An English caricaturist devised a satirical coat of arms for Bonaparte, supported on either side by a Devil, on the right by the Corsican Devil with a cloven hoof, and on the left by Talleyrand, the French Devil, with a reptilian extremity. Was it not Talleyrand's distinction to be the last major figure with a limp whose infirmity was held against him as a demonic stigma? We reproduce this savage print in our Plate No. XX.

In the next stage, *le lot* underwent a shift from Satan himself to the creatures into which he was supposed to transform himself- the toad, a certain kind of nocturnal bird, and bats.[2] The nightjar, kin to the American whippoorwill, was known in parts of France up to recent times as *le hot volant,* and also as *le crapaud volant,* names so layered with metaphors that they could be fairly translated in any of three ways, the flying Devil, the flying Cripple, and the flying Toad. Even more interesting is the widespread use of *le hot volant* for the bat, a creature that was formerly steeped in sinister associations. Its nakedness, its blackness, its miraculous agility in night flight, its facial features stretched taut

1. A parallel for *hot* is to be found perhaps in *bratze,* a colloquial name for the toad reported in Bavaria, which can mean 'paw', 'claw', 'clumsy foot'. But *bratze* must be considered in conjunction with certain other words for the toad: Bavarian *braste,* suggestive of the lamenting cry of the toad; the Bavarian *broz* and the Austrian *brotze* and *braitling,* these relating to the swelling of the toad.

2. It is permissible to conjecture that the Germanic etymon of *hot,* in the sense of a rough lump, attached itself directly to the toad, rather than through the mediation of Satan. There might even be a kinship with the Dutch *padde,* the English 'pad' and 'paddock'. But the application of the word to the nightjar and to bats is proof that in France in the Middle Ages the idea of Satan was uppermost.

in a subhuman grimace, the strange profile of its wings with their articulated struts, its vampirish repute - all these attributes caused it to be feared and loathed as the very Devil himself, and justified medieval man, in his own eyes, in putting bats to death, whenever caught, by methods of hideous cruelty, similar to the treatment accorded to toads.

The English word 'bat' for the flying rodent is first recorded in the year 1523. Formerly the creature had been a *bakke,* and philologists have been at a loss to explain the irregular mutation in its ending. Have they not been looking in the wrong direction? Surely Tudor England borrowed the new word 'bat' from France, altering the vowel under the attraction of the native Middle English word. (The same vowel change was to take place shortly afterwards in God's name: in the profanity of the iyth century 'God' by a euphemistic mincing of the vowel became 'Gad'.)

'Old Boots' is one of the names by which the Devil has been known in English. Is it not a popular adaptation of 'bots'? When Bella, in *Our Mutual Friend,* calls her husband a 'Clumsy-Boots',[1] is not Dickens, all unawares, recapturing for us a faint echo of the stumping Cripple's awkward limp, now sugared down into a loving pet-name? Then there is Puss-in-Boots, *le Chat Botte,* the fairy tale that Charles Perrault first put on paper late in the iyth century, in which a cat displays superhuman acumen when shod in boots. Do we not detect here a punning echo, come down from much earlier, of the demonic Cripple's prowess ?

Demonic possession connotes mental disturbance, and we think this is why 'bat' in English, especially in slang, is linked with lunacy. 'Bats' is a vulgar word for delirium tremens, and those who go 'on a bat' indulge in wild behavior, while the man with 'bats in the belfry' is quite 'batty'. If we are right, all these words, full of vigor in the spoken language, stem back to *le bat,* the limping Arch Cripple.

Satan today has degenerated into a pallid personification of evil. In the Middle Ages he was no abstraction, no mere Idea. He was hot flesh and blood. Miss Margaret A. Murray in her studies of witchcraft has shown that his bestial attributes - the horns and hoof, the claws, hide, and tail - were those of the celebrant in the nocturnal rites of the witches' coven, the rites belonging to the religion of the Horned God, as she calls this divinity, the autochthonous religion of Europe and the Near East which slowly gave ground before Christianity and on which in its expiring throes the triumphant enemy bestowed the conde-

i. Part iv, Chap. xi. For a study of names used for the Devil in English, see Charles P. G. Scott, 'The Devil and his Imps', *Transactions of the American Philological Association,* Vol. xxvi (1895), pp. 77-146.

scending name of witchcraft. The master of the ceremonies was known to his followers by many names, such as Robin Goodfellow in England. On the tongues of his enemies in the Christian Church Militant he was Satan and the

Fig. 3 **ROBIN GOODFELLOW**

Devil, the Foul Fiend, the Seducer, he of the Horns and Cloven Hoof, *le Bot.* If Miss Murray is right, we are discussing a religion practiced by our ancestors for thousands of years, which expired just yesterday, and which we can now study only through the eyes of the Church that was its deadly foe, and through clues such as we are here discussing. It is not surprising that when Hieronymus Bosch painted his famous *Seven Deadly Sins,* the successive scenes swarm with toads, the incarnation of Satan, as well as other reptiles. We reproduce one of these vignettes, representing the sin of Pride or *Superbia,* with a peacock fittingly present. Satan in the shape of a great man-like toad holds up a mirror to the worldlings.

In Queen Elizabeth's reign, probably before 1588, there was published in England a poem entitled *The Mad Pranks and Merry jests of Robin Goodfelloiv,*[1]

I. The pamphlet was republished privately by the Percy Society, London, in 1840, using the text of the 1628 edition, with commentary by J. Payne Collier, Esq., F.S.A., on whose information we have relied.

It seems to have appeared in a long succession of editions, of which the earliest known to survive bears, we believe, the date 1628. The verses are of little worth, but they and the illustration that accompanies them are valuable as one of the few spontaneous expressions of the witchcraft cult emanating from within the circle of sympathizers. Here is the Horned God in proud panoply, *le Bot* in action. Here is Robin Goodfellow, Hob-goblin, Will the Wisp, Mad Crisp. No mushrooms appear in the woodcut that illustrates the 1639 edition, which we reproduce, but their presence offstage may be inferred, for we are told that Robin was sired by Oberon, whose fungal attachments we shall shortly point out. The witches of the coven are dancing in a 'fairy ring', but there is no evidence that these rings, where the grass grows differently, were linked with mushrooms before the iSth century. In the poem we learn that Oberon had been looking for his offspring high and low:

> At last upon a summer's night
> King Oberon found him out, And
> with his elves in dancing wise
> straight circled him about, The Fairies
> danc't and little Tom Thumb
> on his bag-pipe did play And thus they
> danced their fairy round
> till almost break of day.

The artist who carved the woodcut, though crude in his technique, conveyed his message effectively. In the heavens fly two black birds, and he took sufficient pains for their silhouettes to be unmistakable. They are none other than nightjars, sometimes called goatsuckers or night ravens. These are the *lots volants* of evil augury, the sinister birds that held our ancestors in dread fascination:

> . . . the night raven Which
> doth use for to call Men to
> Death's haven.

The toad appears as a visual symbol of Satan and the pagan god in French iconography in the late Middle Ages. One of the most famous episodes in early French history was the conversion of King Clovis to the Christian faith. His wife Clotilde was a Christian, but he resisted the attractions of the new creed until he fought the battle of Tolbiac in the year 496. When the battle was going against him he swore that he would abandon the old religion if the Christian God would give him victory. The tide turned, and shortly thereafter he was baptized by St. Remi at Reims.

In that city there survive a number of tapestries woven in the I5th and early

16th centuries that depict the life of King Clovis. They show him fighting at Tolbiac as a pagan clothed in a surcoat adorned with toads, under a standard bearing the heraldic emblem of toads. The creatures are pictured as from above, their legs spread-eagled. In the next scene, where St. Remi is giving instruction to the King, the heraldic toads vanish. In the third scene the king is baptized, while high above the font an escutcheon appears bearing fleurs de lis, as though to give a stamp of lofty approval to the happy event. Nearby a dove descends bearing the holy ampulla with the oil for the king's anointing.

Heraldic emblems did not come into use until about A.D. noo, and the tapestries in Reims are therefore an anachronism, a didactic invention of the Middle Ages.[1] Toads never figured in the arms of any French king. But those who designed these tapestries were not guilty of mendacity. It was their purpose to convey a simple message to the unlettered laity, and how better could the conversion of King Clovis be taught through pictures than by showing the pagan king waging war under Satan's banner? Here the symbols have come full circle: in the beginning the Foul Fiend was *le Bot* - the Cripple - and then this name jumped to the demonic toad, and now the toad, commonly known as *le. hot,* stands for the club-footed Fiend. Heraldic creatures are mythical at best, and here we have myth compounding myth, a legend about a symbol that never was. The belief in Clovis's toads circulated chiefly among lowly and unlettered folk, "par le vulgaire et par le menu peuple", and *le hot* flourished in the same milieu.

We believe that we are the first to direct attention to the demonic multivalence of 'the Cripple' in medieval France, but the evil emanations of toads are well known. Dirk Bax, for example, in his recent book on Hieronymus Bosch[2] points out their malign meaning for this painter. He reminds his readers of the old belief that witches could transform themselves into toads. He recalls the papal bull published in the year 1233 by Gregory IX wherein toads were called the symbols of the Devil and magic. He reports an episode in 1610 when a French *sorrier* discovered a cast in the left eye of a child, the cast taking the shape of a toad's leg, and the child confessed that Satan had imprinted this *signum diabolicum* with his horn. According to an authority that Dr. Bax has found, St. Anthony beheld Satan in the shape of a toad with a human head, and if we

1. For a sceptical and charming discussion of these toads, see Claude Fauchet's *Origines des Chevaliers, Armoiries, et Heraux,* Paris, 1600, p. 17. See also C. Leber's *Collection des Meilleurs Dissertations, Notices et Traites Particuliers relatifs a I'Histoire de la France,* Paris, 1838, vol. xiii, pp. 198 ff. Leber quotes from Scevole de Sainte-Marthe (1572-1650), and the evidence indicates that the popular belief in the heraldic toads of the pagan French kings goes back at least to the beginning of the I5th century. From the i6th century to the 18th we find in both English and French sources frequent references to Clovis's heraldic toads. Today they are forgotten by almost everyone, even historians.

2. *Ontcijfering van Jeroen Bosch,* The Hague, 1949, p. 33, where the author also gives the sources for his state ments.

accept the assertions of yet another writer, the toads in Hell torment the sinners, and in turn are food for the damned. To this day, Dr. Bax says, the Flemings believe that toads spit venom, just as Bosch shows us in *The Last Judgment.*

From Simin Palay's recent dictionary of the dialects of Gascony and Beam we learn that in former days the Gascons spoke of a cast in the eye as a 'toad' — *crapaud* — and considered it a distinctive sign of the witch and sorcerer. Here is that same *signum diabolicum* which Dr. Bax reported from a different source. A cast in the eye is a painless blemish, but it reminds us of the *paddescheet* of the Dutch, that stye, inflamed and stinging, which people call the toad's excrement. Suddenly there dawns on us a lively and sinister meaning behind these faint folkloric hints linking toads with the human eye. In the days of the Old Religion in western and northern Europe, the toad gripped the imagination of our ancestors with a dread fascination such as the serpent has always exercised in the East and in India to this day. Yes, in cultural history the toad was the European equivalent of the serpent in the East. On its face strange, the folkloric link between toads and the human eye becomes clear if our surmise be right that the venom of the toad was deliberately used by the priests of the ancient cult to inflame the eyeballs, and thus heighten the awesome spell of the rites. Here may lie the reason why a genuine stye suggests the toad's secretion, why the cast in someone's eye was for the beholders the reminder and sign of demonic power.

By now the reader may fairly ask what our discussion of Satan and *le hot* has to do with the problem of the toadstool. In brief, toads figure in both the English and the French fungal vocabulary, but the figure of speech in English emphasizes poison, whereas in French demonic possession plays the dominant role. In the former, the 'toadstool' is a blanket malediction on all wild fungi, all of which are erroneously suspect as 'poison-stools'. In the latter, the *crapaudin* (like the Basque *amoroto]* is the name for a particular species, and this species is not one of the deadly mushrooms. It is the amanita muscaria, the mushroom that intoxicates and exhilarates, that gives hallucinations. It is the mushroom of demonic possession. Bad as are both Satan and poison, there is a difference between the two. The whole world rejects poison, but Satan always has a goodly following. Unlike lethal poison, Satan is seductive. There is thus a distinction in the inner meaning between the toxic 'toadstool' and the demonic *crapaudin.* The distinction is in the emphasis: the associations of the two terms overlap but do not coincide.

If our interpretation of *le bot* is correct, why do we not find this word figuring in France's fungal vocabulary? The answer is that we do. Eugene Rolland in

PLATE xiv. Conversion of Clovis. Tapestry in the Musee de Reims showing King Clovis in the battle of Tolbiac, his instruction in Christian doctrine by St. Remi, and his baptism. Woven in 1531.

his *Flore Populaire* reports *bo* as a designation for gilled mushrooms in the Haute Saone, and *botet* in the Loire. He gives no explanation for these words, whose inner meaning becomes obvious now for us. It would be well for specialists in French provincialisms to concentrate on *bo* and *botet,* to determine whether they still survive and where and with what precise fungal application and in what contexts. In the center and south of France there are regions where *boutarel, boutareu,* and *boutairoual* are general words for 'mushroom'. They also mean in the langue d'oc 'barrel' and 'basket', but we suspect that in the sense of 'mushroom' they are a popular corruption of *boterel,* a diminutive of *le bot* that is not uncommon in France as a family name. A close scrutiny of the French dialects will certainly uncover additional links, until now unnoticed by scholars, between toads and mushrooms. On page 73 we mentioned the Gallic word for 'toad', *craxantus,* obsolete these many centuries. Does it perhaps survive in the Gascon name used for the despised and rejected boleti whose flesh turns blue on exposure to air — *craaue-maudit,* which would then mean 'the cursed toad'?

Vve conclude, then, that mushrooms and toads were linked together in France in former times as part of a cluster of folk beliefs having a demonic nucleus. The link was strongest, it seems, north of the Loire and faded out as one approached the Mediterranean. Apparently it stemmed from the Germanic or Celtic cultural strata that antedated Mediterranean influences, strata steeped in the blackest mycophobia. And this leads vis again to Hieronymus Bosch.

One of Bosch's powerful paintings is the *Hay Wain,* to be seen in the Prado. It is a large triptych, and in the central panel, almost unremarked hitherto by commentators, there stands forth a giant boletus. So far as our inquiries have gone, this mushroom was the first significant representation of a fungus[1] after the ancient fresco of Herculaneum (which we reproduce on Plate LXXVI), a lapse of

I. The *Bulletin* of the Societe Mycologique de France in 1911 (vol. xxvii, p. 31) announced to the mycological world the discovery of a I3th century fresco representing the temptation of Eve. The mycologists who focused their attention on this fresco persuaded themselves that the Tree of Good and Evil had been portrayed by the artist as an amanita muscaria. The fresco, which we visited in the summer of 1952, is in a disaffected chapel in France, in the Berry, between Ingrandes and Merigny, near the Chateau de Plaincourault. The style is Romanesque, and this fits the date that the edifice bears - 1291. Since the initial announcement there have been numerous references to the fresco in mycological publications; e. g., *The Romance of the Fungus World,* by R. T. and F. W. Rolfe, London, 1925, p. 291; also John Ramsbottom's *Mushrooms & Toadstools,* pp. 46-7 and illustration facing p. 34; also *The Illustrated London News,* Nov. 21, 1953. The mycologists would have done well to consult art historians. The Plaincourault fresco does not represent a mushroom and has no place in a discussion of ethno-mycology. It is a typical stylized Palestinian tree, of the type familiar to students of Byzantine and Romanesque art. The German art historians have even devised for this oft-repeated motif the technical designation of *Pilzbaum.*

more than fourteen centuries. Let us see if we can arrive at the meaning of this extraordinary mushroom, so boldly painted, at first glance so enigmatic.

The *Hay Wains* left-hand panel, of which we reproduce the upper part on Plate XXXVI, depicts with idyllic beauty the momentous events that took place in Paradise in the Beginning, up through the final scene where the Angel of the Lord drives Adam and Eve forth from Eden into the wilderness. The right-hand panel depicts Hell. The central panel is occupied chiefly by a huge load of hay, which is the dominating feature of a procession that enters the scene from Paradise on the left and disappears on the right heading for Hell. The wagon is being hauled by a miscellany of grotesque creatures who are personifications of the Sins. With a dead switch the Devil in the foreground drives on these monsters. The withered branch, as always in Bosch's symbolism, signifies cursed sterility, recalling the withered vine of Christ's homily. Sceptred king and mitred churchmen with their trains follow the hay-wagon, which as it progresses crushes little men like a juggernaut. Jesus looks down in anguish from Heaven, and a strange group of merry-makers disport themselves a-top the hay.

The hay wain represents pleasure, but it remained for Mr. and Mrs. Nicolas Galas of New York, in the course of their studies of Bosch, to discover the precise text that is illustrated, a passage in a book with which Bosch was familiar, Gregory the Great's *Morals on the Book of Job,* written after A.D. 600. In Book 32, paragraph 7, Gregory is commenting on the Vulgate text of Job 40: 4 (King James Version, Job 40: 9):

> As he says by the Prophet, 'Behold, I will shriek over you, as a cart creaketh laden with hay' [Amos 2: 13], for since the life of the carnal is hay, as it is written 'All flesh is hay' [Isaiah 40: 6], in that the Lord endures the life of the carnal, he declares that he carries hay as a cart. And to creak under the weight of the hay is for Him to bear, with murmuring, the burdens and iniquities of sinners. [Vot. 3, Part 2, p. 514, of the English translation by J. H. Parker et al., published in Oxford, 1844-1850]

On the right in front of the wagon the great procession is joined by a small confluent stream of people pouring from a door-way as the hay-wagon approaches their earthly abode. They too are damned souls, as is declared by their leader's reaching up for carnal hay on the wagon, and by another branch, withered and cursed, that holds up the trapdoor of the habitation out of which this secondary stream emerges. In the door can be seen the peephole used by the inmates when the door is closed. In our opinion the doorway gives access, not to a cave, but to a turf-covered dwelling, of which the roof rises to a clearly identifiable peak, made by the upright post that is presumably the structural support for the primitive structure. On the left of that peak there lies a fruit, symbol of

man's First Fall. On the right stands our mushroom. Bosch has painted not a mushroom, but a gigantic effigy, a mushroom sculptured in stone or wood. It represents a boletus, perhaps the boletus satanas, a species that to this day is popularly associated with Satan in Central Europe. The light color of the painted mushroom effigy is not significant, for it is the color of the material in which the mushroom is sculptured. The stem is covered with flecks like goose-flesh. The cap is disproportionately small, and from it emerges again the withered branch of the Biblical curse.

We have seen that in i6th century France mushrooms were called *pain de crapault,* 'toad's bread', a term that has been reported in modern times in Normandy. Contemporaneously, at the time of the Renaissance, the corresponding name in Flemish and Dutch was *duivelsbrood,*[1] 'devil's bread', a term now obsolete in the standard language, but historically documented in the larger Dutch and Flemish dictionaries. These two expressions, 'toad's bread' and 'devil's bread', superficially using different metaphors, are in essence perfect translations one of the other, for as we have seen 'toad' and 'devil' are synonyms. The effigy of a mushroom that Bosch the Dutchman painted was the effigy of the Devil's Bread, and the people who lived at the Sign of the Devil's Bread were bread for the Devil.

Our mushroom effigy is then a pictographic embodiment of a popular metaphor, and proclaims the curse that lies on the household dwelling within. This interpretation receives surprising support from an otherwise inexplicable detail of the painting. The base of the mushroom shows two flattened surfaces. Bread always bears the imprint of the vessel in which it is baked, and here we discover the beveled faces left by the Devil's bread-pan. How obvious this must have been for Bosch's neighbors in the Low Countries!

There remains a crucial question: why did Bosch introduce into this sermon in paint the minor tributary stream of Hell-bent sinners, emerging from the House of the Devil's Bread? Clearly this rather crowded detail of his exhortation on the carnal sins was not a capricious fancy. He was asserting something, but what; Here is our conjecture. The main stream of sinners is recruited from the Christian community, as evidenced by the trappings of the leaders. The tributary stream is fed by folk similarly damned but who have not belonged to the Christian fold. The Devil is the hot-blooded Devil of the witches' covens. The people crowding forth from the hovel do not lend themselves to a precise count but they are about thirteen, the full complement of a witches' coven with

i. See Hadrianus Junius' *Nomendator,* Paris, 1567, p. 144, where the word is spelled *duyuehbroot;* also the history *of duivelsbrood* in Dr. J. A. N. Knuttel's *Woordcnboek der Nederlandsche Taal.*

their leader the Devil, whom we may perhaps distinguish in this group. Here are then the 'fairy folk', who were wont to dwell in the remote and desert places and who paid no obeisance to Pope or Christ. They were described in vivid detail by the Swedish writer Olaus Magnus, whose *Historia de Gentibus Septentrionalibus* appeared in 1555 in Rome,[1] a generation after Bosch's death. The fairy folk dwelt in houses walled and roofed with turf, the roof being sup-

Fig. 4 PRINCE VISITING FAIRY FOLK, *after* OLAUS MAGNUS.

ported by a central post. A woodcut in Olaus Magnus shows the Swedish King Hotherus paying a visit on the fairy people and we reproduce it here, for we suggest that the house painted by Bosch springs from the same folk beliefs as the houses in the Magnus woodcut a half century later. Miss Margaret A. Murray may be right that a culturally distinct people, autochthonous, unlettered, and pagan, lived side by side with the Christian world in northern Europe down into Renaissance times. But whether that people existed or not, the belief in them existed and was generally accepted, and Bosch presents those cursed outcasts to us under the Sign of the Devil's Bread, a sinister and mycophobic Sign that marks for us the initial emergence of the mushroom world into the documentary annals of northern Europe.[2]

1. The English edition was published in London in 1658 as *A Compendious History of the Goths, Swedes and Other Northern Nations.* See Book m, Chapters 9 and 10. See also Miss Murray's *The God of the Witches,* Oxford University Press, New York, 1952, Chapter n.

2. The mushroom in the *Hay Wain* is not the only one painted by Bosch. In his ghostly portrayal of The World, strangely disturbing, on the back of the wings of the *Garden of Delights,* there are two unmistakable mushrooms, possibly three, all in the left-hand panel. Elsewhere we find shapes that suggest mushrooms, perhaps intended by Bosch to do so; e.g., one such shape in the left-hand panel of the *Garden of Delights* and two in the central panel, the table in the *Cure for Folly,* and various 'puckfist' shapes elsewhere. The demonic symbolism of the toadstool may have played an important and hitherto unsuspected role in Bosch's cosmos.

For the medieval world the fairies were sinister beings, at least in orthodox eyes, and down to recent times the flavor of the old belief could still be detected in Sussex, where 'fairy rings' long continued to be called 'hag tracks'. By the end of the 16th century the fairies had become the dulcified sprites of modern usage and this transformation has been attributed to the imposing genius of gentle Shakespere. But the time has come to take new soundings in the social upheavals of that troubled i6th century. The Reformation turned society upside down and inside out, and perhaps layers of the community, formerly inarticulate, where the fairies had always been beloved rose to the top and through Shakespere and others made their voices heard.

Fig. 5 FAIRY RING, *after* OLAUS MAGNUS.

PLATES XV, XVI, XVII

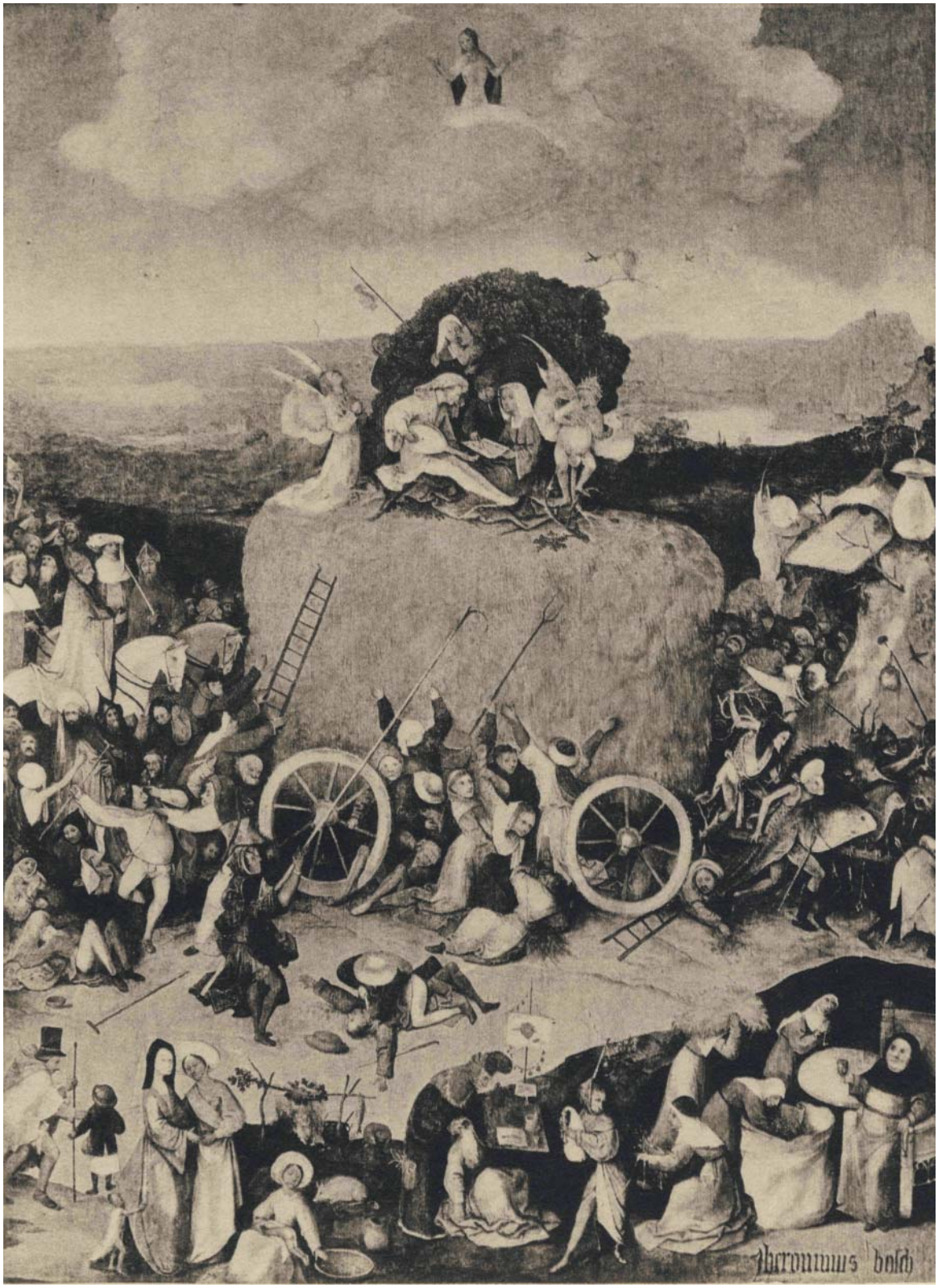


PLATE XV. Hieronynius Bosch. The Hay Wain. Central Panel. *Madrid, Prado Museum.*

PLATE xvi. Hieronymus Bosch. The Hay Wain. Detail. *Madrid, Prado Museum.*

PLATE XVII. Hieronymus Bosch. The Hay Wain. Detail: Boletus. *Madrid, Prado Museum.*

4 *THE 'POGGE' CLUSTER*

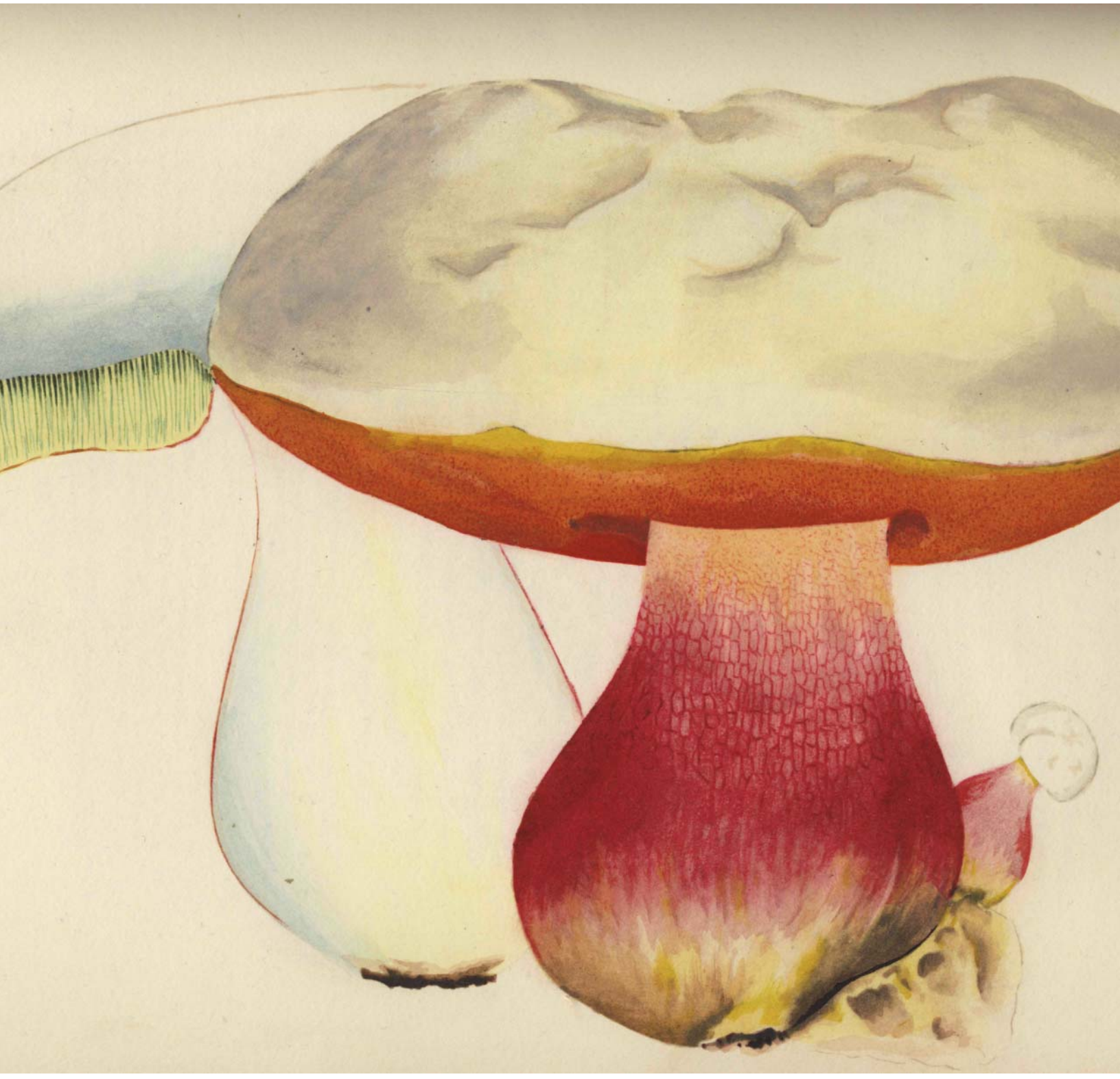
J ust as we turned to the Breton word *tousec* for a clue to the inner meaning of 'toadstool', so now we invite our readers to look with us at the Low German word *pogge,* meaning frog or toad, and ***poggenstohl,*** 'frogstool'. *Pogge* exists in many a dialectical variant: *pogg, pagg, pugg, puck, pook, pauk, poch,* and *puch.*

One of the daring labors of modern philologists has been the reconstruction of the original Indo-European roots that lie behind our modern vocabularies. With the known vocabularies of some scores of languages, living and dead, to go by, they work back along converging lines of evolution to discover, as closely as the evidence permits, the roots that were current perhaps four thousand years ago, before the linguistic unity of our ancestors broke up. These reconstructed roots cannot of course be tested against actual usage, nor is it remotely possible to document the history of their verbal progeny back to them in a way that would constitute proof by the exacting standards of the etymological discipline. It is also true that different philologists working from the same evidence arrive sometimes at different reconstructions of the root, but often there is a consensus, and even if we consider the results only tentative and approximate, these hypothetical Indo-European roots serve, if cautiously used, to associate together significantly large clusters of words. The philologist of our time who has devoted his life to this work is Julius Pokorny. In his latest revision of his *IndogermanischesEtymologischesWorterbuch* he presents an important root that he represents thus: b(e)u-, bh(e)u-. It means to swell up, to puff up, to fill with wind, to inflate or expand or distend, and in origin it is imitative.[1]

Among the many words that Pokorny traces to this root is our Low German *pogge,* meaning frog or toad, and the semantic link here is clear. Of the aspects that the frog or toad presents to the human senses, two stand out, one aural and the other visual: the croak, and the astonishing distension of the creature with air in the act of croaking. A frog or toad suggests the idea of a sac that lends itself to gaseous distension. From Pokorny's root we derive also our English 'poke', meaning a bag, and 'pocket', and the French *poche.* To the same family belongs the Anglo-Saxon *buc,* meaning 'belly' and also any bellied container such as a pitcher. To these we would venture to add a curious trio of English words, the obsolete 'pung' and 'bung' and the Scottish 'spung', all three meaning 'purse', words that picked up somewhere along the road a nasal infix,

I. Pokorny offers two additional, somewhat similar roots conveying the same meanings: (i) $ba^{x}b$-, $bha^{x}bh$-, $pa^{x}p$-; and (2) $ba^{x}mb$-, $bha^{x}mbh$-, $pa^{x}mp$-, $pha^{x}mph$. See first two fascicles of his revision, published in Bern in 1949. The possible kinships between these three roots need not concern us.

PLATE XVIII Jean-Henri Fabre. Boletus Satanas Lenz.



as the philologists say. In Swedish *pung,* meaning 'pouch', is in current use.[1] There exists, we believe, abundant evidence that latent *inpogge* is the metaphor of an inflatable sac. In the eastern part of the Dutch province of Gelderland, the same word *pogge* means, not a frog, but a young pig, a creature notorious for its fat rotundity.[2] The same figure of speech underlies the words for 'toad' in other languages. Thus *bufo* in Latin suggests the blown-up cheeks of the buffoon. In ancient Greek a kind of toad that was said to puff itself up to bursting and to exhale a poisonous breath was the cpuaaXoc, a word derived from cpDasc, meaning a bellows, a wind, a blast, a breath; and it is related to a Greek word for bladder and bubble. In the Tosk dialect of Albanian, a toad is a *thithelope,* or 'cow's udder', *thithe-* being the udder. The inflated pouch of a toad suggests an udder. Now we turn to the Irish language, and here our wild fungi re-enter the scene in a strange blending of metaphors already familiar to us. In Irish there are two words for a bag or pouch, *bolg,* which is related to the Latin *bulga,* and *puca,* which was probably borrowed between A.D. 800 and 1050 from Scandinavian sources. They are two further examples of words belonging to the family of our familiar Pokorny root. In Irish one way to refer to a wild fungus is *bolg losgainn,* literally 'frog's pouch', and another *wayis pucan beireach,* 'heifer's pouch'. If the 'heifer's pouch' refers to the udder, as we suppose, the same figure of speech that in Albanian means 'toad' turns up in Irish meaning 'toadstool'. In Irish, *bolg seidte,* 'blown-up bag', is a term for the puffball. It is easy to see why the fungi figure in all these metaphors: puff balls, toadstools, all the wild fungi of forest and field, impress the visual sense as creatures that quickly swell up.[3] Francis Bacon in his *Sylva Sylvamtn* described the puffball as a 'cod, or bag'; in Bacon's time 'cod' meant both 'pouch' and 'scrotum'. In Latin ***bulga*** was a humorous metaphor for the womb, and the bagpipe down through Renaissance times was a symbol of lust and wantonness.[4] In Slavic our Pokorny root erupts directly in to the fungal vocabulary. An

1. High German *Pocke,* English 'pock' and 'pox', the erupting pustule, belong to the same verbal family. It has been suggested that Low German *pogge* means the 'pock-marked one", rather than the 'bag'. But this is belied, as we shall see, by the metaphors latent in other languages and dialects. Furthermore, the principal mean ing *of pogge* is 'frog', and the common frogs of Central Europe, unlike toads, are free of warts and pustules. The usual words for 'toad' in Low German are *padde* and *utze.*

2. For this information we are indebted to Professor G. G. Kloeke, of Leiden, who refers us to his *Taalatlas van Noord- en Zuid-Nederland,* Lief, n, 1, in the *'Ferkel'* chart.

3. For hobgoblin there are words in Manx, *boag, boagdne,* and in Irish, *bocdn,* that seem to belong to the same family, though the kinship is obscure. They recall a cluster of Irish words for mushrooms - *beac* and its dimi nutives *biocdn* and *beacdn.* Perhaps Irish scholars will tell us whether these fungal words do not also harbor ideas of sprites and of bellies, and thus link them with our *pogge-duster.* There is an Irish term, *beacdn bearaigh,* which on its face would seem to mean 'heifer's mushroom', but underneath the surface is it not analogous to *pucdn beireach,* 'heifer's pouch', and parallel in meaning ?

4. For a discussion of the erotic associations of the bagpipe as found in art and literature, see Edward A. Block's 'Chaucer's Millers and Their Bagpipes', *Speculum,* April 1954, pp. 239 ff.

ancient word for 'mushroom' survives in the Czech *bedla,* in the Polish *bedla,* and in *bhtza,* a term reported in certain parts of Russia. From these words Roman Jakobson reconstructs the hypothetical *bii-dla* for primitive Slavic, descended in its turn from our Indo-European root, with the addition of the Slavic instrumental suffix *-dl-.* The philologists link these Slavic words with an Indie word meaning 'bubble', wherein the idea of the swelling sac recurs in purest form.

Vv e have pursued our Low German *pogge* on the humble and earthy level of toads and frogs, udders, bags, and fungi. But the underlying metaphor, keyed to gaseous distension and gaseous collapse, lends itself to images on a wholly different plane, and our same Indo-European root proliferated verbal progeny in the incorporeal world, the world of imps, sprites, and goblins. Here we find our 'spooks', and Shakespere's Puck, and Kipling's *'Puck* of *Pook's* Hill', malicious forces of the unseen world, unaccountable, like Hamlet's ghost *hie et ubique,* the bugbears and bugaboos of cowering minds. In Irish, *puca* circulates as two distinct words, meaning 'bag' and 'sprite', though in our opinion they are etymologically and metaphorically identical. The Pooka of Mary Chase's play *Harvey* is a wise but mischievous spirit, an imaginary rabbit blown up to more than human size. In English 'puck' refers only to imps, but here, as in Irish, we find it associated with the fungal world, for 'puckfist', now fallen into disuse, was once a common name for the puff ball. The second element in the word, '-fist', meant a silent expulsion of hind wind, and so a puffball was an imp's flatus. In Russian a 'flatus' is a *puk,* riming with juke', and the word is another of our *pogge* cluster intimately linked with a family of Russian words relating to gaseous distension, swelling, bursting, ripping open; but the Russian word is not associated with fungi or amphibians.

Like the weaver's threads shuttling in and out in warp and woof, we have seen how words and meanings play hide-and-seek: frogs and toads are inflatable sacs, and these are sprites, and bags and sprites are fungi. Today the meanings are compartmented, their latent metaphors forgotten. But there was a time when the metaphors were living, the words fluid. We have said that 'puckfist', referring to a puffball, meant an imp's flatus. Did it once, long ago, mean 'toad's flatus'? There is no evidence in surviving English documents for this. Yet we know that the toad was the habitation of the Evil One. We know that in the southwest of England toadstools to this day are called 'pixie-stools', with a puckish pixie thus doing service for the toad.[1] We know more: the

i. Richard C. A. Prior pointed this out close to a century ago in his *On the Popular Names of British Plants,* London. He also suggested an etymological tie between 'puck' and *pogge.* See entries under 'pixie-stool', 'puck-fist', and 'toadstool'. We consulted the edition of 1879.

language closest to English is Frisian, and in the dialect of Frisian spoken on the island of Terschelling the puff ball is called the *podde-fyst,* toad's flatus, and in the neighboring island of Schiermonnikoog it is the *pare-puster,* toad's puff. But the association with imps is also not absent from Frisian, for in the town of Dokkum the puffball is called the *spoekebal,* or 'spookball'. With what regularity the semantic themes recur! In German we face a pretty problem: the puffball is *theBovist* or *Bofist,* and in Low German we *fmdpofist:* the second syllable in these words is clear, but what idea hides behind the first syllable? No one knows, but we think it is safe to assume that it meant either frog or toad, or an imp, or a sac, or a puff, or a blending of these. And whichever it was, behind it lay the primal idea of a gaseous swelling, an exhalation; and emotionally, all of these terms connoted something vile.

In the first stage of our 'toadstool' pilgrimage, we identified what we call the poison-cluster of toad and fungal words. Now we have gone on to identify the *pogge-cluster,* wherein, through the mediation of the evil spirit with which both toads and fungi were felt to be instinct, we find these lowly creatures linked together verbally in the untutored minds of early men inhabiting the dank forests of northern Europe from Ireland to Russia. Here we discern the deep folk associations that caused and expressed the mycophobia of the Celtic and Germanic peoples. In the Mediterranean world, a kindred idea of the breath, the exhalation, gave rise to metaphors of the loftiest associations - the Holy 'Spirit' and Divine Imp/ration. In Russia the word for the soul - *dushd* - flows from *dukh,* the word for breath. But by an initial turning in the wrong direction, the metaphorical use of gaseous distension and exhalation in the world north of the Alps reduced the Holy Spirit to a sprite, and the Divine Afflatus into an imp's flatus. The northern metaphor was keyed to frogs and toads, and they to swollen fungi, and both to the Devil.

Earlier we saw how toads and fungi and venom executed a kind of triangular measure in the minds and words of the peoples who dwelt on the shores of the North Sea. Against the vaster background of a still more ancient world, we have seen how a common idea underlay the words for things as disparate as toads, sacs, fungi, and imps, and how meanings and metaphors criss-crossed in the figures of an antique quadrille. The poison-cluster of words was super-imposed, so to speak on the *pogge-cluster:.* In France the toad and the Devil coalesce, with fungi joining the company.

We have seen that an Irish expression for the mushroom is the frog's pouch, *bolg* ***losgainn.*** *Bolg* is cousin to the English words 'belly', 'bulge', and 'bilge'.[1]

I. The Irish chronicles refer to the aborigines of Ireland as the *Fir Bolg,* 'pouch men", of which the meaning is

('Bilge' is the ship's belly where bilge-water collects.) *Bolg* also means belly or womb, bag or pouch or pocket, bellows, bladder, pimple, blister. It is kin to the Latin *bulga,* which meant a leathern pouch or reticule (in lieu of the pockets that the Romans did not have) carried over the forearm, a word that the second century lexicographer Festus traced to an origin in Gaul. It is the same word as the French *bouge,* which has had a succession of meanings down the centuries - a concavity, a dump, a miserable habitation, the belly of a cask, a leathern bag, a valise. Another word of the same clan is 'budget', that most distended of all wallets, always 'bulging'.

If, as we have seen, frogs and toads were often called 'pouches' or 'bags', then by a reverse semantic transfer, we might discover that on occasions some word for 'toad' that had no semantic or etymological kinship with the *pogge-clustei:* might be used for a pouch or wallet. The word for pocket in High German today is *Tasche,* and we can trace it back to Old High German *tasca,* where the trail is lost. The Italian *tasca* means a pouch or wallet. Some have considered the Italian word distinct from the German, but no satisfactory etymology has been found for it either. We now put to the philologists the question whether both the German and the Italian words are not simply our old friend *tosca,* the Anglo-Saxon word for toad. We are not obliged to assume that *tosca* or *tasca* in the sense of toad was ever current in Old High German: it could have been borrowed in the Old High German period (not earlier than about A.D. 800) from some other area where *tasca,* meaning toad, had already taken on as a second meaning the sense of *bulga* or wallet. Nor was it borrowed necessarily from Anglo-Saxon, of course, since the area where this word circulated in various forms was much more extensive; just how extensive we do not know. There could have been, for a time, a style of *bulga* - a leathern scrip hanging from the forearm - designed to imitate a toad, and a term that began as a nonce-word could have struck permanent root in Germany and Italy.[1]

obscure. *Bolg* here may be related to *bog,* an Irish word meaning 'soft', and to the Irish words *began* and *bogac,* 'bog', 'quagmire'. Cf. the undoubted etymological kinship between German *Schwamm,* 'mushroom', and English 'swamp'.

I. The presence of a in both the Italian and Old High German words reminds us of the Anglo-Saxon variant *taxe* (see p. 75, footnote), and lends weight to Victor Henry's suggestion that confusion arose in Latin between *toxicum* on the one hand and *taxus, taxicus* on the other. Our suggested etymology might be valid for Italian *tasca* even if invalid for the Old High German word. This brings us to an obstacle in the way of our theory that philologists will quickly bring up. The authorities cite an Old Saxon word *dasga* meaning 'pocket'. This would correspond by normal transition to Old High German *tasca,* and the pair of words would point to a purely Teutonic root. But the Old Saxon word appears, not in a text, but in a gloss; see J. H. Gallee's *Altsachsische Sprachdenkmaler,* p. 287, 11. 26-27. The source is there given as a Karlsruhe ms. that is not further identified. An exhaustive examination of all the evidence supporting the existence of Old Saxon *dasga* needs to be made. The gloss may reflect a false back-formation from the Old High German word, a pedant's error; or it could be a copyist's misreading. In addition to the doubtful Old Saxon form *dasga,* there are various citations of an Old High German form *dasga.*

5 *PUFF BALLS, FILTH, AND VERMIN*

A/Lore names are reported in English for the puffball than for any other kind of mushroom. There is the fanciful 'devil's snuffbox', which recalls the corresponding *chortova perechnitza* or 'devil's pepperpot' of the Russians. There is 'frogcheese', designating the young puffball before it dries up. There is that curious word 'bunt', now dying out. In the Oxford Dictionary it follows hard on another word, identically spelled, that is defined as 'a swelling, a pouch- or bag-shaped part of a net, sail, etc.', and both words are put down as of unknown etymology. Surely, from the swelling growth of the puffball and the many associations of the fungi with the idea of pouches and bags and swellings, we may regard these words as one.

However, in England and throughout western Europe the distinctive association of the puffball is scabrous. 'Puckfist' is the English archetype, whence depend a number of variants: puff-fist, bullfist, fistball, fuzzball, pixie-puff, and finally the cleansed and devitalized survivor of the lot, our puffball, of which the bad-smelling origin is lost almost from memory. In human speech as in the physical world there operates a law of entropy that saps the strength from once virile metaphors, until only bookworms (ourselves perhaps devitalized!) detect and relish with rarefied connoisseurship the faded flavors that have lain stale for centuries. 'Feist' was the word once commonly used for the silent flatus; it and the noisy 'fart' are simply different phases or 'grades' of the same word, etymologically identical. ('Feist' rimes with 'enticed', but in 'puckfist' the V is short.) They correspond respectively to the French *vesse* and *pet.* Just as the Latin *p* of *pater* corresponds to the 'f' of 'father', so the *p* of the French verb *peter* in ah[1] likelihood corresponds to the 'f' of our English words. One of the famous creations of the French pastry-cook is the *pet de nonne*[1]*:* here in this single term, as in a capsule, the spirit of Gallic humor was caught, though today it trips off the tongue of Frenchmen with no thought of its pristine flavor. A French wine that is *petillant* is one that fizzes slightly, and originally 'to fizz' was the English verb that corresponded in scabrous meaning to the noun 'feist'. In the beginning the *petard* was an enormous *pet,* and he who is hoist by his own petard is the victim of a peculiarly personal rocket action such as Hieronymus Bosch actually depicted in his *Last Judgment.*

The metaphor of the silent flatus appears to have attached itself to the puffball

i. Cf. Dutch *hoerendrcetje* and *nonnenfortje* for similar delicacies, words that, if literally rendered, would shock the English ear and turn the stomach.

in earliest times, before the linguistic break-up of the Indo-European peoples. For the English, as we have seen, the puffball used to be the puckfist or imp's silent flatus. In French it is the *vesse de loup,* or wolf's silent flatus, and similarly in Dutch, *wolfsveest;* and in Danish the sources give the corresponding *ulve-fiis,* but this is not a drawing-room word. Some Frisian islanders speak of the toad's flatus, but the more common Frisian term is *ulefyst,* or owl's flatus, which may be traceable to an erroneous popular rendering of the Danish term. In Russia the genteel name for the puffball is the devil's pepperpot, as we have seen; but there circulates an earthier term, *bzdjukha,* the silent flatus. The Basques speak of the ass's flatus, *astaputz;* and in Romansch we find in the Engadine, wolf's flatus, *toffas d'luj,* and in the Surselva, *cacs tgapper,* or crow's droppings. The mushroom manuals report *cuesco de lobo,* wolf's flatus, for the Spaniards, and we ourselves report *pedo de lobo* in use in the Castilian countryside. The standard name in Italian is *vescia di lupo,* but in the Trentino dialect we have *slofa,* which is a low word for the *membrum virile.* In Catalonia we find *pet de Hop* and *pet de bou,* wolf's flatus and ox-flatus, this latter paralleling the English bullfist. By far the most interesting of all, however, are two other Catalan terms: *bufa del diable* and *bufa del dimoni. Bufa* like 'feist' is a silent flatus, and so in both these Catalan expressions we find exact equivalents of the obsolete English puckfist. But the ramifying interplay of semantic and phonetic associations does not stop there, for in the Catalan language *bufa* also means 'bladder' and a cluster of kindred things, and this transports us at once to the maze of meanings that we found clinging to the Irish *puca,* the Latin *bulga* and its derivatives, and indeed the whole cluster *o£pogge* words. In Irish, according to a reliable source, the puffball is *cos-a-phouka,*[1] 'Puck's foot', which reminds us of the Old French word, *le bot,* meaning both Satan and 'toad'.

In the puffball vocabulary we discover a subtle interplay of sounds and meanings, where strict etymologies are lost in a common pool. The idea of the devil underlies all-in pixie and puck and the *diable* and *dimoni* of the Catalans; and, as it were behind a mask, the Evil One is hidden in toad and wolf, those creatures steeped in terrible folk associations. The owl of the Frisians is an evasive substitute for the wolf, and the crow of the Surselva may hide, through translation and metamorphosis, the German *Krote* or the French *crapaud.* In addition to the devil, the scabrous exhalation of gas is everywhere - in feist, fuzz (i.e., fizz), puff", *vesse, pet, bufa,* and behind the euphemistic face of the bull and *bou,* and probably behind the enigmatic *Bo-* of B0f zsL'Ball' in 'puffball'

I. See A. B. Steele, 'Fungus Folklore', in *Transactions* of the Edinburgh Field Naturalists' and Microscopical Society, vol. 2, 1887, pp. 175-183.

is a happy dilution of the same theme, an acceptable alliterative substitute. In 'puff' there is the phonetic overlap with 'puck' and the semantic overlap with 'feist'. Like those modern clutches in automobiles that move imperceptibly from speed to speed, the peoples of western Europe, when they speak of the lycoperdon, slip from sound to sound and metaphor to metaphor, under pressures of primitive tabu and the modern sense of propriety. On this phenomenon suggestive of punning the scholars bestow the name of paronomasia. There is in our case a pool of sounds and a pool of meanings and a pool of evasive substitutes, mingling together in step with the pulsation of underlying ideas and emotions. Our own inquiry is keyed to the association of fungi with toads, and here there remains one notable observation to add. So far as we know, *bufa* has never designated the toad in Catalonia. But phonetically and semantically (because of the toad's aptitude for prodigious inhalation of air and exhalation), the Latin *bufo,* meaning toad, and the Catalan *bufa* are close kin, and etymologically, though neither is derived from the other, they must both spring genetically from the same verbal tree. Thus there is a further strange analogy between 'puckfist' and *bufa del dimoni:* 'puck' and *bufa* mean 'imp' and 'feist' respectively, but in addition each is pregnant, so to speak, with the latent idea of 'toad'.[1]

Our survey of the puckfist names has been confined to the Indo-European peoples and Basques, and chiefly to Europe. Think of the horizons for research that open up when we ask ourselves what metaphors are used for the puckfist elsewhere in the Eurasian land-mass, and then in the other continents. What a field for scholarly enterprise is here, and how learned and mad must that inspired scholar be, after the manner of a Norman Douglas character, who will devote himself to this pursuit, his journeyirigs and questionings to be financed of course by some noble Foundation with a nose for the more subtile cultural aromas!

Throughout the puff ball world there is present one element that we did not find in the *pogge* words, and this new element is the scatological. The puffballs, which in their 'frogcheese' phase make good eating, despite this virtue are linked throughout western Europe with the filth of hindwind. And this leads us into a fresh area for exploration. The High German word for 'toad' is *Krote,* of which the etymology has defied the efforts of massive German scholarship.

I. The flatus metaphor is also found in the Panjabi fungal vocabulary: *padd bahera,* 'gall-nut flatus", is a mushroom name. The *bahera* is a tree famous in the India trade and known in botany as 'belleric myrobalan'. It yields a kind of gall-nut used in dyeing and tanning, and also in Indian medicine. It would be tempting to associate the Panjabi *padd,* 'flatus', with Dutch *padd,* 'toad', but no kinship is possible. The Panjabi word is cognate with the two English words of the same meaning discussed on p. 97.

We dare not aspire to trace this word to its lair, but as a fresh approach to a vexed problem, we submit that German *Krote* is the same as the Rhineland word *krotz,* meaning originally the dung of domesticated animals; i.e., dung with value for the farmer. The same word appears in Flemish *krotte,* and it turns up also in the familiar French *crotte* and *crottin,* whose primary meaning was also 'dung'. Indeed, if this surmise be well received, we venture further. The French word for 'toad', *crapaud,* is certainly not related etymologically to any root meaning dung, being akin to the Provencal word *grapal,* but the precise shape that this word has taken in modern French seems to be traceable to popular pressures that seek to associate the loathsome creature and its name with *crape,* a French word whose scatological English counterpart is known wherever the English language is spoken. The Oxford Dictionary offers us a Scottish and English dialectical word for the dung of domesticated animals, 'tath' or 'tathe', which in Norwegian and Swedish dialects becomes *tad.* Do we not here find the identical semantic transfer? Perhaps we are in the presence of three doublets, the Germans referring to the toad as 'dung', the English and Scandinavians doing likewise, and the French word for toad being re-shaped to resemble *crape.* In the Danish pattern of fungal metaphors, we find that dung is an alternative to the toad in a pair of fungal words - *paddehat,* 'toad's hat', and *skarnhat,* 'dung hat'. How felicitous for our argument is the word 'cowpad', wherein the second element here means 'dung', but elsewhere as we know means 'toad'![1] On an earlier page we considered the possibility that 'toad', a word of unknown origin, might be descended from a Celtic adaptation of the Latin word for 'poison', and certainly in Anglo-Saxon times the loathed creature was linked with venom. But on balance the Nordic *tad,* meaning 'dung', seems to us the likelier source.[2]

In modern English no filthier word for the fungi exists than 'smut', the name of the fungal parasite that afflicts corn. It is cousin to the German word *Schtmttz,* 'dirt', and its evil potency comes out in its figurative use for con-

1. 'Cowpad' is in wide use throughout the English and American countryside, and it is therefore surprising that neither the Oxford Dictionary nor Webster's reports it; nor do we find it in Wright's *English Dialect Dictionary.* Wright reports a single citation for 'pad' in the sense of'dried cow's dung as formerly used for fuel'. This citation is from East Anglia, and Wright declares the word obsolete.

2. Franciscus van Sterbeeck in his *Theatrum Fungorum,* Antwerp, 1675, said on p. 227 that in France a certain mushroom considered foul by him was called *la crate.* If true this would add striking additional evidence for our thesis of a common pool of words and meanings for toads, mushrooms, and excrement. We have not yet found corroboration for Van Sterbeeck's statement in French sources. Van Sterbeeck relied heavily on the great *Historia Plantarum Universalis,* 1650-1, of Jean Bauhin, who on p. 846 described a certain mushroom that he had gathered on a hill in Montbeliard called La Crotte. Did Van Sterbeeck misconstrue Bauhin's Latin text and think the name belonged to the mushroom? Professor Georges Becker, the great mycophile, is a citizen of Montbeliard, and he has confirmed to us the former existence in that city of a hill called La Crotte, razed to make way for railroad facilities.

PLATE XIX

Jean-Henri Fabre. Lycoperdon furfuraceum Pers. ex SchaefF.
English: *puffball, puckfist;*
French: *vesse de loup.*

PLATE XX

Napoleonic caricature.

By courtesy oj Frank Altschul, Esq., Overbrook Farm, Stamford, Conn.


BARBARITY
ENGLAND
TYRANNY
SLAVERY
HYPOCRISY
GERMANY
Russia

demning scabrous language. To the Englishman the two meanings of 'smut' seem so fittingly wedded that he could not imagine things otherwise. Yet the Englishman's disgust with fungal smut is an acquired cultural trait, not instinctive in the human species. The Indians of the Valley of Mexico have always considered smut a culinary delicacy. The kind they use grows on maize, and 'ustilago maydis' seems to be its scientific designation. But in the market place the Nahuatl name, *cuitlacoche,* circulates in Spanish too, and the best families of Spanish descent delight in eating *cuitlacoche* prepared in a variety of ways. Moreover, when English-speaking guests taste the *cuitlacoche,* perhaps served like *piroshki* with cocktails, it moves them to rapture — until they discover that they are eating smut. The Nahuatl word is built from *cuitlatl,* 'excrement'. Today, as we have already said, in standard High German the toad is no longer linked with the fungi, though traces of this association survive in Pennsylvania Dutch. Yet in the German mushroom manuals we occasionally find *Krotenschwamm* as a common name for the poisonous amanita pantherina. Perhaps this is one of those mushroom names that circulate only in manuals. But the same word applied to the same species appeared in the treatise on mushrooms by Carolus Clusius published in 1601,' and we suspect that it was current in his day. If so, and if we are right about the source of *Krote,* it follows that toads and dung were intermingled in the minds of simple Germans, and both were linked with fungi in *Krotenschwamm.* If we have successfully recaptured the semantic associations and feelings of the people who used these humble words, then here we discover a very citadel of mycophobia, where toads and fungi with loathing were spewed forth on the dungheap. Against this background, it becomes clearer that 'frogcheese', 'toadsmeat', and the Welsh 'toad's cheese', as well as the French *pain de crapaud,* hark back to excretions of toads, rather than to food that toads were supposed to eat. We have seen that the Surselva countryman thinks of puff balls as the droppings of crows. R. C. A. Prior in his treatise on English plant names, published almost a century ago, suggested that the stool of 'pixie-stool' referred to the devil's droppings.

I. His *Rariomm Plantarum Historia* (Antwerp) contained a section on mushrooms of Hungary. Clusius was Charles de Lecluse, a Frenchman of Arras. He is sometimes called the father of scientific mycology. *Krotenschwamm* has appeared recently in the *Kleiner Pilzatlas* of H. Strohschneider, Vienna, 1948, p. 22. We have discovered no modem citation of the word in High German other than in mushroom manuals. Clusius' work was a treatise on the mushrooms of the Pannonian plain (Hungary) and he gives Krottenschwammen [sic] as the German name of the mushroom (amanita pantherina) that in Magyar was called *bagoly gomba,* or 'owl mushroom'. Thus the German word was certainly not a translation out of the Hungarian. Clusius also reports *Froschemtuel* [sic] as the German name for another mushroom. Here he may have been translating the Low German *poggenstul,* thus spelled by Valerius Cordus in the middle of the i6th century when he called it to the attention of the learned world in his *Adnotationes* on Dioscorides. Our own view is that these words were still current, though disappearing, in standard High German in the time of Clusius; that they have long been obsolete; and that the compilers of manuals retain them by oversight.

He was mistaken, but doubtless in the long course of English speech there have been others whose mycophobic thoughts turned to dung as they spat out the expletive 'toadstool'. When the English caricaturist devised a satirical coat of arms for Bonaparte, his symbol for the Corsican Devil was a toadstool, and it sprang from dung, the lineage that he thought befitted his villain. True to the Englishman's unfailing ignorance in fungal matters, the artist did not limn a deadly species, or even a fly amanita, as the reader will observe in the reproduction of this old print that we present.

Some years ago an episode took place in France that was curious for various reasons, and not least because it linked birds' droppings with mushrooms. On Sunday, January 6,1926, in the village of Bombon (550 inhabitants, eleven miles from Melun in the Department of Seine-et-Marne) the beloved and respected cure of the parish church, the Abbe Desnoyers, 50 years of age, had retired to his sacristy after Mass when twelve persons, ten women and two men, strangers to the community, burst in upon him, seized, gagged, and bound him, threw him to the floor, and proceeded to flog him with knotted cords until he almost fainted. A few minutes later the twelve assailants quietly submitted to arrest. It developed that the twelve had come by car all the way from distant Bordeaux, that they were members of a religious circle known as the Groupe de Notre-Dame des Pleurs, that they were the disciples of the founder of this little sect, one Madame Marie Mesmin, formerly a concierge, and that they attributed Madame Mesmin's bad health to spells cast upon her by the Abbe of Bombon across hundreds of miles of intervening countryside. One of the two men, the street-sweeper Maurice Lourdin, at the Magistrate's hearing on January 24, had no trouble in identifying the Abbe Desnoyers as Satan himself, one of the most powerful sorcerers of the age. Only by flagellation could the demon that possessed this priest be exorcised. Lourdin bore witness that the priest of Bombon had sent birds (we are not told the species, alas!) to Bordeaux carrying diseases. They had flown over Madame Mesmin's garden, and from their droppings had sprung up a crop of fungi that took obscene shapes, whose appalling stench had smitten all and sundry with horrible diseases.[1] For a brief spell the Parisian press was agog with amused excitement about the happening in Bombon, and cabaret singers made much of it. Thirty years have passed, but

I. There may be an echo of the same association between birds' droppings and fungi in a curious theory advanced to explain fairy rings by a Mr. Johnson of Wetherby, England, early in the igth century. He thought they were caused by starlings which "when in large nights frequently alight on the ground in circles, and sometimes are known to sit a considerable time in these annular congregations". This reference is to be found in the edition of Gilbert White's *Selborne* annotated by Captain Thomas Brown, of which the first printing appeared in 1833, on p. 327.

there are those who still remember it: Aldous Huxley has recalled for us one of the refrains:

Frappons, frappons, en union
Sur le Cure de Bombon.

The account of this anachronistic episode can be found in *The Times* in the issues of January 6, 7, and 25, 1926. The obscene fungi could only have been stinkhorns. *The Times* correspondent did not remark on the number of the assailants: twelve. With Madame Mesmin their leader, this made thirteen, the full complement of a witches' coven. We seem to be in the presence here of the posthumous twitchings of witchcraft, the religion of the Horned God, and of the folk association of fungi with excrement.

In the Italian language there is a word to designate a venomous snake, *scorzone,* which is etymologically identical with one of the Spanish words for 'toad', *escuerzo.* The Basques, as we have seen on page 78, sometimes call the marasmius oreades the Viper-fungus', *suge-perretxiko,* and sometimes the *zapo-perretxiko,* or 'toad-fungus'. According to Clusius, in the i6th century two innocent kinds of mushrooms bore in German the name of *Natterschwamm,* or adder-fungus,[1] and the Magyar term was a translation of this - *kigyo gomba.* Traveling farther east, we have already called attention to the 'toad-fungus' and 'viper-fungus' of Slovakian usage. Far more important is the Russian word *poganka,* the supreme expression among the Slavs of the folk association between the fungi and vermin. In Great Russia, *poganka* is a term of condescending affection for the inedible mushrooms: the word has lost some of its sting among the myco-philic Russians. But this same word *poganka,* derived from the Latin word for 'pagan', circulates throughout the Slavic world, and in one region or another it designates not inedible mushrooms but all things unclean: mice, rats, snakes, pimples and other organic swellings and tumors, and (in Serbia) dung. The inedible mushrooms are unclean, they are vegetable vermin, so to speak, and the word used for them was also transferred to all other vermin and filth. The presence of pimples and tumors among these meanings arrests attention, for here we hark back to our familiar theme of the *pogge* cluster.

Farther east, in the Indo-Aryan world of Asia, the theme of the serpent recurs in the fungal vocabularies of various peoples, but there is no trace of the toad. The oldest figure in the fungal metaphors of these Eastern peoples is neither the hat nor the stool, but the parasol - Sanskrit *chattra.* Perhaps the

I. *Natterschwamm* is unrelated to the 'natterjack' (vide p. 74); the English equivalent *of Natter* drops the initial letter to become 'adder'; by contrast, what was originally an 'atterjack' in early English added an initial 'n' to become the 'natterjack'.

earliest surviving reference to mushrooms in Sanskrit, going back several centuries before Christ, is *ahi-chattra(ka),* 'snake's parasol', in the text called *Nirukta.* The same word is found in Pali, and in the Hindi *sap ki chain,* all with the same meaning; and also the Persian *catr-i-mar.* Another Hindi word for the fungi is *sap kiroti,* 'snake's bread', and a Sindhi expression is *sapido,* a diminutive of *sapu,* 'snake'.[1] It is curious that elsewhere than in the Indie languages we find the 'parasol' figure applied to fungi only in the Spanish dialect of Jocotan, Guatemala, as we mentioned earlier: *sombrilla de sapo,* wherein *sapo* means 'toad' and not 'snake'.

I. This Eastern word for 'snake' recalls the Spanish word for 'toad', *sapo,* and suggests an analogy between this pair of words and the alternative Spanish word, *escuerzo,* 'toad', with its Italian cousin, *scorzone,* meaning 'viper'. But the Spanish *sapo* and its Eastern homonym are not directly related to each other. The Spaniards could have borrowed the Eastern word only from the Spanish Gypsies, who in fact use it in the sense of 'snake'. However, the Gypsies did not arrive in Spain until the I5th century, and the Spaniards were applying *sapo* to the toad long before then. We find the word in Don Juan Manuel's *Libra del Caballero et del Escudero,* written at the beginning of the I4th century. The Hindi word comes down from the Sanskrit *sarpa,* and 'serpent' belongs to the family.

6 *THE SPONGE CLUSTER*

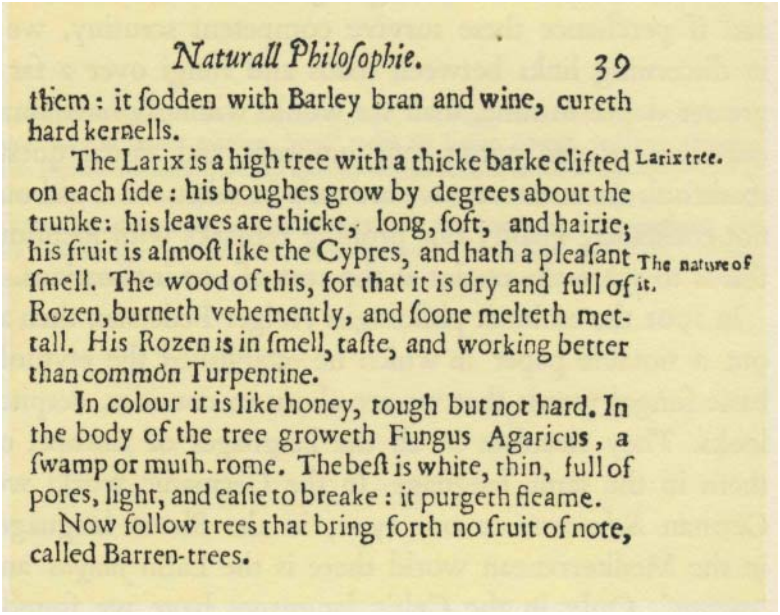
JN ow the moment has arrived to examine the basic fungal words of Europe. The tie that joins toad and fungus continues to be our theme. But for a few paragraphs we shall immerse ourselves in evidence that may seem remote to our readers - if readers there be who are still with us. Some of that evidence is well attested, but we are going to advance certain conjectures of our own, and if perchance these survive competent scrutiny, we shall have succeeded in discerning links between toads and fungi over a far wider area, and at a greater depth in time, than we would willingly have imagined when we asked ourselves, at the outset, our innocent and casual question about the lowly toadstool. As amateurs, we are rash in what we are about to do, and if we do not constantly qualify our probing remarks with locutions of modest timidity, this is to spare the reader at the cost of our inclinations.

In 1901 the eminent philologist Holger Pedersen, then a young man, brought out a notable paper[1] in which he established the etymological identity of the basic fungal words that we are about to consider, despite the disparity in their looks. They circulate in all the languages of Europe, often two or three of them in the same language. In the Germanic world we may take the High German *Schwamm* as our type; in the Slavic languages, the Russian *guba;* in the Mediterranean world there is the Latin *fungus* and the Greek σπόγγος, 'sponge'. Only in the Celtic languages have we found no native examples. In Germanic and Slavic the words mean both fungus and sponge. In the Mediterranean, by semantic differentiation the Greeks confined their word to the sponge, and the Romans theirs to the fungus, the Romans borrowing the Greek word for the other sense.[2] There is no evidence that any of these words in recorded history has ever been linked in the minds of Europeans with the toad. But there is abundant evidence that all of these words have carried, in their very core, the idea of an organic swelling or excrescence or tumor. Thus the Greeks spoke of scrofula and of the tonsils as sponges, and parallel examples are common for the other words of the group.

There is one remarkable quality that distinguishes all the words of our sponge cluster: they are emotionally neutral, by contrast with the pejorative flavor of the fungal words heretofore discussed. It is as though this whole family

1. Published in Polish: 'Przyczynki do gramatyki porownawczej jezykow slowiariskich', in *Materyaly i Prace Komisyi Jgzykowej Akadetnii Umieigtnosci w Krakowie,* vol. I, no. I, pp. 167-176; Cracow.
2. But the morel appears to have been called by the Romans *spongiolus,* which comes down into modern Italian as *spugnolo.*

of words had always possessed a tough underlying personality persisting through the centuries, over immense areas, among peoples in every stage of cultural development. Even when a word of this group describes something disagreeable like a tumor, it retains a detached tone, by contrast for example with 'cancer'. In the English language the Anglo-Saxons used *swamm* for 'mushroom', and this member of our sponge cluster lingered on through Middle English into early Modern English. We can pinpoint its last recorded appearance:



Naturall Philoſophie. 39

them: it ſodden with Barley bran and wine, cureth hard kernells.

The Larix is a high tree with a thicke barke clifted on each ſide: his boughes grow by degrees about the trunke: his leaves are thicke, long, ſoft, and hairie; his fruit is almoſt like the Cypres, and hath a pleaſant ſmell. The wood of this, for that it is dry and full of Rozen, burneth vehemently, and ſoone melteth mettall. His Rozen is in ſmell, taſte, and working better than commõn Turpentine. Larix tree. The nature of it.

In colour it is like honey, tough but not hard. In the body of the tree groweth Fungus Agaricus, a ſwamp or muſh-rome. The beſt is white, thin, full of pores, light, and eaſie to breake: it purgeth fleame.

Now follow trees that bring forth no fruit of note, called Barren-trees.

Fig. 6

DESCRIPTION OF FOMES OFFICINALIS

Last reported use in English *ofswamm* (misspelled *swamp)* in the sense of mushroom, referring to fungal growth on larch.

in the second edition of *Naturall Philosophy or A Description of the World,* by Daniel Widdowes, published in London in 1631, where it is used in describing the fomes officinalis, the *agaricum* of Pliny. *Swamm* in the end surrendered the field to the loathsome 'toadstool', to the toothsome 'mushroom', and to the learned 'fungus'. But another word of our cluster is current in the name that the English give to wet, spongy land - the swamp. And perhaps there survives yet another word, of greater importance.

On an earlier page we saw that the idea lying behind the *pogge* cluster was a distensible sac, a bag or pocket or pouch, a belly or bulge or bilge. The English word 'womb' comes down from the Anglo-Saxon *wamb,* and this in turn is cognate with various Germanic words of similar sound and meaning, including the Gothic *wamba.* As the Oxford Dictionary points out, the same root turns up in the rare word 'gameson', designating the quilted or padded garment that medieval knights wore under their armor to avoid chafing. This garment tended to bulge and belly, being designed to do so. Philologists have been

uncertain about the ultimate affiliations of the underlying root of 'womb' and 'gameson'. We suggest that 'womb' and our sponge cluster spring from the same source, and that in 'womb' and the sponge cluster we discover a perfect semantic parallel for those elements in the *pogge* cluster that relate to distensible bags and fungi, and also for the Irish fungal *bolg.*

Perhaps there is another extraordinary example, hitherto unidentified, of the same Indo-European root in Late Latin. During the early centuries of the Christian era the Roman legions were being hard pressed by the barbarian horsemen erupting out of Asia. In the art of warfare the innovation of the day was the cavalry, and the Roman authorities were struggling to overtake the alarming lead of the enemy in the handling of horses. Whenever they could, they incorporated into their own forces barbarian elements versed in horsemanship. It is not surprising that at this time important texts by veterinaries make their appearance in Latin. One of these veterinaries, Vegetius by name, writing in the early 5th century, describes a pathological swelling above the hoof of a horse by the adjective *gambosus,* the first recorded appearance of this word in Latin. Surely this is our familiar *gamba,* borrowed from the barbarians, used in its essential sense of 'swelling', under historical circumstances that make its appearance natural.[1] (There is a curious and significant analogy for *gamba,* in the sense that we suggest, in the modern Dutch word *hanekam,* of which the primary sense is 'cock's comb'. It carries two other meanings: it is the vulgar name of the chanterelle, and it also designates a swelling on the hock of a horse.)

The words of our sponge cluster have displayed a singular potency in grafting themselves into the vocabularies of alien peoples. Thus in Basque one of the three generic words for mushrooms is *ondo,* borrowed from the Spanish *hongo,* which in turn descends from the Latin *fungus.* (This borrowing, must have been relatively recent - in the course of the past millennium or so. Of more subtle interest is the fact that the Basque word for 'toad', *apo,* possesses as a secondary meaning the idea of sponginess. We shall revert to this.) The Magyar

I. This etymology, original with us, must stand up against the conventional one. French *jambe* and Italian *gamba,* 'leg', are usually traced through Vegetius' *gamba* to a Celtic root meaning 'bend' or 'curve'. That the words for 'leg' come from the Celtic root we do not question. It is less clear why a veterinary writing in the 5th century should refer to a swelling on a horse's leg as a 'leg' or as a 'bend'. We know that there was a close homonym for the Celtic word in Germanic and Slavic, that homonym meaning 'swelling' or 'tumor' or 'womb'. We are not inventing a homonym for our argument. If we are right, the form of the word as used by Vegetius would indicate that it was borrowed, not from Germanic, but from Slavic, and this would confer on *gamba* the distinction of being the earliest recorded loan-word from Slavic in the Western languages. Heretofore the earliest recorded Slavic word is *strava,* 'funeral banquet', used by Jordanis in his account of the funeral of Attila in A.D. 453. For the crisis in war technology precipitated by the barbarians' use of the horse, see the opening pages of Ferdinand Lot's *L'Art Militaire et les Armies du Moyen Age, Pans,* 1946.

gomba or *gamba* was drawn from the Slavic, as was we believe the Lappish *guobbar.* In Armenian our sponge cluster turns up in *sunk,* meaning mushroom, and this Armenian word was the source of the Georgian *soko,* which in the neighboring Svanetian language becomes *sok.* On the northern side of the Caucasus the Ossetians speaking the Ironian dialect of their language borrowed their word *zoko* from the Georgians, and by a not abnormal transposition, the other Ossetians of the Digorian tongue say *kozo* - a far cry from *Schwamm and fungus* perhaps, yet genetically stemming from the same ancestry.

In the valley of the Volga, to the east of the Slavic homelands, there live the Chuvash people. They are probably the descendants of the original Bulgars. When a part of the tribe, some fifteen centuries ago, began their slow trek to the land that we now call Bulgaria, the others remained behind and they retain to this day their non-Indo-European tongue. In the Chuvash language the word for 'fungus' is *kampa.* The nasal sound in the middle of that word is of singular interest. The Chuvashi could have borrowed *kampa* only from the eastern Slavs, who for a thousand years and perhaps more, ever since the Russian language was first put on parchment, have been saying *guba.* The Chuvash word offers proof that long ago, when the Chuvash people took over the word - we cannot say when this happened - the Russian *guba* was pronounced *gomba.* Like the fly caught and held in amber, the Chuvashi have held for us the ancient and lost form of the Russian word. That Chuvash word is noteworthy also for its other meanings. It is used for certain tumors of the human body. It is also used for the genitalia of the cow, and thus recalls the Gothic *wamba* and the English 'womb'.[1]

In the Indo-Aryan languages of the Middle East and India there is a startling family of words that seem both phonetically and semantically to belong to our sponge cluster. Thus in Hindi we find that *khumbi* means 'mushroom'; in Sindhi, *khumbhi;* in Panjabi, *khumb;* in Lahnda, *khumb.* These are all traceable to a Sanskrit word, *kumbhika,* meaning 'pot' or jar' - the bellying utensil that we have already encountered in the Anglo-Saxon *bile,* meaning both 'belly' and 'pitcher'. In Sindhi we also find *phungi,* which is seemingly a mutation by metathesis of *khumbhi,* paralleling the identical mutation in Europe, where 'sponge' *and gomba* are identical etymologically, as are *Schwamm and fungus.*

In the Waziri dialect of the Afghan language known as Pashto we find for 'mushroom' the word *xomba, and* in the Mohmand dialect *xumburi,* both derived from *xumb,* 'pot'. Surely all these words bear witness to the ubiquity of

I. Our information about the Chuvash *kampa* comes from N. I. Ashmarin's *Thesaurus Linguce Tschuvaschorum,* Book vii, p. 142, published in 1934.

the idea that underlies the thinking about fungi throughout the Indo-European world, and of the verbal root that expresses the idea. These Eastern words stir up a further reflection. A few pages back, when we were discussing the *pogge* cluster, we saw how Puck and other imps and sprites resided in the distensible sacs, the toads, and the puffballs that we were examining. If we may rely on the Arabian Nights, the jinn of the East were confined in pots and jars, whence they would escape, rising wraith-like in gaseous wisps, to condense into organic shapes and wreak their will on men. Is there here too a common denominator in the Satanic association of the fungi, linking the East with Europe?

Up to this point we have shown the diffusion of our basic fungal words throughout the Indo-European world and among a few small adjacent tribes of other origins. How about the Semitic peoples; Here we uncover a surprising thing. Of the important words for 'mushroom' in Arabic, one is *kam* or *kam'a.* Its etymology is unknown. It belongs both to classical or literary Arabic and to the colloquial language. In its application it is both generic and specific, sometimes embracing the whole mushroom world, but also designating that species of terfezia which among Arabs holds pride of place as a gustatory delight. It is reported in modern Persian, where loan words from Arabic are numerous, and in its specific sense is said to be commonly used by the market vendors of Damascus. Nor is this root confined to Arabic. In the Old Testament no word for 'mushroom' occurs, but in the Babylonian Talmud and the Midrashic literature we find the cognate root KMH in both Aramaic and Hebrew forms. If our Semitic root was borrowed from the Indo-European world, it goes back far.[1] Or are both words descended from a pre-Indo-European root? Or are we dealing with unrelated words that happen to resemble each other?

Now we return to Pedersen's classic paper.[2] He undertook to reconstruct

1. The Arabic *kam'* suggests the Germanic and Slavic forms of the Indo-European words, rather than the Greek or Latin. In the Jerusalem Talmud we find the root SPG in the form *s'fog* meaning 'a porous luxuriant growth, mushroom, sponge', but this was undoubtedly a Hellenistic borrowing of the Greek σπόγγος The parallel between the Arabic and Russian words for 'mushroom' reminds us of an astonishing parallel in fungal metaphors. A certain mushroom is called in Arabic *shahinat al-ard,* literally 'fat-of-the-earth'. This corresponds to the Russian *maslenok,* which James Collins in *The Present State of Russia* translated by 'fat-of-the-earth' in the iSth century. Yet another basic fungal word in Arabic, classical and colloquial, is *faq', fuqqa', orfaqqd",* from the root *FQ',* meaning 'whiteness'. Whether this name designates a white kind of mushroom, or whether, as in Russian and Basque fungal names, whiteness here connotes excellence, we do not know. See pp. 7 and 10.

2. Pedersen's careful and elaborate argument in favor of a common origin for Slavic *gomba,* German *Schwamm, Latinfungus,* and Greek σπόγγος seems to us conclusive, and is accepted in substance by Emile Boisacq in his Greek etymological dictionary. A. Ernout and A. Meillet in their Latin etymological dictionary suggest a Medi terranean origin for the Latin and Greek words, without however dealing with Pedersen's argument, which is available only in Polish. Occasionally there are clusters of words that the philologist ought to study together, and such is the fungal vocabulary of Europe, a semantic field pervaded by related figures of speech and emo tional responses. No philologist has pursued this method. Our basic fungal words of northern and southern

the lost Indo-European root that was the progenitor of our sponge cluster. He considered several possibilities differing only in details, and of these 'sgwombho' may be considered typical. And at this precise point, after a long absence, our toad rears its head and thrusts itself once more into the stream of our argument. Curious about the origin of the Latin word for toad, *bufo,* we turned to Walde's Latin etymological dictionary, and discovered to our surprise that philologists are disposed to consider it genetically related to the Russian word for toad, *zhaba,* through an intermediate form, *gabawo,* found in the dead Baltic language known as Old Prussian. For *bufo* Walde devises a hypothetical Indo-European ancestor, 'g^{u}obho'. Thus leading scholars, without regard for each other's problem, arrive at hypothetical archetypes:

[sjgwombho as

the ancestor for 'fungus' and

g^{u}obh5

as the ancestor for *bufo,* which thus differ in only one essential respect - the presence of the nasal infix in the word for mushroom! Though we are the first to propose that these two words are doublets distinguished only by the nasal infix, the Indo-European languages offer other examples that parallel ours perfectly.[1]

This ancestral convergence of the two words could be regarded as accidental, provoking perhaps an ancient semantic overlap through paronomasia or punning, were it not for the weight of evidence that we have already developed, indicating an association of toads with fungi in the minds of primitive Europeans. In the face of this evidence, accident becomes the long and unlikely arm of coincidence. Perhaps traces of the underlying unity of *zhaba* and *gamba* survive in the vernacular terms of the Ukraine and Slovakia that we cited on page 78. Perhaps there is a trace of that unity, hidden behind translated words, in the Basque word for 'toad', *apo,* linked as it is semantically with both 'sponginess' and certain wild mushrooms.

According to Pedersen's analysis, *Schwamm* and *gamba* differ from the Latin *fungus* and *spongia* only by a transposition of consonants, the common pheno-

Europe possess identical semantic attributes. They mean the same things— organic excrescence, sponge, fungus. They evoke identical turns of phrase, proverbs, epithetical use. In short, the words occupy the same semantic terrain, which would be unh'kely if they descended from unrelated sources. We offer this as additional evidence, circumstantial in character, in support of the Pedersen thesis. As we shall see on p. 144, this does not altogether rule out the possibility that the same root is native to languages outside the Indo-European family. In short, both Pedersen and the Latin philologists could conceivably be right.

I. The interested reader will find a detailed survey of such nasal infixation in the book of the distinguished Polish linguist Jan Otr^bski, 2 *Baddn ttad infikscm nosowym u> jgzykach indoeuropejskich,* published by the Polish Academy of Sciences as the I5th issue of the Transactions of its Linguistic Commission, Krakow, 1929.

menon known as metathesis. Thus *gamba* becomes *[s]pongos* in Greek. Pedersen chose to reconstruct his Indo-European archetype, the hypothetical 'sgwombho', from the northern forms. But was he justified in this; The northern forms have shown themselves fluid throughout the fifteen centuries of their recorded history. The Greek σπόγγος attested in Homer, has displayed a notable stability throughout the twenty-five centuries of its recorded history. May we not suppose that the Greek word is nearer to the archetype? If so, we suggest our own reconstruction of the hypothetical root:

(s)p(h)ong-

And at this point the attentive reader will perceive that we are back in the company of those words that we associate with the Low German *pogge,* meaning 'frog' and 'toad', the essential difference being the nasal infix that distinguishes all words of the sponge cluster.

And so we now emerge from our arduous excursion among the words of the sponge cluster with a theory of our own. We believe that these words - *Schivamm, gamba, fungus* σπόγγος - stem from the same genetic root as the basic word 'womb', and that all these stem from the same genetic root as the words of the *pogge* cluster. That root was imitative in origin, and keyed to the idea of swelling. The progeny of that root has peopled the vocabularies of Europe with numerous words embracing bags, pockets, toads and frogs, imps, tumors, mushrooms, wombs, and sponges.

Just as physicists discover the 'unified field' where, at great depth, the disparate phenomena of matter and force turn out to be one and the same, so in our linguistic pursuit we may have arrived at the unified field underlying all of those disparate phenomena that, as we have seen, men associate together, subtly and half unconsciously, to this very day.

7 *PUNK, FIRE, AND LOVE*

About the things that man eats he is acutely sensitive. The mere thought of inviting food starts up his salivary glands, and puts him on tiptoe of eager expectation. By contrast, the suggestion that he consume things unclean gives him a spasm of revulsion. The attitudes that we have called mycophilia and mycophobia hinge on whether fungi are considered delectable food or foul and filthy poison. But primitive man had other uses for wild fungi, and he was capable of regarding these growths from a detached utilitarian point of view without regard to ingestion. We believe this explains the neutral tone of the sponge cluster of words. These words are often bestowed on edible fungi, but they usually yield place to others in the context of food - *Pilz, grib, champignon.* If we try to see the fungi as our ancestors saw them, we may divide their thoughts and feelings about them according to the ends they had in mind:

I. INGESTION

1. As poison (a) accidental
   (b) for murder
2. As intoxicant (amanita muscaria), and for divination
3. As aphrodisiac (including perfume)
4. As medicine-purgative, styptic, etc. (fomes omcinalis); for contraception
5. As food.

II. OTHER

1. As tinder or touchwood, to catch the spark and start the fire, and to keep a fire in a smouldering state.
2. To produce a stupefying smoke, effective with bees when extracting honey from the hive, etc.

Modern man, especially the urbanized literate, is almost incapable of imagining the importance to his ancestors of fungi for the making of fire. One species was especially prized for this purpose - the fomes fomentarius, the *amadouvier* of France, the *Zunderschwamm* or *Feuerschivamm* of Germany. But many other kinds served this purpose too, such as 'bunts' or dried puffballs, and the dry, friable innards of fungous-infested tree-stumps.

This brings us to a curious trio of English words, 'punk', 'spunk', and 'funk'. We believe all three are members of our sponge cluster, siblings descended from the Mediterranean *fimgus*- σπόγγος word family. All three possess one thing in common: they designate, or at some time in the past have designated,

the shelf-fungi that serve as touchwood for making fire. This meaning is not the oldest recorded use of any of them, but nevertheless as a working hypothesis we propose that 'touchwood' be regarded as their primary sense, in which sense they circulated in humble discourse for untold centuries, accumulating derived and metaphorical meanings as time went on, until finally, when the words were consigned to paper, it was these secondary and more fashionable meanings that first achieved the dignity of writing.

Let us take 'spunk', for example. That it belongs to our sponge cluster is attested by the corresponding Irish word *sponnc,* which means both sponge and touchwood. (We find a similar semantic association in Dutch, where *zwam* means both fungus and tinder; for 'sponge' the Dutch resort to *spons.)* In the Oxford Dictionary's earliest citation of'spunk', in 1536, the word meant 'spark'; to this day it is still occasionally so used. In 1582 it appears in the sense of tinder, and in 1665 as the name of the fungus that makes tinder. Oliver Goldsmith toward the end of the i8th century offers us the earliest known use of 'spunk' as the moral quality of mettle or pluck. Here in the word 'spunk' we have a name for touchwood that gathered to itself nobler secondary meanings derived from the spark that was the end-product of its use. The word 'spark' itself is mysterious: it is known only in the English, Frisian, and Low German languages. The question suggests itself whether it is not simply a different phase or grade of'spunk' - touchwood in its final act of transfiguration.

'Funk' also meant 'spark' in the earliest citations, in the I4th century. We first hear of it as fungous touchwood in 1673. Haifa century earlier it was being used in the sense of a strong smoke and stench, as from tobacco. This use stems back to the shelf-fungi that served to generate a stupefying smoke, to put bees to sleep when extracting honey from hives. Before modern sugars became common, honey was a commodity of notable importance, both for its sweetness and as the base for mead, and in the apiculture of the time, the part played by fungal smoke was important and a commonplace. It was natural that those who disapproved of tobacco in the early days should have first associated this smoking plant with the familiar smoke-generating fungus. The depressing moral connotations of 'funk' first appear in the i8th century: he who languishes in a funk is in a moral stupor, overcome in a smoke-cloud.

Most interesting of the three words is 'punk', which in the sense of touchwood first appears about 1707. As with the other two words, the lexicographers say that the origin of 'punk' is obscure, but they give reserved recognition to a theory that it was borrowed in colonial times from an Algonquin word, phonetically similar, meaning dust or ashes. 'Punk' is the ordinary English word for

touchwood today, and it is *prima facie* incredible that an Algonquin term for so ancient and domestic a commodity should have swept the English-speaking world and won general acceptance late in cultural history. We think there is circumstantial evidence to show that the word was securely established in English in Elizabethan times, and this leads us directly into the strange erotic associations of our punk-spunk-funk triplets.

In the i6th century 'punk' meant a strumpet, as it still does, and what is a strumpet but the tinder that whips into flame the gay young spark allured by her favors? Let no one dismiss this figure as fanciful. For 'touchwood' the French say *amadou,* which is simply the Proven9al word for 'lover'. Lovers, like tinder, are quick to take fire. The French verb *amadouer* means to coax, just as we 'coax' a fire with tinder. In modern English slang 'punk' is a contemptuous adjective for things of low quality - a natural semantic extension of the brothel word. The erotic association of 'punk' is feminine. That of 'spunk' is primarily masculine: in certain English circles and at certain levels of conversation, it is the accepted word for the seminal fluid of the human male. 'Sparking' a girl used to mean 'courting' in American slang, and the *Dictionary of American English* also records the far stronger 'spunking'. We have seen how the nasal infix of the words of our sponge cluster comes and goes, associating this large verbal family with the *pogge* constellation. If we drop from 'funk' its nasal infix, we are in the presence of the supreme erotic word of the English language. The Russian word for touchwood is *trut* (riming with 'brute'), and it is directly derived from the Russian word for 'rub'. Though *trut* itself carries no erotic meaning, it is the key to certain ancient Russian riddles where the erotic sense lies hidden. The generating of fire by the friction of wooden surfaces - a technique in which one wood must be soft and the other hard - may explain why, among the many forms that 'mushroom' has taken in English, we find 'mushrub'.

And now the thread of our argument leads us from philological clues over the threshold into anthropology, where we begin to discover the deep erotic symbolism of the mushroom world.

Throughout most of human history and down into our own times, men have usually made fire by either of two methods - by percussion, striking flint against pyrites or (in later times) against iron to generate sparks that will ignite tinder, or by the friction of wood on wood through the aid of a simple device for which the English anthropologist Edward B. Tylor devised the name 'fire-drill' in the last century. The usual fire-drill consists of two wooden members, a flat smooth piece of soft wood held horizontal, and a round stick of harder

PLATE xxi. Etruscan Mirror. Ixion on his wheel. *London, British Museum.*

wood. The stick is pivoted perpendicularly in a notch on the horizontal face of the soft wood, and then rapidly rotated, sometimes between the hands but more often with the aid of an ingeniously disposed thong or strap or bow-string. A pulsating pressure is applied to the rotating stick, as it rotates first clockwise and then counter-clockwise. The stick by friction widens and deepens the hole in the soft wood, and fine wood-dust gathering in the hole becomes red hot, until when tinder is applied to it, by blowing the tinder catches fire. For us the interesting thing is that among the peoples who use the fire-drill, the horizontal piece of soft wood is called the 'female' and is sometimes even carved crudely to suggest a human figure, and the stick is called the 'male'. The engendering of the fire is regarded as a sexual act, and is pregnant with emotional significance and hallowed by mythological overtones.

Over the past century there have been published a number of papers by anthropologists on the methods used by our ancestors and other early peoples for kindling fire.[1] The percussion method can be traced to remote times, thanks to the survival of the artifacts employed - the flints and the irons, and the masses of decomposing pyrites used before the iron age. By contrast, the perishable fire-drill - the wooden members that by friction yield fire - must generally be studied among our primitive contemporaries, although Egyptian records establish its use in ancient Egypt. These two primitive methods for making fire, percussion and friction, survive to this day by lineal descent in our 'lighters' (the French *briquets]* and matches.

Our own interest lies in tinder, that humble but indispensable condiment in the generation of fire, the highly inflammable material, otherwise worthless, that is the nexus between the spark on the one hand and the kindling on the other. The kinds of tinder that have been used in various parts of the world are many: charred rags, lint, down, the flower stalk of the agave, dried moss, dried bark, and fungi. Many kinds of fungi have served this purpose, including ordinary mushrooms in a dried state, puffballs, and, according to the classical lexicons, the fomes officinalis - the *agaricum* or 'female agaricke' of the old pharmacopoeias. (While this medicinal shelf fungus could certainly have served the spark-catching function, we have found no classical text supporting the lexicons, and its value as medicine would seem to have made the humbler service unlikely, especially as it had to be imported from beyond the Bosphorus.) Down to our own times the writers about tinder have almost always been confusing in their use of fungal names: they have seldom been competent in the

i. For a recapitulation of the subject and further references, see Arthur Bernard Cook's *Zeus God of the Bright Sky*, Cambridge University Press, 1914, vol. I, pp. 325-330.

technicalities of the industry that served the market with commercial tinder. We believe, however, that there is agreement among competent students: in medieval and renaissance times, and indeed into our own era, the best commercial tinder of Northern Europe was always made from the shelf-fungus known to mycologists as the fomes fornentarius, a species that must not be confused with the mis-named fomes igniarius. Indeed, today we know that this use of the fomes fomentarius for tinder goes back far. It has been found in the human settlements at Maglemose, on the island of Seeland in Denmark, in conjunction with flint and the remains of pyrites.[1] It has been found repeatedly in the Danish peat bogs of the same era. The Maglemose finds go back to the oldest stone age in Denmark, c. 6,000 B.C. The final ice age had drawn to a close c. 12,000 B.C., and after an interval of tundra ecology, a forest growth succeeded, including the birch trees with which invariably the early specimens of fomes fomentarius have been associated. The making of tinder from this particular fungus may well be the oldest surviving industry with a continuous history in northern Europe. We suggest as an hypothesis that this fungus was the object to which the name *Schwamm* or 'punk' in earlier forms was originally bestowed. These words dealt with the fungal world from a utilitarian point of view, not gustatory; with inedible shelf fungi, not mushrooms. This would account for the emotional neutrality of the sponge cluster of words, as contrasted with the pronounced values, negative or positive, of 'toadstool', *'champignon',* and many others. Or rather, to speak with more precision, this would account for the two distinct emotional responses evoked by mushroomic words. Where ingestion is concerned, the response, whether favorable or unfavorable, is sharp and keyed to the gustatory sense. Where fire-making is concerned, the archaic emotion that lingers on in such words as 'punk' and 'spunk' is an erotic transfer.

In ancient Greece the god of fire-making was Ixion. He hailed from Mount Pelion, a center of Helladic culture, where he fathered the Lapiths, the Satyrs, and the Centaurs, tribes that were kin to the Etruscans and that enjoyed singular repute for sexual potency. According to the myth, Ixion was bound to a great

i. The fomes fomentarius found at Maglemose was described by the Danish scholar, Dr. G. F. L. Sarauw: 'Le feu et son emploi dans le Nord de 1'Europe, aux temps prehistoriques et protohistoriques", in the *Annales du XX Congres archeologique et* ***historique*** *de Belgique,* i., pp. 196-226. His use of the name fomes igniarius was erroneous, as Professor N. Fabritius Buchwald, of the Kgl. Veterinaer- og Landbohoejskole, Copenhagen, pointed out in his superseding papers, which in the present state of our knowledge are the latest word on our subject. See his paper on the history and use of the tinder fungus published in 1930 in *Meddeleher fra foreningen til svampckundskabcns fretnmc,* Copenhagen; also his later paper, written with Sigurd Hansen, on post-glacial finds of the tinder fungus, 1934, *Dcmmarks geologiske Undersoegelse,* IV Rskke, Bd. 2, Nr. n, Copenhagen. The Danish title of this paper is, 'Om Fund af Toendersvamp (Polyporus fomentarius [L.] Fr.) fra Postglacialtiden i Danmark'.

wheel (the sun-wheel) and sent spinning for eternity into space because he had permitted himself to become enamored of Hera. Before this sentence was meted out, unbeknownst to him his guilt was proven by trickery: a cloud was made to condense into the figure of Hera, and Ixion did not resist temptation.

In the British Museum there is an Etruscan mirror, variously attributed to the 3rd, 4th, or 5th centuries B.C., on which Ixion is depicted undergoing his punishment. Nude, bound to a seven-spoked wheel, he is in the running posture that denotes speed. Between the spokes of the wheel we discover two designs, of which one is almost entirely lost. The scholar A. B. Cook, describing this mirror in his work on Zeus, dismissed these signs as meaningless. But it will be observed that the two designs are not components of the ornamental border. They are functional elements in the iconographic message. They possess a meaning, but what meaning? Robert Graves, who drew them to our attention, suggests that they are mushrooms. He is surely right, and if so, this Etruscan mirror offers us the earliest known representations of fungi in European art; and we observe that the role they here play is related not to food or poison but to the generation of fire. The eroticism of the design tells us a story intimately linked with the Ixion myth. On one level we see a capped mushroom representing no particular species. On another level we observe that the mushroom consists of two members, symbolizing the male and female organs of a fire-drill, and they are engaged in the supreme act of fire generation. Earlier we have suggested that certain basic words for the fungi are keyed to words for the womb. We now remind our readers that the Greek word for mushroom, P.UXYJ?, also means the *membmm virile.*[1] There are the same bi-sexual correspondences in the mushroom vocabulary that anthropologists discover in the names for the two parts of the fire-drill. The pattern that we discover on the Etruscan mirror is, we think, a pictograph symbolizing the generation of fire, the function of Ixion. This interpretation is in harmony with the verbal and semantic ties that, by independent evidence, we have discovered in Europe's mushroom vocabulary. The artist of the Etruscan mirror offers us three messages in one design - a fire-drill in the act of generating fire, a sexual performance, and the mushroom with stipe stabbing the pileus (i.e., μύκης and vulva) that is the symbol of the other two.[2]

The medicinal shelf fungus known today as the fomes officinalis used to be

1. This double meaning survives in the scientific name for certain microscopic fungi, 'penicillium' (whence the popular 'penicillin'), which like 'pencil' is derived from a diminutive of'penis'.

2. Pertinent to our argument is a representation of Ixion on an Etruscan vase from Cuma;, reproduced in A. Baumeister's *Denkmdlcr des Klassischen Altertums.* In this case, in place of the mushroom theme, the figure on the wheel is enclosed in a double aureole of flames.

called in English the 'female agaricke'. This sexual attribution in one form or another goes back to Dioscorides and Pliny. The explanation that they offer for it seems a little forced. According to them, the female agaric possessed straight veins resembling the teeth of a comb, and was white and light throughout, at first sweet to the taste and then bitter - an observation that suggests a cynical view of womankind. This was the only kind recommended for medicinal use, and the description fits the fomes officinahs. The 'male agaricke', which seems to have been a term applicable to the fomes fomentarius and fomes igniarius, was brown or reddish, sticky, long, hard, and heavy. These descriptions, more suggestive erotically than enlightening mycologically, originated in the ancient authorities, but were repeated tirelessly until we find them in such English pharmacopoeias as William Salmon's *Pharmacopoeia Londinensis, or the New London Dispensatory,* London, 1682, and *A Treatise on Foreign Vegetables,* by Ralph Thicknesse, M.D., London, 1749.

We can adduce startling evidence proving the hold on the Greek imagination of the sexual associations of shelf fungi. In a loth century Byzantine codex of Dioscorides now owned by The Pierpont Morgan Library, the section on the ἀγαρικόν is illustrated by the miniaturist, but his design bears no resemblance to the fomes officinahs! He must have been totally ignorant of it. Drawing his knowledge solely from the text with its account of the male and female kinds, he has given us two drawings inspired by the male and female genital organs! Our loth century miniaturist may have been copying an earlier manuscript, but we know not how far back this aberration goes. Some five centuries later, in the year 1491, in the earliest printed book carrying fungal illustrations, the artist was clear and accurate in his delineation of the *agaricum* (Fig. 7).

Fungi and fire - the tie that weds these two disparate elements was indeed old, strong, and far-reaching. Consider the following additional evidence. In ancient Greece there was a mushroom that bore the name κεραύνιον. This word, like *joudre* in French, conveys the idea of both thunder and lightning, and the mushroom designated by it was therefore the 'thunderbolt-fungus'. We do not know exactly what species it was, but in Latin it was rendered contemporaneously by *tuber,* and therefore it was probably an underground growth, perhaps a truffle or a species of terfezia. Many ancient writers refer to the common belief that thunderbolts made this fungus grow plentifully. Galen speaks of it. Plutarch in his *Convivial Essays* devotes a table conversation to the question why thunder should engender 'thunderbolt' fungi, an essay both graceful and unenlightening. Pliny the Elder in his *Historia Naturalis,* in Book xix, is careful

PLATE XXII

Fomes officinalis. Miniature from a loth century Byzantine codex of Dioscorides.

By courtesy of The Pierpont Morgan Library, New York.

ἀφ ἱμωτέραν τοῦ ἀρουῦ θυμοῦ μασ ἵ ατησ ἱμ μιαπαυμ ἀν
σομέμηλιωολλύριάπὸ σφίγγλαμιαν ὑμβρνᾷ ὄξαυτησ γίμε
ταιφθαρᾷδε μιὰι αι δλοιομ ωαμτὸσζῴουμ ἡρίζαυ ὑμ
τεθῦᾷσαυ :—×

ἀγαρικον

οᾱ

ἀγάρικον

ἄγαρι ωμ ρίζαφαίμᾷταισ ιλφίωνυμφερησ· ουσυμμη
τηὺ ωσιφαμίαμ ὄωνερτὸσηλφιομ· ἀραίαι δὲ ὅλη· ἀπ·
δὲ αὐτοῦ τὸμὲν ἄρρεν· τὸδὲ θῆλυ· ὧμδὲ δμαὐτὸ ἐρ γᾱτὸ

to distinguish between the influence of the rain and of the thunderbolts: it is not the rain but the thunder that makes the mushrooms grow. Pliny sounds as though he were simply repeating a tiresome adage, after the manner of those

Fig. 7

15TH CENTURY WOODCUT OF THE AGARICUM from *Hortus Sanitatis*, Mainz, 1491.

who say it is not the heat but the humidity that causes distress in summer. Juvenal in *Satire* v: 116 speaks of the longed-for thunder in springtime that replenishes the table with mushrooms:

Post hunc tradentur tubera, si ver tune erit et facient optata tonitrua cenas maiores.

Athenasus, writing in the 3rd century after Christ, quotes Theophrastus five centuries earlier on certain unidentified underground fungi called οἰτόν in Thrace:

Concerning these a singular fact is related, viz., that they grow when autumn rains come with severe thunderstorms; the more thundering there is, the more they grow, the presumption being that this is the more important cause. [BOOK n: 62]

One could not demand better documentation for this ancient notion which the most intelligent men of the day accepted without question. What explanation is there for it; Plutarch had none. Modern mycologists have none. Does thunder perhaps shake the soil and precipitate a crop of fungi that would otherwise emerge over weeks? There is no evidence to support this. We believe that the classical writers were repeating words whose portentous religious meaning was already in their time forgotten.

The ancient belief must have survived the classic world, but we have found only one sure evidence of it in modern Europe. In Littre under *tniffe* we read the statement that when it thunders, people in some parts of the French countryside say, "Voila un bon temps pour les truftes" — "There's fine weather for truffles."[1] Professor Georg Morgenstierne of Oslo, however, has turned up for us amazing data proving that the link between fire and fungi lingers on to this day in certain parts of Asia. (To Professor Morgenstierne we are deeply indebted for all our information concerning the Iranian and Indie languages.) In Kashmir the gilled mushrooms known as *hedur* and *henda* are said to be engendered by thunder. They are eaten by both Hindus and Muslims, cooked with ghee; they are preserved by drying and used in broths and stews. The mountains of Kashmir produce great quantities of another mushroom, *kana-g"ch,* which means 'ear-morel', and it too emerges from the earth in response to thunder.

More remarkable still is the testimony from that valley southeast of Samarkand where Yaghnobi is spoken, a dialect descended from the ancient Sogdian language, related to Persian and of course belonging to the Indo-European family. The folk who speak this tongue believe that when the highest god shakes his winter coat, the air is rent with thunder, and then the children must say:

I. From the ifith through the i8th century various English writers attributed 'fairy-rings' to lightning; thus Robert Plot's *The Natural History of Stafford-shire,* 1686, Chap, i; Erasmus Darwin's *The Botanic Garden,* London, 1791, i: 36:

> So from dark clouds the playful lightning springs,
> Rives the firm oak, or prints the Fairy-rings.

The evidence indicates that this belief had no roots in folklore but sprang from the New Learning, a 'scientific' explanation to replace outworn notions about the dancing of midnight fairies. Moreover, whereas today 'fairy-ring' immediately suggests mushrooms, the early writers such as Robert Plot discuss fairy-rings at length without mentioning fungi. It was the grass of darker green that made the ring, not mushrooms, and the link between the two is first mentioned, so far as our knowledge goes, in a book published in London in 1717-18, Richard Bradley's *New Improvements of Planting and Gardening.* Therefore, despite superficial appearances, we think we must rule out the English fairy-ring association with lightning in our discussion of the ancient belief in a thunder-mushroom.

> Katta xarcak man, pullja xarcak tau.
> The big mushroom is for me, the small one for you.

Not far away, in the upper Zarafshan valley where we find a Persian dialect known as Tadzhik, the children cry, "Puri, puri, xorc", xorc'meaning 'mushroom' and *puri* being a thick-stalked annual that springs up early in the season and quickly dies away, both stalk and root being eaten raw by the natives. Someone should tell us which mushroom these children near the Pamirs have in mind. In Yaghnobi, and also in Tadzhik as spoken in the vicinity of the town of Match, there survives an old belief that when the divinity known as *Mama,* 'Grandmother', shakes her baggy trousers, she lets fly a swarm of lice to the earth, and from those lice, after thunder storms, an abundance of mushrooms spring up.[1]

Today in Persia the common word for 'mushroom' is *qarc,* but there is one kind, perhaps a terfezia, that is called *dumbalan* (plural of *dumbal,* 'boil', 'pustule', 'bubo'), and people say they grow in the desert 'after thunderstorms'.

Again thanks to Professor Morgenstierne, we are able to pin-point the earliest reference in surviving Sanskrit literature to this belief in the 'thunder-mushroom'. It is in Kalidasa's lyrical poem *Meghaduta,* 'The Cloud Messenger', written about A.D. 400. In verse n the exiled *yaksha* or demigod addresses the rain-cloud drifting northward over India:

> . . . and when they hear thy sweet-sounding, fertilizing
> thunder, which is able to cover the earth with mushrooms. . .

The word used for 'mushroom' here is *s'ilmdhra,* of unknown derivation, probably taken over by Sanskrit from some earlier unrelated tongue of India. *'Sili'* might mean a frog or toad, and then *-dhra* would mean 'carrying': 'toad-carrier' or something akin to our 'toadstool'. But this tempting explanation of the ancient word is far from established.

Is it not deeply stirring to contemplate these surviving traces of a folk association uniting thunderbolts with fungi - a belief accepted by ancient Greece and Rome, queried by Plutarch, and holding on in Kashmir and the Pamirs? Angelo de Gubernatis in the second volume of his *Mythologie des Plantes* (Paris, 1882), when he discusses mushrooms, observes that the solar hero was said sometimes in antiquity to hide behind a mushroom, and he supposes that by 'mushroom' a cloud was meant. The direct and simple meaning seems preferable. The solar hero, a projection of divine fire, lies dormant for the nonce in

i. See Heinrich F. J. Junker, *Arische Forschungcn,* 'Yaghnobi-Studien', I, p. 106 *(Abhandlungen d. philol.-hist. Klasse d. sachsischen Akademie d. Wissenschaften,* Band XLI, No. n, Leipzig, 1930). His source was M. S. Andreev, 'Po etnografli tadzhikov', in *Tadzhikistan, sbornik statej,* edited by N. L. Korzhencvskij, Tashkent, 1925, pp. 172-3.

fungal tinder, ready to leap forth on divine command, just as the dormant φαλλός; rises in ίθύ-φαλλος. Here then is a partial answer to Plutarch's question: the fungi, saturated in sexual associations, are intimately associated as tinder with the making of fire, and fire expresses metaphorically the procreative act. On every plane the fungal world is redolent with the spirit of generation. Even the phosphorescence that some fungi emit must have deepened the mystery, augmented the awe. The very fungi were called into being by the gods, by those bolts of celestial fire hurled to earth with the crackling and deafening roar of thunder.

Let us pursue this theme further, to the very core of ancient Rome's religious beliefs. Rome's eponymous heroes sprang from the union of divine fire with vestal virgins, and fungi seem to have been officially present at the consummation. Sir James Frazer in *The Golden Bough* summarized the legends and pointed out their meaning.[1] It seems that when Ocrisia, handmaiden to Tanaquil the wife of King Tarquin the Elder, was offering cakes and libations of wine on the royal hearth, a flame assumed the shape of the male member and shot forth from the fire, impregnating her with a child who was destined to reign as Servius Tullius. The child's divine paternity was well attested later when an aureole of lambent flame was seen to play around his head. Concerning Romulus and Remus Plutarch records a similar legend, which he took from Promathion's *History of Rome:* in the house of the king of Alba there hovered over the hearth for days a phantasma in the shape of the male organ of generation, which in the end, by one of the handmaidens, gave being to the twins.[2]

Nowhere in surviving versions of these legends are fungi mentioned. What then was our surprise when we discovered that Professor Arthur Stanley Pease of Harvard University, in a note in *Classical Philology* in 1947, urged that a natural phenomenon be sought to explain these miracles and volunteered the surmise that the key would be found in the mushroom that he called the ithyphallus impudicus, that astonishing fungus which from its sac or cod shoots forth to its proud height in the course of minutes. This, says Professor Pease, is what underlay Ovid's line in the *Fasti,* vi: 631:

.. . hie inter cineris obsceni forma virilis.

1. See *The Golden Bough,* vol. n of *The Magic Art and the Evolution of Kings,* pp. 195 ff, where he also gives the sources; a fuller discussion appears in Frazer's translation and discussion of Ovid's *Fasti,* published by Macmillan in 1929, vol. IV, pp. 300-304. For Arthur Stanley Pease's note, see *Classical Philology,* vol. 42 (Oct. 1947), P- 253-

2. Plutarch for the phallic apparition used μόρτον άνθρός. (Plutarch's *Moralia,* Loeb edition, vol. rv, p. 360) If μόρτον by etymology or punning was linked with μορύσσω *(vide* E. Boisacq's *Diet. Etym. de la Langue Grccque),* the association with the phallic morel would be clinched. See discussion of'morel', pp. 153-4.

Professor Pease's happy suggestion may be refined. The morel, though far removed in mycological classification from the phallus impudicus, embodies in its shape the same erotic symbol, and unlike the phalloidacese shows a remarkable predilection for sites of wood fires. J. G. Gleditsch in his *Methodus Fungorum,* published in Berlin in 1753, told[1] how just recently the old peasant women of Brandenburg, observing this predilection, had taken to making bonfires in the woods to induce the growth of morels, causing thereby so many forest fires that the authorities had banned the practice. Dr. Ramsbottom in his *Mushrooms & Toadstools* reports that during and after the first World War the sites of burned houses in northern France and of abandoned trenches became veritable gardens of morels, and he also relates a personal experience confirming this biological nexus between morels and fired places. Indeed this affinity is a commonplace of fungal lore.

We place then a morel rather than the stinkhorn in those ancient hearths of Rome's eponymous founders. And this leads us to venture a daring conjecture concerning the origin of the Greek work for 'mushroom', μύκης. In modern times we are in a position to observe how the words of the sponge cluster - the basic words for the fungi in common Indo-European - yield place sometimes to other words that express a fashionable facet of man's evolving attitude toward the fungal world. From a name for a single edible species, *mousseron* in 'mushroom' becomes a designation for any edible species and even for all species. The French *champignon,* once applied only to the common field mushroom, acquired overshadowing importance when the art of its cultivation was mastered, and now this word embraces in French all fungi, even the microscopic kinds. In German *Pilz* is a newcomer, but already competes with *Schwamm,* and in Russian *guba* has largely surrendered the field to the toothsome *grib.* Thanks to the importance of a particular mushroom species, its specific name can become generic. In Greek σπόγγος lost its fungal meaning early - the surviving records never report it - and its terrain was wholly occupied by μύκης. What potent forces could have caused this early substitution? Our surmise is that μύκης originally was the name of the morel, and that its awesome religious and magical meaning, its link with the generation of fire and divine procreation, so far eclipsed all other fungal associations that it took over the whole semantic area of the fungi. The Greeks never won honors in mycophagy and there was no competition from fungi as food. Let us see whether, as we progress in our argument, we come upon supporting evidence for this possibility. The sacred role of the μύκης as we envisage it, could have been a legacy of the Etruscans or some other

I. p. 60; the references in Dr. Ramsbottom's book are on pp. 76-77.

Mediterranean culture. In neither ancient nor middle Greek is there any word that scholars translate by 'morel', so that the way is open for our suggestion. The specific name in Latin was *spongia* or ***spongiolus*** in imperial times, a survival in Latin of the lost fungal meaning of σπόγγος.

Just as in French one distinguishes the specific and the generic uses of *champignon,* so in ancient Greek the reader must decide whether in a given context μύκης meant the morel or the whole fungal tribe. As an example let us take a text from the ***Geoponica,*** an agricultural treatise assembled in its present form before the end of the first millennium A.D. In Book xn Chapter 41 we find a passage that reads thus:

If you would have μύκητας to grow from the ground, you must select a spot of light soil on a hill where reeds grow ; there you must collect together twigs and other burnable things, and set all on fire just before rain is expected. If rain come not, you must sprinkle the place with pure water, but the (μύκητας thus produced are poor ones.

How reminiscent this is of Gleditsch and Ramsbottom! The Greeks also knew what the German and the Englishman tell us, and in this Greek text μύκης, in our opinion, must carry the specific meaning of 'morel'.

Up to this point we have linked fungi only with the gods of thunder and lightning in the Indo-European world. But the association is far more extensive. On a later page we shall see that the Bedouin of the desert, when electric storms are severe in our month of October, know for sure that the crop of esteemed terfezia will be heavy *four months later,* and at the appointed time they make their way to those places where experience has taught them to seek this delectable fare.

A Philippine mycologist, Jose Miguel Mendoza, reports[1] that the natives throughout the islands commonly believe that thunder and lightning cause the generation of mushrooms, and in the spring of the year when they hear the thunder roll, they rush into the meadows to gather the edible kinds. In the Pampango tongue, spoken in central Luzon, the collybia albuminosa is called the *payungpayungan kulog,* the first word meaning 'parasol-like', and the second being 'thunder' in both Tagalog and Pampango. The culture of the Philippines is an accretion of many layers, and this belief in the thunder-mushroom could be Malayan or Indian or Chinese.

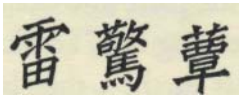
Yes, Chinese. By good fortune we are able to document the Chinese association of certain mushrooms with thunder. There came into our possession in 1951 a rare, 8-volume work on ethno-mycology entitled *The History of Mushrooms,*

I. See his 'Philippine Mushrooms', published in *The Philippine Journal of Science,* vol. 65, Jan.-April 1938, which the author has supplemented for us in private correspondence.

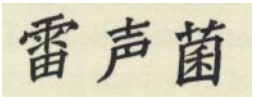
PLATE XXIII

Jean-Henri Fabre. Morchella vulgaris Pers.
English: *morel;* French: *morille;*
Russian: *smorchok.*

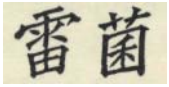
dated 1811 and written by Ishiwara Gusha ('the Fool from the town of Ishiwara'), a pen-name for the Japanese classical scholar Katashi Masujima, professor in Yedo at the school for samurai called Shoheiko. (Another of his pen-names was Ran-en, 'Orchid Garden'.) In this curious, hand-written work the author gathered together everything that had been said about mushrooms by Chinese and Japanese authors, and it is our hope to present it some day to our readers in an annotated translation. With the help of our friends Mr. and Mrs. Wango Weng, we have discovered in the sixth volume extensive discussions of three kinds of thunder-mushrooms. All three make excellent eating. First there is the *lei-ching t'an,* 'thunder-aroused mushroom':



which springs forth when the worms are stirring and the east wind brings the thaw and the earth loosens and the air grows warm. (This suggests the morel, but later the author speaks of the 'parasol' of the mushroom.) The second is the *lei-sheng chun,* 'thunder-peal mushroom':



which grows in the grass after thunder and rain in summer and autumn, 'leaping forth when the thunder calls'. Finally we have the *lei chun,* the simple 'thunder-mushroom' :



Though our Japanese author quotes Chinese sources that refer only to the regions of Soochow and Kwangsi Province, this does not mean that the association of thunder with mushrooms is confined to those parts of China. Indeed, we can document the survival of this theme on the very periphery of the Chinese cultural world. In a letter written to us by Charles Evans, the Himalayan explorer and climber, he tells ut that the Sherpas, who culturally are Tibetans, believe that thunderstorms make mushrooms grow. On the other hand Masujima, himself a Japanese, is silent on the thunder theme in his treatment of Japanese mushrooms: apparently the Japanese know it not.

But this is not all. In the language of the Maori of New Zealand, the word for mushroom is ***whatitiri.*** The word for thunder is the same: ***whatitiri*** or *whaitiri.* As a proper noun Whaitiri is the name of the mythical ancestress of the Maori

people and all the other branches of the Polynesian race. People think of her as the thunderer, and her grandchild, Tawhaki, shoots forth bolts of lightning from beneath his armpits. Eponym, fire, fungi - how astonishing that we should find the same pattern in Oceania as in the Mediterranean! Some years ago Professor Heim drew attention to a curious belief in Madagascar, where Polynesian influences have been strong.[1] He is describing the mushroom lentinus tuber regium Fr., called *olatafa* by the natives of the Tanala country. According to the local chief, the practice is to dry this fungus, and shred and rub it to a powder with the aid of a hard stone, and then to the powder the natives add a little water. When a thunder storm breaks and reaches alarming violence, it is the custom to take some of the paste into the mouth, and when the lightning flashes, spit it forth into the sky, crying out "Fotaka!", or else, " Fotaka malemy!", which means, "Earth!" or "Soft earth!", thereby giving utterance to a prayer that the thunder will be mild as mud. Professor Heim confirmed this practice with other informants in the region of Fort-Carnot. It seems that *tafa* in the native language designates a person momentarily off balance, and this word may underlie the name of the mushroom and the incantation. Whatever the layers of meaning that underlie the Tanala practice, for us its importance is the tie that binds certain mushrooms with bolts of celestial fire. The explanation given to Professor Heim is not convincing: it sounds like a rationalization by people who have forgotten. That mushroomic spittle tossed into the teeth of the storm, into the flash of lightning - may it not incorporate the seminal idea, the procreative aspiration, a prayer to the divine begetter > This is not a rhetorical question. It is a suggestion for anthropologists working in Madagascar.

Here we bring to an end, but only for the present, our discussion of the cultural tie that links mushrooms with lightning. On page 316 we shall return to this mystery, and with the aid of further evidence of our pandemic theme in archaic cultures, we shall submit a surmise to explain it.

I. 'L'Olatafa', by Roger Heim, published in the *Archives du Museum National d'Histoire Naturelle,* in the Volume du Tricentenaire, 6th series, Tome xn, 1935, pp. 549-554.

8 *THE GOURD*

CLUSTER

1 he French word *potiron* means 'pumpkin'. In the West of France and as far south as the Garonne it also means any large mushroom. The word presents what is perhaps the prettiest problem in the whole fungal vocabulary of Europe. No one has hitherto determined its origin. Littre originally quoted Gilles Menage's suggestion of a word found in the writings of the Arabic thinker Avicenna - *alphotie.* Later in his *Supplement* he added Marcel Devic's alternative Arabic source, the word *futr* meaning 'mushroom'. Oscar Bloch in his turn favored the *Syrinc pdturtd,* which he said meant 'morel'. These bizarre suggestions with their curious bias for the Near East offer no explanation for *potiron* in the sense of 'pumpkin'. They only illustrate how even philologists, when at a loss, give recognition to the flimsiest guesses. The Arabic and the Syriac words are etymologically identical, based on a Semitic root meaning 'to split' or 'to cleave'.

In Latin *cucutna* means a kettle, *cucumis* a cucumber, and ***cucurbita*** a gourd. Among primitive communities living in the climatic zone where gourds nourish, these have always served for cooking fluid food and boiling water. This primitive practice must still have been alive in the minds of the ancient Romans when they used words for kettles and gourds that closely resembled each other, and we think that *potiron* is a translation *(pot* meaning 'kettle') of the Latin words, preserving for us the semantic link that was obvious in Latin. But this does not explain the use of *potiron* for 'mushroom'.

The pumpkin-mushroom link is not confined to *potiron.* We discover it in Provenfal, where *coucourlo* means both the common field mushroom and the pumpkin. The Italian *cocomero* means 'pumpkin' but not mushroom; the Provencal *cougoumello* is the name of certain mushrooms, but does not mean pumpkin. The general word for all mushrooms in Portuguese is *cogumelo;* it is not, however, linked with any gourd. We seem to be in the presence here of a variety of words derived from one or the other of the Latin *cucuma, cucumis,* and *cucurbita.* But why are mushrooms found in this company?

All words such as these, which live out their lives for the most part in oral usage, lend themselves to popular contamination with other words. Some mushrooms when they first break the soil look like eggs, and this is why the amanita caesarea is called in standard Italian the *ovolo* and the amanita muscaria the *ovolaccio.* The French word *coque* means 'eggshell' and there are colloquial words in Italian, *cocco* and *cucco,* meaning 'egg'. In standard Italian *cocco* is sometimes used as another name for the amanita csesarea, and this word takes various

local forms in the North: in Piedmont *cocon* or *coc* or *cucon;* in Lombardy, *jung cocch;* in Venice, the *boleo coco* or *coco bon;* in Genoa, the *cucun.* (Our English 'cocoon' belongs to the same family.) The names of the amanita muscaria in northern Italy bear the same stamp: *cocch fals* or *cocch velenos,* or *cocch bastard* in Milan. The lepiota procera is the *coccomelle* or *cuccamele* in Piedmont; in France this species is called in some regions the *coulemelle* and in others the *potiron.* It would appear that all of these names stem ultimately from the Latin word for kettle, but have been influenced in their shape by words for eggs or egg-shells.

But all this still leaves unexplained why, in the first place, pumpkins and mushrooms got mixed up together.

Another word for 'pumpkin' in French is *pepon,* for which Frederic Godefroy gives the following early variants: *popon, poupon, pompon, ponpon.* 'Pumpkin' in English is a popular form of the Middle English 'pumpion', which in turn comes from the French word that we are now discussing. For the sake of our argument and in advance of our supporting evidence, let us assume that the French *word pepon* originally carried two meanings, 'pumpkin' and 'mushroom'. It has retained only one in French, and bequeathed only that one to English. But in Basque *papun* and *panpun* mean 'mushroom', and could represent the lost meaning *of pepon.* The French philologists have been baffled by the word *pompon,* which is the English 'pompom', since its semantic tie with gourds is not clear. But the difficulty is solved if the old French word also meant 'mushroom', for what is a *pompon* but a 'mushroom'?[1]

This hypothesis, supported so far by only two strands of circumstantial evidence, still does not tell us why gourds were linked with mushrooms.

This link is deep-seated, but we believe we can put our finger on it.

At the outset let us examine the word *potiron* more closely, and especially its use in the i6th century.

In the sense of 'mushroom' *potiron* was in use at least as far back as the I5th century, according to Albert Dauzat. This is the older meaning, antedating the discovery of America. *Potiron* as a designation for gourds is confined to squashes and pumpkins, and they are of New World provenience. In the i6th century these vegetables were called *courges d'Inde* and *courges d'outre-mer, but potiron* began

I. In the United States and Canada, the ordinary woodsman's word for any shelf fungus is 'conk', and because of the shape of the growth, the word is supposed to come from 'conch'. But woodsmen do not know the molluscs and are unlikely to turn to them for metaphors. The *Dictionary of American English* gives grounds for supposing that 'conk' is a shortened form of'conkus' or 'konkus'. In the English counties from Lincolnshire to the Scottish border there has long been a word used for cucumbers: 'congers', 'cungers', and'conkers'. Is the American word for the fungus cognate with the name for the cucumber, and do we find here another example of the association of fungi with gourds? In the absence of a bettter etymology, we offer this as a conjecture, to be tested by further inquiry.

PLATE xxiv. Jan Fyt. Still life. *Brussels, Musees Royaux des Beaux-Arts de Belgique.*

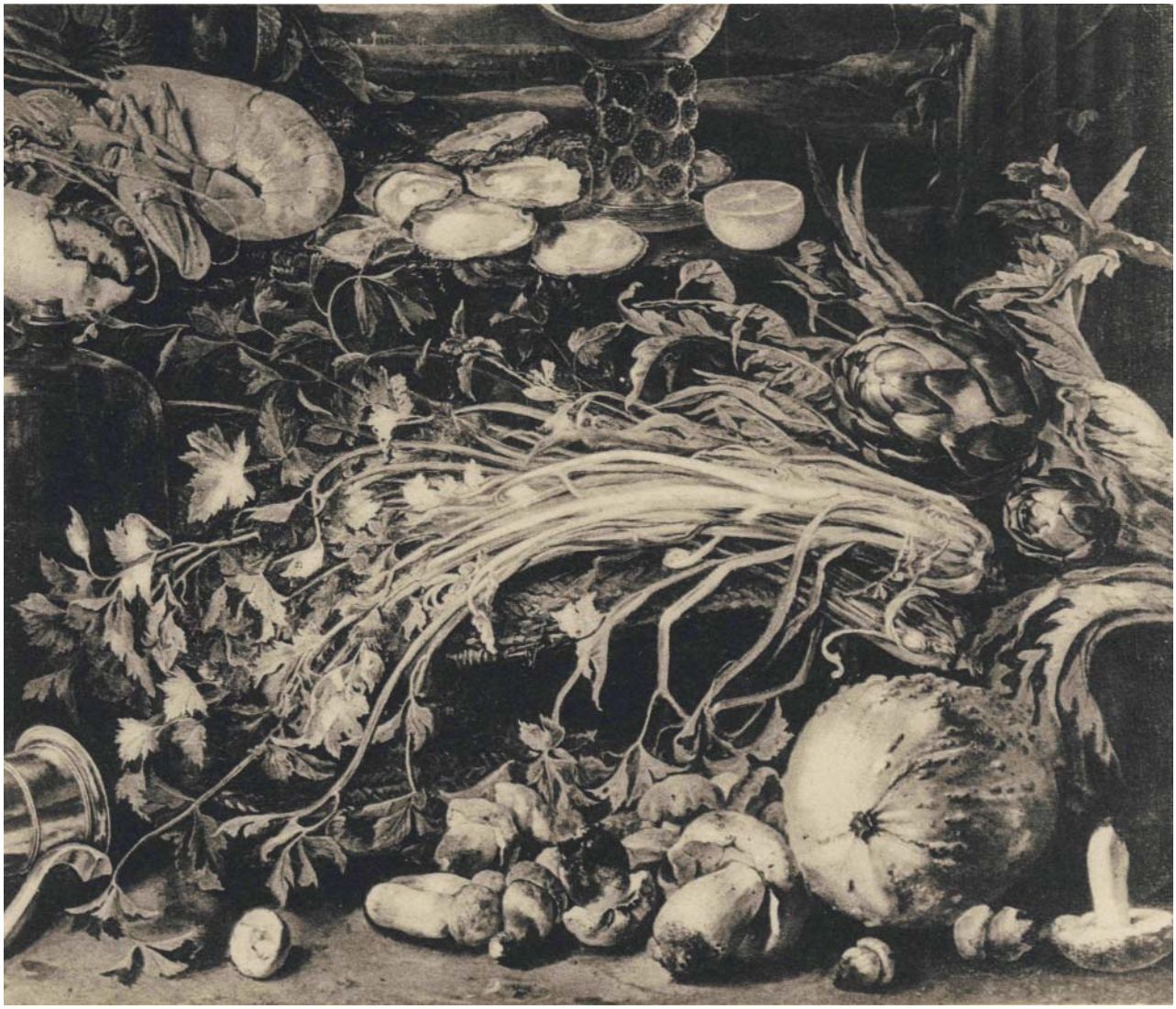


PLATE XXV. Jan Davidsz. de Heem. Still life. *London, Wallace Collection.*

PLATE xxvi. Adriaen van Utrecht. Still life. *Brussels, Musees Royaux des Beaux-Arts de Belgique.*

PLATE xxvu. Frontispiece to Franciscus van Sterbeeck's *Theatrum Fungorum,* Antwerp, 1675.

to supersede those nonce names in the iyth century. If there was a metaphorical transfer, we must conclude that the New World squash suggested a mushroom to the French and was therefore called a mushroom. This explanation seems to have satisfied the philologists Albert Dauzat and Oscar Bloch, but it leaves us sceptical. To be fair we must point out that there is one small squash with scalloped edges that in color and even in external texture might suggest certain mushrooms. This is the kind of squash, a variety of cucurbita pepo, known formerly as the simlin or cymling and today as the patty pan squash or white bush scallop. A further circumstance might support the philologists' position. The French were discovering how to cultivate the *champignon de couche* at the very moment when they were learning to cultivate the squash, in the first half of the iyth century, and there is reason to believe that the manured hills of the squash-patch served simultaneously as mushroom beds. For centuries the country folk of some parts of western Europe had been encouraging the growth of various kinds of edible fungi by bringing about the conditions under which they might spontaneously appear. In the iyth century it was known in France that parings of the psalliota campestris rejected in the kitchen could be thrown on horse manure with a reasonable expectation that they would produce a crop of mushrooms in the warm fermenting dung.[1] As we have mentioned before on page 6, N. de Bonnefons described this practice for the first time in print in his *Le Jardinier fran^ois* in 1651, and he added the significant advice that the beds prepared for melons could serve this double purpose. In our mind's eye we can see the mushrooms growing in the same beds or hills with melons, pumpkins, and other gourds, and this was taking place at the very moment when *potiron,* an old word for 'mushroom', was beginning to be used as the name for certain exotic gourds, lately introduced from overseas. It was therefore not unnatural for farmers to associate mushrooms with gourds. Furthermore, the readiness of both squashes and mushrooms to putrefy rather soon into a watery mess[2] might have suggested a kinship that expressed itself in the

1. The use of fungal 'spawn' came later, as did the discovery that mushrooms lent themselves to cultivation in caves and cellars. But there is a baffling sentence in the *Satyricon* of Petronius Arbiter, written in the first century: Ecce intra hos dies scripsit, ut illi ex India semen boletorum mitteretur. [Loeb Library, p. 59] Within a few days, I may say, he has written for a cargo of mushroom seed from India. *If boletus* here carries its usual meaning of the Caesar's amanita, it indicates a mastery in the cultivation of these delectable mushrooms wholly unknown today and never elsewhere mentioned in surviving records of ancient times.

2. Shakespere uses 'squash' on several occasions. Thus in Act. m, Sc. i of *A Midsummer Night's Dream* Bottom is asking the names of various characters and from one learns that he is Pease Blossom, whereupon Bottom retorts:

> I pray you commend me to Mistress Squash your mother
> and to Master Peascod your father.

'Squash' as a name for the American gourd is derived from a Narragansett Indian word, and Shakespere could not have known the word and probably did not know the gourd. 'Squash' in the sense of'squeeze' is European

use of the same name for both, a similarity in putrefaction that Sir Thomas Elyot pointed out in 1541 in the words that we quoted on page 19. All in all, the evidence assembled in this paragraph would seem to offer an explanation for the dual use of *potiron.*

But let us not forget the suggestion inherent in the older forms of the word *pepon* indicating that the association of gourds and mushrooms long antedated the 16th century and the cultivation of the field mushroom.

J_ here is a source of promising evidence relevant to our theme of surprising and fascinating quality in the still-life paintings of the Low Countries in the iyth century. This was the epoch when the Flemish and Dutch schools were producing innumerable canvases representing the foods of the times - fish, game, meats, vegetables, fruits. The number of accomplished artists who devoted their talents to paintings of food is astonishing, and apparently they never tired of their theme. We have combed these still-lifes for mushrooms, and while of necessity we cover only a small part of the source materials, it is clear that paintings of food with mushrooms are exceedingly rare. We have found only four, of which not one is Dutch. All four are Flemish, or from the Catholic side of the religious line that bisected then as now the Low Countries. On a later page we shall revert to the significant absence of fungi as food from paintings of the Dutch school.

Of the four paintings we reproduce one by Jan Fy t, and details from a canvas by Jan Davidsz. de Heem and from one by Adriaen van Utrecht. All three of these painters were in the plenitude of their powers at the precise time when N. de Bonnefons was composing his book on gardening and describing for the first time the preparation of mushroom beds. A fourth painting, attributed to the Antwerp artist Frans Snyders, shows a young market woman surrounded by baskets of divers vegetables and fruits with one basket of ceps; it hangs in the art gallery at Schloss Pommersfelden, Germany. Snyders was a slightly older contemporary of the other three. Of this painting a iyth century variant is in the Louvre. All four artists worked in Antwerp or Brussels.

The startling feature of the three paintings that we reproduce is that in all three we find *a. potiron* or squash, and in two the *potiron* is juxtaposed to mushrooms. In the light of the dual meaning of *potiron,* this juxtaposition justifies a conjecture that it was not accidental. Thanks to the gracious help of Dr. Hugh

in origin, and specifically it meant for Shakespere an unripe pea pod or 'peascod'. The pea pod played a familiar role in amatory folklore in Shakespere's day, and 'peascod' was heavily charged with genito-urinary puns and symbols; cf. 'cod', 'codpiece', etc. Mistress 'Squash' invokes a parallel female metaphor equivalent to Shakespere's erotic use of 'medlar' in *Romeo and Juliet* and elsewhere. Though 'cod', as we have seen, sometimes meant 'puffbair, in Bottom's words there is no link with the fungal world or gourds.

C. Cutler, Assistant Director of the Missouri Botanical Garden, St. Louis, we can identify the squashes, and he points out that they are the only vegetables of New World provenience in these paintings. In the Van Utrecht the squash is the cucurbita moschata, and belongs to the variety now called Dickinson Field pumpkin, familiar in the American Southwest and in central and southern Mexico. The squash in the Fyt is probably a cucurbita moschata but might be a pumpkin, i.e., cucurbita pepo. In Heem's painting we clearly find the pumpkin. Both squashes and pumpkins may be called *potirons* in modern French. As for the mushrooms, Snyders, Fyt, and Heem give us ceps; Van Utrecht offers us ceps and three apparently gilled mushrooms. If as we believe these latter are very ripe *champignons* or *roses,* they are the earliest known representation of the common mushroom by an accomplished artist.

The mute testimony of these paintings is of extraordinary interest. It might seem probable that in the painters' minds the squash and mushrooms had an affinity for each other, and the squashes in question were certainly of American origin. At the same time the mushrooms painted by them as food were chiefly boleti, and boleti never grew in a pumpkin patch. Clearly the *champignon de couche* played little or no role in the market places of Flanders and Brabant, and the affinity of mushrooms with the squash was unrelated to the mushroom beds described by Bonnefons. The cucurbitaceae painted by the Flemish artists did not include the patty pan squash, with its superficial resemblance to a mushroom. *Potiron* in the sense of'mushroom' has never been known in the Walloon dialect of French.

The key to the four Flemish paintings is to be found in Franciscus van Sterbeeck's *Theatrum Fungorum,* published in Antwerp in 1675, the earliest book dealing solely with mushrooms. The author never refers to the still-life painters, who were his older contemporaries, but he divulges a precious item of ethnomycological lore. He informs us that the Flemings were mycophobes until the beginning of the iyth century, at which time certain Italian merchants came to take up residence in Flanders, and by their example they showed that mushrooms could be eaten. They launched a vogue for this novel victual, gathering mushrooms themselves, importing dried ones from Italy and Burgundy, and teaching all and sundry how to distinguish the many good kinds from the bad. In fact, Van Sterbeeck's treatise is itself a tribute to this budding mycophilia, written by an enthusiast to spread the good tidings, the first of hundreds of such missionary efforts brought out in the mycophobic North in the past three centuries. As there was no Flemish word to designate mushrooms suitable for the dining room, the Flemings had lately borrowed *kampernoeljes*

from, the French dialect spoken in nearby Picardy,[1] and applied it to all the edible kinds, especially ceps. Afterwards it gave way to *champignons.* We reproduce the frontispiece of Van Sterbeeck's work, with its quaint commentary on early mycophagy among the Flemings. The author portrays himself in a bust at the top of the architectural design, helpfully telling us that his age was 44. On one side of him are effigies of happy infants nourished doubtless on the wholesome fungi; on the other side the corresponding amori are in acute distress from the other kind. Below we see two gentlemen responding to aggressive selling tactics of the mushroom vendors. We suspect that the vendors on the right are ready to sell the evil wares descending from the wretched infants above.

For Van Sterbeeck, for Jan Fyt and his colleagues, mushrooms were a novelty like the squashes from the New World. This must have been one reason for juxtaposing them. Just as the Italians brought mycophagy to Flanders, so they may have been addicted to the new-fangled gourds. Indeed, Italian artists may have suggested to the Flemings the very theme for the paintings that we are discussing. Already in the i6th century the Italian painter Giuseppe Arcimboldo was giving eloquent expression to the same idea.

Arcimboldo was born in 1527 and died in 1593. He delighted in allegorical figures representing the Seasons, the Four Elements, and the cardinal points of the compass, which he would contrive to represent by an ingenious arrangement of fruits, vegetables, meats, animals, fishes, or utensils, his selection harmonizing with his allegory. We reproduce one of his paintings, a reclining figure that embodies the spirit of Autumn. Until a few years ago it belonged to a parish church near Brescia, and it now hangs in the Pinacoteca of that city, not far from Milan. However deficient Arcimboldo was in intellectual and emotional depth, he was an accomplished craftsman, and this painting constitutes a document of singular value for the ethno-botanist. Most of the vegetables and fruits are of Mediterranean provenience, including the medlars of which no fewer than four are present. The egg plant had been lately introduced into Italy from the East. The tuberoses in the figure's hair, the squashes, and the maize come from America, the first two from Mexico. The maize is of a Mexican variety also, though it could come from further south.

Our painting is undated, but perhaps we can fix with reasonable certainty the period of its execution. From 1562 to 1587 Arcimboldo lived in Central Europe, except for a visit to Milan in 1566. Both by its traditional location and by the artist's choice of vegetables and fruits, it is clear that the painting was done in

I. The use in the Low Countries *of kampernoeljes* dates back at least to 1567, for we find it cited in Hadrianus Junius' *Nomendator* published in that year.

PLATES XXVIII, XXIX

PLATE xxvui. Giuseppe Arcimboldo. Autumn. *Brescia, Pinacoteca.*

PLATE XXIX. Giuseppe Arcimboldo. Autumn: Detail. *Brescia, Pinacoteca.*

Italy. From what we know about the arrival in Italy of the exotic plants that we find in the painting, it is far more likely that the artist worked on it after 1587 than before 1562. This means that it was a product of his last years, between 1587 and his death in 1593. These were the very years when potatoes were becoming known in northern Italy, and their absence from our painting favors an early date within these permissible limits. For the past half century ethno-botanists and cultural historians have been studying the impact on the Old World of the plants discovered in the New, especially tobacco, potatoes, and maize. To document the first phases of these profound innovations they have combed the writings of the explorers and historians, and searched through the i6th century herbals. The herbalist Leonhard Fuchs in his *De Historia Stirpium,* published in 1542, was the first to offer his readers a picture of maize, a woodcut. Thereafter such woodcuts appeared in almost all herbals, often copied not from life but from a preceding herbal, and often deficient botanically. For workers in this field the i6th century still-life painters offer an additional source of evidence that seems to have been ignored. We do not know whether our *Autumn* by Arcimboldo is the earliest still-life with maize, but we submit that his painting of it is incomparably superior to any pictures of maize that have hitherto been pointed out from the i6th and even I7th centuries. The artist's eye was truer than the herbalist's, his technique superior to the woodcutter's.[1]

Our own interest in the Arcimboldo lies in his mushrooms. Mycophiles will be delighted with the clavaria that serves the recumbent Autumn for beard and mustachios. In the middle of the left thigh is an *ovolo* or Caesar's amanita. These are the earliest mushrooms known to us that we can say are well painted, and their like was not to be seen again for a full half century. We now draw our reader's attention to the proximity of the squash to the *ovolo,* and that squash happens to be the very one that, on an earlier page, we likened in texture and shape to mushrooms. It is the squash of American provenience variously called the cymling, the patty pan, and the white bush scallop. What urge prompted the artist to place mushroom and squash together ? The scallop was an exotic, but in Italy the edible mushroom was not. Must we fall back on an accidental juxtaposition as our only resort; Or do we discover here an expression, possibly

I. For data about Arcimboldo's life we have relied on Benno Geiger's monograph, *Dipinti ghiribizzosi di Giuseppe Arcimboldo,* Florence, 1954. Plates 47, 52, 54, and 69 contain mushrooms. One of these hangs in the John and Mable Ringling Museum of Art, Sarasota, Florida, and another of them is the one we reproduce. A painting by Arcimboldo that closely parallels the one in Brescia is owned by Edward James, Esq., of Chichester, England, who has kindly furnished us with photographs of it. (Geiger mentions but does not reproduce this work.) In this variant the clavaria plays the same role. Instead of an *ovolo* in the thigh, we discover two *ovoli,* each constituting a cheek of the recumbent god. For the early history of maize in Europe we turned to John J. Finan's study, 'Maize in the Great Herbals', published in 1948 in the *Annals of the Missouri Botanical Garden,* pp. 149-191.

only half conscious on the artist's part, of an ancient association of ideas, such as we adumbrated earlier and will shortly pursue further? But before we revert to that theme, we shall conclude our discussion of the mushroom-gourd link in iyth century paintings by briefly mentioning another aspect under which mushrooms and gourds were viewed together, the aspect that led Sir Thomas Elyot in 1541 to warn the readers of his *Castel ofHelth* to beware of'musherons, . . . gourds, and al other thinges, whiche wyll sone putrefie'.

A favorite theme of some iyth century still-life painters in the Low Countries was the transitory nature of all living things, the vanity of this world as contrasted with the eternal values of the next. In a private collection known to us there is a painting by Cornelis de Heem, son of Jan Davidsz. and identified with the Dutch school, in which this *vanitas vanitatis* chord finds graceful expression. A shaft of light penetrates from an aperture above to a sepulchral setting where a lovely flower arrangement is juxtaposed to a bisected gourd and some growing mushrooms. Unfortunately we have been denied permission to reproduce this extraordinary canvas. The mushrooms are in a shadow and scarcely lend themselves to identification. They are not pictured as food, but instead as the symbol of decay and death. From the glory of the flowers in their beauty the eye passes to the doomed segment of the disintegrating melon and on to the fungal expression of the grave. In this painting putrefaction and death are the meanings that underlie both gourd and mushroom.

If we are right, there emerged in the iyth century new reasons for associating mushrooms and gourds. But the association in men's minds was far older. Some indications of this older tradition seem to emerge in the ancient writers. Take for example the work known in English as *Etymologies* composed by St. Isidore of Seville around A.D. 600. He has occasion to list the vegetables with all their names. Is it by chance that immediately after the cucumbers *(cucumeres)* and gourds ***(cucurbitce)*** he adds *the fungi* and *tubera* or truffles;[1] Athenaeus in the second book of *The Deipnosophists* also discusses numerous vegetable foods, and what is our surprise to discover that here also the comments on the mushrooms and truffles follow hard upon the paragraphs dealing with the gourds! It is a commonplace of reference works that the order of the alphabet constantly juxtaposes disparate words and ideas, but the alphabet offers us no explanation for the sequence of vegetables that we find in St. Isidore and Athenaeus. Pliny is yet another witness to the tie that binds mushrooms to gourds. In

i. See J. P. Migne, *Patrologia Cursus Cotnpletus,* vol. 82, column 637.

a sentence in his *Historia Naturalis* hitherto unremarked by commentators and ignored by the editors of Liddell & Scott's Greek lexicon, he tells us, in Book XX, in the chapter that discusses the gourd *(cucurbita),* about a wild gour/1, hollow, on which he says the Greeks have bestowed the name *spongos,* a gourd growing only on stony soil, of which the walls are of the thickness of a finger, which when chewed yields a juice wholesome for the stomach.[1] Here then in ancient times is a wild gourd that shares with sponges and mushrooms a name belonging to the cluster of basic words for the fungal tribe. The dual function of *potiron* in the ryth century was a revival and not an innovation, and we believe that in the root of the Latin word *pepo* we shall find mushrooms and gourds conjoined.

1 hroughout the Slavic lands there is a distinctive name for the common field mushroom. It takes various forms, but in the Ukraine it is *pecheritza, andpecharka* may be taken as a typical variant in other Slavic countries. The uniformity of this name throughout the Slavic world and its invariable application to the common field mushroom are remarkable evidences of its antiquity: it must antedate the dispersion of the Slavs and the differentiation in Slavic languages. The Lithuanians do not use the word, nor do the Germanic peoples; but the Jews of Eastern Europe have adopted it in Yiddish, and refer to a girl dressed up 'like a *pecheritza',* as an American might say, 'like a Christmas tree'. With a transposition of consonants, the word has been taken into both Rumanian, *ciuperca,* and Magyar, *csoporke.* Its derivation has never been clear. Some have suggested that it came *frompechora,* meaning a cave, since the psalliota campestris lends itself to cultivation in cellars and caves. But this is unacceptable, for the wild field mushroom does not grow in caves and its artificial cultivation began in France only after the year 1700. Others have suggested a derivation from *peek',* meaning oven, and gone on to assume that *the pecheritza* was normally roasted. This is hardly satisfying, for the field mushroom lends itself to roasting no better than other kinds, and furthermore in the whole rich mushroom vocabulary of Europe there is no other name derived from a method of culinary preparation.

But let us take another look at that Slavic word *peek',* 'oven'. It is cognate with the Greek itsztov, the Latin *pepo,* whence through the French *pepon* to the English 'pumpion'. These are ah[1] of ancient and well attested lineage, com-

i. Many editions of Pliny give *somphos* instead *of spongos* as the name of this wild gourd. For our purpose the difference in words is unimportant, since they are cognate. According to the footnote of L. Desfontaines commenting on this textual question (Paris, 1829, vol. 6 of an edition with commentary by various hands, Bk. XX, Chap, vii [iii]), all Pliny rnss. carry *spongos.*

ing down to us from an Indo-European root that the French philologists Ernout and Meillet reconstruct as pek^{w}o, which became k^{w}ek^{w}o in the Italian peninsula and in Celtic. The Latin *coquo,* meaning to cook, and all its kin and progeny are of this family. Whether *cucuma* and *cucumis* belong here, we do not know, but even if they do not, a semantic blend is possible, for cookery is the common denominator of them all. Baking and roasting and cooking are the ideas that underlie the root. That which is baked rises, expands, swells, grows brown and ripe and mature. It is therefore not surprising to discover that from the earliest times the word carried a second related meaning, the idea of 'ripening in the sun'. As Ernout and Meillet say, "La notion de 'maturite' est liee a la racine depuis 1'indo-europeen." Whence the application to gourds, and - we submit - to that species of mushroom, the psalliota campestris, which comes to maturity in the open fields under the sun. Pumpkins and these mushrooms swell and ripen in the sun. The Provencal *concourlo,* meaning both field mushroom and pumpkin, is a breath-taking word, for in its specific application to the field mushroom we witness the toughness of a semantic theme running through long stretches of time and space.

If our argument prove sound, we have established from evidence gathered in Eastern Europe the explanation for the link between mushrooms and gourds that crops out in the French*potiron* and in the Provencal *coucourlo.]ust* as we have earlier established what we call *apogge* cluster of mushroom words, and a sponge cluster, so now we discover the existence of a gourd cluster. All three appear to go back to Indo-European roots that resemble each other and that convey the same innermost idea of a growth or swelling. But only the first of these clusters directly involves the frogs and toads. In the French *word potiron,* wherein mushrooms are called pots, metaphorically speaking, the attentive mind catches a recurrence of the semantic theme that we found in the Indo-Aryan languages, where a Sanskrit word for 'pot' or jar' has fathered numerous progeny among the fungal words of various languages, the theme of the gourd, the swelling organism.

rlere we might end this section, were it not that in the Basque language we discover an amazing thing. In the Labourdin dialect of Basque the name of the common field mushroom is *paratxiko,* the *-tx-* in Basque being pronounced like 'ch' in 'cheek'. By a transposition of consonants we arrive at the Slavic *pecharka,* with identical meaning! This is not all. In various parts of Europe there has always been a tendency for the name of the best known species of mushroom to be used as a word for mushrooms generally. If, as seems likely,

PLATE XXX

Jean-Henri Fabre. Psalliota campestris Fr. ex L.
English: *common field mushroom;* French: *rose;*
Russian: *pecheritza.*

the general word used for mushrooms in Basque, *perretxiko,* is a variant of *paratxiko,* this would indicate that when the Basques acquired the word, the field mushroom was for them the dominant species. It is clear that these words cannot be native to the Basque language, for no native words begin with the letter p. In Catalonia *paratge* circulates as a mushroom name, but its specific application seems to be variable; we suggest that this Catalan word was borrowed from Basque. How then does it come about that the Basques use a word that seems to lend itself to identification with a Slavic term?

After pondering this curious question for some time, it occurred to us that the Gypsies could have borrowed the Slavic word and then, in the course of their wanderings, delivered it to the Basques. There are numerous lexicons of the various dialects of Romany, but none of them seem to have been composed by scholars interested in mushrooms. In the end we addressed a blind inquiry to that specialist in all matters pertaining to Gypsies, the Irish scholar Walter Starkie, whose experience with the Gypsies goes back over forty years. The reader will imagine our surprise and pleasure when we learned for the first time from Dr. Starkie's reply that the Gypsies are great lovers of all kinds of edible mushrooms, and that one mushroom name used by the Spanish Gypsies is *perrechitesl*

This is not of course a conclusive explanation of the Basque word. We should learn more about that Gypsy term - over how much of Europe the Gypsies use it, and what variations it manifests. The fact that the Gypsies are mycophiles is important. If the fruits of recent scholarship are sound, the Basques are linguistically related to the Caucasian peoples, and all the Caucasian peoples are mycophobes; this is true at least of the Georgians, Mingrelians, and Svanetians, and of the Circassians and Ossetians and Chechens, among whom we have had an opportunity to locate informants. The mushroom vocabulary of the Basques is reasonably rich, but consists mostly of borrowed or translated words, as though they too had once been mycophobes. The Basque country has long been a habitat for Gypsies. A people like the Basques not steeped in mycophagy is unlikely to bestow on the mycophilic Gypsies an important word for mushrooms, and perhaps least of all a word that is itself a loan word in Basque. On the other hand, mycophilic sojourners in the Pyrenees might have given to the Basques some lessons in mycophagy. Our hypothesis, after we formulated it, has received startling collateral support in an observation volunteered to us by a Swedish friend, the banker Frithiof Ahren. "I have been told", said he, "that the Gypsies taught us in Sweden to eat mushrooms, in times when food was scarce."

FROM 'PANGGO' TO 'PUPIK'

-Cast of Moscow live a Finnish people on the Volga known as the Mordvines. In their language *panggo* is the word for mushrooms. North of them and a little to the east are another Finnish tribe, the Cheremissians, and 'mushroom' for them is *ponggo.* Beyond the Urals are the settlements of the Voguls, who say *pangkh;* and farther east, on the banks of the River Ob, dwell the last of the Finnish folk, the Ostjaks, with *pongkh.* Scholars are disposed to accept the likelihood that these Finno-Ugrian peoples have borrowed these words from the West.[1] Somewhat further to the east, in the valley of the Yenisei, the small tribe known as the Yenisei-Ostjaks are familiar with the amanita muscaria and call it the *hanggo.* They are unrelated ethnically or linguistically to the Finnish peoples, but they too have borrowed the same mushroomic word.

But the diffusion of the word does not stop on the banks of the Yenisei. Far to the east of them are the Yukaghirs, a tribe culturally and geographically midway between the Finns and the primitive Paleo-Siberian tribes on the Pacific coast. According to Waldemar Jochelson, they are mycophobes, considering all mushrooms unclean, springing up from dogs' urine. They have a word for fungus, *can-pai,* of which the first element means 'tree'. Is *-pai* related to our Finnish words;

If we may digress for a moment, the pejorative association of mushrooms with dogs' urine is not peculiar to the Yukaghirs; far from it. One of the fungal words in Hindi is *kUkar-muta,* 'dog's urine', and this corresponds with the Marathi term, *kutrya-cem mut.* The Jews of eastern Europe refrain from eating the mushrooms that they call in Yiddish *hintishe shvemlekh,* 'dog mushrooms', according to an informant from Chotin in Bessarabia; these are mushrooms that grow in damp places at the foot of trees, and that are believed to be contaminated by dogs. We suspect that the same idea lies behind the generic word for mushrooms of the mycophobic Ingush tribe in the Caucasus. Their word is *dzhahnuskul',* 'dog's bride', in which *dzhali* means 'dog'. In the Germanic language of the Faeroe Islands, *hunda-land,* 'dog's urine', is a word for mushroom. For 'dog' the Poles say *pies;* the feminine form of this word, *psica,* is not used, but its plural, *psice,*

1. The diffusion of the word for 'fungus' among the eastern Finnish peoples and eastward in Siberia to the Chukchees was pointed out by Karl Bouda in his treatise, *Das Tschuktschische,* Leipzig, 1941, pp. 35-36. He does not mention the Yukaghirs. We owe our information about them to Waldemar Jochelson's *The Yukaghir and the Yukaghirized Tungus,* published by the American Museum of Natural History, N. Y., 1926, as vol. rx in the series of the Jesup North Pacific expedition, pp. 334, 340-1, 419. For information about the Yenisei-Ostjaks, see Kai Donner's ethnological notes published in the *Memoires* of the Societe Finno-Ougrienne, vol. LXVI, Helsinki, 1933.

is a name bestowed on certain small mushrooms, probably coprini. In France fungi of this genus are known popularly as the *pisse-chien,* and we suspect that the deliquescent ink-caps underlie the other examples that we have cited. The *pisse-chien* of the French becomes *thepixacan* in the langue d'oc: we have found it in Gascon, in Catalan, and in Majorcan, and doubtless it occurs elsewhere. The ending *-can* comes down from the Latin *caninus,* of course. When we go further afield, we discover that in the Arabic spoken by the Sudanese there is a mushroom called the 'tree-of-the-dogs', *shajarat al-kilab.* Arabic scholars have been puzzled by it, but surely the meaning is clear. Indeed, the association of the coprini with dogs is not without justification. Those who care to get to the bottom of the matter will find shrewd and amusing observations on the subject by Camille Fauvel in the *Supplement* to the *Revue de Mycologie* of December i, 1946, wherein this former Commissaire de Police and counter-espionage agent reveals his discovery that the distribution of urinals and of the coprinus atramentarius in the environs of Paris is complementary: i.e., the fungi are seldom found within a reasonable range of a urinal, but abound beyond that range.

In the Kamchatka peninsula there live, among other tribes, the folk known as Korjaks. The word for mushroom in their language is *pion* - yet another example of our word. For more than two centuries the Korjaks have enjoyed a peculiar renown among anthropologists, ever since the Swedish traveler Philip Johan von Strahlenberg discovered that they eat the dried amanita muscaria for its intoxicating virtue. It is to be observed that the Korjaks do not use the word *pion* for the fly agaric. This they call *wapaq,* meaning whale-bone, and here is why. The tribesmen of eastern Siberia bend spits or skewers of whalebone, insert them thus into tallow, freeze the tallow, and then scatter the lumps of frozen tallow for hapless wolves to swallow. The death-throes of the stricken beasts explain the use of the word for the fly amanita, the trigger that sends men into frenzy.[1]

North of the Korjaks, in the extreme eastern corner of Siberia, facing Alaska, He the settlements of the Chukchees, a tribe related to the Korjaks. For 'fungus' they say *pongpong* or *pompong.* This doubling of a syllable is characteristic of the Chukchee tongue. Here, then, we find the same word that we have now followed from the Mordvines in Europe across all of Siberia.

The range of this word of European origin for 'mushroom' is a breathtaking

I. Waldemar Bogoras in his treatise on the Chukchees assumes that the primary meaning of *wapaq* was 'fly agaric', the word being then transferred to the whale-bone spit used in killing wild beasts. He offers 110 supporting evidence. Since words for the divine usually recede from common use and give place to euphemisms, we suggest that the primary sense of *wapaq* was the whale-bone spit and that it was transferred as a vigorous metaphorical euphemism to the psychogenic mushroom. We know of one expression derived from fungal *wapaq:* the spirits of the fly agaric are called *wapdqual(fnu,* but as this means simply 'fly-agaric men', it tells us nothing about the origin of the word.

thing. What is the explanation? Why should it have stabbed its way across the frozen wastes of the North to the Bering Strait? Unfortunately we know nothing about the use of our word among these remote and primitive peoples. We do not know its precise applications in the fungal world. The lexicons say that in Ostjak and Vogul it designates the fly amanita, and this is certainly true of the ***hanggo*** of the Yenisei-Ostjaks. We do not know which uses of fungi are in the minds of the people when they utter these words, nor what other meanings they may carry, nor the figures of speech in which they play a part, nor their role in proverbs and folklore. We know nothing of their emotional flavor. They were not borrowed from Russian, for the Russian language possesses no word that could have been their source. We do not know whether they are associated with toads.

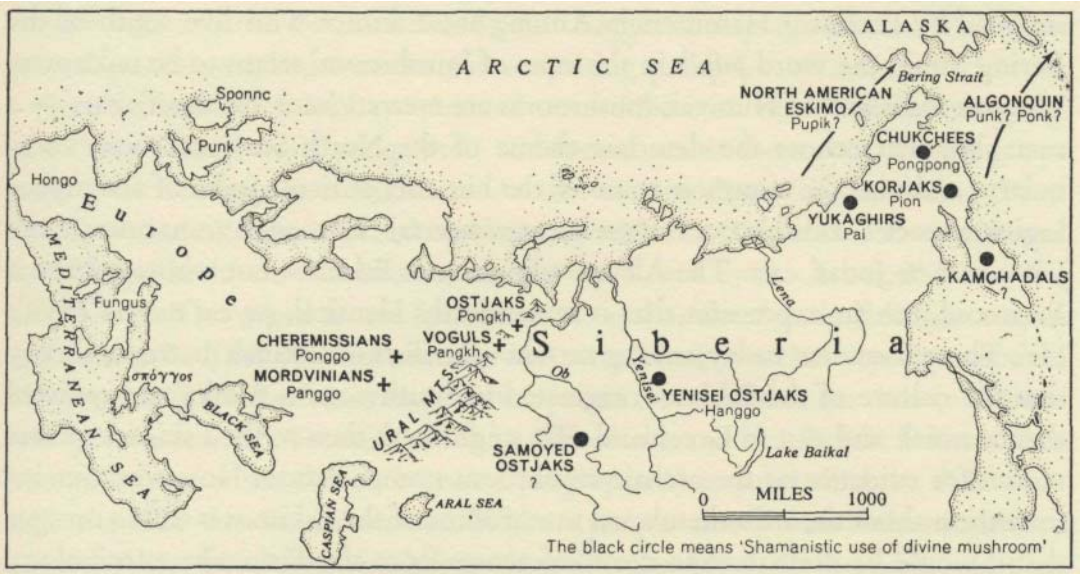
Clearly these Finnish and Siberian words come down from one of our three fungal clusters - the *pogge* or the sponge or the pumpkin group - or from a common ancestor. Is it possible that the word sped east long ago, along with a new technique for making fire - the use of punk for tinder» This would suggest that the sponge cluster was the source of the word. (In considering this possibility we must keep in mind that the superior virtue of the fomes fomentarius for tinder was known in northern Europe in neolithic times, some 8,000 years ago. Perhaps punk was one of Europe's earliest export products.) But there is no evidence known to us to support this inviting surmise, which remains to be tested in the field. Not only should every aspect of the words for mushroom and fungus be examined, but the whole vocabulary for the primitive methods of fire-making as well - spark, tinder, flame, dust (soot), and ashes. In the course of our inquiries we have assembled straws of superficial evidence indicating a common phonetic element in the words for tinder, dust, and ashes running all the way from Europe through Siberia into the Algonquin languages. When the English colonists found the Algonquin Indians referring to ashes or dust as 'punk', could they have been confronting their own word, after a journey around the world?

By good fortune we do know that the Korjaks use punk for tinder, though we do not know their word for it. Waldemar Jochelson in his treatise on the Korjaks, page 565, has this to say:

> The ancient method of making fire, by means of a drill, is at present employed only in religious ceremonies. Since the fire-drill is esteemed as the most important protector of the family, it may be concluded that the Korjaks looked upon fire as a beneficent agent. There are sacrifices in honor of the fire; fire is also a mediator between man and the deities, since offerings are burned in it… Tinder is prepared from a fungus that grows on the

stumps of birch trees. The fungus is stripped of its hard outer layer, and the inner spongy mass is boiled in water. Then it is dried, and a light, brittle, and highly inflammable punk is thus obtained.

At this point our excursion into the Arctic would have ended, had not the demon of our curiosity driven us to address a letter of inquiry to Professor L. L. Hammerich of Copenhagen, the authority on Eskimo linguistics and cultural traits. We asked him what word the Eskimos use for 'mushroom'. He replied that from Northwest Alaska to Greenland the word is *pupikl* Here we seem to discover



DISTRIBUTION OF THE FUNGAL DESIGNATION

Greek: *σκόγγος*
Latin: *fungus*
Spanish: *hongo*
Irish: *sponnc*
English: *punk*

Ural-Altaic:
1– Samoyed Ostjaks: ?
2– Finno-Ugric:
a–Mordvinian: *panggo*
b–Cheremissian: *ponggo*
c–Voguls: *pangkh*
d–Ostjaks: *pongkh*

Paleo-Siberian:
Yenisei Ostjaks (Kety): *hanggo*
Yukaghirs. *pai*
Kamchadals: ?
Korjaks: *pion*
Chukchees: *pongpong*

Siberian Eskimo: ? North American Eskimo: *pupik?* Algonquin: *punk? ponk?*

Fig. 8

once again the phonetic unit that by now we know so well. Professor Hammerich went on to say that the word is used for various diseases - in Greenland for leprosy; in the Kuskokwim district of Alaska for an eruption, itch, or small-pox. (The reader will recall that Low German *pogge* is etymologically cognate with 'pox', and the European words are constantly associated with tumors and organic growths. Leprosy is often accompanied by gross physical deformities.) At Nelson Island*pupiki* is a person with small-pox. Then Professor Hammerich continues:

In the mind of an Eskimo the word *pupik* must needs associate itself with the root *pu,* 'inflate, rise to the surface'; cf., e. g., Greenland *pue,* 'tumor'; *puak,* 'lung'; *poq,* 'inflated bag'; *puisse,* 'seal' (which pops out of the sea); Kuskokwim *pugoq,* 'rises to the surface'; *pugtartoq,* 'the seal emerges from the water for air'; and*pugtaun,* 'inflated bladder'.

The reader who has followed step by step our argument will share the excitement that Professor Hammerich's letters justify. Phonetically and semantically the information that he supplies seems to place the Eskimos with the Europeans in what we might call the same mushroom orbit. What is the explanation ?

Before suggesting certain possibilities, there is additional evidence to submit, also supplied by Professor Hammerich. Among the Eskimos who live south of the Bering Strait, the word *pupik* in the sense of 'mushroom' seems to be unknown. Thus on the island of Nunivak mushrooms are *tumrat ciutait,* or 'devil's ears' — a metaphor that echoes the demonic theme of the North Sea mushroom vocabulary, and also the common name of the hirneola auricula-judse of the mycologists, a species of edible tree fungus known in certain European vernaculars as the Jew's ears or Judas' ears. The Aleuts, who are not Eskimos but whose culture is Eskimoid, use an expression that is semantically identical, *qu^ani tutusi,* 'devil's ear'. There is current today among certain specialists in Eskimo matters a theory that the culture of the Eskimos originated in Southwestern Alaska and radiated thence north and east to Greenland. We might look then to the Eskimos of that region for evidence of the archaic mushroom nomenclature. However, our information about the attitude toward mushrooms of the Eskimos is still so meager that it would be premature to draw inferences from the distinctive terminology that seems to be current among the Aleuts and neighboring Eskimos. Careful inquiries specifically directed to our theme would probably uncover much information now unsuspected. On its face, a term like 'devil's ear' for a mushroom sounds like a euphemism replacing an older term that has fallen under a tabu.

There is yet further evidence of a common substratum in the Eskimo and European fungal thinking. Arthur Thibert in his Eskimo dictionary published in 1954 gives *tunnuksak* for 'mushroom'. Professor Hammerich informs us that this word means literally 'something like a tallowy boil'. In the old dictionary of Eskimo as spoken in Northern Alaska, by R. Wells and John W. Kelly, published in 1890, the word for 'mushroom' is *ahyo''ok,* where again the sense is 'swelling', 'boil'. Thibert also gives *puyut* in the sense of 'dried mushroom'; the Eskimo word's literal meaning is 'means of making smoke'. Do we not rediscover here the early use of dried mushrooms for generating smoke that gave to English the word 'funk' ? We can carry these recurring themes to a higher plane. In the Eskimo dialect of East Greenland the earliest Danish scholars con-

cerned with Eskimo linguistics discovered a word for mushroom that is written thus: *tarndydp poqattd.* It has been closely examined by a long series of eminent authorities: John Petersen, William Thalbitzer, L. L. Hammerich, and Erik Holtved. They agree that it means 'the hunting bag of the little robber of souls', the second element, which begins with our familiar syllable *poq-,* being the bag and the first element being derived from *tame,* 'soul'. Here then, exactly as in northern Europe, is an association of mushrooms with psychic or demonic powers.

The Eskimos thus link mushrooms with tumors, small-pox, and inflated bladders, and on another level with psychic disturbance, and phonetically we rediscover among the Eskimos words that suggest our *pogge* cluster. There are several possible explanations for this surprising parallel.

First, the word that we have pursued across Siberia to the Chukchee *pongpong* may have leaped the Bering Strait and spread across the top of America, bypassing the southwestern Eskimos. On the western shores of the Bering Strait live the Asiatic Eskimos, in cultural contact with the Chukchees. To weigh our initial hypothesis, we should ascertain the word used by the Asiatic Eskimos for mushroom. This word is not known to us, and as the Asiatic Eskimos cannot now be reached, the question remains unanswerable. *'Phonetically,pongpong* could become *pupik,* for Professor Hammerich points out to us that the Asiatic Eskimo *saming,* 'wherewith', becomes *sumik* in Greenland, and the Asiatic Eskimo *tamlaxtoq,* 'brings to the shore', becomes *tulagtoq* in Greenland. But the difficulties with the loan surmise are serious. When a people absorb into their vocabulary a word taken from their neighbors, they do so to fill a specific need, and they care nothing for the etymological and semantic associations of the borrowed word. Such associations become dilute or are lost altogether, and *a fortiori* when the borrowed word has filtered through a series of languages. If, then, the Eskimo *tookpupik* from the Chukchee *pongpong,* we are constrained to *divorce pupik* from the cluster of Eskimo words referring to tumors, skin eruptions, and distensible sacs with which the Eskimos themselves, with happy insight, consciously link it.

A second possibility is that the Eskimos once dwelt far to the West, in contact with peoples of European cultural stock, and took over the word and its associations intact, and then preserved them in a singular deep-freeze, until today we of European stock have re-discovered this cultural common denominator with us. Fanciful as such a suggestion sounds, serious scholars such as C. C. Uhlenbeck have discovered numerous verbal roots that seem to be identical in Eskimo and in the Indo-European languages, and have postulated a remote period of cultural contiguity between the two worlds.

Third, we must consider multiple genesis: that is, the possibility that an ono-

matopceic root could spring up in more than one place in response to an identical imitative instinct. If this were the explanation, we should expect to find yet other peoples as remote culturally as the Eskimos from Europe who will be found to possess indigenous *pupik* clusters of mushroom words.

Each of these explanations, examined severally, inspires little confidence. There remains a fourth possibility.

Let us go behind the common Indo-European language that is the hypothetical ancestor of all the Indo-European tongues of today, to that earlier linguistic stratum from which common Indo-European was itself descended. The archetype of our mushroomic root may descend lineally to us and to the Eskimos, as well as those Siberian peoples that possess it, from the era before our own linguistic family was differentiated from an earlier stock. In this case the Eskimo *pupik* is not a loan word from Indo-European, nor is (s)p(h)ongo a root borrowed by Indo-Europeans from some other linguistic family. We are simply carrying back our linguistic tree to a remoter generation.

On page 109 in a footnote we pointed out that certain philologists consider *fungus* and σπόγγος as words of pre-Indo-European origin, taken originally from some lost Mediterranean language. They question the identity of these words with the German *Schwamm* and the Slavic *gamba*. The conjecture that we now offer would reconcile the apparent contradiction. We would concede that in languages remote from the Indo-European family we find true cognates of σπόγγος. We would suppose that this word, as it descended through the Indo-European line, assumed a variant aspect in the Germanic and Slavic worlds.

The persistence through many millennia of a recognizable root for the word that signifies 'fungus' would be a remarkable thing. It might testify to the singular importance of the role of the fungal world in the culture of these exceedingly remote ancestors of ours. The religious and mythological and erotic associations of the mushrooms would explain this role, associations that we are still able to detect, though today they fade from men's memories and must be sought by combing the oldest records. Furthermore, these associations are of the very kind that would explain the dichotomy between mycophobic and mycophilic peoples. Things that involve man's deepest emotions are viewed by him through a *mana* of supernatural potency. That which is tabu is both feared and loved, unclean and holy, shunned and worshipped. As the old beliefs slowly faded away, each cultural community, no longer able to maintain alive the balanced tensions of the original involvement, clung to one face or the other of the primitive emotions, either rejecting the mushroom world or embracing the strange growths with a quasi-erotic devotion.

10 *MUCUS, MUSHROOMS, AND LOVE*

ocholars have not found the derivation of 'mushroom', and therefore the field lies open for amateur inquirers. The word has circulated in English for some five centuries at least, in many forms, and the variant 'musheron' is still often heard in the United States. It is clear that the English borrowed the word from the French language spoken at court in the Middle Ages, the French word surviving in modern French as *mousseron.* Either the Normans or French showed the English for the first time that certain wild fungi could be eaten, and the need for a name for the edible fungi was met by 'mushroom'. In the course of time it has come to designate edible fungi in general and specifically the psalliota campestris.

This specific use developed later, after the art of cultivating the field mushroom gave to it unique importance - such importance, indeed, that its French name, *champignon,* superseded *mousseron* as the generic word for mushrooms in France. It used to be thought that *mousseron* sprang from *mousse,* meaning 'moss', but for a long time not a single French philologist has espoused what is certainly a popular etymology, which was first propounded in print in 1651 by N. de Bonnefons, the gardener. It is clear that the present spelling of *mousseron* has come about to satisfy the popular association of ideas. Among the oldest forms of the word in French are two - *moisseron* and *meisseron* - that could not be linked to moss.[1] Both Oscar Bloch and Albert Dauzat arrive at the conclusion that the word is of pre-Latin origin - a convenient catchbasin, in the world of Romance languages, for all problem children of etymology.

Our word is not confined to English and French. Jean-Baptiste Barla, a first-class mycologist and faithful observer, reported that in the Provence, around Nice, the natives say *moussairoun* and *mousselet.*[2] The Catalans speak of the *moixerno.* The word also appears in a single dialect of Basque, in Lower Navarre, where it takes the form of *motxolon.* Wherever the word is used on the Continent, in French, Provencal, Catalan, and Basque, it designates the species of mushroom known as the tricholoma gambosum or georgii. The dialectical variants of 'mushroom' in English have been numerous, and among them several stem back to the obsolete French forms: mesheroom, mesheroon, and mishroom.

1. French philologists cite a Latin passage in the 6th century medical writer Anthimus wherein occurs *mussirionetn,* standing in the accusative case. This would be the oldest citation of our word. But Professor Joshua Whatmough of Harvard has shown that it is an interpolation. Of the seven ms. sources for Anthimus, five that go back in part independently to the archetype do not include the passage in which this word occurs. Of the other two, one is an nth century ms. and the other refers to an event that took place in A.D. 849. The evid ence seems to point to the 9th century for the interpolation.

2. *Les Champignons des Alpes,* Nice, 1888.

There is a Welsh form, *maesrin* (pronounced 'mice-rin'), which may have been only a bookish word, but which preserves for us the early sound as known to the Welsh when they borrowed it.

Some years ago Robert Graves suggested to us that we consider the Greek word for mushroom as the source of the French and English terms. We think he was right. Our readers will recall that in German *Schivamm* means both fungus and sponge, but that the Greeks limited the corresponding word in their language, σπόγγος, to 'sponge'. For mushroom they used μύκης, whence the science of 'mycology'. The Greek word is inextricably associated with μύζα, which in Latin becomes *mucus,* or when referring to nasal mucus, *tnuccus.* All these words are repulsive for us. For the Greeks mushrooms were mucoid things, slimy growths, a far remove from the Russians' 'fat of the earth'. There is abundant evidence that the Greeks were and remain mycophobes. The evolution of Greek μύκης into the Provencal, Catalan, and obsolete French words is not hard to reconstruct, so far as the first syllable goes.[1]

But this does not solve our problem, for we must still explain the ending *-(e}ron* of the French word. Proceeding on the surmise that it is a suffix, we sought to determine its value by assembling a list of as many French words ending with it as we could find. (It is surprising that in a language so thoroughly dissected as French no one had done this before.) Our inquiry was fruitful. The nouns ending in *-(e)ron* fall into three groups, according to the purpose served by the suffix. First are the words that designate an occupation:

1. *bucheron,* woodcutter,
2. *forgeron,* blacksmith, and
3. *vigneron,* vine-grower.

There is a second group in which the ending is a diminutive, a variant of the diminutive *-on,* as in *ourson,* little bear, and *raton,* 'little rat'. The variant in *-ron* is used where there is need to preserve the value of the final silent *e* of the original noun:[2]

1. *aileron,* small wing,
2. *boteron,* small toad,
3. *chaperon,* small headgear,
4. *coteron, cotteron,* diminutive of *cotte,* English 'coat',
5. *courgeron,* kind of *courge* or gourd,
6. *laideron,* an ill-favored woman,

1. It is necessary to assume that the Greek word passed through unrecorded popular Latin forms in *mux-* and *mix-,* sound mutations that can be paralleled in other words.

2. *Cuceron, cusseron,* the insect, an enemy of vegetable gardeners, seems to have developed from *cusson, cosson,* by a false popular analogy with *puceron.*

7. *lisseron, liceron,* diminutive of *lisse, lice,*
8. *mancheron,* short sleeve,
9. *moucheron,* gnat,
10. *napperon,* napkin,
11. *paleron,* shoulder-blade,
12. *pelleron,* baker's scoop,
13. *piqueron,* diminutive *of pique,*
14. *puceron,* plant-louse, aphis, and
15. *vesceron,* a small species of vetch, diminutive of *vesce.*

The third group, which is the one relevant to our argument, consists of the following words, of which no less than four refer to mushrooms:

1. *auburon,*
2. *mousseron,*
3. *potiron,* and
4. *sauceron,*
5. *biberon,*
6. *bourgeron,*
7. *culeron,*
8. *fumeron,*
9. *grateron* and *glouteron,*
10. *laiteron, laceron,* and *lacheron,*
n. *liseron,*
12. *longeron,*
13. *quarteron,* and
14. *secheron.*

In every instance the suffix adds particularity to a less determinate idea conveyed by the stem. The general condenses into the particular. A 'mass' noun becomes a 'countable' one.

Let us examine these fourteen words one by one. *A biberon* is a feeding-cup or baby's bottle, from the Latin verb *bibere.* A *bourgeron* is a jacket made from a material formerly called *borge.* A *longeron* is a girder that runs lengthwise. A *fumeron* is the half-burnt charcoal that gives off smoke. *A quarteron is* a quadroon. *Secheron* is the word used in the mountainous east of France to designate a meadow that is chronically parched. The *culeron* is the 'crupper loop' that passes around the horse's tail. The other words are all names of species of plants. *Grateron (= glouteron)* is a kind of briar. *Laiteron* (= *laceron, lacheron}* is milk-weed. *Liceron,* from *Us,* is the bindweed or morning-glory. *Potiron* is a species of gourd and a fungus. *Sauceron* is a regional word reported in the Saone-et-Loire for 'mushroom', presumably from the verb *saucer,* to sop or soak or dunk, referring to the wetness of many wild mushrooms. *Auburon* is the most interesting of all. It is current in the East, where the French and German worlds meet. It designates the lactarius piperatus, and it comes down from the Latin *albus,* white. Sometimes it is written *oberon.* This is a large, fleshy, white mushroom. In a good mushroom season, when the forest floor is carpeted with an immense number of mushrooms of many kinds, the big, sturdy *oberon* dominates its world, king of its realm. From afar it can be sighted, and as the sun sets and the shadows

deepen, its brilliant whiteness seems to catch and hold the light a little longer. It is no wonder that Oberon is king of the fairies. Yet so far as we can discover, no one has hitherto recognized the fungal ties of this famous character in French and German folklore, whom Shakespere summoned to his stage.[1] In Russia the ***auburon*** or lactarius piperatus is called the *gmzd',* and, as we have seen on an earlier page, *the gmzd'* plays a role in Russia's fungal folklore that recalls Oberon's. Our common nouns ending in *-(e)ron* are mostly rare and archaic words. Since our etymology for *mousseron* is persuasive only to the extent that we succeed in explaining its suffix, we welcome the abundant additional testimony supplied to us by a different category of words - family names. With these proper nouns lies the primary role of our suffix, and it is precisely here that particularity is of the essence: the general term is reduced in its application to a distinctive family unit. Attributes of physique or personality, occupation, geographical origin, social status - the common nouns and place names become individualized as family names by the addition of *-(e}ron.* Furthermore, in this list we sense the common denominator that links together the three divisions of our common nouns, and find that they all belong really to a single class, not three. Our suffix, in essence, contributes particularity to the primary word. The reader who desires to arrive at the meaning of these proper nouns will consult Albert Dauzat's ***Dictionnaire*** *Etymologique des Noms de Famille et Prenoms de France,* published by Larousse in 1951.

Bauberon	Chaumeron	Langeron	Masseron
Biberon	Chauveron	Legeron	Merceron
Boucheron	Chaveron	Ligneron	Moucheron
Bouveron	Cucheron	Manceron	Pailleron
Brosseron	Fougeron	Mancheron	Percheron
Brugeron	Gagneron	Manseron	Rongeron
Chalveron	Goutteron	Marceron	Secheron
Chaperon	Guederon	Marcheron	Vacheron

If, then, we are right in our argument, the mushroom or *mousseron* was once, metaphorically, a glob of mucus.[2] Its original meaning long forgotten, the word

1. Oberon in English is a literary character, without indigenous roots, borrowed from the French, where he appears in Old French in *Huon de Bordeaux.* He is 'Alberich' in the medieval German poem *Ortnit,* a name that suggests the German *Alp,* 'elf. But Jacob Grimm in his *Teutonic Mythology,* London, 1883, vol. n, p. 453, links 'Alberich' with whiteness, from the Latin *albus,* a view that, as we now discover, is reinforced by the vernacular name given to the dazzling-white lactarius piperatus along the eastern marches of the French-speaking world.

2. And also a glob of froth, if our suspicion is right that *mousse,* 'froth', has the same origin. But this word *mousse* and its homonym meaning 'moss' are so tangled together in their histories that we merely mention the pos sibility without arguing the case.

The obsolete *meckeron,* 'wick', 'little wick', was derived through Latin from Gr. |iu£a, [an]d is cousin therefore to *meisseron, tnoisseron, mousseron.* Surely the obsolete adjective *mescheros,* 'dirtied', 'blackened', has the same

PLATE XXXI

Jean-Henri Fabre. Lactarius piperatus Fr. ex Scop.
French (east): *oberon;* Russian: *gruzd'*.

has shifted in status (as occasionally words do), and from its mucoid origins has become appetizing. We believe that the Basque language offers us circumstantial evidence in support of our theory. As we have seen, in the Basque dialect of Lower Navarre our word appears as *motxolon,* and it carries the same meaning as *mousseron* in French. In the Souletin dialect the same species is the *buxeti;* we trace this also to *mousseron,* for the Romance letter 'm' can become 'b' in Basque; e.g., the Spanish word for 'mill', *molino,* appearing as *borin* or *bom* in certain Basque dialects; also the French word for 'cabinet-maker' or joiner', *memiisier,* becoming in Soule *beniise.* In many other sections of the Basque country, *ziza* takes the place of *motxolon,* designating the tricholoma gambosum and also tending to associate itself with other edible species. Thus it is a precise translation of *mousseron.* The derivation of *ziza* has never been determined. But we discover that in the Souletin dialect of Basque, *zintz* means 'nasal mucus', and is probably a word of imitative origin. Professor Rene Lafon informs us that phonetically *ziza* could be related to *zintz.* We suggest that it is derived from *zintz* or an earlier form of that word, and that it was thus a translation of *mousseron* made at a time when the original meaning of the French word was still present in men's minds. If we are right, *mousseron* appears in Basque as *motxolon,* a borrowed word, in Lower Navarre; as *buxeti,* also a borrowing, in the Soule; and as *ziza,* a translation, elsewhere. Thus, if this argument stands up under scrutiny, we provide a satisfying etymology for the Basque *ziza* and simultaneously buttress our fungal word pattern derived from μύκης.

For 'mushroom' and *mousseron* we have dared to propose an etymology and a latent meaning where scholars have been at a loss. There is another French fungal word, *le cepe de Bordeaux,* where we shall challenge the conventional etymology. The standard sources have accepted the popular notion that *le cepe* is the same word as *le ceps de vigne,* 'vine-stock', both descended from the Latin *cippus,* 'stake'. As to *le cepe,* we think the case has gone by default, the philologists having admitted a popular etymology by inattention. The boletus edulis does not suggest a stake, nor has such a metaphor any parallel in the fungal vocabulary of Europe.

We know much about the role of the boletus edulis in the social history of Western Europe. The Romans called it the *snillus,* 'swine-mushroom', a word that apparently survived as *silli* in the dialect of Naples down to the end of

derivation and refers to the wick's snuff. Philologists have been baffled by the origin *oftndchurer,* 'to blacken with soot', and *mdchuron,* 'smudge' or 'smut' (on the face), 'smudged impression' (in printing). Should they not consider *mecheron* and the wick's snuff as the key to the etymon? The vowel change parallelcs *tache,* 'stain', descended from the older *teche.*

the 18th century.[1] In standard Italian it is *the porcino,* 'porcine' mushroom. Why these names? Some say the mushroom in its appearance suggests the swarthy, rotund rear-end of a porker. Some point to its greasiness when cooked fresh: it exudes quantities of viscid fluid that gastronomes associate with rich, melted butter, but that to mycophobes suggests loathsome mucus. When dried the boletus edulis tastes like meat, which explains the addiction to it of the monks in the Russian church during the long fasts. We have seen how the Flemings began to eat ceps in the iyth century, a cultural innovation inspired by Italian merchants. The progress of the cep in the kitchens of the great elsewhere was slow. We have combed upwards of a score of French cookbooks of the iyth and 18th centuries and found no mention in them of the cep, though they all speak of morels, truffles, *champignons,* and *mousserons.* Brillant-Savarin ignored it, but he ignored all mushrooms save truffles. The earliest French writers on fungi laid no stress on its culinary virtues. Clusius in 1601 described it without embellishment as a species belonging to his Genus XX of the edible mushrooms. He said the Germans called it *Btiltz,* a Germanized form of the recently borrowed Latin *boletus.* Clearly the word met the need for an appetising name for mushrooms that were being eaten for the first time. Later *Pilz* came to embrace the whole edible mushroom world, and the boletus edulis is today the *Steinpilz.* No one seems to have explained why this mushroom is likened to a stone. Do we have here an evasive substitute for a lost'*Schweinpilz'* ? Clusius gave *vargdnya* as the Magyar name, and he added that it was obscene. Today this word still circulates but its obscene association is lost. Perhaps it suggested *valag,* 'arse', of which we may have caught an echo in *suillus.* We shall revert to Clusius' curious remark about obscenity on a later page. Just as baffling is his statement that in French the cep in his day was called *materaz.* This is a hapax legomenon that both mycologists and lexicographers have overlooked. In what provinces, in what classes, did it circulate?[2]

Cepe entered standard French late. Its earliest known appearance in print was in 1791, in Pierre Bulliard's classic *Histoire des Champignons de la France,* where he mentions *cepe* as a provincialism for the edible boletus. In 1835 the French Academy placed on it the stamp of its approval by admitting it to the edition of the *Dictionnaire* published in that year. There are regions of France where it is still

1. See Jean Jacques Paulet's *Traite des Champignons,* Paris, 1793, p. 44.
2. Van Sterbeeck in his *Theatrutn Fungorum* quoted *materaz* from Clusius, but Jean Bauhin, the French contem porary of Clusius, ignored it. *Materaz* was a variant spelling of *matras,* a familiar word in medieval French. It meant (a) one shape of distiller's flask, and (b) in archery, the particular kind of blunt head for the 'bolt' or arrow used with the cross-bow when the purpose was to stun and incapacitate an enemy or animal without penetra ting the armor or hide. We have found no *matras* of either kind that suggests a cep.

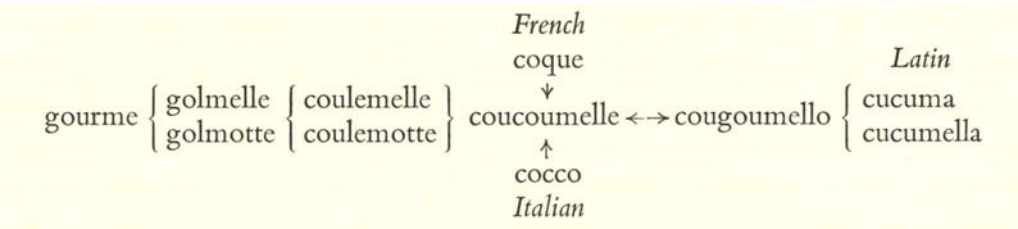
unknown. It entered French from the Gascon dialect, and its diffusion in the ipth century may have been encouraged by a profound man-made change in the ecology of that province. In the late i8th century the French engineer Nicolas-Thomas Bremontier undertook to fix the shifting dunes of the Landes, south of Bordeaux, by planting them to conifers. While ceps are mostly associated with deciduous trees, the variety pinicola lives in symbiosis with conifers. Was Bremontier's famous achievement responsible for a surplus of ceps which, funneled through Bordeaux, reached the Paris markets and became the *cepes de Bordeaux* of today?

Among the mycophagous Gascons the parent word of *cepe* carries two meanings. It is the specific name of the boletus edulis and it is a general term for all mushrooms. Here is one more instance where the dominant edible species has given its name to the whole fungal race. The word in Gascon takes two forms, *sep* and *set,* and this leads us at last to consider the etymon for *cepe.* In Spanish there are two general words for 'mushroom', *hongo* and *seta.* Today in Castilian the two words are synonyms, but from the early dictionary compiled by Sebastian de Covarrubias and published in 1611 we learn that at that time *seta* meant the *hongo de puerco,* i. e., the *porcino* or *suillusl* In short its meaning was identical with the specific meaning of the Gascon *sep* or *setl* The Spanish word circulates up to the very borders of Gascony, and thus the areas of distribution are contiguous. There is a further relevant fact: the word for the boletus edulis is not the only fungal term shared by Gascons and Spaniards. A Spanish word for the puff ball, *bejm,* is also the Gascon word, and this points to a common background of the two peoples in mushroomic matters. Juan Corominas traces the Spanish *seta* to a Greek origin, σήπτα, 'rotten things', to which the English word 'septic' is kin. The name for the cep in classic Greek does not survive, and the way is open for us to suggest that σήπτα already carried its mushroomic meaning before it was borrowed by Gascons and Spaniards. It must have been a learned word of physicians and naturalists steeped in the lore of Dioscorides and Nikander, and it would have reached Gascony, with other Greek cultural contributions, from the Greek colonies in the Gulf of Marseilles, ascending the Rhone valley and crossing westward by the water-ways to the Bay of Biscay. We do not contend that the Gascons borrowed *set* from the Spaniards, nor that the Spaniards borrowed the Gascon word, but that both came from the same source, borrowed concurrently.[1] We have pointed out that the Greek μύκης likened

I. For the etymology of Sp. *seta* see Juan Corominas' note in *Romance Philology,* Nov. 1947, pp. 97-100. For *cepe* see Jean Seguy's magisterial treatment of the Gascon fungal vocabulary in vol. I of his *Atlas Linguistique de la Gascogne,* maps 193-201, especially those dealing with *cepe* and *champignon.* In certain sub-dialects of Gascony the terminal *p* of a Latin etymon becomes *ts* in the Gascon plural; e. g., French *coups* appears as *cots.* Our initial

mushrooms to mucus. Semantically the Greek σήπτα likens the cep to putrid things and to pus. There is a kinship here: thus in French the word *morve,* nasal mucus, according to the most eminent philologists comes down from the same source *asgourme,* 'pus'. The ancient background of *seta* and *set,* of *cepe* and 'cep', is now forgotten, and the mushrooms that they designate have risen to high esteem, like *ntousseron,* but all these words carry concealed the curse of their mycophobic conception. It is unkind, but piquant, at this late date, to expose their original sin. As for the *cepe de Bordeaux,* we believe that all those who relish the innocent delights of pedantry may safely speak, in place of *cepes,* of *setes;* or, to be more precise, since *cepe* is a Parisian misspelling of a Gascon *cep,* we will say *les sets de Bordeaux.*

In certain localities of France the amanita rubescens is called *golmotte* and in certain others *golmelle.* Perhaps the root of these words, *golm-* was originally *gortn-,* and if this surmise prove right, then here we have further examples in French of mushroom names nourished on pus. In words of this kind, which live out their lives in humble currency, on tongues of country folk rather than on the written page, remote from the cerebrations of book-men, all sorts of 'contaminations' and blends take place, through semantic or phonetic associations that are hard to trace. Take *golmelle and golmotte* as examples. Let us assume that *gourme,* 'pus', is their point of departure. By gradations, and probably under the pressure of lateral influences, these words pass through a spectrum of identifiable shadings until they emerge as the Proven9al *cougoumello,* already discussed on an earlier page:



We have discovered no evidence that the detached attitude of the Greeks toward the fungi, which they expressed by calling them globs of mucus, was ever associated with toads. But the figure of speech latent in their word suggests certain

supposition that the variation between *sep* and *set* was traceable to this phenomenon collapsed when we discovered from Seguy's maps that the distribution of the two forms did not correspond at all to those sub-dialects. We suggest that the alternation between *p* and *t* in *sep* and *set* marks a variable survival of the *p* and *t* of the Greek etymon σήπτα, plus contamination with the *ccps de vigne.* For the cultural background of Greek words in Gascon and Spanish the authoritative study in Walther von Wartburg's paper, 'Die griechische Kolonisation in Siidgallien und ihre sprachlichen Zeugen im Westromanischen', in *Zeitschr. f. rom. Phil.,* LXVIII, 1952, pp. 1-48. He does not mention any fungal words.

names for toads current among the northern peoples. The Welsh ***llyffant*** seems to be cognate with either 'slime' or 'lymph' - it makes little difference for our purpose, for both would refer to the mucoid secretion of the toad's epidermal glands. There was an Anglo-Saxon word for toad, *yce,* which survives to this day through collateral descent in the Low German *utze* and the High German *Unke.* These words appear to be related to the Latin *uvidus,* moist, and are thus semantically parallel to the Welsh term. In the vast reaches of uncharted cultural history-who knows; - the mucus-exuding toad and the glob of Hellenic mucus that the English call a toadstool may have mingled in the thoughts of men.

JNow we arrive at another area in Europe's mushroom vocabulary where a theme semantically related to mucus may survive. We refer to the neglected problem presented by the word 'morel'. In French this is the *morille,* in Catalan *murgula,* in German *Morchel.* The Romansch *murachel* or *burachel* (with the stress on the second syllable) is another form. Western philologists assert that these words come to us from the Old High German *morha* and its diminutive counterpart, *morhila,* both of which are known to us only in the sense of'carrot' or 'parsnip'. The semantic link with carrots or parsnips is an unhappy one and hardly persuasive. The Western philologists who have considered the problem seem not to have stretched their inquiry to embrace the Slavic field. We do not believe that the morel was called a parsnip, nor the parsnip a morel. We believe that both owe their names to the same antecedent metaphor, phallic in inspiration. There is a single name for the morel throughout the Slavic area, and the Russian *smorchok* may be taken as representative of the various forms that the word assumes. Slavic philologists are agreed on its origin. They say its root is smurk, and semantically it is associated with sniffling, with resin in the tree, with a water-spout. The Russian verb *smorkat'* means to blow the nose. The Slavic root is derived from a hypothetical Indo-European root, [s]mer, denoting an oily or buttery or resinous or viscid exudate. It is exemplified by the English word 'smear', the Scandinavian *smjor,* meaning 'butter', and the Greek jiupov, 'ointment'. If'morel' and the other Western names for this fungus are not genetically identical with the Slavic word, we are faced with a surprising accidental similarity between the two names for the identical fungal species.[1] Surely a more sensible explanation is at hand. In his beautiful monograph on the aphrodisiacs entitled *Paneros,* Norman Douglas pointed out that both carrot and parsnip

I. The name of the morel seems to have invaded various non-Indo-European languages. Clusius tells us that in his time the Hungarians called this mushroom *szemerchyek,* obviously a borrowing from Slavic. In the I2th century Maimonides writing in Hebrew refers to some sort of fungus, possibly a morel, by a word having the root SHMRQ', which we think must be a borrowing, but precisely whence and when and by what channels ?

were formerly esteemed for their love-inciting virtue, and is it not reasonable to suppose that the Old High German *morha* and *morhila,* like the phallic 'morel', were verbal progeny of the same erotic root?

We have suggested that the specific name in ancient Greek for the morel was μύκης a word that we think doubled for 'morel' and 'mushroom' generally. Here let us recall a curious episode told by Pausanias in his *Description of Greece* which reminds us of the idea lying behind *smorchok.* Pausanias offers his readers a legendary explanation for the founding of the famous city of Mycenae. It seems that Perseus chose the site. "Perseus was thirsty, and the thought occurred to him to pick up a mushroom [μύκης] from the ground. Drinking with joy the water that flowed from it, he gave to the place the name of Mycenae." This is a false popular etymology for the name of the city, but the story itself, attributing a life-giving fluid to the mushroom, reminds us of *smorchok* and its congeners, and links them semantically, though not etymologically, with the Greek μύκης. We feel sure that μύκης here meant 'morel'. In the light of the evidence developed on earlier pages, it is singularly appropriate that our eponymous hero should found his race by imbibing strength from the phallic mushroom. Fortifying our argument, Ovid in *Metamorphoses* vii: 392 recalls the legendary origin of Corinth: "Here, according to ancient tradition, in earliest time men's bodies sprang from mushrooms":

> . . . hie aevo veteres mortalia primo corpora
> vulgarunt pluvialibus edita fungis.

Fungis here stands for μύκης and μύκης for 'morel'. The children of Corinth, like the children of Mycenas and of Rome, are sprung from the fungal phallus, from the fire-born tinder quickened into flame by the touch of the divine spark. Corinth was a center of the sun-cult, and it is fitting that the children of Corinth should owe their genesis to the μύκης.

We have seen on an earlier page that 'spunk' in English is a name for the seminal flow of the human male, that the ordinary mushroom stipe sunk in the pileus is the symbol of the sexual act, and that the Greek P.UXYJC; means not only 'mushroom' (or 'morel') but the *membrum virile.* Perhaps the same idea lies enfolded in the Indo-European root of the Russian *smorchok.* There is a Norwegian word, *troll-smor,* or the demon's butter, for the yellowish slime-moulds that are often found spilling over rotten stumps and that scientists call 'myxomycetes'. We find the identical fungal figure of 'demon's butter' in the non-Indo-European Burushaski language: *pfute maltas,* the first element meaning 'demon'. It is our suggestion that 'butter' in such fungal words scarce

conceals the erotic meaning, corresponding to the erotic vulgarism ***frontage*** in the French *langue verte,* and the special meaning of 'spunk' in England. In low English 'cheese' is the designation for smegma. In Syriac there is a word for 'mushroom', *fmama,* that C. Brockelman in his *Lexicon Syriacum* (1928) derives from the Greek words for 'ointment', 'unguent': a|i^[jLa and ojjLvjy^a.

In Russian the word *nasmork* (with stress on the first syllable) designates a cold accompanied by a running nose - the French *chandelle.* According to Dal', the Russian lexicographer, impudent Russian seminarists used to refer to an *arkhierejskij nasmork,* 'archpriest's rhinitis', when speaking of gonorrhoea.

The full sweep of the erotic associations of the fungi in men's minds emerges with laconic clarity in Pliny's description of them in Book 22, Chapter 46 of his *Natural History.* Indeed his few words touch on almost all the scatological and genito-urinary aspects of our subject that we have had occasion to uncover, a prescient precis of this aspect of our subject written eighteen centuries ago. The Elizabethan translators, culturally far closer to the Romans than we, sometimes caught overtones that our modern scholars, with all their erudition, miss, and therefore we supply Philemon Holland's expansive rendering of the passage in Pliny, and we underline the words that may refer to the seminal fluid:

Volvam enim terra ob hoc prius gignit, ipsum postea in volva, ceu in ovo est luteum . . . Origo prima causaque e limo, et acescente succo madentis terrae, aut radicis fere glandiferas: initioque spuma lentior, dein corpus membranse simile, mox partus.

And in truth, before that the Mushrome is formed, the earth bringeth forth a certain pellicle or coat first, called in Latine Volva; for this purpose, that the Mushrome should lie in it: and then afterwards shee engendreth it enclosed within, much like as the yolke of an egg couched within the white . . . Moreover, these Mushromes take their first originall and beginning of a slinlie mud, and the humor of the earth that is in the way of corruption: or else of some root of a tree, and such for the most part as bear Mast. *It seemeth at the first, as if it were a kind of glutinous fame or froth:* then it groweth to the substance of a pellicle or skin, and soone after sheweth the Mushrome indeed, bred, formed and consummat within, as beforesaid.

Sensitive as is Philemon Holland's rendering, we think that in Pliny's own words our ear detects, clear albeit faint, a double layer of meaning that escaped the English translator. Pliny mentions no particular kind of tree, such as the oak. He links mushrooms with such trees as bear 'mast', i.e., acorns. The acorns are the thing. His word is *glandiferce.,* 'acorn-bearing'. Already in Pliny's time the word for 'acorn' -*glans*- also designated the glans penis. This we know from the writings of his contemporary, the physician Celsus. It was natural for Pliny to place mushrooms, soaked as they were with erotic meaning, at the

foot of trees yielding equally erotic acorns. The ancient association of ideas survived into the iyth century when John Parkinson referred to the glans penis as 'the nut of the yard'.

At this point in our argument the reader may protest that our interpretation of Pliny's text is over-bold. But before he leaps to his conclusion let him consider the following evidence. We have seen that in the Greek mind 'mucus' and 'mushroom', μύζα and μύκης, were yoked together, perhaps with the morel playing a phallic role as an intermediary. We have seen that the word for mushroom also meant the *membrurn virile,* and if our interpretation of the Etruscan mirror is sound, the mushroom and *membrum virile* were intimately associated with the making of fire. We now call to the reader's attention certain further semantic associations with fire that link together the two Greek words. The word for mushroom also meant the half-carbonized end of a wick, which in English is called the snuff- a word with nasal ties. This half charred end of a wick is of course tinder. The Greek word for mucus also meant the nozzle of a lamp. This same Greek word for mucus crops out in Latin as *myxa,* and in Latin it meant 'wick', and we discover that in Latin *fungus* was the snuff of a wick. The Latin word for 'wick' in turn gave to the French their *meche,* and from the French the English acquired 'match'. Why should the match that we strike come down to us from Greek words for mucus and mushroom? Why this persistent association between fire on the one hand, and mucus and mushrooms on the other, with the *membrum virile* also playing a role in the same affair? In low English 'wick' is still potent with erotic meaning, as the English soldier lets us know when he 'dips his wick' or complains that someone 'gets on his wick'. The cap of a morel suggests a burnt clump of tinder, and what is a nozzle but a 'cock'? Both 'nozzle' and 'schnozzle' are variants of'nose'.

For the burnt end of a candle-wick the Spaniards have two expressions: *moco de pdbilo,* 'mucus of the wick', and *seta,* the word for mushroom that Corominas traced to the Greek word for putrid things. In French the corresponding word is *moucheron,* from *moucher,* meaning to snuff and to wipe the nose. When a lighted candle sputters and gutters because of the presence of a foreign particle, called in English the 'thief or the 'stranger', the French speak of it as the *champignon;* and the French call a running nose a *chandelle,* or candle. In English until modern times the burnt end of a candle-wick was a 'snot', but when this word in its primary sense fell into disrepute around A.D. 1800, its place was taken by 'snuff'. The Danish verb *snyde,* from the same root as the English 'snot', means both to snuff a candle and to wipe the nose; and the Dutch *snotneus* is an old-fashioned oil lamp with a long spout. But in the Germanic languages the fungal

association seems to be absent. We have mentioned the word for 'mushroom' in Syriac, *s^e^mama:* we now point out that it carries the additional meaning of 'lamp black'.

Here then is a persistent association of ideas, triangular in design, between mucus, mushrooms, and candles or lamps. Like the candle-wick itself, the ideas are plaited together, weaving in and out in a slow measure down the centuries. It is easy to see why the mycophobic Greeks regarded mushrooms as globs of mucus. But why the lamp nozzle? Why the burnt end of the wicke Why the candle?

Perhaps the reader has already discovered the common denominator that underlies these disparate ideas. Relying on certain straws of evidence, we have conjectured a deep-seated semantic association between nasal mucus and seminal fluid. The primary use of the fungi among the primitive Europeans was for the making of fire, a rite instinct with sexual associations. The Greek member of our 'sponge' cluster, σπόγγος ,was deprived in Greek of its other meaning of 'fungus', and we discover its normal fungal meanings in [ifoojc;, semantically yoked with the *membrum virile* and a burnt lamp-wick, a word adapted from [Au£a, meaning 'mucus' and also 'lamp-nozzle'. In the burning candle guttering with heat, in the dripping nozzle of the hot antique lamp, we discover the supreme figure of dynamic sexual metaphor, wherein the discordant ideas of mucus and fire are suddenly and boldly reconciled. In Hungary there are to this day women mindful of their reputation who will refrain from offering a light for a man's cigarette, lest their act suggest an improper invitation. Early in 1955 a late evening television program on channel KABC in Hollywood was abruptly discontinued because of public protests that it offended decency. In it a statuesque blonde called Voluptua would prepare for bed while she chatted invitingly with a man offstage. Just before slipping into her big bed, she would breathe on unlighted candles and they would leap into flame.[1] When Rabelais' Friar John, near the end of Book v, swears by the faith of a Lanterner, the attentive reader has learned to catch the meaning, for Rabelais has made a great play with lanterns and candles in this book, especially in chapter 33, where the Queen is served a huge stiff flaming taper of white wax somewhat red at the end, and everyone else has flaming *chandelles.* 'Heaven knows', says Rabelais, 'what a glorious light they gave.'

As we have already said, the Greeks did not link mushrooms with toads but instead with lamps. In Egypt we discover that lamps, in turn, were linked with frogs. (We seem forever discovering new permutations of the same symbols.) For the Egyptians the frog was a symbol of Hiqit, goddess of birth and rebirth,

i. *New York Herald Tribune,* February 2, 1955, p. 14.

and in various collections of Egyptian artifacts are to be found lamps in the shape of frogs dating from the early centuries of the Christian era.[1] On these lamps is written in Greek: 'I am the resurrection', and sometimes they bear a cross. They appear to have been artifacts of an heretical sect denounced in the Code of Justinian under the name of Batrachitse, but their batrachian error was certainly of pre-Christian lineage. Just as in Greece the mushroom and the lamp stood for the engendering of life, so in Egypt a similar message found expression in the frog-borne flame. Toads are of the order of frogs, of course. The womb that lies behind certain names for the toad and toadstools in northern Europe reappears in the frog-womb of the Egyptian cult.

Some of the terms of the science of mycology are neo-classicisms, the inventions of modern workers in the field. But others perpetuate ancient usage. In Pliny's text we have discovered that Volva' was already familiar to him as the designation of the cup out of which some mushrooms grow. Do not the 'ring', the Veil', and the 'hymenium' belong to the same vintage? Here are sexual metaphors applied to mushrooms that reinforce our argument, and what an astonishing concentrate of sexuality they all evoke! If we are right about the sponge cluster of fungal words - *Schwamm, fungus, gomba,* and σπόγγος - they enfold within themselves the idea of the womb. The Greeks in μύκης substituted for the womb the idea of the phallus. The French, by some quirk in cultural history, followed the Greek example, preferring *mousseron* to a derivative *of fungus,* and in the second element *of champignon* is the same phallic idea latent? Not etymologically, of course, but by phonetic association. Gastronomically the Greeks, as we said, were mycophobes. Their interest in the fungi was less aural and gustatory than erotic. In Arabic the basic word for a mushroom is *futr,* as we saw on page 127, with the initial /by normal mutation often yielding place to *p.* The Arabists seem in no doubt about its etymology: it comes from the verb 'to split', 'to cleave', and they suggest that this recalls the breaking of the earth as the mushroom emerges. But so jejune a notion does less than justice to the virile Arabian mind. Here also we think we detect a metaphor of generation, probably at the deepest layer onomatopceic in origin, paralleling in sense and sound the Greek φιτύω, Latin *futuere,* and French *foutre,* though etymologically unrelated to these.

Mushroom, candle, nose: down to today these metaphors have retained their phallic potency. The phallus is called a mushroom, and on certain mushrooms even mycologists bestow phallic names: the phallus impudicus and the mutinus caninus. A learned friend of ours, always on the alert on our behalf

I. See *La Revue Critique d'Histoire et de Litteratllre,* New Series, vol. vrr, 1879, report on sessions held Feb. 21 and 28, pp. 175 and 199.

for tidbits of fungal knowledge, was thumbing one day through a native Pashto dictionary, when in its pages he came upon a name, not Pashto but Persian, for a mushroom, small and edible but not otherwise identified: *qabih-ker i xarak,* which means the *phallus erectus* of a jackass. A few months later he came upon the exact equivalent in Pashto: *xargina.* In Sudanese we find a mushroom called *zibb al-wata ,* 'penis of the earth', and in Persian the identical fungal metaphor in *kuldhi zamin.*

There must be many such terms that have escaped the nets of word-collectors. For metaphorical usage in the reverse order we find ample documentation, notably in the *langne verte* of France as captured and delicately served up in Alfred Delvau's *Dictionnaire Erotiaue Moderne,* an undated work published in Bale. To one Alexander Pothey he ascribes this ditty on the *champignon de couched*

Si son champignon Ressemble
a son piton [nose], Quel
champignon -gnon, -gnon,
Qu'il a, Gandon -don, -don!

In the early days of motor cars the accelerator was called in French a *champignon,* and 'to step on the gas' was *ecraser le champignon,* an expression that French gentlemen hesitated to use in the presence of ladies.

As for la chandelle, elle brule, elle coule, et ensuite elle fond. It is noteworthy that in this erotic sense, only *chandelle* is used and never *bougie* nor *cierge.* Thus when a Frenchman with generous courtesy disclaims knowledge of an alleged adulterous liaison, he is almost certain to remark that il ne tenait pas la chandelle - an observation that refers to either of two degrees of intimate knowledge. Shakespere knew well this double meaning. In *The Merchant of Venice* Lorenzo addresses his mistress:

Descend, for you must be my torch-bearer. To which that

provocative minx Jessica, fully alert, replies: What, must I hold a

candle to my shames>

That same candle burns fiercely when Falstaff erupts with his thunderous pasan to carnal love in the *Merry Wives,* which he rounds off with a staggering line:

Send me a coole rut-time, Jove, or who can blame me to pisse my Tallow >

I. Is it by coincidence that 'conk' means 'nose' in American slang, and 'shelf-fungus' in the parlance of American woodsmen? See Note i, page 128.

The burning tallow-candle is the symbol of office carried by Robin Goodfellow when he enters upon the nocturnal rites of his coven, as is shown in the woodcut that we have reproduced on an earlier page. Who can hold a candle to this proud Devil?

A proverb dating back to ancient Rome and Ennius observes that when a lantern gives light to a candle, the giver by the gift is made none the poorer. Innocent in itself, this old saw takes on an erotic sense when Chaucer's Wife of Bath in her *Prologue* admonishes her doddering husband not to begrudge her dalliance with other men. Here the candle is phallic and the lantern is the 'queynte' or pudendum:

> For, certeyn, old dotard, by youre leve,
> Ye shul have queynte right ynogh at eve.
> He is to greet a nygard that wolde werne [forbid]
> A man to lighte a candle at his lanterne.

Let us revert to Pothey's suggestion about Gandon's *piton.* He was echoing an ancient folk-belief general in Europe and also in America:

> Regarde au nez et tu verras combien Grand
> est celui qui aux femmes fait bien. Regarde au
> pied pour au rebours connaitre Quel le
> vaisseau d'une femme doit etre.

Thomas Wright in *A History of Caricature and Grotesque in Literature and Art,* published in London in 1875, reproduced the figure of a Roman *mimus* as preserved for us in an engraved onyx. A vulgar character given to indecent roles in the low comedy of the time, the *mimus* in this case is adorned with a pendulous nose that speaks eloquently for its lengthy alter ego, and in his whole get-up he seems intended to illustrate the quatrain found in Delvau:

> CEil etincelant, Doigt
> vif et galant, Nez de
> bon augure Et bonne
> figure.

Let no reader balk at these baudy citations, for they serve only to confirm the continuing vitality of the layers of meaning that we suggest for Pliny and Pausanias, and that without these citations might appear to secluded scholars both tenuous and wilfully indelicate. All things sprout from the μύζα and the μύκης, in union with σήπτα.

Yes, σήπτα, the Greek word that has given us the Spanish *seta* and we think the French *cepe,* words whose primary fungal meaning was the boletus edulis.

Corominas in his note on *seta* pointed out that in widely scattered parts of Spain it has also designated the cunnus.[1] We suspect that in this sense also *seta* goes back to an original Greek usage, and that σήπτα stood symbolically for the female counterpart of the μύκης, 'cep' and 'morel' being sexually complementary. Under its swarthy mons the cep when heated turns soft and yields a mucoid exudate. In the fungal vocabulary of the Gascons we discover the same obscene figure of speech, though a different word is used. This pejorative term is for the boleti that turn blue on exposure to air. Professor Jean Seguy in his Gascon linguistic map 201 reports it as *kunsanmas,* and behind the face of this strange word he discovers *cunnu sagma,* which in French would be *con d'anesse.*

We are far from having exhausted the complex of interrelated meanings. In various parts of Spain *seta* carries the sense of 'swollen lips', 'snout'. With the other erotic meanings before us, we suggest that it is impermissible innocence not to see in these lips the labia majora and ring.[2]

In Middle Flemish there was a word *sete* that was used in the oath *bi Cools sete,* 'by Nick's arse', corresponding to the Old French *por le cul lien.* Apparently the origin of the Flemish word has not been determined. When we have in mind the sexual associations of the cep in Spanish and the obscene association that Clusius pointed out in Magyar, we suggest that the Flemish word is another semantic extension of our mushroomic word, with a scatological rather than an erotic emphasis.

In Old French we also find a word *sete.* It survives in seven or eight citations. Its meaning has never been certain. It was used always as a simile for stench: the leper's boils stink like *sete.* In recent years several scholars have examined the word and suggested that it might mean 'excrement' or 'latrine' or 'privy seat' or 'arse'. One of them linked it with the Flemish word. Surely here also we discover our mushroomic word, in its scatological phase. If we are right, the word was circulating in French seven centuries ago, disappeared, and then re-entered as *cepe* in the i8th century.[3]

Today in southern Europe the fig is used metaphorically as the boletus edulis

1. For an analogy among the Quiche Indians of Guatemala, see p. 280.
2. The basic Slavic word for mushrooms, which survives in Russian *asguby,* means 'lips' in that language today, with *gubka* meaning 'sponge'. The primary sense of 'mushrooms' also lingers on, but for this meaning *griby* is ordinarily used in the standard language.
3. For our case to be valid, the value of the vowel in Old French *sete* must have been *e,* and this is what it was. We know this by the variant spellings *seite* and *sette* in the mss. We also know it by the words with which it was made to rime in verse :fete from Latin/arfwm, degete from Latin jactare, neste from Latin nitidus. We postulate the missing π of σήπτα. For discussions of Old French sete see Erik von Kraemer's critical editions of two 'Miracles' of Gautier de Coinci, Du dcrc *quifatne espousa et puis la lessa,* 1950, p. 114, and *De la bonne enpercris qui garda loiaument sen manage,* 1953, pp. 244-5, both published in Helsinki in the *Annales Academics Sdentiarum Fennicce;* also see the review of the latter in *Speculum,* Jan. 1955, p. no, by Professor Urban T. Holmes.

used to be. To the mushroom and fig we must add the third of the trinity, the medlar, that fruit which is properly enjoyed only when rotten ripe. Down to Shakespere's time it was known also as the openarse, a name that survives in dialectical use until now. Shakespere played with the words in what are perhaps his most scabrous lines, in Act n, Sc. i *of Romeo and Juliet,* the lines that are said to have prompted Logan Pearsall Smith, in his little book on Shakespere, to exclaim how lucky it was that only specialists sensed the range and depth of Shakespere's indecencies:

> 'He can't mean that', the shocked reader cries out; but oh, my dear reader, he does mean it, and his meaning, if you are a nice person, will make you blush all over.
>
> *[On Reading Shakespeare,* p. 9]

But Shakespere was not inventing his imagery. He was drawing on a fund of erotic symbolism of immemorial antiquity. In English the word 'medlar' was re-shaped to pun with the verb 'to meddle', in the erotic sense now little used; but etymologically medlar was identical with the French *nefle* and the Spanish *nispero,* and all three descend from the Greek μέσπιλον, where the philologists stop, saying they find no earlier root. But surely the Greek word, broken down into its two elements, incapsulates our same erotic metaphor, meaning 'amidst the hair', where the second element, πιλον, is the word that comes down to us in the mushroomic 'pileus'. Just as the erotic association of the boletus edulis seems to have passed over to the scatological in Flanders and France, so the *nefle* becomes the *cul-de-chien* in the east of France.

When Corominas hit on σήπτα as the etymon for *seta,* he may not have divined the nest of felicitous semantic associations that support his discovery. The Greek word belongs to a cluster that includes σηφ, the designation of a poisonous serpent. The Greeks believed that mushrooms and serpents and the holes of serpents had an affinity for each other, just as the peoples of northern Europe link mushrooms with toads. In the Dorian dialect we discover the variant σάπω, identical phonetically though not semantically with the Spanish word for 'toad', *sapo.* We submit that just as the Italian *scorzone,* 'poisonous serpent', gives us the Spanish *escuerzo,* a second word for 'toad', so the Greek word offers us a parallel herpetological metamorphosis.[1] The snake-mushroom association of Greece and

i. The philologist Meyer-Lubke in his *Romanisches Etymologisches Wortenuch* dismisses out of hand σάπο as an etymon for Sp. *sapo,* but perhaps here, as elsewhere, his fiat calls for re-examination. The obstacles to our etymology are two-fold, phonological and cultural. (In Spanish the names of plants are often of Greek origin, but not animals.) But philologists should give full weight to the *mana* in which all words relating to toads were bathed in the early centuries, and such words, subjected to pressures of *tabu,* commonly exhibit irregular word-histories. Until the philologists find positive evidence favoring an alternative etymology, they should not close their minds to the semantically felicitous Gr. σάπω. Whether the Basque *apo,* 'toad', is borrowed from Spanish or (as Karl Bouda surmised) is related to apxw, the word for 'frog' in the Caucasian language known as Svanetian, need not conceni us here.

the Indie world, with all its baggage of associations, becomes the toad and toadstool glyph of the West. With all these symbols woven together, we are hardly surprised when we discover that Emile Boisacq in his Greek etymological dictionary links the Greek words that we are now discussing with the Sanskrit *kydku,* 'mushroom'.

As for phallic 'noses', surely nowhere in literature is there another such apostrophe to them as Laurence Sterne composed in Part iv of *Tristram Shandy,* along with the chapters that lead up to and away from that noble excursus. Here indeed is a savory dish of salacious mushrooms, a display of candles enflamed. The baby Tristram, we learn, had got his 'nose' smashed at birth, whereupon his father, all disconsolate, had embarked on an exhaustive study of'noses' and their sizes. He read Erasmus, with scant satisfaction, and then turned to the authors that had concentrated on his topic, to wit, Prignitz, Scroderus, Andrea Paraeus, Bouchet's *Evening Conferences,* and finally the unrivalled Hafen Slawkenbergius, who in the course of his stupendous opus pauses at one point to recall how for a full month all Strasbourg, both the Lutheran and Catholic factions, had once been set by the ears because of a certain long 'nose' and the awe and incredulity with which everyone, of every age, in every walk of life, of low and high degree, viewed its dimensions.

In a paragraph of concise and damning irony Tristram describes the monumental 'nasal' monograph of Slawkenbergius, and what he says causes us to tremble, for his words are equally applicable to this our own beloved treatise. If the reader will substitute us for Slawkenbergius, and mushrooms for the noses that are their metaphorical synonyms, he will learn what we consider a truthful and humiliating appraisal of our own enterprise:

> And to do justice to Slawkenbergius [says Tristram], he has entered the list with a stronger lance, and taken a much larger career in it than any one man who had ever entered it before him, and indeed, in many respects, deserves to be ennich'd as a prototype for all writers, of voluminous works at least, to model their books by - for he has taken in, Sir, the whole subject - examined every part of it dialectically - then brought it into full day: dilucidating it with all the light which either the collision of his own natural parts could strike - or the profoundest knowledge of the sciences had impowered him to cast upon it - collating, collecting, and compiling - begging, borrowing, and stealing, as he went along, all that had been wrote or wrangled thereupon in the schools and porticos of the learned: so that Slawkenbergius his book may properly be considered, not only as a model - but as a thorough - stitched DIGEST and regular institute of *noses* [that is, *mushrooms],* comprehending in it all that is or can be needful to be known about them.

CHAPTER FIVE

Defying Tristram, we return to trie 'long nose'. When a German macht eine lange Nase, he is doing what a Frenchman does when the latter fait un pied de nez, for in this expression the Frenchman speaks not of a pedal extremity but of twelve good inches and true. For the same rude gesture the Englishman says that he cocks a snook, and the American thumbs his nose. On July 4, 1936, a certain Nazi official known as Herr Greiser drew world attention to himself by thumbing his nose at the League of Nations in Geneva. The correspondent Vernon Bartlett in his dispatch to the London *News Chronicle,* using the English idiom, declared baldly that the man had 'cocked a snook'. There followed a lively discussion in the British press. Winston Churchill used the vulgar term in Commons, and thus it gained a nosehold in Hansard. For a month readers of *The Times* addressed letters to their editor about the episode and the gesture, letters urbane and amusing, but sadly genteel. Only the most knowledgeable and perceptive reader could have detected the obscene inspiration of the antique gesture. Yet in those circles where low words pass as common coin, the fleeting passage of thumb and fingers across the nose finds its natural accompaniment in two terse English syllables that tell the story. Here once more we come up against that *chandelle,* that *champignon, that pied de nez,* of the vulgar Roman mimus. The 'snook' is a pendulous appendage. From the main body of the Holy Isle of Lindisfarne there stretches out a lengthy promontory, and we understand, when we look at the chart, why the Northumbrian folk know that promontory as 'The Snook'. He who cocks a snook cocks a 'nose'.

If there be those who are sceptical of this meaning, let them read Chapter xix of Rabelais' *Pantagruel,* wherein Panurge and the Englishman engage in a unique colloquy. As neither speaks the other's language, the conversation goes forward with gestures, in the presence of the villagers, who follow it with rapt attention and the enjoyment that is the proof of understanding. Panurge starts off by cocking a snook at the Englishman, who replies in kind. Never have there been more eloquent performances of the ancient sign, nor description thereof put on paper with such solemn elaboration of detail. Here is Rabelais' text, which we offer with only one further comment: where Rabelais speaks of *la pinne du nez,* W. F. Smith in his admirable translation hit on 'the gristle of the nose', an inspired rendering, since in certain English dialects 'gristle' means 'nose' and also the *membrum virile:*

> Panurge soubdain leva en 1'aer la main dextre, puis d'icelle mist le poulce dedans la navire d'icelluy coste, tenant les quatre doigtz estendus & serrez par leur ordre en ligne parallele a la pinne du nez, fermant 1'ceil gausche entierement, & guignant du dextre avecq profonde depression de la sourcille, et paulpiere. Puis la gausche leva hault, avecques

fort serrement & extension des quatre doigtz & elevation du poulce, & la tenoit en ligne directement correspondante a 1'assiete de la dextre, avec distance entre les deux d'une coubdee & demie. Cela faict, en pareille forme baissa contre terre 1'une et 1'aultre main: finablement les tint on milieu comme visant droict au nez de 1'Anglois.

. . . Lors feist 1'Anglois tel signe. La main gausche toute ouverte il leva hault en 1'aer, puis ferma au poing les quatre doigtz d'icelle, & le poulce estendu assit sus la pinne du nez. Soubdain apres leva la dextre toute ouverte, & toute ouverte la baissa, joignant le poulce au lieu que fermoit le petit doight de la gausche, & les quatre doigtz d'icelle mouvoit lentement en 1'aer. Puis au rebours feit de la dextre ce qu'il avoit faict de la gausche, & de la gausche ce que avoit faict de la dextre.

Panurge suddenly raised in the Air his right Hand, then placed its Thumb within his Nostril on that Side, holding his four Fingers extended and closed in their order in a Line parallel with the Gristle of the Nose, shutting the left Eye entirely, and blinking with the right with a profound Depression of the Eyebrow and Lid; then he raised the left Hand aloft with hard Clinching and Extension of the four Fingers and Elevation of the Thumb, and he held it in a Line directly corresponding to the Position of the right Hand, with a Distance between them of a Cubit and a half. This done, in like form he lowered towards the Earth both one and the other Hand; lastly, he held them in the Midst as though he were aiming straight at the Nose of the Englishman.

Then the Englishman made a Sign like this: His left Hand wide open he raised high in the Air, then closed into his Fist the four Fingers thereof, and placed the Thumb extended on the Gristle of his Nose. Suddenly afterwards he raised the Right wide open, and while wide open lowered it, joining the Thumb at the Place where the little Finger of the left Hand closed, and the four Fingers thereof he moved slowly in the Air; then reversing them he did with the Right what he had done with the Left, and with the Left what he had done with the Right. [Translation by W. F. Smith]

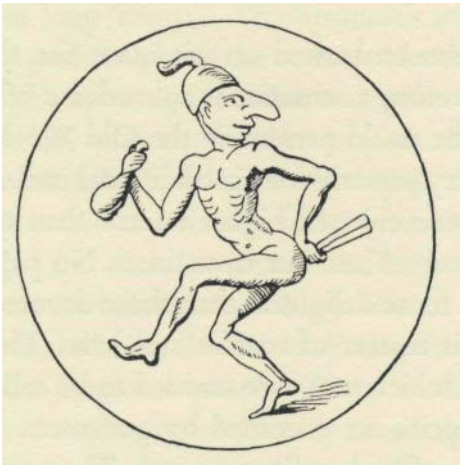


Fig. g ROMAN TOM FOOL

II *THE SECRETS OF THE TRUFFLE*

It might seem that by now we had exhausted the erotic imagery of the fungal world, wherein fire, mucus, noses, candles, and mushrooms dance together in a throbbing surrealist fandango, the whole obscene performance conducted inside the uterine envelope of the primeval *gamba.* But not so. We have yet to speak of truffles.

The Greeks used various words for underground fungi, but we think we can prove that the ὑδνον was our truffle. In the Morgan codex of Dioscorides there is a miniature accompanying the section on the ὑδνον that gives us our earliest pictorial representation of a *tuber* buried in the earth, and an excellent representation it is.

The truffle in Latin was the *tuber,* which took the form of *tufer* in an Oscan or Umbrian dialect. The Romans knew various kinds of *tuber.* The most esteemed were from Africa, and were probably not true truffles but an underground fungus known to science today by the name of terfezia. From the Latin word came the French *truffe,* the Spanish *trufa,* and the English 'truffle'. From a form supposed to have been *terrae tufer* the Italians arrived at the modern *tartufo* and a diminutive *tartuffola.* The surprising thing is that this last word turns up in German as the name for the potato, *Kartoffel,* and from there spread eastward throughout the Slavic lands, until today half of Europe calls the potato by the word that originally meant 'truffle'! In our view the explanation for this curious transfer of meaning lies in the preoccupation with aphrodisiacs of i6th century Europe.

When Ponce de Leon embarked on his quest for the Fountain of Youth, he was bent on discovering a sensational aphrodisiac of lasting virtue. What a prize would be his if he could present to the Old World a miraculous bath to supersede all the amatory prescriptions in traditional use! Among those traditional inciters to venery none enjoyed higher esteem than truffles, and indeed this reputation of theirs survives into our own times. No pages in Brillant-Savarin's *Physiologic du Gout* are more delightful than those devoted to a judicial weighing of the evidence in this matter of truffles and love. There are many kinds of subterranean fungi, of which some are entitled to be called truffles; and of these true truffles, a few species are esteemed by gourmets. In Spanish, *trufa* is the name given to a truffle of high culinary worth. There are two other terms used generally for the underground fungi: *turma* and *criadilla de tierra.* These are both interesting, expressing as they do the aphrodisiacal virtue attributed to the whole

tribe of underground fungi. *Turma* in Catalan means 'testicle', and in Spanish it means both 'testicle' and 'truffle'. It is an old word, probably of pre-Roman origin, coming down from the same Indo-European root 'tu' that gives to Latin *tuber* and *tumor,* the idea of organic swelling being inherent in them ah[1]. *Criadilla* is the standard word in Spanish for 'testicle'. It is the word used for lamb's fries, the French *amourette.* The Spaniards' words for the truffle reveal the precious virtue that these earthy growths were supposed to possess.

Immediately after the Spaniards fell on America in the idth century, they discovered in the New World first the sweet potato[1] and then the potato, the *batata* and the *papa.* They found the *batata* in the Antilles, probably in Hispaniola: the word first appears in 1516, a borrowing from the Taino Indians who were then living in the Greater Antilles and Bahamas. (Their name should he pronounced in three syllables, as though written 'Taino'.) The Tainos deserved a kinder fate than was theirs: they and their language are now dead these many generations, and few today know even the tribal name of these first victims of the invaders from Europe. The Tainos possessed a tongue belonging to the Arawakan family of Indian languages, which were spoken by tribes scattered at the time of the Conquest all the way from Florida and the Bahamas on the north through the Greater Antilles and across the tropical belt of South America as far south as what is now known as Matto Grosso. These Tainos of the Islands were a gentle folk: they seemed to lend verisimilitude to the medieval dreams of a Golden Age, and gave impetus to the notion of the Noble Savage that was destined to captivate intelligent men in the Age of Reason. The blameless Taino cultivated sweet potatoes and maize, smoked tobacco, slept in a hammock, and plied the sea ways in long 'canoas'. The Spaniards remarked on the uniformity of the Taino language throughout the various Islands - clearly in the Taino world the sea was a highway to speed communications and not an insulating barrier. Today even scholars often confuse the winsome Tainos with their ferocious enemies, known variously in the idth century as the Caribs or Calibs or Canibs, a race of savage warriors who when the Spaniards arrived had already seized the Lesser Antilles and were harassing the Tainos on the larger islands. The Europeans quickly overwhelmed them both. But all unawares, by a natural filtering of the Indian vocabularies, the world distinguishes to this day between these two lost and almost forgotten peoples. From the language of the Tainos we possess a legacy of five common and friendly words: potato, maize, tobacco, hammock, and canoe. From the Canibs came our 'cannibals', and the bestial

I. We are familiar with the evidence indicating prior knowledge of the sweet potato in Polynesia, which has stirred up discussions that do not concern us.

Caliban whom Shakespere placed in the still-vex'd Bermoothes was the literary scion of the Calibs.

The Tainos certainly did not attribute aphrodisiacal powers to the *batata* or sweet potato. They could not have been under illusions about this humble vegetable, so commonplace for them. But the Spaniards, obsessed by the idea of aphrodisiacs, were quick to discover in the *batata* a new and more potent truffle. (Were they under a temptation to hold the novel food to blame for their excesses with the native womenfolk?) A few years later they discovered the white potato in the Andean highlands, the *papa* as it was called in Quechua, the language of the Inca and his people. Now the story repeats itself: Agustin de Zarate, in his classic account of the conquest of Peru, published in 1555, informs his readers that the white potato is like the *turma de tierra,* 'earth's testicle', the truffle of precious virtue:

> ... y los indios comen unas rakes que llaman *papas,* que son de hechura y aun casi sabor de turmas de tierra. . . [BOOK, in, Chap. 12]

This work was promptly translated by Thomas Nicholas and published in London in 1581. Since truffles were unknown to the English, we were eager to see how the excellent Nicholas met his difficulty in rendering the sentence where they are mentioned:

> ... The Indians of this province eateth certaine Rootes called *Papas,* whiche are verie like bothe in makynge and taste Turnepes.

How the humble turnip is here exalted, and the truffle humbled! Were truffles ever so grossly maligned before or since?

Shortly after the batata, the Spaniards brought back from the New World the white potato, and from Spain it reached Italy before 1588, where it was called *taratouffli,* the Italian word for 'truffles', a translation of the Spanish name but without the strong erotic association of *turmas.* Quickly thereafter it appeared in the Low Countries, Switzerland, and Germany, and then in France. It arrived in England after the sweet potato but before the end of the century. The two vegetables became deeply entangled in verbal confusion. In Spanish-speaking America the white potato is widely known to this day as the *papa,* a name clothed with all the rights of chronological and topographical primacy. But this word took no hold in Europe and batata served for both vegetables, finally in England attaching itself for good to the wrong plant. The Spaniards compounded the confusion by also bestowing on the new vegetables their own name for truffles. To this day in some parts of Colombia potatoes are *turmas* or

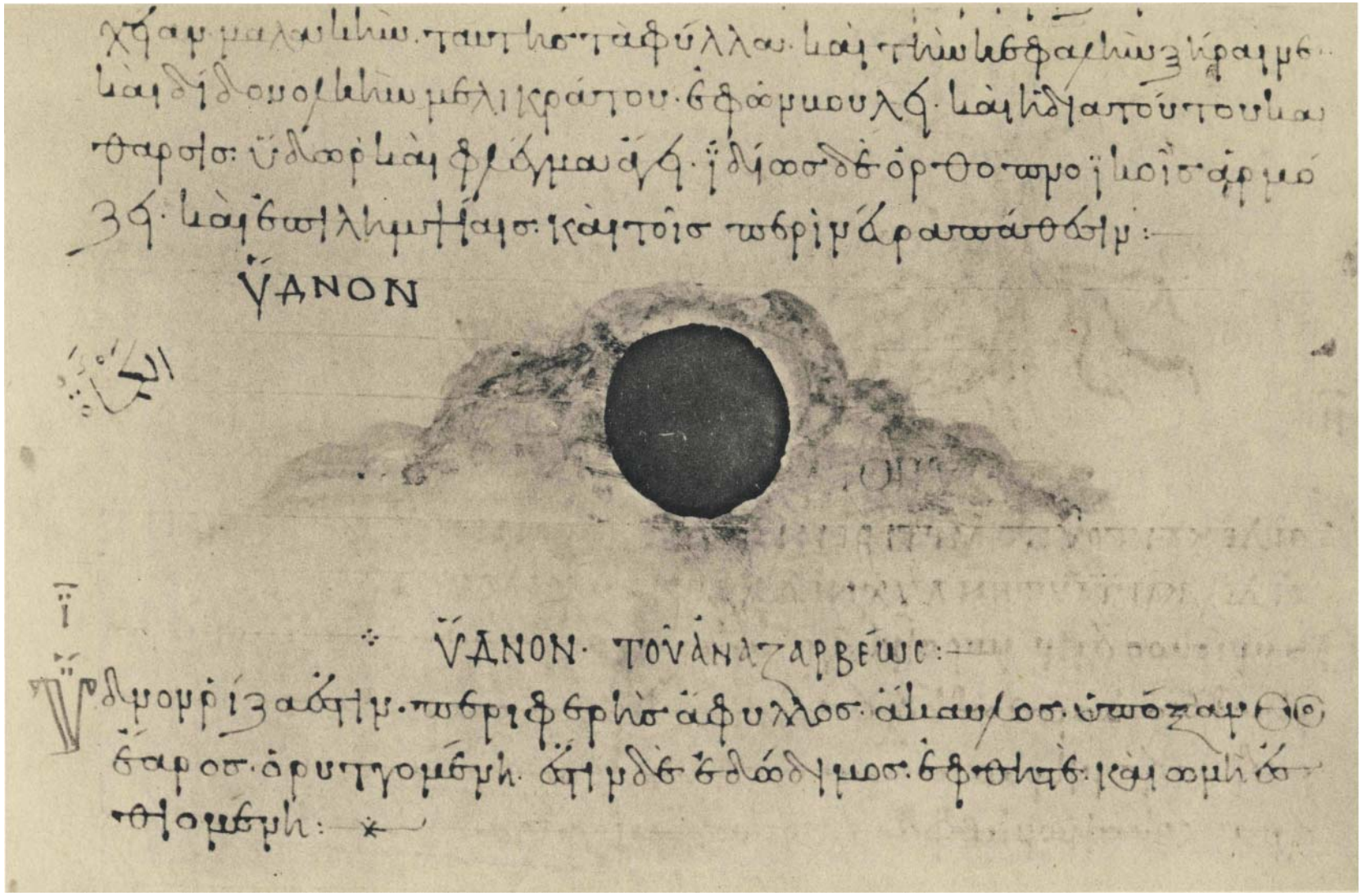


PLATE XXXII. Tuber. Miniature from a 10th century Byzantine codex (No. 652) of Dioscorides.
New York, The Pierpont Morgan Library.

'testicles', and in Spain they were known as *criadillas* and *trufas.* In the dialect of Aragon *trufa* has been reported in the form *triunfa* - a popular malformation that suggests the amorous triumph assured to the hopeful consumer *of criadillas.*[1]

For a time potatoes remained a rarity, priced high in keeping with the virtue attributed to them. Their appearance in England points up a curious cultural phenomenon. Reaching England by way of Spain, both kinds of potatoes while in transit assumed like changelings the amatory reputation of the truffle. Thus it came about that England took delivery of America's gifts with a Spanish billing, never suspecting that the humble vegetables from the New World were now sailing on a false invoice, their genuine virtues lost from view in the resplendent aura befitting a newly discovered and miraculous aphrodisiac.

The craze for aphrodisiacs seized England too. Falstaff in *The Merry Wives of Windsor* invokes them. "Let the skie raine Potatoes", he exclaims, and "haile kissing-Comfits, and snow Eringoes", these latter being the candied root of the sea-holly, known to science as the eryngium maritimum. Caviar in Elizabethan times was yet another erotic stimulant, as Sir John Harington, godson of the Queen, reminds us in his unabashed epigram 'Against an Old Letcher':

> Since thy third cariage of the French infection
> Priapus hath in thee found no erection: Yet eatst
> thou Ringoes, and potato Rootes, And Gaueare
> [caviar], but it litle bootes. Besides at thy beds-
> heads', a bottle lately found, Of Liquor that a
> quart cost twenty pound.
>
> For shame, if not more grace, yet shew more wit,
> Surcease, now sinne leaues thee, to follow it. Some
> smile, I sigh, to see they madness such That that
> which stands not stands thee in so much.

Those 'potatoes' in Shakespere were certainly sweet potatoes; in Harington, we are not sure.

For almost a thousand years after the fall of Rome, there seems to be no mention of truffles in surviving documents.[2] In the I3th century Albertus Magnus

1. We are indebted to Professor Juan Corominas for the etymology of *turma.* For the early usage of names for potatoes and sweet potatoes, there is a beautiful monograph by Pedro Henriquez Urefia, *Para la Historia de los Indigenismos,* published by the Institute de Filologia, under the auspices of the Facultad de Filosofia y Letras of the University of Buenos Aires, 1938, to which Professor Yakov Malkiel called our attention. See also entry under *Criadilla* in C. Torres Fornes' *Sobre Voces Aragonesas usadas en Segorbe,* Valencia, 1903. But neither Henri quez Urefia nor Torres Fornes mentions the erotic theme injected into the potato nomenclature by the Spaniards. The early references to the potato in the herbals are fully discussed by Redcliffe N. Salaman in his *History and Social Influence of the Potato,* Cambridge University Press, 1949.
2. We except of course the references in copies of the ancient authors. The reference in the *Etymologies* of St. Isidore of Seville is no more than a repetition of ancient sources.

speaks of them in *De **Vegetabilibus,*** but hesitantly and vaguely, and without reference to aphrodisiacal properties. This vagueness seems not to have been accidental. In the *Hortus Sanitatis,* printed in Mainz in 1491, the artist who made the woodcuts showed more courage than discretion when he illustrated the section on the *tuber.* Never has there been a more grievous misrepresentation

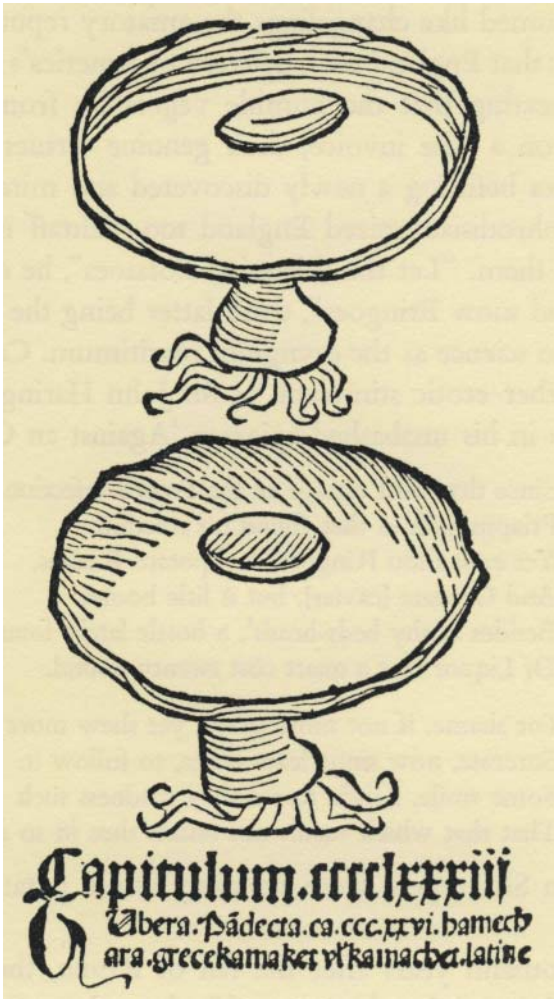


Fig. 10
From *Hortus Sanitatis,* Mainz, 1491.

of a fungus. We know not whether Albertus Magnus and he had never seen a truffle, or whether, knowing truffles, they failed to identify them with the Latin *tuber.* In the earliest of printed cookbooks, *De Honesta Voluptate,* published in Rome in the middle 1470'$ and attributed to Bartolomeo de' Sacchi called Platina, there is a short section on truffles. The author speaks of those that come from Africa and the Near East, and then he refers to the species that sensual men of fashion consume to whet their appetite for love-making. With an amusing lack

of humor he goes on to observe that if this is done for procreation, it is praiseworthy, but if for debauchery, as is the case (he says) with many idle and intemperate persons, it is to be altogether despised. No trace of scepticism diluted the faith of this author in the peculiar virtue attributed to truffles. Doubtless there are earlier references to these as aphrodisiacs, but we have not come upon them.

By the i6th century the fashion for truffles was at its height. They reached this peak of esteem at the moment when potatoes arrived from the Andes, via Spain. The two were confused in Spain, as we have seen, and it is hardly surprising to find that they came to be confused in France, Italy, and Germany. *Tartufi bianchi* has been an alternative designation for potatoes in Italy down to recent times, a use of *tartufo* that is facilitated by the supremacy in Italy of a white truffle, the tuber magnatum. This is the truffle that in Italian restaurants is commonly served raw, in thinnest slices. It suggests the flavor of garlic, but unlike garlic does not repeat itself. Across the Alps in the Dauphine, the peasants in their patois have been reported in modern times as using the term *triffe niere* to designate both the truffle and a kind of potato with a purplish flesh.[1] In Germany there is a common fungus, with white flesh, about five inches in diameter, that grows either half-buried or just under the ground in oak forests. It is aromatic and edible, and mycologists know it as the choiromyces meandriformis - the meandering pig-fungus. It looks like a potato, and the initial confusion between the familiar fungus and the novel potato must have contributed to the permanent hold of the word *Kartoffel* in Germany, whence it spread with the potato in due course to Scandinavia and the Slavic lands. In turn the Russians carried the word across Siberia and to the Eskimos of Alaska, where in various dialects of the Eskimo language we find the potato of the Andes called by names that reach straight back to the *tuber* of Pliny: *kaltu:jilaq* and *kaltu:Jaq* and *kaltuvaq* and *kaltu:xaq?*

That initial confusion of potatoes with truffles which began in Spain in Renaissance times has never completely died. Van Sterbeeck surprises and amuses the modern reader when in his *Theatrum Fungorum,* a work exclusively dealing with fungi published in 1675, he devotes a section to potatoes and other members of the nightshade family! If the reader will examine again the frontispiece to Van Sterbeeck's book, which we reproduce on Plate XXVIII, he will discover among all the mushrooms one basket that is spilling potatoes on the ground. In

1. See *La Truffe,* by Adolphe Chatin, Paris, 1892, pp. 303 ff.
2. See L. L. Hammerich's paper on 'The Russian Stratum in Alaskan Eskimo', *Slavic Word No.* 3, Dec. 1954, published by The Linguistic Circle of New York, p. 409.

Russia down into the present century the Old Believers of the Moscow region were still rejecting potatoes, which they would spurn as *sobach'i mude,* dog's testicles; this was recorded in 1915 by Roman Jakobson in the neighborhood of Vereja. We discover the same associations lingering on in certain metaphors current in Spanish America, but here we arrive at the inner meaning only by a series of transitions. The Spaniards thought truffles were aphrodisiacs, and they considered sweet potatoes, the *batatas* of the Antilles, a superior truffle. The word *batata* never spread much on the American mainland, where sweet potatoes came to be called *camotes,* the name for the vegetable in Nahuatl, the language of the Aztecs. Today in many parts of Spanish-speaking America *camote* is a metaphor used for 'being in love'. It also means a lie or exaggeration, and thus recalls the disillusion of those who relied on the virtue attributed to the sweet potato.[1] Finally, the old error, fossilized, persists to this day in circles where one might least expect it: botanists and mycologists use the word 'tuber' for both potatoes and truffles, thus embalming in their unhappy nomenclature the hoary blunder.

There is a tradition that the vogue of the truffle in France and Italy came from Spain during the Renaissance, and that it attained its exalted place on the tables of the mighty in the reign of Francois I. It certainly soared to new renown in the 16th century, but the survival in France and Italy of the local names derived from the Latin *tuber* is evidence that on humbler and less articulate levels the truffle had not been wholly forgotten in the silent centuries reaching back to Roman times. In Paris, however, the truffle was adorning only the most aristocratic tables down almost to the French Revolution, Brillat-Savarin asserts that the

> revival of the truffle is quite recent. . . One can even say that the present generation has almost witnessed it. Toward 1780 truffles were rare in Paris, to be found, and then in small quantities, only at the Hotel des Americains and the Hotel de la Provence. A turkey stuffed with truffles was a luxury to be found only on the tables of the great, or in the homes of kept women ... At the moment when I write these lines [1825] one can say that the glory of the truffle has reached its apogee.

With the rise of the bourgeoisie following the French Revolution, new layers of society acquired a taste for the delicacy and by their demand for it brought about an immense increase in the harvest. In the i6th century various kinds of truffles had competed for favor in France, but by Brillat-Savarin's time the tuber melanosporum of Perigord had established its primacy and become perhaps

I. The metaphorical meanings of *camote* are cited by Hennquez Urefia in his monograph to which we acknowledged our indebtedness in a footnote on page 169, but he does not try to explain those meanings.

the supreme delight of the haute cuisine. Meanwhile that other tuber, the potato, thanks to the ingenious and bold promotion of the famous Antoine-Augustin Parmentier, had finally, in the lyyo's, gained acceptance as a worthy food for a gentleman's table in France.

The reputation of the truffle as an erotic stimulant has an elusive history. This reputation was certainly endemic in Spain, expressing itself as it did in the names *criadilla* and *turma.* The culture of the Iberian peninsula is strong in archaic traits, and this would suggest that the peculiar repute of the truffle goes back far. We have not arrived at the indigenous names for the truffle in the other Indo-European languages, such as those of India. In the Sind, as an example, there is a fungus that in Sindhi is called *saitan jo pelo,* Satan's testicles. But we know not its identity: is it a truffle?

Perhaps the Spaniards in their century of great influence were responsible for spreading the belief that truffles were aphrodisiacs. This is a tempting hypothesis. Yet there is certain subtle evidence suggesting that an indigenous tradition of the same kind prevailed in Central Europe, notably in Germany and Bohemia.

For centuries the hunting of the stag in Europe was the noblest expression of the chase. This stag was the male of the red deer. Norman Douglas in *Paneros* has pointed out that the genitalia of the stag were coveted as precious inciters to venery. Now here is an interesting fact that Douglas did not know: there exists an underground fungus distinct from the truffle that is called in German the *Hirschtruffel* - the stag's truffles. In English botanical works already a century ago it was called 'hart's truffle', and also 'hart's balls' and 'deer balls'. The corresponding names in French and Spanish are *truffe du cerfznd criadilla de ciervo.* We have no evidence that these words circulated outside the covers of books: they could be bookish renderings of the German term. One should look for such terms in the vocabulary peculiar to traffickers in aphrodisiacs and their clientele, and source materials for this dubious area of cultural activity have eluded us. We suspect that our hart's truffles would be found therein. The scientist's name for this genus of fungus is a scientist's neo-Greek rendering of the German name: elaphomyces.

As to the ripe age of the German name there can be no doubt. Before 1544 Valerius Cordus, in his *Adnotationes,* commented most curiously on the stag's truffle. Truffles were thought to be earth's testicles and aphrodisiacs, and the stag's testicles were also aphrodisiacs. From this it was only a step to suppose that the underground fungi were generated from the spilled seed of stags! Here is a pretty illustration of the way men's minds work by false analogies, taking figures of speech literally. But this is not all. Why were these underground fungi

related to the genitalia of stags and no other animals > We believe that beneath the surface of the words of Valerius Cordus we detect a further punning analogy, a foolish confusion caused by homonyms, and yet a confusion possessing a certain extraordinary iridescence.

There are two words spelled Venery' in English. One of them is derived from 'Venus' and means sexual lust. The other is derived from the Latin *venari,* meaning 'to hunt'. In sound these two words run parallel to each other throughout the Romance languages and medieval Latin. Indeed, when we go back behind Latin, we discover that both words, Venus and *venari,* descend from the same root, a root cousin to the English verb 'to win'. He who pursues and brings down the game is engaged in the same order of activity as he who brings down a mate. 'Venery' in its application to the chase relates to the noblest kind of hunting, the coursing of the stag. And this leads us to suggest the play on words that probably explains the kinship of truffles to stags. The aphrodisiacal truffles in the earth are earth's testicles, fruit of the stag's truffles, and both are shot through with venery. Venery in both senses loomed large in the consciousness of the 16th century European. We suggest that this common denominator of the homonyms, albeit unexpressed in the text of Valerius Cordus, was in the back of his mind, consciously or unconsciously, as he wrote out his quaint observations about hart's truffles:

Pharmacopolse etiam in suis OfEcinis Fungos habent, quos Boletos et Fungos ceruinos vocant. Ferunt eos in sylvis ex semine cervorum enasci, et propterea Venerem stimulare: sed falsum hoc est. Inueni enim hos Ceruinos fungos in prseruptissimis montium syluis, quo ne Damae et Rupicaprse quidem peruenire possent, nedum cerui. Nee verisimile est eos venerem stimulare, cum frigidum, pituitosum, crudum, et malignum succum in humane corpore gignant. Quae enim Venerem accendere debent, contrarias facultates et qualitates habere necesse est.

Apothecaries, in fact, have in their establishments fungi which they call boleti and stag fungi. They say that these originate in the woods from the seed of stags, and hence excite the sexual impulse; but this is false. For I have found these stag fungi in the densest mountain groves, which not even fallow deer and chamois could reach, not to mention stags. Nor is it likely that they excite the sexual urge, as they engender cold, phlegmy, raw, and evil humor in the human body. Things that are to inflame the sexual impulses must have opposite faculties and characteristics.

Cordus, who was German, was writing this passage shortly before 1544, the year of his premature death. His text does not suggest that the lust-inciting virtue attributed to the fungi was a novelty for him, nor foreign in inspiration. He was clearly challenging a tradition native to his German world. But Cordus,

Fig. 11 THE HORNED GOD. Prehistoric painting of a man disguised as animal. Caverne des Trois Freres, Montesquieu-Avantes, Ariege, France.

steeped from his earliest years in the New Learning, was far removed from the well-springs of the primitive beliefs of his race. Perhaps he was revealing the innocence that often goes with education when he labored his point about the stags in the mountain groves. Did not the erotic names for the truffles refer rather to the Horned God of the pagan world? In 1920 the Abbe Breuil and Count Begouen published[1] a prehistoric design that they had discovered engraved on the walls in the innermost recess of the Caverne des Trois Freres, at Montesquieu-Avantes, Ariege. It represented a man costumed for a primitive religious rite. On his head he wore antlers. The upper part of his face was owlish, the lower part covered by a long beard. The skin of a wild beast, perhaps a stag, is swung over his body. His hands are in a clawing posture. A horse's tail protrudes from the rear. He could easily be the remote progenitor of the Robin Goodfellow illustrated on page 83. The ancient artist leaves the beholder in no doubt concerning the importance that he attributes to *las criadillas de ciervo,* the hart's truffles. By this interpretation the aphrodisiacal metaphor suddenly takes on a pulsating vitality, and the two meanings of 'venery' coalesce. The horns of Robin Goodfellow and of the god of the prehistoric cave also appear in a new light. Our ancestors never tired of their jokes about the cuckold's horns - the symbols of his humiliation. R. Lowe Thompson in his *History of the Devil,* published in New York in 1929, suggested that originally these horns were the horns of the 'Satan' who ofEciated at the rites of the witches' coven. Certainly this interpretation quickens a stale figure of speech, and gives added piquancy to the priapism of Robin Goodfellow.

Vv e might now call a halt to our discussion of fungal aphrodisiacs, were it not for a singular phenomenon that we discover in the Czech language. Alone among the Slavs, the Czechs pay attention, by native tradition, to the world of truffles. For the underground fungi they possess two words, both native. The true truffle is *lanyz,* and the hart's truffle is *thejelenka.* The name of the true truffle comes from *Ian,* the word that designates the roe or hind of the red deer. The name of the hart's truffle comes *faomjelen,* which designates the stag. A peculiar aspect of these words is the shift in genders that takes place:

MASCULINE	FEMININE
jelen (stag)	*Ian* (hind)
lanyz (true or hind's truffle)	*jelenka* (hart's truffle)

I. Comptes rendus des Seances de 1'Academic des Inscriptions et Belles-Lettres, Institut de France, 1920, pp. 303-310. Our reproduction is from the half-tone there published.

What lies behind this criss-crossing of genders ? In some medieval Czech text someone may discover the answer, perhaps in a manuscript dealing with love philtres. Meanwhile we suggest as a working hypothesis that the hart's truffle, *jelenka,* was prescribed for women, and the hind's truffle, *lanyz,* for men. In addition to the hart's truffle, *jelenka* is the Czech name for the mushroom known as the phallus impudicus, and a related name, *jelenice,* is used for the hydnum imbricatum, a species that by its shape is also erotically suggestive.

The *Czech jelenka* in its fungal application is semantically and mycologically a precise equivalent of the German *Hirschbrunst,* 'hart's rut', showing that Czechs and Germans shared a faith in the aphrodisiacal virtues of the phallus impudicus *(Hirschbrunst iiber der Erde)* and the hart's truffles *(Hirschbrunst unter der Erde).* J. G. Gleditsch in his *Methodus Fungorum* (1753) wrote condescendingly of the Moravian peasant girls who used certain dried phalloidaceae to cure warts and corns, according to him without success; and how these fungi, air-dried or smoked, were thought to stimulate venery in dogs and horses. He added that rustics used them even on themselves. Mrs. Ulehlova-Tilschova in her book on Czech folk food, *Ceska strava lidovd,* has lately reported an East Moravian name for true truffles, *barant vajca,* 'lamb's fries' or testicles.[1] Later in the same work she calls attention to the important role played by fungi in the ritual dinner on Christmas eve in Bohemia, when the mushrooms are served in a soup or as gravy or mixed with cereal. The precise meaning of the mushrooms consumed on this annual occasion survives in men's memories in southern Bohemia, near Tabor, where the mushrooms are served with millet and the dish is called *kuba* or *manas.* The word *ntanas* means a lusty male, and he who eats of the dish is imbued with extra virility for the coming year.

John Parkinson, obviously relying on Central European sources, published in his *Theatrum Botanicum*[2] in 1640 certain curious facts about the use of hart's truffles or elaphomyces as aphrodisiacs and in medication:

> These be not eaten in the same manner as the former [true truffles], that is for meate or food, but as a medicament being cut into peeces, and dryed upon strings put through them to be used upon occasion: while they are fresh they have a strong and evill sent, which they lose in the drying, and are used either alone one dramme and a halfe in pouther, taken with sweete wine or with other things as provoke venery, as also to increase milke

1. See pp. 54-5 for this and other examples of the rich popular terminology for fungi in Czech; for the references to the mushrooms served on Christmas Eve see pp. 345 ff. In standard Czech *barani vajca* would be *beranl vejce.*
2. Parkinson in this work offers us the first reference in English to truffles, which he calls 'Spanish trubbes'. 'Trub' would suggest a Spanish form *truba,* which has never been reported. Parkinson cites a passage in Athenaeus as authority for the aphrodisiacal virtue of truffles, but we have not found it. The ancients probably held such a belief, but we know of not a single reference in ancient writers to fungi as aphrodisiacs, in spite of the phallic symbolism of the μύκης.

in Nourses breasts, taken in some ptisane drinke, and a little long pepper added thereto: the smoake thereof when it is burned taken underneath, helpeth women troubled with the mother, and openeth the passages when they are close: they are thought also to expell poyson, and the venome of creatures, to be taken in pure wine, and also applyed outwardly.

Both Gleditsch and Parkinson were unfriendly informants repeating hearsay. Mrs. Ulehlova-Tilschova, centuries later, is at last tapping the genuine sources of folk beliefs, of which many in the intervening generations must have vanished forever. In low English the word 'hart' preserves to this day an erotic sense, unrecorded in the dictionaries.

rdere our story of the truffle would end, had not Moliere by a stroke of genius created the character of Tartuffe. By the criterion of price, by the prestige of its *parfum,* by its erotic associations, the truffle holds a position of primacy in the fungal world. To all these distinctions it adds literary immortality: in Tartuffe hypocrisy finds its supreme artistic incarnation. In Tartuffe's fungal name the truffle was woven into the very warp and woof of Europe's cultural tapestry.

What led Moliere to 'Tartuffe' ? This is not a French family name: the nearest approach to it is 'Truffier', which might be rendered 'Truffleman'. At first blush truffles do not suggest hypocrisy. Moliere's choice was brilliant. But why does it ring so true, and how did he arrive at it >

Scholars have applied themselves to this problem, but with meager results.[1] More than a century ago Francois Genin diverted into a fresh channel the flow of speculation on this subject. He announced that Moliere had not invented the name, but had borrowed it ready-made from the Italians. He had discovered a line in the lengthy iyth century poem, *II Malmantik,* by Lorenzo Lippi, wherein one of the characters is called *il mal tartufo.* These words are to be found in Canto xi, stanza 47. They refer to a dwarf, by name Batistone, whose behavior makes him ridiculous and gets him into trouble. However, whatever his faults, the misshapen little man was no hypocrite and therefore no true precursor of Tartuffe. Moreover, Lippi's work came from the press only in 1676, seven years after *Tartujfe* was first presented on the stage, and we should have to assume that Moliere read it in manuscript, which he could have done but for which there is no evidence. Genin made a virtue of this chronological difficulty, ob-

I. For summaries of the discussions, see *Grand Dictionnaire Universe!* (Larousse) under 'Tartufe'; also the note by Casimir Jarecki, 'Sur 1'Origine, la Signification, et 1'Orthographe du Nom de Tartufe', in *Archivum Neophilologicum,* I: i, Krakow, 1930, pp. 38-42.

serving that here was proof of Mohere's alertness to everything affecting his art!

Carrying Genin's line of inquiry further, Max J. Wolff in 1916 improved on the citation in Lippi's poem.[1] In a play by Giambattista della Porta, *L'Astrologo,* dating from 1606, *tartufo* occurs in a curious context. One of the characters surfers from amnesia. In Act iv: 7 he is asked whether he is a horse, or an ox, or an ass, and finally, "*Sei tu tartufo?",* to which the unhappy man replies, *"Sto fresco",* which is to say, "I'm in for it now." However, here again no one knows what double meaning this *tartufo* conveyed to the early 17th century audience; but it was certainly unrelated to hypocrisy.

Della Porta superseded Lippi in the quest for Tartuffe's progenitor, and recently Della Porta in his turn has had to give way before a fresh find. Our contemporary scholar Alfred Rebelliau has drawn attention to a pamphlet published in 1609 entitled *Le Mastigophore auauel Tout brisees les brides a veaux de maistre Ivvain Solanicqiie,* written by Antoine Fusy, a parish priest of Paris. In it he vituperated against the warden of his church, Nicolas Vivian:

> Tu n'es qu'un tartuffe, qu'un butor, qu'une happelourde.
>
> You're nothing but a *tartuffe,* a lout, a paste-jewel.

Butor means a bittern, but metaphorically it means a churl, lout, clodhopper, oaf, dolt. What did this angry priest mean by *tartuffe* 2 If *butor* was a synonym, he meant what Lippi may have meant by *tartujo* - a dunce, with bad manners to boot. If *happelourde* developed the sense, then pretense and hypocrisy begin to appear. In Mohere's 'Tartuffe' there might be an echo of the colloquialism that survives for us in Antoine Fusy's diatribe. But Tartuffe was no dunce, and anyway the question still stands for us: why should hypocrisy have attached itself to the truffle?

We have pursued the thread of scholarly research from Genin to Wolff, and from Wolff to Rebelliau, from Lippi to Della Porta to Fusy, from one dubious clue to another. This evidence is relevant but secondary, and suggests a fallacious analogy with the philologist's quest for the etymon of a word. Surely the problem calls for different handling. We have to do with a creative mind in the act of choosing a name for a great dramatic character.

But before we venture our own comments on the origins of 'Tartuffe' let us return for a moment to Genin. In the course of his discussion of Lippi's *tartufo,* he suggested that the Italian word corresponded to the use of *fungus* as an epithet in ancient Rome. He recalled a character in a play by Plautus who, when he discovered how he had been hoodwinked, exclaimed:

i. See *Archiv fur das Studium der neueren Sprachen und Literaturen,* vol. 134, p. 148.

Adeon' me fuisse fungum est qui illi crederem.
Was I such a fungus as to believe him!

an exclamation that Genin rendered in French: Ai-

je etc assez *cornichon* . . .

Then Genin made a remarkable observation: for the Latin use *of fungus* as an epithet signifying stupidity, said he, the French substitute *cornichon, melon, citrouille* — names of gourds. Thus it comes about that Genin discovered a common denominator between fungi and gourds in their metaphorical use, and so he furnishes startling circumstantial evidence in support of our thesis, developed on pages 127 ff., of a deepseated association in men's minds between gourds and fungi.

There is another passage in Plautus that leaves no doubt as to the meaning *of fungus* in contexts such as we are discussing. Act v of *Bacchides* opens with it, Nicobulus senex bursting upon the stage with these verses:

Quicumque ubi ubi sunt, qui fuerunt quique futuri sunt posthac
stulti, stolidi, fatui, fungi, bardi, blenni, buccones,
solus ego omnis longe antideo
stultitia et moribus indoctis.

Of all the fools, chumps, dolts, *fungi,* oafs, drivelers, and mouthing idiots, wherever or whenever - single-handed I top the lot of them in folly and clumsy behavior!

Genin could have cited parallel examples in English - Shakespere's 'toadstool' as an epithet, and Sir William Perm's 'mushroom'. We will go further and make bold to suggest that the perfect translation of*fungus* as Plautus used it is the colloquial 'gump', a humble word that in a wide variety of forms circulates in England, Scotland, Ireland, and America. Its wide use and many forms testify to its long lineage. In Wright's *English Dialect Dictionary* we find gump(h), gomf, gamp, gamf, gaump, gawmp. We find also sumf and sumph. All these connote human stupidity. As we have seen, words etymologically identical to *fungus* are the Slavic *gamba,* German *Schwamm,* and the English 'swamp'; there is another cognate in English - 'sump', a water-filled trap or excavation. Are not 'gump' and 'sumph' etymologically the progeny of the same verbal family? In Plautus' *Bacchides* are *not fungi* simple 'gumps'?

But however fascinating for mycophiles and ethno-mycologists these fungi of Plautus and ancient Rome are, what have they to do with truffles, hypocrisy, and Tartuffe ? Was not Genin pursuing the wrong scent - barking up the tree

where Sterne's Smelfungus grows, rather than grubbing for the habitat of Mohere's truffle?

The creative mind in literature is often made manifest in the selection of names for the characters. Dickens is famous for his names. Take Tulkinghorn in *Bleak House:* who has not had the misfortune of meeting his replica in the legal profession? The syllables of that name, savored singly or together, suggest by homonymic echo other words and ideas that become a harmonious composite of the repugnant human being to whom Dickens introduces us. When Tristram Shandy's father sought out the treatises on 'long noses' that would help him in coping with his infant's problem, Sterne characteristically devised names faintly smelling of his salacious theme: Prignitz, Scroderus, Parseus, not to speak of the *Evening Conferences* of Bouchet - names of such subtle craftsmanship that only the attentive reader catches the message, and then only if he is already familiar with Sterne's prurient nose. The art of devising names for fictitious characters lies in choosing sounds that suggest the sense without declaring it baldly, sounds that reach out like antennae to catch meanings and emotional associations which of themselves go far toward evoking the character whose acquaintance the reader is invited to make. Shakespere's Caliban and Ariel, by an alchemy of phonetic and semantic echoes, offer in their names a foretaste of their roles, and those roles in turn fulfill, richly amplify, and clinch the names, until names and character so thoroughly and unforgettably interpenetrate each other that they are one.

Moliere alone could tell us how he hit on 'Tartuffe', and he failed to do so. This leaves the field open for others to suggest some of the associations that must have lain in his mind, and in particular to explain how the idea of hypocrisy emerged from the truffle.

Truffles live out their lives in the dark, dank, cold underground, a fit habitat for repugnant things. The truffle of France is almost black, like the sombre habit and soul of Tartuffe. He was a lecher, and in the iyth century truffles were the supreme aphrodisiac of France. The big, congested nose that we associate with gluttony and wine-bibbing is today in France *une bonne truffe:* Tartuffe never missed a chance to gorge himself at others' tables. There may even have been a Germanic influence in Tartuffe: the German name for the Devil, *der Teufel,* gave to French the oath *tarteifle,* recorded in Larousse. If this was known in Moliere's time, the phonetic echo would have been felicitous.

Underlying all these, however, was another idea - fraud. In Old French *truffe* and *truffer* meant 'fraud' and 'to defraud'. *Truffa* in Italian and *trufa* in Spanish signify 'swindle' to this day, and the parallel *truhdn,* meaning 'scoundrel', has had a long and vigorous history in the Iberian peninsula. These various forms

of the same word turned up in Middle English as the verb 'to truffle' and 'to trifle', as when one speaks of trifling with a girl's affections. In Scottish cant 'to truff' has meant 'to befool' since before A.D. 1500, somewhat before the 'Auld Alliance' with France. There is no evidence that Chaucer was conscious of the existence of truffles, but he knew the word in its derived meaning, for in *The Canterbury Tales* his Parson defines the sin of idleness as:

> the thurrok [i .e., bilge, or sump, or sink] of alle wikked and vileyns thoghtes, and of alle jangles, trufles, and of all ordure, [line 715]

wherein jangles, trufles' mean idle chatter and deceits.

All of those words stem back to the Low Latin *truffactor,* a swindler. There is also the Italian *truaare,* the French *troauer,* which give to English the verb 'truck', meaning 'trade'. Equally striking is the Italian *trafficare,* the French *trajiquer.* The unpleasant flavor of these words survives in some contexts in the English 'traffic', but, as befits a nation of shopkeepers, with diminished intensity. 'Traffic' and 'truck' are sometimes synonyms, as when the righteous man declares he will have no traffic (or truck) with yonder early prowling, base informing, sly, litigious, plaguy knave. The origin of *truccare* and *trafficare* has remained obscure. We suggest that they are related to *truffactor,* and that they and *truffactor* itself are all secondary meanings originally derived from the Latin *tuber, tufer,* the word for the truffle. The truffle-dealer was a notorious tradesman, and he became a by-word. If we are right, the verbal progeny of the truffle, in the figurative sense, arrived in English in the I3th century, almost four centuries before the Englishman came to know the truffle that was the origin of the word.

The Oxford Dictionary in tracing the history of 'trifle' points out that some philologists have suggested an association with the truffle, but adds that no one has ever proposed a semantic connection. We believe that we can supply such a connection. There is a reason why truffles are associated in some regions with fraud to this day, and why 'truffle' at an early date became a colloquial metaphor signifying fraud. This reason is one that neither philologists nor professional mycolo gists are best attuned to catch.

When truffles are for sale in the market places of the Mediterranean, *caveat emptor!* The truffle dealer is even now a by-word among his fellows. He mixes dirt with his truffles to add to their weight. He includes truffles in bad condition. He sells inferior species for the best. He adds swarthy fungi that are not truffles. Truffles, in short, are merchandise that lends itself to fraud. They call for unusual experience in the buyer who would avoid deception. In Adolphe Chatin's

La Truffe, already cited, the author devotes a whole chapter to frauds habitually perpetrated in the retailing of truffles. He reports that in the Dauphine, the Provence, and Perigord, where *triffe* means 'truffle', the ordinary locutions for calling a man a swindler are "Tes un trrrier" and "Tes un trurfaire". Every truffle fancier teaches his disciples in the first lesson to be on their guard against these perils of the truffle traffic, lest haply they be (as one might say) trifled with and *truffled.*

This proverbial dishonesty of the truffle merchant has escaped the notice of the philologists who have wrestled with our cluster of words. It supplies the link that the Oxford Dictionary found wanting. It plumbs in depth, back through centuries, the mores of the small-town market-places of Italy, the Provence, and Spain. It supplies the background of double-dealing that appealed to Moliere when he hit on the doublet 'Tartuffe' for the name of his character. To have used 'Truffe' or 'Truffier' would have been crudely blunt and a flaw. The Italian *tartufo* never took to itself the secondary meaning of fraud. By resorting to it Moliere was achieving his purpose - hitting on a name that evoked a penumbra of subtle associations, none obvious but all of them of a kind to conjure up the villainy of his hero; associations that are felt rather than thought out, a *parfum* so elusive that it works its influence and passes undetected. All words are enveloped in such a penumbra, which no lexicographer can pin down, and the essence of great writing is the art of utilizing to the full these emanations, which after all express the most intimate emotions of men in communion with one another.

In 1836 there appeared in Paris a book entitled *De la Truffe,* the authorship of which is attributed on the title page to 'MM. Moynier', about whose identity we have discovered nothing further. Early in that book the reader is told how Moliere came to choose the name 'Tartuffe'. The episode is believable and rings true, but there is no way to verify it. All of the influences and 'sources' that scholars laboriously unravel and dissect and ticket are here synthesized for Moliere in a flash, and the *tuber* of the Romans, the *turma* of the Spaniards, the *trujfe* of the French rises from the crucible of the playwright's mind sublimated and transfigured, imbued as by magic with the immortal attributes of Tartuffe. For Moliere's Tartuffe possesses an eternal vitality, of an order far different from and superior to that other tawdry lure of eternal youth which spurred on Ponce de Leon and his companions, beguiled as they were by childish illusions about *batatas* and miraculous fountains, doomed as they were in this world, like Tantalus in another, to an endless round of recurring hope and recurring frustration.

Here then is the genesis of 'Tartuffe', as related by MM. Moynier: The authors begin by informing their readers that the story is told to them by the Superior of a congregation of Capuchin friars who in 1826 were still living in Aix-en-Provence. The Father Superior explains that from earliest days the truffle was known to the members of his order, and also its renown as an aphrodisiac. In the course of time, he says, it came about that on a particular occasion Moliere was observing one of the worthy fathers consuming some truffles. Moliere was struck by the rotundity of the friar's face and the vermillion coloring of his cheeks, as he sat there ingesting the truffles at his superior's board. He was swathed and muffled in an enormous woollen habit, and the garment even seemed to envelop a goodly part of the table over which he was hunched. He was a picture of deep meditation. As he savored his truffles, the holy man appeared to be either in a state of ecstatic contemplation before a vision of the Blessed Virgin, or else relishing in deep, long draughts certain intimate internal pleasures artfully contrived. "What do you call this thing ?", said Moliere to him. "A truffle, my dear Sir," replied the contemplative. Then said Moliere to himself: " Of *truffe* I shall make Tartuffe, and thou, poor fellow, shalt be he."

12 *'GRIPAU' AND 'GRIB'*

For 'toad' the Catalans say *gripau,* and a word of the same root, *grib,* is reserved by Russians to designate the mushrooms that they esteem most highly. What is the common semantic theme here, and do these words point to a commingling of toads with mushrooms in primitive thinking, long ago ? Early in our argument we mentioned this strange evidence and promised to return to it.

The words for 'toad' in Europe, as we have seen, are numerous. They are all, we believe, evasive in character, euphemisms resorted to as a refuge from an early word that fell under tabu. That archaic term is unknown to us - unless it be the Gallic *craxantus,* which comes down to us in a single citation. If our findings prove acceptable, there are about ten basic euphemisms for 'toad' in Europe. We discover 'the Poisonous One' in 'natterjack', in the Anglo-Saxon *tosca,* Breton *tousec;* and 'the Burning One' in the Danish *tudse* and Swedish *tossa.* The Irish combine these two when they say 'the Poisonous Burning One' - *losgann nimhe.* There is 'the Moist - or - Slimy One': Welsh *llyffant,* Anglo-Saxon *yce,* Low German *utze,* and High German *Unke.* To these we add a cluster of words for 'toad' from Eastern Europe: the Czech and Polish *ropucha,* Lithuanian *rupUze* and *krupe,* and Slovenian *rapuch,* stemming back to words meaning pus, foul eruption, rash, coarseness.

The Spaniards see in the toad a skin or hide - *escuerzo;* and so did the Cornishmen when they still spoke their own tongue - *croinoc.* The idea of gaseous distension lies behind the Latin *bufo* and the Russian *zhaba,* the Greek cpuaaXog; and the 'cow's udder' of the Albanian *thithelope.* We hazard the suggestion that the *padde* of the Low Countries, Scandinavia, and the British Isles is the same word as the 'padding' of a padded garment. The color of the toad finds expression in the Latin *rubeta* and the Greek cppuvoc; - unless this latter means 'the Burning One'. The idea of excrement hides behind the German *Krote,* and was responsible, we think, for shaping the French word *crapaud,* and between these two lie the Romansch forms *cratun* and *crapun.* A third Romansch form, *rustg,* is mysterious; it could have lost an initial *k* or *g,* and in that case might have been originally *krustg** which reminds us of the Lithuanian word for toad, *krupe.* Or has it the same origin as the Italian *rospo,* which by its Latin root conveys the idea of scratching > The Spanish *sapo* is, we think, a Greek borrowing, meanning 'snake' in Greek. The idea of swelling and inflation underlie the

I. Cf., e.g., German *Kreide,* chalk, which becomes Romansch *rida.*

Austrian words, *brattling* and *brotze,* and the Bavarian *broz* and perhaps *braste* also. Finally there is the Old French word, *le hot,* 'the Cripple', with its demonic associations, for which a parallel may be found in the Austrian *bratze.*

There remains to be considered the Catalan *gripau* with its Proven9al cousin *grapal.* The French *crapaud* evolved from the latter, and we find an additional derivative in the Romany dialect of central Europe, where the toad is called *grapodo.* Perhaps there are other traces of the same word. The Latin *rana,* frog, would normally evolve in French into ***renouille*** but the actual word is *grenouilk,* and that initial *g* has given rise to considerable learned discussion. Surely it is borrowed from the name of the toad. There is a familiar French saying: 'Fin comme Gribouille qui se jette a 1'eau de peur de la pluie', or else 'de peur de se mouiller': 'As clever as Gribouille who jumps into the water for fear of the rain', or 'for fear of getting wet'. Scholars have debated the origin and meaning of Gribouille. Who was this immortal simpleton? We suggest that he was merely a personification of the toad, which jumps into the water when disturbed by rain-drops, and that in Gribouille we discover the unique survival in French of the variant of *crapaud* that is still current in Catalonia, *viz., gripau.*

The root behind *gripau* is *grip-,* and it means what it says: to grip, to seize, to hold, to grab. There is one act in the life of the toad that is marked by a vice-like grip of altogether astonishing strength and duration. This is the act of mating. Everyone who comes upon toads at that moment in their life cycle, in the spring of the year, is held in horrid fascination by the spectacle. Countrymen know the sight from childhood. The smaller male climbs on the back of his mate and embraces her around the armpits. There he chngs for days and sometimes for weeks, and cannot be detached from her by any interruption, even permitting himself to be cut up alive rather than let go. Instances have been reported where the forearms of the male have become ankylosed from their prolonged immobility. When the males outnumber the females, then the males clamber over each other on the single mate, and cling to each other and to her, even smothering her to death, and still they cling in a cluster to the corpse as it begins to decompose. These knotted clusters of toads find apt expression in the Provencal *grapal,* related as this word is to the idea of a cluster, as of grapes.[1]

There is abundant evidence that the sex habits of toads gripped the imagination of our ancestors. Toads were a symbol of lechery, and so were warts and moles, with which toads were associated. Professor Meyer Schapiro has pointed out that "the conception of the unchaste woman tormented by serpents at her

I. See F. Angel's *La Vie et les Mceurs des Atnphibiens,* Paris, 1947, pp. 153-155, for a vivid account of the manifestations of the mating instincts in toads.

breasts and sometimes toads at her private parts is common in Romanesque and Moslem fantasy".[1] Probably the supreme expression of this association of ideas is in Shakespere, when Othello, obsessed with jealousy, confronts Desdemona with his monstrous charge, and then in a terrifying passage drains the very dregs of his tormented being, rising to his climax when, at the end, he invokes the image of mating toads in a figure that would be foully obscene in any context but this:[2]

> Had it pleas'd Heaven
> To try me with Affliction, had they rain'd
> All kind of Sores, and Shames on my bare head:
> Steep'd me in povertie to the very lippes,
> Given to Captivitie, me, and my utmost hopes,
> I should have found in some place of my Soule
> A drop of patience. But alas, to make me
> The fixed Figure for the time of Scorne,
> To point his slow, and moving finger at!
> Yet could I beare that too, well, very well:
> But there where I have garnerd up my heart,
> Where either I must live, or beare no life,
> The Fountaine from the which my currant runnes,
> Or else dries up: to be discarded thence,
> Or keepe it as a Cesterne, for foule Toades
> To knot and gender in!

Bosch shows us this lecherous toad in the detail of his *Seven Mortal Sins* that we have reproduced on Plate xm. In Venice there hangs in the ducal palace a singular painting of demonic import, crowded with the creatures of Hell. It is attributed to a painter of unknown identity who is known as the pseudo-Herri met de Bles. In one detail we discover our giant toad squatting on the double bed and staring at its sinful occupants. In the mosaics of the Battistero in Florence, executed early in the I3th century, a supine toad is superimposed on the body of a supine woman, and here the meaning is revoltingly clear.

There emerges, then, a clear picture of the toad as seen through medieval eyes - poisonous, pustulous, lecherous, possessed of a strange capacity to innate itself with air; in its facial expression and in the disposition of its torso and limbs, the very incarnation of a soulless homunculus, crouching and jerking and func-

1. Quoted from his article, 'From Mozarabic to Romanesque in Silos', *The Art Bulletin,* vol. xxi, no. 4, De cember 1939, p. 328. See also Walter Clyde Curry's *Chaucer and the Medieval Sciences,* Oxford University Press, N. Y., p. 84 ff.

2. *Othello,* rv: 2, 61; on one other occasion Shakespere refers to mating toads, *Troilus and Cressida* n: 3, 170: "I do hate a proud man, as I hate the ingendring of Toades." See also Waldemar Deonna's paper on 'La Femme et la Grenouille', in *La Gazette des Beaux-Arts,* November 1952.

tioning like human kind on the animal level of man's dual nature; a horrible caricature in miniature of sensual man and miserable sinner.

We suggest that the Catalan and Proven9al words for 'toad' were originally keyed to the mating act. In the fungal world there are many erotic and phallic associations, as we have seen. It would have been a happy solution to our problem *of grib* and *gripau* if we could have discovered in the Russian *word grib* the erotic associations that would have linked it with our interpretation *of grip au,* but they do not exist.

The story *ofgrib* in the Slavic world is the same that we know well from the West. At one time the word designated a particular class of mushrooms. By its pre-eminence this class came to stand for the whole mushroom world, and its name became generic, usurping the semantic terrain originally occupied by the Indo-European words, *gomba* and the hypothetical *bu-dla,* which we discussed on pages 93-94. A glimpse into this curious history is offered to us by the *Book of Rules* of the Josif Volokolamskij Monastery for the i6th and zyth centuries,[1] wherein we learn from the refectory diary that the monks were served mushrooms regularly on Wednesdays and Fridays, the fast days. The amanuensis records sliced mushrooms, boiled sliced mushrooms, chopped mushrooms, mushrooms with sauce, and mushrooms with garlic. For 'mushrooms' he uses only two words: *griby* and *gruzdi,* and it is clear that all kinds belonged to one or the other. Apparently all boleti were *griby* and all gilled mushrooms were *gruzdi. Gmzd'* still carries traces of this old meaning: it floats uncertainly in its specific application among various lactarii and russulas, though it belongs specifically to the lactarius piperatus.

Grib circulates chiefly among the mycophilic northern Slavs and the Slovenians. We think it is unknown in Serbian and Bulgarian, but it appears in Polish as *grzyb,* in Czech as *hrib,* in Ukrainian as *hryb,* and in Slovenian as *grib.* The idea inherent in the root is familiar to us: grubbing, rooting, scraping, digging, grabbing, gripping.[2] It evokes the activity of the mushroom gatherer in the forest. Down into Renaissance times the Germans used ***Griibling*** **as a**

1. See *Chtenija v Obshchest've Istorii i Drevnostej pri Moskovskom Universitete,* 1880, bk. 3, p. 113.
2. Max Vasmer in his new Russian etymological dictionary suggests a novel root *£01 grib,* linking it with certain words signifying 'slime'. While slime, as we have shown, is semantically appropriate for a fungal word, the etymology that we espouse is semantically felicitous, and we are fortified in our position by the comments of Roman Jakobson, which he allows us to quote:

"As to^n'fc, I have not the slightest doubt about its origin. The Slavic languages clearly attest all vocalic grades of the root *greb;* - (i) *greb-, (id)* the corresponding prolonged grade *greb-; (2) grab-, (20)* the corresponding prolonged grade *grab-;* (3) *gr'b-,* (30) the corresponding prolonged grade *grib-.* Thus: (i) Russ. *grebti, gresti,* Old Church Slavonic *greti,* to dig up, dig in, rake, spade, shovel, scratch, scrape, row; Bulgarian *greblo,* rake, oar; Russ. *grebdt',* to disdain, *grebtd,* sorrow, *greben',* comb; (la) O Ch SI, *pogrebdti* to bury. (2) Russ. *grab,* grave; *(20)* Russ.*grdbit',* to snatch, grab, *iob;grdbli,* rake. (3) Czech *hfbiti,* to lie buried; *hrbelec,* curry-comb; (30) Serbo-

PLATE xxxin. Toads in Hell. Detail from a painting by the pseudo-Herri met de Bles.
Venice, Ducal Palace.

PLATE xxxiv. Toad. Detail from a mosaic. *Florence, Battistero.*

name for some kind of underground mushroom, perhaps a truffle, and of course its etymology is identical. Was it accident that led to the use of the same root in the East for 'mushroom' and in Catalonia for 'toad'; Did not this usage emerge from the common pool of ideas that we have traced at length, a unified field of associations, albeit discordant associations inasmuch as the Slavs loved their mushrooms whereas all peoples rejected the toad?

Croatian *griblja,* furrow, *gribati,* to furrow; Russ. *grib,* mushroom. Similar vowel alternations are present in other Slavic roots."

When Professor Jakobson worked out the foregoing etymology, neither he nor we had discovered the obsolete German word *Griibling,* for which German philologists give the same origin as he for *grib.* German mushroom manuals give *Grubenlorchel* as the common name of the helvella lacunosa; if this name is in actual circulation, it is a survival in Germanic of the *grib* root.

13 *THE FLIES IN THE A MAN IT*

A

In Europe the amanita muscaria is one of the most widely known of the wild mushrooms. It is the archetype for the 'toadstool' tribe in mycophobic countries, being the first gilled mushroom that the mycophobe learns to recognize, that he may the better curse it. In mycophagic lands all country folk know it, and have devised for it a diverse popular nomenclature. The esteem in which the various edible species are held differs in different parts of Europe, but the obloquy meted out to the fly amanita is uniform and heavy. Its evil reputation far outruns its deserts. There is a general belief that the victim who eats it dies; yet we believe that this murderous accusation is unsupported by a single trustworthy case history. How strange it is that the fly amanita should be far better known than its truly lethal cousins, which in some parts of Europe, such as Great Russia, possess no common name!

A mushroom that is merely lethal is less interesting than one possessed of the devil. Here lies, we believe, the explanation for the singular reputation of the amanita muscaria. This mushroom inebriates, it does not kill, and in all primitive societies inebriation, like delirium and even insanity, is held in awe as a manifestation of divine powers. The problem of the amanita muscaria is one of the most elusive that ethno-mycology has to offer, and one of the most fascinating. Can we show that its intoxicating virtue was known to our remote ancestors and that they made use of it? Did it play the role of an important hallucinogen in the early social history of Europe ? For almost two centuries the slow debate has gone on, and the issue is still moot. Perhaps it is possible to adduce fresh evidence, but first we shall sum up the discussion to date.

In the early i8th century, the Swedish traveler Philip Johan von Strahlenberg journeyed extensively in Russia, Tartary, and Siberia. His admirable report, written in German, appeared first in Stockholm in 1730, and an English translation came out in London in 1736, bearing the lengthy title: *An Historical and Geographical Description of the North and Eastern Parts of Europe and Asia particularly of Russia, Siberia, and Tartary.* Von Strahlenberg was a thorough and conscientious observer. From his pages the western world learned for the first time of the Korjak tribesmen of Kamchatka, and how they consumed the fly amanita for its intoxicating effect. This nugget of curious anthropological information drew wide attention throughout the literate world, and the interest then aroused has continued up to now. Indeed, a bibliography dealing with this Korjak practice would be surprisingly long. Today we know that traces of

it survive also among the neighboring communities of Kamchadals, and also among the Chukchees, the primitive people living in sparse and tiny villages at the easternmost tip of Siberia, across the Bering Strait from Alaska.

Indeed, we know more. Far to the west of the Korjaks and Chukchees, in western Siberia, in the northern lands lying between the Ob and Yenisei rivers, we have fragmentary but reliable reports that the shamanistic use of the inebriating fly amanita has survived into our own times. Kai Donner, the Finnish scholar, states that the Samoyeds in this region eat the mushroom, and also the people known as the Yenisei-Ostjaks.[1] The Samoyeds are not of the Finno-Ugrian culture, but the Samoyeds and Finno-Ugrians together make up the family of peoples known as Uralic. The Yenisei-Ostjaks, though neighbors, are of different cultural lineage, being one of those now scattered tribes, inhabiting the most inhospitable and remote corners of Siberia, grouped together for convenience by anthropologists as 'Hyperborean' or 'Paleo-Siberian'. Donner reports that the shamans of the Yenisei-Ostjaks, to achieve the desired psychic effect, eat seven mushrooms, for which their name is ***hanggo,*** a word clearly related to the Latin *fungus* like the other variants mentioned on pages ijSff. Well to the east of the Yenisei-Ostjaks, east of the Lena River, but to the west of the Chukchees and Korjaks, there is another Paleo-Siberian people, the Yukaghirs. According to Jochelson in his study of this people, made two generations ago, they no longer used the fly amanita in his time but they preserved a tradition of its use in earlier days. Jochelson unfortunately failed to note the Yukaghir name for it, nor did he record the details of the tradition.

More than two centuries have passed since von Strahlenberg published his book, and for the role of the fly amanita as an inebriant in Siberia we still must rely on stray data that anthropologists have happened to catch. A desideratum for Russian and Finnish workers should be an intensive ethno-mycological survey of all the peoples of Siberia, to discover every trace of the inebriating mushroom. In folklore, in linguistics, and in the details of contemporary usage, there must be much evidence concerning it that we now ignore. If we assume, as some anthropologists have done, that the Paleo-Siberian peoples (Korjaks, Kamchadals, Chukchees, Yukaghirs, Yenisei-Ostjaks, etc.) once roamed over most of northern Siberia, and that they were then sent scattering to their present

I. See Donner's *Bei den Samojeden in Sibirien,* Stuttgart, 1926, p. no; also his 'Ethnological Notes about the Yenisey Ostjak (in the Turukhansk region)', published in the *Memoires de la Societe Finno-ougrimne,* vol. LXVI, Helsinki, 1933, pp. 81-82. The former study has been translated and published (New Haven, 1954) with the title *Among the Samoyed in Siberia,* in the series of Behavior Science Translations, Human Relations Area Files. With that disregard for precision in matters mushroomic which afflicts most Anglo-Saxon work, the translator rendered *Fliegenschwamme* by 'toadstools'.

peripheral habitats by irrupting Mongol and Turkic invaders from the south, then the use among them of a common Indo-European word for the fly amanita would certainly date back to the time before they were blown to the four corners. The specific application to the fly amanita by certain of these vestigial peoples of a word that in Indo-European is generic for all mushrooms poses an exciting question: did these Siberian tribesmen borrow the use of the inebriating mushroom, and with it the name, from the Indo-Europeans >

Before the i8th century was out, in 1784, von Strahlenberg's compatriot, the scientist Samuel Odman, advanced the thesis that 'going berserk' in early Norse times had been a state of excitement produced by the fly amanita.[1] The Odman suggestion was taken up and elaborated more than a century later, in 1886, by the Norwegian botanist Fredrik Christian Schiibeler in his *Viridarium Norvegicum I.* The Odman-Schiibeler theory took popular hold in parts of Scandinavia and even gained acceptance there among writers of scientific and popular handbooks, school textbooks, and encyclopaedias. Indeed, many educated Swedes and Norwegians seem to take the theory as accepted fact.

In 1929, a specialist in the medical history of Norway, Dr. Fredrik Gron, undertook to challenge Odman and Schiibeler.[2] He dismissed the fly-amanita explanation for 'berserk-raging' as weakly founded and improbable, pointing out that nowhere in sagas or other early Nordic source is there a reference to the fly amanita. In this he has been recently sustained by Professor Magnus Olsen, the outstanding authority today on Norse literature and traditions. Furthermore, the ancient writings of the Mediterranean basin make no allusion to fungal hallucinogens nor is there a single mention of inebriating mushrooms in the voluminous source materials available to us concerning the witchcraft cult. Odman and Schiibeler had relied solely on the analogy of modern practices observed among the Siberian tribes.

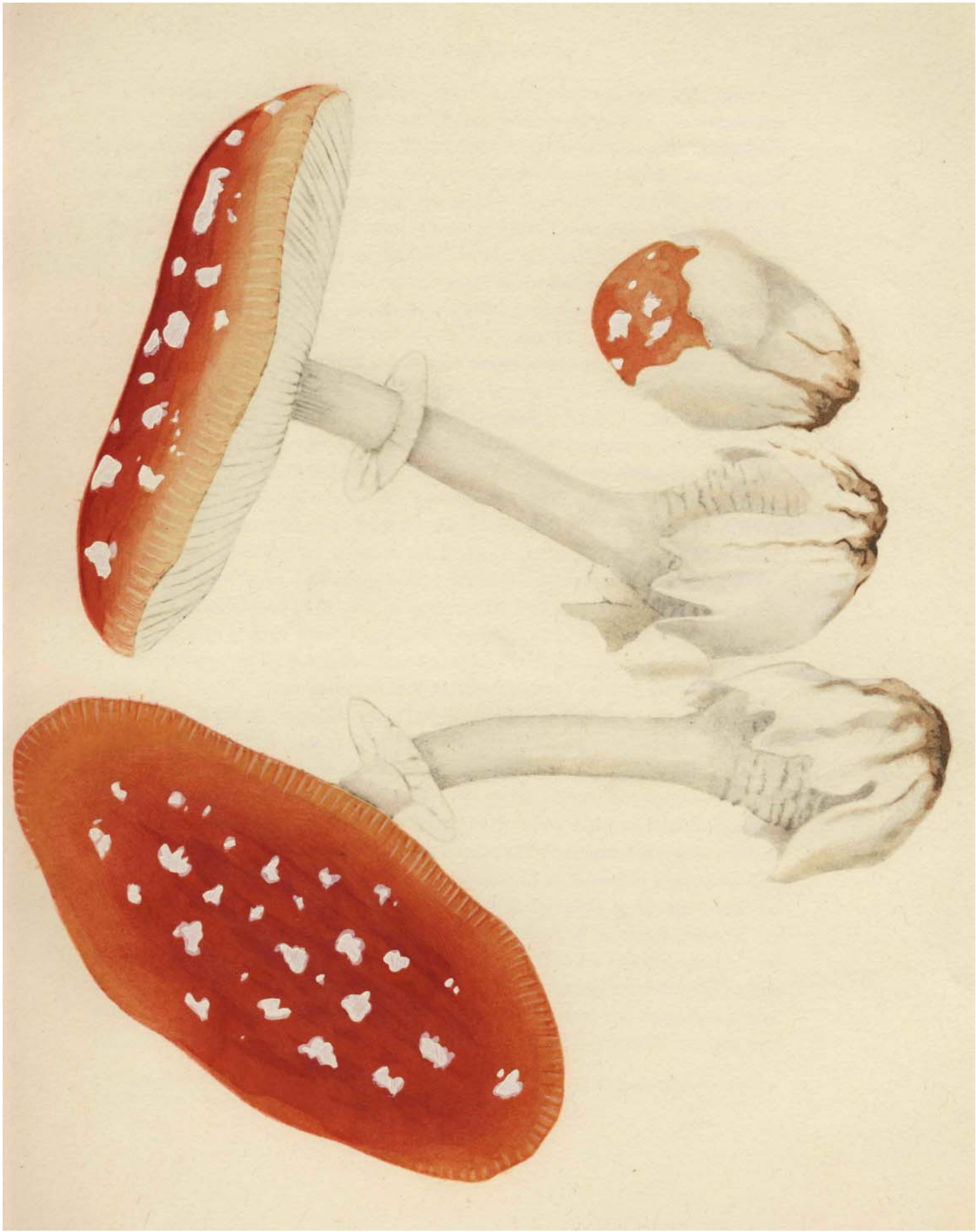
But their side of the argument has not lacked champions. On November i, 1918, the famous Swedish meteorologist H. Hildebrandsson read a paper before the Royal Scientific Society in Upsala in which he recounted an extraordinary episode. It seems that in the war between Sweden and Norway in 1814, some soldiers of the Swedish Varmland regiment were observed by their officer to be seized by a raging madness, foaming at the mouth. On inquiry, it was learned

1. His paper was entitled 'Forsok at utur Naturens Historia forklara de nordiska gamla Kampars Berserkagarig' ('An attempt to explain the berserk-raging of ancient Nordic warriors through natural history'), published by the Kungliga Vetenskaps Akademien, Nya Handlingar, vol. 5, pp. 240 et seq. For all of our references to the Scandinavian pronouncements on the fly amanita we are indebted to Professors Georg Morgenstierne and Rolf Nordhagen.

2. In a paper entitled 'Berserk-gangens vesen og arsaksforhold' ('The nature and causes of berserk-raging'), Throndhjems Videnskapsselskaps skrifter, No. 4.

PLATE XXXV

Jean-Henri Fabre. Amanita muscaria Fr. ex Pers.
French: *tue-mouche, crapaudin, fausse oronge;*
Germ an: *Fliegensch wamm*
Russian: *mukhomor*.



that the soldiers had eaten of the fly amanita, to whip up their courage to a fighting pitch. We have not seen the Hildebrandsson paper, nor discovered the evidence contemporary with the alleged episode on which he relied, but both he and the society before which he appeared enjoy the highest standing in scientific circles, and his paper was quoted by Professor Carl Th. Morner, a distinguished Swedish physiologist, whose avocation was the study of botany and the higher fungi, in two of his publications on mushrooms.[1] The Odman-Schiibeler thesis received further endorsement from Professor Rolf Nordhagen, the Norwegian botanist, in an article in the Norwegian newspaper *Aftenposten* of January n, 1930.

There is a tradition in Russia that the fly amanita was once used in folk medicine. N. Annenkov refers to this former usage as a fact in his *Botanicheskii Slovar',* published in St. Petersburg in 1878. Rudolph Krebel in his *Volksmedicin und Volksmittel verschiedener Volkerstamme Russlands,* published in 1858, said that it had been used to treat lameness, but he is not precise in citing his authority nor in identifying the practice with a particular place or period. In some kinds of arthritis the exertions stimulated by the fly amanita might indeed be helpful. Perhaps there exist earlier treatises on Slavic folk medicine that will amplify these insufficient hints. In Professor C. Hartwich's great work, *Die menschlichen Genussmittel,* published in Leipzig in 1911, we find on page 256 a sentence which, translated, says: "In a letter from a native of Zurich in 1799, in which year a Russian army under Korsakov was stationed there, the amazing statement was made that the Russians gathered and ate fly amanitas on the Ziirichberg. Of course, the Russians must have learned to do this in their own country." The pharmacologist Emil Eidenbenz of Zurich has gone to considerable pains for us in looking for the letter on which Professor Hartwich relied, but with no success. Thus a promising hint, on inquiry, yields meager results.

Our European ancestors had opportunities to witness the inebriation caused by the fly amanita, it only when accidents occurred. There are numerous medical case histories of such episodes. One of the best is to be found in a paper by Dr. M. Roch, a physician attached to the Cantonal Hospital in Geneva, entitled 'Les Empoisonnements par les champignons', published in the *Bulletin* of the Societe Botanique de Geneve, 2nd series, 1913, where he reports on the wild delirium of four Italian laborers in the Canton of Neuchatel after they had eaten a mess of fly amanitas. The delirium was followed by sleep, and sleep by a return to normal sobriety. Such episodes must have occurred from earliest times, and

I. 'Nagra erfarenhetsron om de hogre svamparna. Kritisk ofversikt," in *Upsala Lakareforenings Forhandlingar,* Bd. xxrv, Heft 1-2, 1918; also, the same author's *Om de hogre svamparna,* 1919.

must have aroused the awe that the astonishing symptoms would naturally inspire among people whose lives were shaped by beliefs in supernatural forces. But in the early treatises on mushrooms, before von Strahlenberg's journey into Siberia, we find no intoxicating properties attributed to the amanita muscaria.

It seems clear that cooking attenuates or kills the distinctive virtue of the fly amanita. In Italy and France it is not rare to find individuals who habitually eat this mushroom with impunity. Our friend Camille Fauvel, the mightiest mycophage of us all, informs us that he has sat down to a mess of fly amanitas scores of times. He gathers the mushrooms, peels the caps, discards the stems, and cooks the peeled caps in any of the usual ways. Holger Lundbergh of New York reports to us that his mother in Sweden was taught by the famous painter Anna Boberg, nee Scholander, to add a snippet of the cap of a fly amanita in preparing all mushroom dishes, in order to point up the flavor. Whence came this astonishing culinary secret, uncovered thus in the heart of mycophobic Sweden? Mrs. Boberg can hardly have hit on it herself. Did she pick it up elsewhere in Europe? Or was it indigenous to Sweden, the final emanation of some ancient esoteric lore, possibly distorted beyond recognition from its original purpose and aspect?

For the best accounts of the symptoms of fly-amanita inebriation, we turn to the observations of Waldemar Bogoras and Waldemar Jochelson during their visits to Kamchatka a generation ago. (Their studies were published by the American Museum of Natural History as parts of the memoirs of the Jesup North Pacific Expedition.) On eating the mushrooms a period of exaltation ensues, in which the chewers of the raw mushrooms shout and rage. Then they engage in feats of prodigious physical exertion and experience illusions of radical changes in all dimensions, of miraculous mobility, of metamorphosis. The folklore of northern Europe is filled with supernatural phenomena that remind us of these symptoms, as for example the powers of mobility attributed to witches and werewolves. But are mushrooms ever mentioned in those tales?

Of themselves, these analogies from folklore carry no weight, and indeed we must be cautious about false clues. Take for example the strange case of Alice in Wonderland. Shortly after her adventures begin, this enchanting child nibbles at a mushroom, and it produces in her the typical sense of changed dimensions that we recall in the horrifying accounts of the amanita-eating Korjaks. All of Alice's subsequent distortions, softened by the loving irony of Lewis Carroll's imagination, retain the flavor of mushroomic hallucinations. Is there not something uncanny about the injection of this mushroom into Alice's story ? What led the quiet Oxford don to hit on a device so felicitous, but at the

same time sinister for the initiated readers, when he launched his maiden on her way > Did he dredge up this curious specimen of wondrous and even fearsome lore from some deep well of half-conscious folk-knowledge ? On first reflection that mushroom in *Alice,* so innocent for the uninformed, seems like a gentle aftermath, a distant reminder, of awful rumblings from barbaric times now forgotten; like the long, harmless swell that rocks the sea many days after the havoc of the hurricane. The temptation is strong to espouse this romantic hypothesis, and for the purposes of the controversy among Scandinavian scholars, this would tilt the balance, and the ayes would have it.

But we think that Alice's mushroom grew in Kamchatka, not in the forests of primeval Europe. It was on July 4, 1862, while rowing gently up the Isis to Godstow, that Lewis Carroll embarked on Alice's adventures, holding three little maidens spellbound by the tale. Over the following months he put the story into final form, and presented the completed manuscript to Alice for Christmas in the same year. Now it so happens that the earliest popular manual on mushrooms in the English language made its appearance in that same year, M. C. Cooke's *A Plain and Easy Account oj British Fungi.* We do not know exactly when it came on the market, but we know that it was the subject of a lengthy review in the October 4 issue of *The Gardeners Chronicle and Agricultural Gazette.* (The reviewer commended Cooke's efforts, and then conceded the hopeless mycophobia of the English: "… notwithstanding all that is said in favour of mushrooms, we suspect it will take a long time to remove the deep rooted prejudice that exists against them in this country, and teach our rustic population those that are harmless.") Cooke's little volume describing strange fungal growths was of a kind to attract Alice's creator. On pages 20-21 Cooke discusses the use to which the fly amanita is put by the Korjaks, and its effects on the eater: "The natural inclinations of the individual become stimulated. The dancer executes a *pas d'extravagance,* the musician indulges in a song, the chatterer divulges all his secrets, the orator delivers himself of a philippic, and the mimic indulges in caricature. *Erroneous impressions of size and distance are common occurrences,* a straw lying in the road becomes a formidable object, to overcome which a leap is taken sufficient to clear a barrel of ale or the prostrate trunk of a British oak." (The italics are ours; the reader will note the Gilbertian flavor of the oak that had to be 'British'.) In Lewis Carroll's diaries we learn that he began putting Alice's adventures on paper on November 13, well after Cooke's volume was on the market. For more than four months his tale had been taking shape in his mind, a period when he must have been ripe for such suggestions as Cooke had to offer.

CHAPTER FIVE

With a shout of discovery we leap to the conclusion that Alice's mushroom is the one that Cooke serves us. The timing is perfect. Surely the progenitor of Alice, in the cloistered retreat of Christ Church, with Cooke's manual at hand, transmuted the untamed practices of the uncivilized Korjaks into the poetry of wonderland.[1] But no sooner do we reach this presumption than doubt re-enters, raising an admonitory finger. Can we be sure there was no native memory of a miracle-working mushroom ? We turn to the English translation of Jacob Grimm's *Teutonic Mythology,* and there in volume 4, on page 1412, we find the following statement, based on an Irish fairy-tale that we have not succeeded in locating: "The Elf-King sits under a great toadstool, and whoever carries a toadstool about him grows small and light as an elf." Certainly Lewis Carroll never read this reference in Grimm, but Grimm's wonder-working fungus of Irish lineage long antedated Cooke and von Strahlenberg, and Alice on her journey may have encountered this native mushroom. Once again our inquiries leave us poised between yes and no.

If on balance we incline to the view that Cooke inspired the mushroom episode in *Alice,* this is because Cooke's influence is clearly felt in Charles Kingsley's famous novel, *Hereward, the Last oj the English,* published in 1866. In Chapter 10 Kingsley introduces to his readers an old Lappish nurse, living in England, who possessed the secret of the "scarlet toadstools". She adds their juice to the men's ale, and makes them laugh and roar, "merry-mad everyone of them", and thus she extracts from them their secrets. Kingsley in the story expressly denies that the English of pre-Conquest times knew the virtues of the "strange fungus, with which Lapps and Samoiedes have, it is said, practised wonders for centuries past". In any case, the historical novelist is not an historical source. He too had read his Cooke, or some other of the earlier writers about the Korjaks, and to adorn his plot he fathered on the Lapps the practices of the Siberian tribes remote from them and remoter still from England. But today we know that he was right about the Samoyeds. Will some persistent inquirer someday discover that the Lapps knew the secret too ?

In the annals of Europe's cultural history it is hard to find a parallel for the polemic over the fly amanita's role in the Viking world. Odman published the initial paper in 1784, and at a glacial pace the controversy has simmered since then in Scandinavia and nowhere else. In English and German mycological

I. We cannot prove that M. C. Cooke's book was in C. L. Dodgson's possession. We learn from W. G. Hiscock, assistant librarian of Christ Church, Oxford, that Dodgson's library was dispersed after his death, and in the auction sale many books were put up in lots with only one or two titles itemized in the catalogue.

writings one sometimes happens on allusions to it, but only allusions. Yet for the ethno-mycologist and the student of northern Europe's early culture the problem will not stay laid, so long as the meager and tantalizing evidence hangs balanced as it does today.

We believe a new approach to the enigma of the fly amanita is to be found in the history of word meanings. We intend to propose a novel reason for the link that binds the famous mushroom with the fly. This is a bold undertaking, for the traditional explanation, the official and orthodox explanation, has seemed to everyone for centuries to be full, perfect, and sufficient. Indeed, the argument in favour of orthodoxy in this instance is so strong that if we should succeed in our challenge, our triumph in this our secluded garden of intellectual disputation would be high drama, even if only in a minor key: caviar for initiates.

Everyone who knows the first thing about wild mushrooms knows why the fly amanita is so called: it kills the flies that feed on it and until modern times it was used as a household insecticide on the Continent. This is what all the books say. What is more, there is a large part of Europe where the untutored rustics, the people who read no books, also accept the story as part of their legacy of folk knowledge. It belongs to that curious fund of 'facts' that people keep repeating to each other and believing, without verification or analysis, like the saying that all Russians are good linguists. The area of Europe where our folk belief prevails is extensive but not all-inclusive. It embraces the Slavic world, the Germanic world except the British Isles, the Vosges, where Franco-German bilingualism prevails, and one or two enclaves elsewhere in France. The ancient authors, though they have much to say about the fungi, never refer to a fly-killer, and in modern Italy among the country folk we believe the association with the fly is unknown, but ouf inquiry has not been exhaustive. It is unknown among the Basques, and apparently to all the rural population of the Iberian peninsula. If we judge by Eugene Rolland's evidence in his *Flore Populaire,* in France the name *tue-mouche,* 'kill-fly', is indigenous only in Alsace and the Aude, though thanks to the mushroom manuals, it is now familiar to a sprinkling of educated Frenchmen elsewhere. (Rolland reports that at Val-d'Ajol in the Vosges the natives hang the fly amanita from the ceiling, where, he says, it draws flies to their death.) By contrast the German *Fliegenschwamm* or 'fly-fungus' has its variants in all the German dialects, and also in Dutch and the Germanic languages of Scandinavia, but not in English. (The 'fly agaric' and 'fly amanita' of England are learned inventions of the past two centuries.) The Russians say *mukhomor* or 'fly-killer', and parallel terms are found on the tongues of other peoples of the Slavic family.

In short, the fly amanita is linked with the fly almost solely among the Germanic and Slavic peoples of northern Europe. We can trace it back six centuries, and in a series of quotations we are going to document this folk belief from the Middle Ages down to the Age of Science. We shall prove that its credentials have been seasoned with time. We shall suggest that what has long been believed may be only part of the truth, or even wholly false.

The earliest reference to the fly amanita known to us is in *De Vegetabilibus,* the considerable work on the vegetable kingdom written in the I3th century by Albertus Magnus. Twice he speaks of it and on each occasion refers to its fly-killing powers:

[i]

Tuber enim, quod vocatur muscarum, venenosum est; et si lacti immisceatur, et muscas cadant super lac illud, gustantes ipsum, inflantur et moriuntur. Est autem illud tuber in superficie latum, et ad rubedinem declinans, habens in superficie ampullas, sicut sunt ampullae in pelle valde leprosi hominis, in quibus non est humor, sed ventositas quaedam interclusa. -*De Vegetabilibus,* BOOK n, Chap. 6: 87.

For the mushroom that is called flies' [mushroom] is poisonous; and if it be mixed with milk, and flies fall upon that milk, upon tasting it they swell up and die. Moreover, that mushroom is broad, and tends to redness, having on the surface vesicles, such as are the vesicles on the skin of a very leprous man, in which not moisture, but a certain windiness is enclosed.

[2]

In nostris autem habitationibus invenitur fungus, qui latus est et spissus, aliquid ruboris habens in superficie, et in illo rubore habet multas ampullas elevatas, quarum quaedam fractae sunt, quaedam non: et ille mortalis est, et statim interficiens, et vocatur fungus muscarum, eo quod in lacte pulverizatus interficit muscas. *Idem,* BOOK vi, Chap. 7: 345.

Among our dwellings, moreover, there is found a fungus that is wide and thick, having a little ruddiness on its surface; and in that ruddiness it has many raised vesicles, of which some are broken, some not; and that [fungus] is death-dealing, and kills immediately, and is called flies' fungus for this reason, that when pulverized in milk it kills flies.

The quotations are taken from pages 136 and 517 of the text edited by Carl Jessen and published in Berlin in 1867.

A century later, in the years 1349-50, another German, Konrad von Megenberg, wrote *Das Buck der Natur,* the earliest work on natural science in the German language. He devotes a paragraph to various fungi, and ends up with some quaint sentences about the amanita muscaria. Writing in the Bavaro-Austrian dialect, he said:

Es ist auch einer anderley schwammen die seind zuomal unreyn die seind breit und

dick und oben rot mit weyssen bleyterlen. Wann man die zuo milch mischt so deet er die muggen. Darumb heyssen es muggennschwammen. Und zuo latein mustineti[?].

There is also another kind of fungi which is wholly unclean; they are broad and on top red with white little plaques. When one mixes them with milk, they kill flies. Therefore are they called *muggennschwammen* [i.e., 'fly-fungi'] and in Latin ***mustineti[?].***

We have taken our text from the earliest printed edition, dated 1475.

Our third author is likewise German, Valerius Cordus, known sometimes as the father of modern pharmacology, whose untimely death at the age of 29 in the year 1544 was considered by his Renaissance contemporaries, the scholars of the New Learning, as the crudest of blows and an irreparable loss. In his *Adnotationes* or commentaries on Dioscorides he too devotes one paragraph to mushrooms, and one sentence to the fly amanita. In his text we find the earliest use known to us of the modern German name *Fliegenschwamm:*

Sub Betulis arboribus in candido & rufo colore varii nascuntur Fungi, quos *Fliegen-schivemme,* id est, Muscarios fungos vocamus, quoniarn muscas lacte intriti occidunt.

Under birch trees, white and red in color, spring up various fungi that we call *Fliegen-schwamme,* that is, 'fly-fungi', since when crumpled in milk they kill flies.

The father of the science of mycology is the designation that has often been bestowed on Charles de Lecluse, a Frenchman of Arras, whose contributions to botany make him a major figure in the history of that branch of knowledge. The year 1601 saw the publication in Antwerp of his *Rariomm Plantarum Historia,* an important work in which a sizeable section was devoted to the fungi of Hungary, or 'Pannonia' as the region was called. Carolus Clusius, the name by which De Lecluse is better known, was the first writer on mushrooms who fixed on them his gaze, describing them with the fidelity of a man who sees and puts down on paper what he sees. His description of the amanita muscaria is exact, and then he refers to the flies:

Invenitur etiam hsec species in caeduis silvis Francofurto ad Mcenum vicinis, unde rustics mulieres lectam, in urbem deferunt venalem, cum non ignorent plerosque empturos ad muscas necandas: nam cum, ut dixi, muscse libenter illi insideant, divulsam in frag-menta, varijs in conclavi locis ante fenestras spargere solent, ad quae invitatae & excitae muscas, succum sugunt ipsis perniciosum, & paulo post etiam lethalem.

This species is also found in the aged forests around Frankfort-on-the-Main, where it is collected by peasant women and brought to the city for sale. Since most of the buyers know it well, they buy it to kill flies with. And so, as I said before, since the flies like to sit [on these mushrooms] people scatter them in pieces around the room and strew them before the windows; the flies, attracted and excited, suck the juice which is poisonous for them and soon die.

CHAPTER FIVE

Albertus Magnus, von Megenberg, Valerius Cordus, Carolus Clusius - here is a formidable foursome supporting with their testimony the traditional view of the fly amanita. A critic, however, might find occasion for certain reservations. All four were Germans or writing against a background of German experience.[1] Why did not the Greek, Latin, French, and Italian writers report the same phenomenon > The credibility of Albertus Magnus is somewhat impugned by his description of the mushroom: the amanita muscaria has no windy pustules suggestive of lepers. The Doctor Universalis must never have focused his eyes on the fungus he was describing: at least part of what he said was hearsay. Von Megenberg exposes himself to the same criticism. Just before the sentences about the fly amanita, he has described another species, the *Pfijferling,* which in his day meant the lactarius piperatus, and he erroneously declares that it is a mortal poison. Here, translated, are his words: " One must watch out, for they are often most poisonous and can sometimes make a man deathly ill… We have an instance of this in Austria: a man ate a dish *o£ Pfifferling* and then drank strong mead, and he died at once in front of the barrel. This is true, by God!" As witnesses, both Albertus Magnus and von Megenberg would be in trouble on cross-examination by opposing counsel: their writings are a blend of the learning and the hearsay of their time. Valerius Cordus' brief statement adds nothing beyond his own adherence to a popular belief. Clusius introduces a new note: he is the first to inform us that the use of the fly amanita as an insecticide was exceptional: he places the custom around Frankfort, and by implication tells us that it was not known elsewhere. He was a traveled man, and he lived in Frankfort from 1587 to 1593.

There is a peculiar thing about Clusius' remarks on the fly fungi. He does not consider these mushrooms a species. He describes them under the heading of Genus XII of pernicious mushrooms, and this genus he sub-divides into five or six species, all of which he says kill flies. With the aid of Clusius' water-colors preserved in Leiden, the Hungarian scholar Dr. Gy. Istvanffi de Czik-Madefalva has identified these species, two of them being russulas, one of them certainly a cortinarius, and two of them amanitas.[2] When Clusius reports the use of a fly fungus by the housewives of Frankfort, he is referring to the amanita muscaria. As Clusius was a reliable reporter, we must keep in mind that in

1. The largest and most popular old Polish herbal, written by a Cracow Professor of medicine named Syrenius (f 1611) and published in 1613 in Cracow, says under *muchomor* on p. 1394: "One boils fly amanitas in sweet milk; then one pours it into bowls. Flies fly down to the milk and perish." We have not seen this work. The reader will observe that Syrenius boils his concoction, which would certainly not help its insecticidal powers.
2. See this author's *Etudes et Commentaries sur le Code de I'Eduse Augmentes de Quelques Notices Biographiques,* Budapest, 1900.

former times, when the tradition of fly-killing fungi was still strong in folklore, not one but several species probably bore this designation.

This leads us to Linnaeus. The great Swedish scientist in his *Flora Svecica* repeated the statement about killing flies, but instead of placing the custom in Frankfort, he said it prevailed in Smolandia, a Swedish province where he had spent his childhood:

Cum lacte occidit Muscas in Smolandia.

This is not the only reference to the insecticidal amanita in Linnaeus. In his famous *Skanske Resa* ('Journey through Scania'), published in 1751, on page 430, he tells how a certain Swede in Upsala got rid of bedbugs from two of his rooms by the use of the amanita muscaria. He describes the remedy and then concludes with what we consider a most significant statement:

One takes in the autumn fresh specimens of the fly amanita, pounds them with a pestle quite small in a jar, lets them stand well closed until they become slimy or like gruel. Then one takes a feather or brush and smears all the cracks and corners where they [the bedbugs] keep themselves, and this procedure is repeated several times at monthly intervals. The room stinks for two or three days, but then the smell disappears. These nasty creatures die of it as if the plague had come amidst them, and whole bug-families perish as if from the Black Death. Although this remedy is simple, it is surer than anything else hitherto invented, and with its aid several houses in Upsala have now become free of bugs.

In a note on the next page Linnasus adds that he has learned of this method for the first time from a Mr. Bern, Cashier of Interests in Upsala. The text is in Swedish.

For us the striking thing about this description is that it is a report on a novelty. Certain families of Upsala were putting the popular reputation of the fly amanita to a test, and their first impression was enthusiastic. Why had they not been using it for centuries? What were their final conclusions, say five years later? The answers to these questions are not vouchsafed to us.

After Linnaeus the references to the fly-killing potency of the fly amanita in mushroomic writings are innumerable. All the mycologists believe in it - with one dissenting voice. None puts it to a test - with one exception. The French mycologist Jean Baptiste Bulliard, in his *Histoire des Plantes Veneneuses et Suspectes de la France,* which he finished in 1779, dares to strike a sceptical note. Speaking of the fly amanita, he says:

I have never noticed that it kills flies, as several authors assert. I have had specimens, raw and cooked, for long periods in my apartment. Flies light on them, and seem even

to eat them, without bad effects. But I intend to repeat this experiment with certain new precautions.

We know not the results of the promised experiments, but we know that when Bulliard died in 1793, he held the view that a new scientific name should be bestowed on the amanita muscaria, and he suggested 'agaricus pseudo-aurantiacus,' presumably because he considered the old name false. The mycological world has not deferred to his wishes, nor even tested his premises.

-Dugs, flies, moths, and all kinds of larvae - in short, the insect world - constituted for our ancestors until recent times an order of nature instinct with supernatural powers, mostly malevolent and always awesome. Their strange shapes and stranger behavior, their incredible numbers and countless kinds, perhaps most of all their undeniable faculty of metamorphosis, may be at the root of this role that they played in the thinking of untutored mankind. The fly was demonic, and we believe that the 'fly-fungus' originally meant the demonic mushroom, a name that fittingly designated a mushroom with the virtue of causing inebriation. We believe that the insecticidal meaning has encroached upon the ancient and primary sense, and finally shut it out.

We know that bugs and flies were linked with supernatural spirits a long time ago. The dung beetle or scarab played a conspicuous part in the religion of the ancient Egyptians. The neighbors of the Israelites in the Old Testament worshipped Beelzebub, whose name meant the Lord of Flies. In the Greek New Testament, where that heathen god does not appear, the same name was used as a synonym for the Prince of Demons. The Biblical term crops out in modern literature, as in line 1334 of Goethe's *Faust:* Wenn man Euch Fliegengott, Verderber, Liigner heisst. . . "When one calls you Fly-god, Destroyer, Liar." In Nordic mythology the god Loki assumes the appearance of a 'fly' to enter the tightly closed apartment of the sleeping goddess Freya. He pricks her, and when she starts, deftly detaches her necklace and steals it. Whatever that 'fly' was, no one thought of it as a housefly, for the housefly does not bite.

In English the word 'bug' until the zyth century meant an evil spirit. Then, when that meaning fell from grace in good society, the word came to designate a creeping insect of the beetle class. Its etymology is unknown. It is current in Welsh in both meanings, in the simple form *bwg* and in compounds. It seems to correspond to Cornish *bucca* and to Irish *bocdn,* both meaning hobgoblin. We suggest that all these words are related to Anglo-Saxon *hue,* meaning 'belly'. The semantic link between inflatable sacs and demonic spirits would parallel the same double layer of meanings in our *pogge-cluster* of words. The

'Bugge' that in Shakespere's *Henry VI Part III* 'fear'd [= frightened] us all' would stand revealed as an uncouth relative of the nimble Puck in *The Mid-summer Night's Dream,* and in these latter days of the Pooka that bathes the stage with benign mischief in Mary Chase's *Harvey,* and of Milne's Winnie the Pooh. Ernest Weekley in his *Etymological Dictionary of the English Language* says that 'bug' in the supernatural sense is obsolete, except in the compounds 'bugbear' and 'bugaboo', and other lexicographers lean to the same view. Surely they are mistaken: the tabu that hangs over words in low and colloquial use sometimes shuts off the minds of scholars from rich evidence. Few words are so dynamic and versatile as this one is in the United States. Besides bugbear and bugaboo, in compounds we have humbug, firebug, jitterbug, and that contemptuous word for an insane asylum, bughouse. There are of course the variants in -o-, - bogey, bogeyman, boggart (in England's North Country), possibly bogus, and the verbs to bogle and to boggle. The Oxford Dictionary in one citation offers grounds for supposing that 'buggy' was a nickname bestowed in the i8th century on a new design of two-wheeled vehicle, presumably because the makers had not yet got rid of the 'bugs' and the vehicle was insecure. In the United States a Big Bug used to be a common designation for an important person, a madman is 'bugs' and fit for the bughouse, a newly designed engine is usually full of 'bugs', and a specialist in any field is a 'bug' on the subject. In the course of casual reading in the American press, we pick out repeated uses of 'bug' that suggest demonic inspiration. From the *Saturday Evening Post* on March 10, 1951, we learn that all Dixie is bitten by the basketball bug. On March 15 of the same year the *New York World-Telegram and Sun* launches a drive for circulation with a 'Bugs Bunny Coloring Contest', the 'bugs' in question being demonic imps and not insects. On May 8, 1953, *The New York Times* in its 'Topics' says that Vice President Nixon has been bitten by a golf bug. On the same date the afternoon newspaper reports that the Allies seek to clear up the 'bugs' in the truce terms in Korea. On May 17, we learn in a book review in *The New York Times* that the defeated United Nations troops in Korea, when they were falling back as best they could in late 1950, referred to their retreat as 'bugging out', a term that suggested both devilish resourcefulness and the goddess Luck. On July 14 the *Daily News* of New York reported in big headlines that the 'boat bug bites thousands', meaning that summer throngs seek to go boating. The idea of distension is dominant in the vulgar American verb 'to bug out', meaning 'to bulge'. Tennessee Williams in his short story, 'Three Players of a Summer Game', has one of his characters say: "I walked straight up to them both, and you should of seen the eyes of them both bug

out!".[1] If we are right, in this vulgarism the word preserves its pristine meaning, today largely superseded by a specific and secondary application to tiny, crawling vermin. On the campus of Wayne University, in Detroit, 'buggy' has been reported in recent years as a students' word for 'upset' or 'mentally disturbed'.[2]

It is easy to see how Bugg came to be an English family name, for it enjoys to this day a vigorous existence, with an -s attached, as a respected nickname; e.g., Bugs Raymond the once mighty baseball pitcher, Bugs Baer the beloved cartoonist and Hearst writer, and Bugsy Siegel, the gangster who died a sudden and violent death in surroundings of gaudy splendor. In June 1941 Charles Workman, known as 'the Bug', stood trial in the New Jersey Court of Common Pleas for the murder of Arthur (Dutch Schultz) Flegenheimer. When one of the Bug's witnesses reversed his own testimony, the defendant changed his plea from not guilty to non vult, and thereby avoided the death penalty but bowed to an inevitable life sentence. In the course of that trial one of the off-stage figures was Martin (Buggsy) Goldstein.

Let it be noted that in the minds of those who bestow these bug-inspired nicknames, they are titles in which affection, awe, and envy are mixed. They are an expression of deference toward the ingenious demons that possess the honored person. Let it be further noted that current usage inclines toward a plural visitation of imps, though in the case of Bugs Baer we can testify that in his immediate circle he like Charles Workman is often simply 'the Bug'.

'Bug' also turns up in place-names, as in Bugtussle, in Cullman County, Alabama. Curious about the origin of such a name, we addressed our inquiry to a citizen in nearby Bremen, whose reply deserves preservation:

> Some forty years ago we had a postoffice here: Wilburn. Two drunks were fighting, Will James and Charles Campbell. James called it Bugtussle. So it has been called Bugtussle by a part of the people ever since that time. 12-20-49.
>
> [Signed] G. C. Florence.

May Bugtussle forever remain faithful to a name born in Homeric circumstances, commemorating the spot where once strove together the two Big Bugs. In England we find a Buglawton in Cheshire and a Bugthorpe in the East Riding of Yorkshire, and Eilert Ekwall in his dictionary of English place-names permits us to associate these towns with our 'bug' of supernatural powers. 'Bug' displays a singular aptitude in America for assuming new meanings derived from its original sense, a power of verbal metamorphosis that befits

1. The story was published by Intercultural Publications Inc. in *Perspectives USA* II, pp. 15-39; se£ P- 25-
2. See William White's article, 'Wayne University Slang', in *American Speech,* vol. xxx, no. 4, December 1955.

the world of six-legged creatures. Take telegraphy, for example. In the early days of the telegraph, the transmitting key worked perpendicularly, and the telegrapher had to lower and release his hand for every dot and every dash. Later, perhaps half a century ago, a device appeared that permitted much faster manual transmission. The new key worked horizontally, to left and to right of a neutral position, making dots continuously as long as it was pressed to one side. The hand no longer moved for each dot, but only when dots changed to dashes. The thing seemed possessed of the devil, it went so fast, and everyone in the craft was soon calling it the 'bug'.

With the verb 'to bugger' a double problem presents itself. The meaning that is written into the criminal law comes from the French *bougre,* and seems to have emerged at the time of the Albigensian heresy in referring to the perverted practices attributed, unjustly, to the devotees of that sect. But throughout the English-speaking world there has always been an innocent use, as when the sailor says of his gear that it is all buggered up,[1] and when a Lancashireman pays another the compliment of calling him a 'rare old bugger'. In circles where an improper word is excluded, this verb has nourished down to our own times. We suggest that this innocent use offers us a verbal form derived from 'bug' as a sprite, that it is native in English, and that the younger word imported from France has led until recently a segregated existence. Today the bad word, becoming more widely known, is driving out the good (as Gresham says), to the detriment of the language. For education as it spreads breeds new misunderstandings and new ignorances.

In an English translation of the Bible that bears the date 1549, it was possible for pious scholars to render Psalm xci: 5 thus:

> . . . thou shalt not need to be afrayed for any bugges by night nor for the arrowe that flyeth by daye;

a verse that emerges cleansed in the Authorized Version:

> Thou shalt not be afraid for the terror by night; nor for the arrow that flieth by day.

'Bug' in the sense of a creeping, six-legged creature is first recorded early in the iyth century, but it may have been long in use on the tongues of the untutored people who made up most of the population of England. Are we dealing here with two words or one? The Oxford Dictionary reserved judgment on this nice point, but in a study of the word published in December 1935 and 1936

i. See Joanna Carver Colcord's Sea *Language Comes Ashore,* Cornell Maritime Press, N. Y., 1945, p. 43, **for** comments on the innocent use of the term by seamen.

in the *PMLA* (the journal of the Modern Language Association of America), Miss Hope Emily Allen established beyond reasonable doubt that the two meanings belong to a single word. The six-legged beetle was felt to be the habitation of a demon, and took his name. The Oxford Dictionary reveals a parallel association of ideas in the word 'fly', for this word not only refers to insects but also has always meant a 'familiar spirit', a usage that survives to this day in the adjective 'fly', rated as slang by some, meaning nimble, dexterous, sharp.

In the Russian language there is an astonishing parallel for the two meanings of these English words. Children in Muscovy are admonished to behave lest the *buka* get them. The *buka* is the children's bugbear. The *bukashka* is any small flying buzzing beetle. Slavists consider that the two words are related to each other, and that both are keyed to the basic word *byk,* 'bull'. Until a thorough study of the demonic vocabulary of Northern Europe has been made, perhaps the door should be left open for alternative possibilities.

When Albertus Magnus and Valerius Cordus referred in Latin and German to the 'flies' killed by the fly amanita, what insect had they in mind? What meanings and associations did the words possess for them > Today 'fly' means the housefly, or, by extension, other species of two-winged insects. But this is a modern concentration of the meaning, the result of increasingly precise observations in the insect world. The Oxford Dictionary establishes the fact that in former times 'fly' ordinarily designated insects as divergent as locusts, moths, gnats, and the whole dipterous order. To this day there are High German dialects in which *Fliege* and *Mucke* mean both 'fly' and 'mosquito', as does the word *mich* in Frisian. The older usage survives in the angler's 'flies', which descend from all kinds of flying insects. In the Indian and Iranian languages the words for 'fly' are often used for 'bee' or are the base from which their words for 'bee' are formed.

Good illustrations of this early generic usage are to be found in Basque, where the primitive form of the word 'fly' was *uli.* In a variety of forms this word enters into the names of many insects: *eltxo,* mosquito; *uli farfalia,* butterfly; *eltzar,* caterpillar; *eltxu,* locust; and, perhaps the most interesting of all, a word used by the Basques of Guipuzcoa, *eultza,* meaning a bee-hive, the second syllable being simply a collective suffix. A bee-hive is a 'fly-hive', and in the dialect of Bermeo in the same province, a wasp is an *ulabio,* the first element meaning 'fly' and the second being derived from the Romance word for 'bee', *abeille* and *abeja.*[1]

I. See Gerhard Bahr, 'Nombres de animales en vascuence', in *Revue Internationale des Etudes basques,* vol. xxvn, 1936, pp. 73-118, especially p. 77.

The variable application of the words for 'fly' in former times was not a conscious use of a general term. It is to be explained rather by the ordinary man's inability to distinguish among flying insects, so that he was disposed to use without precision such words as he possessed for the insect world. This was common to the period, and therefore to all languages. The ordinary syrphus or carrion fly was considered for thousands of years to be the same as the honey bee and bore the same name: this is the insect that Samson found swarming in the carcass of a lion. The fact of metamorphosis in the insect world was known, and maggots and other carrion worms were known to be kin to the insect world, but the successive transformations were not carefully distinguished by species. In Dutch the word for 'moth', which is *mot,* serves for maggots also. Sometimes accidents of sound led to confusions in names. In English 'flea' and 'fly' are words of different origins, but the phonetic similarity caused them to be used interchangeably. In *Henry V* we learn that when Falstaff lay dying, he saw a 'Flea' stick upon the toper Bardolph's flaming nose, whereupon he said it was a 'blacke Soule burning in Hell'. What he saw was of course a fly, and the black soul in hell was, according to the beliefs of that day, its incorporeal counterpart, the Demon domiciled in every fly.

For all insects used to be considered agents of demonic powers and were clothed in a fearsome aura of mystery and magic. We believe we can adduce new and striking evidence of this. On an earlier page we pointed out that Satan was known in France at one time as *le Bot,* 'the Cripple'; and that this name came to be transferred to the toad, and in the form *hot volant* to the nightjar and the bat, nocturnal flying creatures of evil omen. We suggested that the form of the English word 'bat' is attributable to the French word, but we did not then point out the wider applications in English of the French word. 'Bot' in English is the larva of the gadfly; it occurs also in 'botfly'. What was originally a euphemism for Satan himself thus turns up in English as a word of the insect world. Satan resides in the botfly and in the larva of the gadfly. In Joseph Wright's *English Dialect Dictionary* we find that 'bot' and 'bat' are dialectal variants of each other, and that in various parts of the United Kingdom 'bat' is used for 'moth'. (The larger moths, nocturnal in habit, were formerly 'flies' of specially evil potency.) In many counties of England 'bot' has been used colloquially for all kinds of grubs and larvas, even turning up in Wright's pages as a designation for the flying 'bat'. The dictionaries declare that the origin of'bot' is unknown; we think they have overlooked the multivalent service rendered by the French *bot* and failed to detect the common Satanic denominator between it and the English term.

The word 'maggot', in turn, besides designating larvae, has always meant an evil caprice. John O'Donnell in the New York *Daily News* on October 28, 1952, devoted his column to 'Mr. Truman's Maggot', by which he meant "a maggotty individual full of whims", and the use of the word in this sense is richly documented in the Oxford Dictionary. In Smollett's *The Reprisal; or, The Tars of Old England* one of the characters says that "now we man [must] . . . defend her from the maggots of this daft Frenchman", who had been " sent awa' with a flea [sic] in his bonnet". The etymology of 'maggot' is unknown, according to the dictionaries. But if we view this word against the background of double meanings that it and 'bot', 'fly', and 'bee' carry, the likelihood presents itself that 'maggot' (which was spelled 'magot' in its first recorded appearance around the year 1400) is related to 'magic', and both are then to be explained as derived, via French, from the Necromancers known as the Magi. When the Flemings and Dutch in former times called mushrooms the devil's bread, they must have had in mind the demonic larvae, maggots, and 'flies' that batten on the flesh of many wild fungi.

In the Middle Ages delirium, drunkenness, and insanity were attributed to insects that were loose inside the head of the victim. This belief, strange for the modern mind, survives in many familiar locutions. A man has a bee in his bonnet, a fly (or bug) in his ear, or demonic bats (= 'bots') in his belfry. The Norwegians get flies into their heads or put flies into others' heads. To 'put a bee on someone' means to fix him willy nilly for a given purpose: in this locution the demonic intent is scarcely fossilized. It used to be said in French, when a man was getting excited, that 'la mouche lui monte a la tete', a fly is getting up into his head. Down to recent times *avaler les mouches* was a phrase for saying that someone had summoned up his courage, and the flies thus swallowed were of course demonic. Rabelais at the very end of Book IV makes the coward Panurge protest that, far from being afraid, he is braver than if he had eaten all the flies cooked in the pastries of Paris betwixt St. John's Day and All Saints'.There is a colloquial expression that circulates around Lyons and perhaps elsewhere: 'Ne prends pas la mouche': don't catch a fly, don't get excited. Of a man who is unbalanced one says, '11 a 1'araignee dans le plafond', he has a spider in his ceiling, i.e., in his upper story. The Czechs use an identical phrase: *miti mouchu* (or *pavouka] na mozku,* 'to have a fly (or spider) on the brain'. In Russian, we say of a man who is tipsy: *on c mnkhoj,* so-and-so is 'with fly'. There is a gesture peculiar to the Russians that we feel sure stems from this association of psychic possession with flying insects. The Russian when he suggests having an alcocholic drink is like as not to perform a fillip against his neck

PLATE **xxxvi.** Hieronymus Bosch. The Hay Wain. Left Panel.
Madrid, Prado Museum.

1. Sterile base of Lycoperdon or of Calvatia sp.
2. Russula (palumbina?)
3. Russula emetica
4. Amanita muscaria
5. Psalliota (sylvicola?)
6. Clathrus cancellatus
7. Volvaria speciosa
8. Coprinus micaceus
9. Coprinus micaceus
10. Young Bovista or Lycoperdon
11. Coprinus niveus
12. Mycena (galericulata?)
13. Cladonia sp.
14. ?
15. ?

PLATE XXXVII

Otto Marseus van Schrieck. Moth with mushrooms.

Bale, Offentliche Kunstsammlung.

below the ear: this is so habitual that it is become a Pavlov reflex. Does not that familiar fillip invoke the demonic 'fly' entering the mind? According to the Icelandic-English lexicon of Cleasby-Vigfusson, under *fluga,* in Icelandic belief sorcerers would bewitch flies and send them to kill their enemies. This explains the modern Icelandic phrases, 'to swallow the fly' or 'to carry the fly', meaning 'to be the tool of another man in a wicked business'. In Basque folklore, sorcerers and other malevolent beings would work their will through demons that assumed the shape of flies, and sorcerers would carry the demonic creatures in a sheath such as anglers use for their flies today. In America little children to this day sing a nonsense ditty that invokes the 'bug' of demonic possession:

It's raining, it's pouring,
The old man is snoring,
He went to bed
With a bug in his head, And
didn't get up until morning.

Hieronymus Bosch, the greatest of Europe's painters of the demonic world, presents us with a superb illustration of flies in their demonic role. We find it in the left hand panel of the *Hay Wain,* where the momentous events that took place in Paradise leading up to Man's First Fall are portrayed with moving beauty. We reproduce the upper portion of that panel, wherein the observer sees that the angels tumbling down from Heaven assume the form of 'flies' - a diverse lot of winged demons, Beelzebub's host. The old meaning is far from dead even today. Recently *The Times Literary Supplement* published a poem by H. S. Mackintosh containing these sprightly lines:

Has Freud not hit the Devil on the snout?
Is not Beelzebub destroyed by Flit? Are
we important? Do we really sprout
Immortal souls that priests may manumit?

[Issue of Oct. 2, 1953]

Perhaps the reader will perceive the direction in which our argument is heading. We have seen on an earlier page that when the French refer to the amanita muscaria as the *crapaudin,* this by way of the Old French word for toad, *bot,* means the demonic mushroom. It is a word unrelated to insecticidal uses. In English that demonic word *bot* is transferred to the insect world, and shares with 'maggot', 'bee', and 'fly' the idea of demonic possession. When we find the *crapaudin* called the *Fliegenschwamm* in German, we sense a semantic identity. Both words are singularly appropriate for the inebriating mushroom, and they

inform us that long ago, much earlier even than Albertus Magnus, the secret of this mushroom was known. And if it was known, why should it not, on appropriate occasions, have been put to its own great, even fearsome, use;

One of the most interesting examples of the Satanic fly in European literature is to be found in that classic of the Danish stage, Ludvig Holberg's *Jeppe of the Hill,* first produced in 1722. Two physicians are conversing. One of them speaks of his Lordship, who has had a strange, ugly dream, which so excited him that he imagines himself a peasant. Whereupon the other physician recalls a remarkable case ten years back: "… a man who thought his head was full of flies. He could not rid himself of the delusion, until a most clever doctor cured him in the following manner. He covered his patient's whole head with a plaster in which he had embedded masses of dead flies. [Query: were they the Spanish flies of the Pharmacopoeia >] After a while he removed the plaster and showed the flies to the patient, who naturally believed that they had been drawn from his own head and therefore concluded that he was cured." Here is a beautiful instance of the way a dramatist (or physician) puts to use an outworn belief that lingers on in the penumbra of man's consciousness.

Old and forgotten beliefs often survive in strange places, in usages that on their face are baffling. Miss Allen has pointed out that in the nursery language of little children, the homely words used for dried or inspissated nasal mucus, such as 'buggy bear' and 'bug', are linked with the spirit world. In Russian the corresponding word is *kozjavka,* which means larva or any small creeping thing. There is an expression, *vsjakaja kozjavka lezet v bukashki* - 'every larva would be a fly'; and *bukashka* is a diminutive of *buka,* bugbear. We believe that these nursery words for dried nasal mucus are a legacy of the medieval belief that when sanity returns to a man who has been out of his mind, an observant attendant can catch sight of an insect emerging from the nostril of the patient. Thus that escaping bug or maggot or bot or fly survives to this day in a metaphor on the tongues of unknowing children. We should add that this interpretation is ours, and not Miss Allen's.[1]

This belief in the demonic role of flying and creeping insects is not confined to Europe and the Mediterranean. We think we find telling evidence in favor of our argument in that the area of diffusion of this belief embraces the Chukchees and Korjaks, the very peoples where the use of the fly amanita survives. Jochelson in his treatise on the Korjaks reports that if the eater of the fly amanita vomits,

I. For material relating to our discussion, see E. Hoffmann-Krayer's *Handivorterbuch des Deutschen Aberglaubens,* in the article *Fliege',* also the papers by Miss Hope Emily Allen to which we have already referred, as well as her paper on *Bogus* in *American Notes & Queries,* Sept.-Oct. 1941, and on the wood-louse in *the Journal of American Folklore,* April-June 1935.

the people believe that the spirits of the demonic mushroom can be found in the vomit as 'worms' which then quickly vanish into the earth.[1] Bogoras in his study of the Chukchees says that the shamans think psychic disturbances are caused by insects, and they use insects in their treatment of mental disorders. The shaman catches an insect from off his drum, swallows it, spits it up, and applies it to the head of the victim; he then sucks the sick man's head. Sometimes the insect is imaginary, sometimes real.[2]

It befits the amanita muscaria, with its unique prestige among country-folk as the villain of the fungal world, that the pattern of vernacular names for it should be correspondingly subtle. Over large areas it is the mushroom with 'flies' in its cap. In France it is the domicile of the *hot* or toad, by which is meant Satan; and in the Basque *amoroto* we find the same presence. This raises the question whether the English 'toadstool' was not once the specific name of the fly amanita, just as in the Haute Saone Eugene Rolland reports *bo* as a designation for any gilled fungus, and in the Loire, *botet,* both presumably meaning, by way of 'toad', the Satanic fungus. We have said before that Rolland reports *tuo-mouscos,* 'fly-killer', in the Aude, and there this name, significantly, competes with another, *mijoulo folho,* the 'mad-mushroom', as though the two were synonyms. The idea of madness is reported in several other common names for the fly amanita: *mujolo folo* around Toulouse, *coucourlo fouolo* in the Aveyron, and *oriol foil* in Catalan, 'mad oriole', the oriole being the amanita csesarea. In the dialect of Fribourg, Switzerland, the amanita muscaria is the 'devil's hat', *tsapl de diablhou.* In all this nomenclature the toad and the fly are synonyms and complementary, and both mean madness and Satanic possession.

On a later page we shall discuss the small group of painters, mostly Dutch, who devoted their talents in the iyth century to still-life studies of demonological subjects. These painters, superb technicians, have seldom been surpassed in their solicitude for portraying nature faithfully. They assembled their curious compositions, not capriciously, but to express folk-beliefs that were already waning, and therefore their canvases offer us folkloric documentation of high value. So far as we know, this aspect of their art has not yet been studied. We reproduce one of these paintings, a canvas by Otto Marseus van Schrieck, which hangs today in the Bale art museum. The composition is admirably handled. In a small field there are more than twenty mushrooms, most of them identifiable. Dominating the center of the scene is the latticed fungus known as the clathrus cancellatus, here slightly constrained to suggest a death's head. On the extreme right is one of the coprini, caught in its moment of active deliquescence. There is a grass snake

1. Jochelson, *op. tit.,* pp. 582-4. 2. Bogoras, *op. tit.,* p. 464.

(natrix natrix), a green or wall lizard of the lacerta genus, and a gecko not native to the Netherlands. The snake is about to seize a beetle. A dragon fly with a pronounced curvature approaches the large mushroom that seems to be a stropharia semiglobata. Of highest interest for us is the 'fly' that descends on the amanita. The Bale museum calls this insect a butterfly *(Schmetterling),* but this is an error. It is a moth, the most sinister of the 'flies', and the painter was so intent on an accurate statement of his message that he permits us to identify the moth as belonging to the family called saturnine, i.e., one of the saturniidse. Thus here in this nocturnal gathering heavy with demonic import we discover a 'fly', - the 'fly' that gives its name to the fly amanita, a 'fly' that for our ancestors was saturated with magical potency. Missing from the scene are the amphibia: neither toad nor frog do we see. Van Schrieck knew the virtue of economy in utterance, and the omission of the toad was for him obligatory. In the presence of the 'fly', the *padde* or *hot* would have been redundant, iconographically otiose, an intruder speaking the same message but in a different idiom. Its presence would mean piling not Pelion on Ossa, but *paddestoel* on *vliegenzwam.* The fly amanita holds an altogether extraordinary place in the folk culture of northern and eastern Europe. The deadly fungi are as nothing in comparison, and in the mycophobic world of the Germanic peoples no edible kind was of importance until recent times. For us it is altogether incredible that the grip of this *Fliegenschwamtn* on the imaginations of countless generations sprang from any insecticidal power that it may have. It possessed in men's minds a supernatural potency, the potency of the 'flies', and though direct, affirmative testimony is meager, we believe that the prestige of the fly amanita descended from a knowledge, in at least some circles at some period, of its divine or demonic powers.

Up to this point our argument about the fly amanita has been an intellectual exercise. We have offered an alternative explanation for the name. We have impugned the traditional explanation by challenging the credibility of the witnesses. Albertus Magnus and Von Megenberg were relying on hearsay, and so indeed was Linnaeus when he quoted a Mr. Bern about the bedbugs. Most writers place the fly-killing use at a distance from themselves in time or space, Clusius in Frankfort, Linnaeus in Smolandia, John Ramsbottom in Poland, Bohemia, and Rumania. Mr. Ramsbottom[1] also says that the fly amanita was 'formerly' used in England and Sweden for killing bedbugs, and thus he justifies the occasional occurrence of the name 'bug agaric'. But this term can not be really old, for Linnaeus by his great authority imposed the name 'agaric' on

I. See his *Poisonous Fungi,* Penguin Books Limited, 1945, p. 21.

the gilled fungi and the use of 'bug' for 'bedbug' appears to be a modernism, whereas 'fly' and 'bug' in their demonic sense are truly old. Only Bulliard put the fly amanita to the test, and his findings seem to have been cleanly negative. But in support of Bulliard's scepticism we can add a story told to us by a Russian friend, Ekaterina Apollinarievna Bouteneff. Her nurse in childhood was an unlettered peasant woman from the region of Riazan. Our friend remembers having seen this good woman time and again put out a saucer with a crushed cap of the fly amanita in it, a lump of sugar on top of the fungal mess. This was going to kill the flies, she would always say. But our friend always observed that the flies did not die. When she would ask her nurse why they did not die, the reply was always the same: "They are sure to die later."

In the summer of 1953, on our suggestion, the mycologist F.-E. Eckblad of the Botanical Museum in Oslo, working under Professor Nordhagen, undertook the experiments that were a desideratum for our case. In a letter addressed to us on September 8 he sent us his preliminary conclusions. They, like Bulliard's, were negative: "The fly amanita may contain matters poisonous to flies. But flies are not attracted to it, perhaps avoid it, and are not killed by it when used in the old way", i.e., mixed with sugar or milk or both. Mr. Eckblad warns that his findings must be considered tentative, both because his supply of the mushrooms had not been so plentiful as he had hoped and because several species of flies were present in insufficient numbers. But on the strength of the first season's experiments there was no evidence of insecticidal virtue in the fly amanita. On the other hand, experiments carried out during the same season at the Laboratoire de Cryptogamie of the Museum National d'Histoire Naturelle in Paris gave different results: the flies were drawn to the concoction and died from it, and they died more quickly when the milk was sweetened with sugar. Once again the evidence leaves us in suspense, and the experiment calls for retrial by various workers.

Even if the fly amanita kills flies, our conclusions will not be invalidated, for the name could carry two layers of meaning, one for housewives and the other for those initiated in sacred mysteries.

However, if it should develop that the fly amanita never harmed a fly, we should find ourselves confronted with a new question: how do we explain the legend ? Why did Albertus Magnus give it the endorsement of his immense renown? Why is the *Fliegenschwamm* called 'fly-killer' throughout the Slavic world and by the peasants in certain provinces of France ?

Let us assume for the purposes of our argument that we are right, and that the fly amanita was really the 'demonic fungus' of northern Europe for untold

centuries of unrecorded history. Let us suppose that it was utilized for its inebriating virtue. Such use was certainly veiled in awe and mystery, and the secret was the precious possession of esoteric and (need we add?) illiterate circles. As the missionaries of Mediterranean culture and religion probed the northern forests and gained adherents, the custodians of the old culture, retreating before the new, would guard ever more zealously the lore that was their exclusive possession and that survived solely by oral transmission from generation to generation. From earliest times, in the pagan era, an alternative explanation for *Fliegenschwamm* must have been a convenience in satisfying the curiosity of the laity, and this popular rationalization was all that reached the ears of bookworms like Albertus Magnus. The use of the fly amanita as an inebriant may always have been reserved for rare occasions.[1]

Students of cultural history must ever keep in mind the fact, abundantly established, that in a single population, living together contemporaneously, distinct cultures can co-exist largely insulated from each other, like the droplets in an emulsion, juxtaposed but never mingling. Albertus Magnus, though German-born, was culturally a child of the Mediterranean. The universal knowledge of which he was repository and teacher was the legacy of classic antiquity and the Church. He and his like rejected the old culture and were certainly not privy to its innermost secrets, whatever they were. In the end the churchmen conquered, of course, and the contents of the modern mind are the fruit of the cultural invasion of northern Europe by such missionaries as he. The nether face of northern Europe before the advent of the alphabet and the printing press, the autochthonous culture, is known to us imperfectly, in fragments. By the time of the witchcraft trials in the i6th and iyth centuries, the distillation process was common property throughout northern and eastern Europe, and *aqua vitcz,* costing almost nothing, had certainly swept away and obliterated any surviving use or even memory of the secret virtue of the fly amanita.

If the meaning that we have read into *Fliegenschwamm* should win approval, we still could not assert that when the Vikings went 'berserk', the fly amanita was the cause. The debate among Scandinavian scholars would not be settled. But the affirmative argument would be greatly strengthened.

i. The Russian symbolist, Andrej Belyj, in his novel *Vozvrat,* published in 1902, has his hero, Professor Trupov, write a work entitled *Mukhomory,* 'Fly Amanitas'; furthermore, in the delirium of the mad hero centaurs appear that are obsessed with *mukhomory.* We assume that the author was drawing his material, not from Slavic folk memories, but from Korjak practices.

End of Volume I

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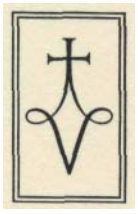

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MUSHROOMS RUSSIA AND HISTORY

BY

VALENTINA PAVLOVNA WASSON
AND R.GORDON WASSON

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VOLUME II

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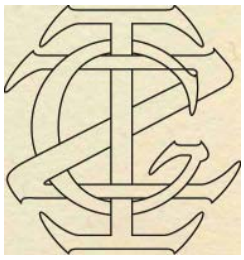

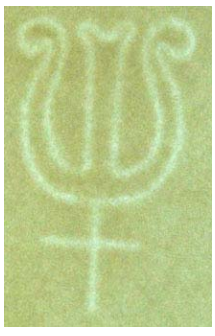

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VOLUME II

14

TEO-NANACATL

The Sacred Mushrooms of the Nahua

1 here are three cultural areas in the world where men consume mushrooms for psychic effects. We have just dealt with one of these - the eating of the fly amanita by the Hyperboreans of Siberia.

The second area is in New Guinea, in the northeastern part of that island, at the headwaters of the Wahgi River. The practice is reported among the natives living in the Mount Hagen range of mountains, but it may well be more widespread. The Mount Hagen natives are a mixture ethnically of Negritos and Papuans, with some Melanesian blood. Concerning their use of an intoxicating mushroom the available evidence is clear but pitifully meager. In 1947 the American Ethnographical Society published as its Monograph No. 12 a paper by Abraham L. Gitlow entitled 'Economics of the Mount Hagen Tribes'. He devoted one brief paragraph to intoxicants, and said that one of the three in current use was a mushroom called *nonda.* Then he continued:

> The wild mushroom incites fits of frenzy and has even been known to result in death. It is taken before going out to kill an enemy, or in times of anger, sorrow, or excitement.

That is all. We are vouchsafed no information about the mushroom itself, or its manner of preparation, or the dosage, or the meaning of its native name; nor any hint of the folk associations that must cling to this potent fungal growth. How odd that professional anthropologists should so often ignore in this way the obvious questions about fungi.

Thomas Gilliard, an ornithologist of the American Museum of Natural History specializing in the birds of New Guinea, first drew our attention to the Mount Hagen reference. He did more: he suggested that we address a letter to a Catholic missionary working downstream from the Mount Hagen range and inquire about a peculiar fungal practice among the natives there. The Wahgi is a river that runs east and then south into the Gulf of Papua. Below Mount Hagen but still far from the sea it drains a valley shut in on the north by the Bismarck range and on the south by the Kubor mountains. The natives, known as the Chimbu people, are linguistically and culturally distinct from the Mount Hagen tribesmen, though ethnically similar. It seems that among them chastity is not prized as a virtue in young unmarried women, and that to avoid children they eat a certain fungus. Later, when they marry, they give up the

fungus and proceed to bear children without let or hindrance. We sent off our letter to Father John Nilles, a member of the Society of the Divine Word, to his station at Mingende, in the Central Highlands of the Territory of New Guinea, and in due course his reply confirmed Mr. Gilliard's report:

> I know [he wrote] of one kind of mushroom that is used by women as a means of preventing conception or procuring abortion. A native has brought me two specimens of that kind, of which I send you two cross sections. It grows on old tree stumps in the bush from 6,000 feet up on the slopes of the Chimbu and Wahgi valleys. When fresh the color on top is brown, and white underneath. Small slices are cut off, cooked by the woman between hot stones, and eaten with cooked sweet potatoes.

On receiving this gracious communication from Father Nilles, we forwarded the mushroom samples at once to Professor Roger Heim in Paris. They were insufficient for definitive identification, but Professor Heim felt confident that the specimens belonged to a genus known in France as ungulina, and probably to the species called by French mycologists the ungulina auberiana (Mont.) Pat. This particular species is abundant throughout the tropics and belongs to the polypores with rigid trama. It staggers under the burden of twenty or thirty competing scientific names; in the collections of the New York Botanical Garden the specimens carry the designation rigidoporus microporus.

1 he watershed of the Wahgi, in the light of the tantalizing information at hand, holds exciting secrets for the exploring ethno-mycologist. But we must leave New Guinea behind and turn to Middle America, the third of our areas. Here we discover the most dramatic story in the whole field of ethno-mycology. There survives to this day in Mexico, within a few hours' flight of New York, the living cult of a sacred mushroom, a mushroom to which is attributed the power of bestowing on the eater extraordinary faculties. We know that this cult was nourishing when the Spaniards conquered Mexico and we believe there is evidence indicating that it was then millenniums old. For three centuries this cult lay forgotten by the world in the old writings of the i6th and iyth centuries, while Indians in remote corners of Mexico continued to believe in the mushroom and practice the cult. Only in the last twenty years has the cult come to light again, and even today its existence is known to few. After we had examined the available evidence old and new, we found ourselves succumbing to the spell of the mysterious mushroom with its strange powers and uncertain identity. The possibilities of further exploration in the field drew us more and more, and we proceeded with the pleasant task of laying

plans for a trip to the remote Indian tribes of the mountains of Oaxaca. These plans we carried out in 1953.

Our readers must be patient with us if we develop our story deliberately, laying the groundwork for our own inquiries by first assembling the evidence previously available - evidence of the highest intrinsic value and not alone for

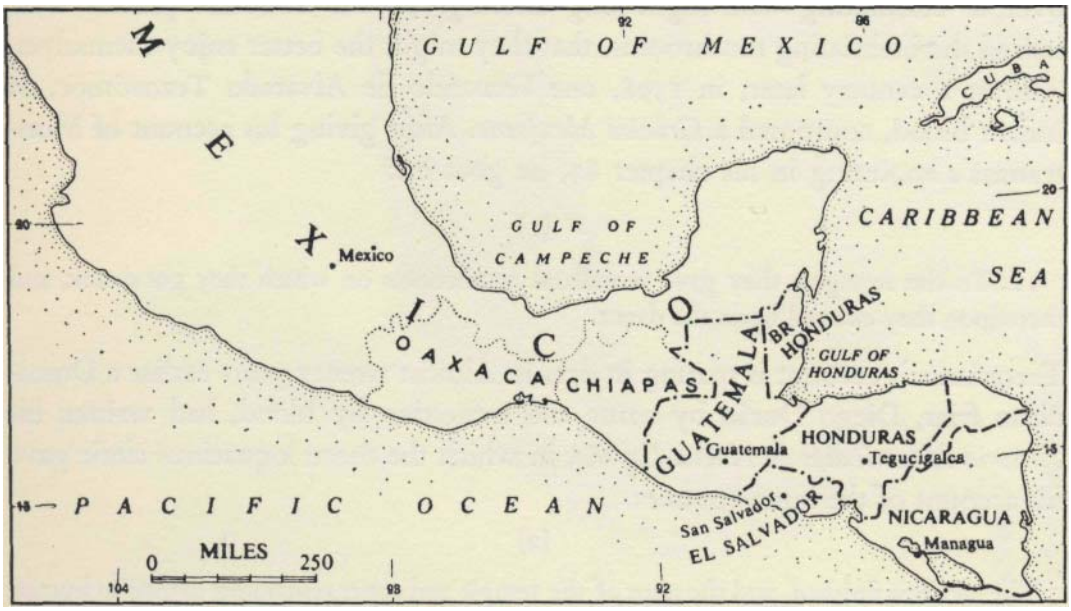


Fig. 12

ethno-mycologists. Ten early writers speak of the mushroom cult. We shall translate what they had to say, but as the original sources are often hard to come by, for the convenience of students we supply these texts in Appendix IV on pages 404-407, keyed numerically to the translations in the following pages. Those who read Spanish will relish the style of the old authors, terse, supple, free of literary artifice, the testimony of witnesses putting down on parchment for posterity what they saw and heard and experienced, usually coloring their comments with the religious feelings proper to their age. How exciting it is to exhume from the grave of centuries these almost forgotten voices telling us of the sacred mushroom and the powers attributed to it! This was the age of Richard Hakluyt, and our quotations belong to the world of exploration and discovery that we associate with his name.

Montezuma,[1] most famous of Aztec kings, assumed his regal office in the year 1502, and the event was celebrated with exceptional pomp. The Spaniards' carvels were already probing the Caribbean, but Cortez' landing at Vera Cruz was still seventeen years off. The ceremonies and festivities of the new monarch's

i. We adopt the popular spelling. Scholarly usage would require 'Moctezuma II'.

installation were so spectacular that visitors arrived from far and wide, and even certain of Montezuma's traditional enemies, princes of the Tlascalan people, came in disguise to witness the great event. They were discovered, but the magnanimous Montezuma, instead of exploiting their capture, had them royally entertained. After his induction into office, the whole city gave itself over to celebrating with night-long dancing. To the Tlascalan princes were served the inebriating mushrooms, that they might the better enjoy themselves. Almost a century later, in 1598, one Fernando de Alvarado Tezozomoc, of Indian blood, composed a *Cronica Mexicana.* After giving his account of Montezuma's anointing in his chapter 87, he goes on:

[i]

… To the strangers they gave woodland mushrooms on which they got drunk, and thereupon they entered upon the dance.

Tezozomoc's account is sparing in details. Almost twenty years earlier a Dominican friar, Diego Duran by name and a mestizo by blood, had written his *Historia de las Indias de Nueva Espana,* in which the more loquacious cleric gave his account of the same episode:

[2]

The sacrifice finished, and the steps of the temple and court remaining bathed in human blood, they all went off to eat raw mushrooms, on which food they all lost their senses and ended up in a state worse than if they had drunk much wine; so drunk and senseless were they that many of them took their own lives, and by dint of those mushrooms, they saw visions and the future was revealed unto them, the Devil speaking to them in that drunken state.

Both Tezozomoc and Duran seem to have relied on a single source, now lost to us. Neither described the mushroom nor gave it a name, though we learn that it was associated with the woods and that it was eaten raw. Furthermore, through the friar's priestly bias and exaggeration one perceives an important fact: the mushroom was more than an intoxicant, for to it were attributed divinatory powers and these powers were thought by the Catholic chronicler to stem from Satan. How strange that Gitlow in his New Guinea observations should have similarly mentioned a fungal frenzy that led even to suicide.

Our third witness is Toribio de Benavente called Motolinia, a Franciscan friar who died in 1569. He was the author of a work whose lengthy title begins thus: *Ritos antiguos, sacrificios e idolatnas de los Indios de la Nueva Espana,* and in it he gave further details about the extraordinary mushroom. Perhaps one senses behind his words the same lost source on whom the other writers relied, and

PLATE XXXVIII Jean-Henri Fabre. Boletus duriusculus Kalchbr.

he ends his account with words that could only have had horrifying connotations for the believing Spaniard of the i6th century, for he says that the mushroom in the Indians' religion played the role of the Host in Christian rites:

[3]

They possessed another method of intoxication, which sharpened their cruelty: for it they used certain mushrooms or small toadstools, for such there are in this land even as in Castile; but those of this land are in such wise that, eaten raw and by reason of their bitterness, [the Indians] drink after them or eat with them some bees' honey; and shortly thereafter they would see a thousand visions and especially snakes; and as they completely lost their senses, it would seem to them that their legs and body were full of worms eating them alive, and thus half raving they would go forth from their houses, wanting someone to kill them; and by reason of this bestial drunkenness and travail that they underwent, it could happen on occasion that someone would hang himself, and furthermore toward others they would be more cruel. They called these mushrooms in their language *teuna-macatlth,* which means 'God's flesh', or of the Devil whom they worshipped, and in this wise with that bitter victual by their cruel God were they houseled.

Motolinia informs us that the inebriating mushroom is small, bitter, and quick to act. He tells us also the name in Nahuatl of the mushroom, and the meaning of that name as he understood it.

Our fourth witness was, as it happens, a sworn witness in a judicial proceeding. What is more - and this is significant in delimiting the cultural areas where the inebriating mushroom was in use - we are now transported to the Mixtec country. The Indians of the land that the world calls Mexico have always been divided among many cultures speaking utterly unrelated languages. At the time of the Conquest the dominant language was Nahuatl and the various tribes speaking it may be called collectively the Nahua; of these the politically dominant tribe was the Aztec. The Mixtec country lies far to the south of the valley of Mexico, in what is today the state of Oaxaca, on the road to the Zapotec country and the Isthmus of Tehuantepec. But linguistically the Mixtecs are unrelated to the Nahua and distinct from the Zapotecs.

On October 15, 1544, in the town of Etlantongo, Esteban Marban, Scribe and Notary Public in the service of their Majesties of Spain, was taking depositions in a case involving the alleged apostasy of three notables, all of them Indians, principal men of Yanhuitlan, Don Domingo the Cacique and the two *Gobernadores,* Don Francisco and Don Juan. It seems that, according to report, with 'diabolic ostentation' for many years they had persisted in invoking their idols and demons after the manner of their ancestors, with all the idolatrous trappings of the old religion. The crux of their offense lay in the fact that they had been

baptized in 1527 and they were therefore apostates. The depositions in this case survive, and lengthy extracts were published in 1940 by the Museo Nacional in Mexico as an appendix to one section of the Codex of Yanhuitlan, in an edition of this manuscript edited by Wigberto Jimenez Moreno and Salvador Mateos Higuera. The witness that interests us was one Don Diego, Cacique of the town of Etlantongo, and we note that an interpreter served him: Don Diego must have been at home only in his native Mixtec tongue. After lengthy testimony that we would call hearsay, Don Diego continues:

[4]

. . . and [the witness] knows and saw that some 14 years since, in a fiesta he saw said Don Francisco and Don Juan drunk, and that they had taken *nanacates* in order to invoke the Devil as their forbears had done, and that it is common knowledge and notorious that whenever it does not rain or when the maize is gathered in, they cry out to the Devil, and when they gather in the maize, they hold their drunken parties.

Nanacate is the hispanicized form of the Nahuatl *nandcatl,* 'mushrooms'.

Our fifth witness is one Gaspar de Covarrubias, Governor of the mines of Temazcaltepec, reporting in 1579 on conditions in his area in a document known as the *Relation de las Minas de Temazcaltepec.*[1] The working of the mines under the Spaniards had led to an influx of Nahuatl speakers, but Don Gaspar expressly says that the tongue of the native-born population was ***matalpnga,*** i.e., Matlatzinca, which today we identify with the Otomi group of languages. Our informant says that in the old days, when the people were still heathen,

[5]

. . . they were wont to pay in tribute [to the Lord of Mexico], whenever they were asked to do so, two or three loads of hempen blankets, which are made from, a tree that is called *maguei,* and they would give mushrooms on which people get drunk, and *ocote* . . .

Additional curious evidence turns up in our sixth source, a book printed in Mexico in 1637 entitled *Doctrina y Ensenan$a en laLengua Mazahua de Cosas muy Utiles, y Provechosas para los Ministros de Doctrina,* written by the Licentiate Don Diego de Nagera (or Najera) Yanguas, incumbent of Xocotitlan. This is a manual for the clergy working among the Indians speaking the Mazahua tongue, which belongs to the Otomi linguistic family. It gives in Spanish and Mazahua, in parallel columns, the questions that a father confessor directs to

I. The text appears in *Papeles de Nueva Espana,* Paso y Troncoso, Madrid, 1905, vol. vn, p. 20. We are indebted to Robert J. Weitlaner for this reference, as well as for the following one.

the penitent, and the various possible responses of the penitent. On folios 27-29 the father confessor catechizes his penitent as to whether he has eaten mushrooms and got drunk on them, or given them to others to get drunk on; and if so, why, whether to find lost objects or for illness. The following extract shows the tenor of the questions, the column in English being added by us:

[6]

SPANISH	MAZAHUA	ENGLISH
por que	yoqhenangueze	why
querias	daguiminemaha	didst thou want
comer	togui9a	to eat
essos hongos?	mayho yocho	those mushrooms?
por que	nangueze	because
estaba enfermo	darimi^hoye	I was ill
queria comer	dariminemaha rogoza	I wanted to eat
hongos	yocho	mushrooms
para ver	maqheranuu	to see
lo que perdi	maqhe peqherobexi	what I had lost
quantas vezes?	han^hanixi?	how often?
no los comiste?	que higuiza?	didst thou not eat them?
no los comi	hiroza	I ate them not
solamente	anguechco	I only
queria	dariminemaha	wanted
comerlos	togoza	to eat them.

Our seventh witness belongs in a different class. Francisco Hernandez, a botanist, went out to Mexico in the year 1570 to study and describe the flora of that new world. He devoted seven years to the undertaking, returning in 1577 to Spain with an immense manuscript. Much of it got copied and printed and published in three divergent editions, but the manuscript was lost in a fire in the Escorial without ever being properly edited. Hernandez seems to have devoted only a brief section to the mushrooms. We find this passage in Volume II of his *Opera* brought out in Madrid in 1790, as Chapter 95 of Book IX of the *Historia Plantamm Novce Hispanicz.* Alone among our witnesses, Hernandez might be expected to focus attention on the appearance of the sacred mushrooms, and what he says is significant though tantalizingly inadequate. He clearly speaks, not of one, but of three species of mushrooms that either cause psychic symptoms or are clothed in a halo of supernatural associations. The ***teyhuinti*** provoke uncontrolled laughter. Another kind conjures up spectacles of war or the likeness of demons. The search for the third species, bespoken for the tables

of the rich and mighty, is attended by all-night vigils, and the mushrooms themselves are saturated in what the anthropologists today call *mana.* In his manuscript Hernandez included illustrations of his mushrooms, but alas! those precious illustrations were apparently lost in the Escorial fire. After describing a lethal species named *dtlalnanacame,* Hernandez goes on:

[7]

. . . others when eaten cause not death but madness that on occasions is lasting, of which the symptom is a kind of uncontrolled laughter. Usually called ***teyhuinti,*** these are deep yellow, acrid, and of a not displeasing freshness. There are others again which, without inducing laughter, bring before the eyes all kinds of things, such as wars and the likeness of demons. Yet others are there not less desired by princes for their fiestas and banquets, of great price. With night-long vigils are they sought, awesome and terrifying. This kind is tawny and somewhat acrid.

Our eighth and leading witness is the Franciscan friar, Bernardino de Sahagun, who by reason of his moral and intellectual qualities towers over all his contemporaries who were writing about Mexico in the i6th century. He devoted his many years in Mexico, from 1529 to 1590, to the systematic and sympathetic study of the Indians among whom he lived and labored. He was the editor and author of an immense work, a major historical document, the *Historia General de las Cosas de Nueva Espana.* Published in Spanish in several editions and translated also into French and English, this source is familiar to all historians interested in Mexican culture and the Conquest. Despite its standing as a classic, there is one fact about this book that is sometimes forgotten. It was a bilingual composition, being composed in parallel Nahuatl and Spanish texts. The two texts, while parallel, are not identical. The Nahuatl version preserves the very words of the native informants as they spoke with Fray Bernardino, and to it priority should be given over the Spanish text. There are four brief passages in Sahagun where the inebriating mushrooms figure. The Nahuatl recension differs sufficiently to justify us in offering it, as well as the Spanish text, to our readers, especially as the Nahuatl passages have remained until now hidden behind their linguistic barrier. For locating and translating the Nahuatl passages we are greatly indebted to Professor Charles E. Dibble of the University of Utah, to Dr. Arthur J. O. Anderson of the Museum of New Mexico in Santa Fe, and to Miguel Barrios of Mexico City.

From the sources already quoted it is clear that the Indians regarded their inebriating mushrooms with reverence, and this called down on their heads the execrations of professional Christians. The unintentional effect of these

denunciations is perhaps to whet the reader's appetite for the mysterious fungi. Sahagun's Indian informants were doubtless baptized, and perhaps for this reason or perhaps because of the artful simplicity of Fray Bernardino himself, they scarcely link the mushroom with native religious beliefs or divinatory practices, and the hallucinations that they attribute to the eating of mushrooms are so horrible for the most part that one asks why anyone should ever have been tempted by them.

We shall now offer the four quotations from Sahagun, each of them in duplicate, the translation from the Spanish version followed by the translation from the Nahuatl. The first and longest describes a mushroom party. Merchants have returned from a long and successful journey and they are giving the party to celebrate their success. While the text itself does not hint at religious associations and certainly precludes priestly direction, the context in Book IX is saturated with supernatural beliefs and practices, and leaves the attentive reader in no doubt that the mushroom gathering itself was similarly instinct with the divine presence.

[8 A. *From the Spanish]*

The first thing eaten at the gathering were certain black little mushrooms, which they call *nandcatl,* which inebriate and cause hallucinations, and even excite lust. These they ate before dawn, and they also drank cacao before dawn. The mushrooms they ate with honey, and when they began to get heated from them, they began to dance, and some sang and some wept, for now were they drunk from the mushrooms. And some cared not to sing, but would sit down in their rooms, and stayed there pensive-like. And some saw in a vision that they were dying, and they wept, and others saw in a vision that some wild beast was eating them, others saw in a vision that they were taking captives in war, others saw in a vision that they were to be rich, others saw in a vision that they were to own many slaves, others saw in a vision that they were to commit adultery and that their heads were to be bashed in therefor, others saw in a vision that they were to steal something, wherefore their heads were to be bashed in, others saw in a vision that they were to kill someone, wherefore they were to be killed, others saw in a vision that they were drowning in water, others saw in a vision that they would live and die in peace, others saw in a vision that they were falling from on high and would die from the fall. All the disastrous happenings that are wont to happen, these they saw in visions. Others saw themselves sinking in water as in a vortex. Then when the drunkenness of the mushrooms had passed, they spoke one with another about the visions that they had seen.

[8B. *From the Nahuatl]*

Coming at the very first, at the time of feasting, they ate mushrooms when, as they said, it was the hour of the blowing of flutes. Not yet did they partake of food; they drank only chocolate during the night. And they ate mushrooms with honey. When

already the mushrooms were taking effect, there was dancing, there was weeping. And some still in their right senses sat in their places leaning against their houses; there they merely sit, nodding their heads. Some saw in a vision that already they would die [so] they sat weeping. Some saw in a vision that they would die in war. Some saw in a vision that they would be devoured by wild beasts. Some saw in a vision that they would take the enemy captive in war. Some saw in a vision that they would become rich, wealthy. Some saw in a vision that they would buy slaves, would become slave owners. Some saw in a vision that they would commit adultery [and so] would have their heads bashed in, would be stoned to death. Some saw in a vision that they would steal; [so] also would they be stoned to death. Some saw in a vision that their heads would be crushed with a stone, would be imprisoned. Some saw in a vision that they would perish in the water. Some saw in a vision that they would pass to tranquillity in death. Some saw in a vision that they would fall from the housetop, tumble to their death. All such things would happen to them at this time; all such things they saw, or else they sank into oblivion. And when [the effect of] the mushrooms ceased, they conversed one with another, spoke of what they had seen in visions.

Sahagun tells us that the *nandcatl* were small and black; that the Indians indulged in them in gatherings assembled for the purpose; and that the intoxicating effects were generally unpleasant for the eaters, which we may doubt. The Spanish text says that they excited lust, an observation calculated to tease the 16th century Spaniards, but this observation is missing in the Nahuatl version.

Sahagun's second and third references to the inebriating mushrooms occur in passages primarily concerned with *peiotl* or 'peyote', the cactus product long used by certain Indians for its psychic and other effects, and in recent years an object of intensive study and discussion among anthropologists, biological chemists, psychologists, neurologists, and even literary thinkers like Aldous Huxley. The use of peyote was endemic among the Indians of Mexico north of the Valley of Mexico and of what is now the Southwest of the United States. Sahagun composed his work primarily from within the framework of the Nahua culture with its cultural center in the Valley of Mexico. In the passages that we are about to give, he is speaking of the northern Indians, known to the Nahua collectively as the Chichimecas, a term applied to nomadic Indians generally. The Chichimecas, whatever the language or tribe, were hunters and food-gatherers, nomads, savages to be feared and also despised. Among them there were some, such as the people now known as Otomi, who in historic times had become settled on the land; but they were still by habit called 'Chichimecas'. To distinguish them from the true nomads, the latter were called tRe 'genuine' or Teochichimecas. While there is some ambiguity in the following quotations, we think that, carefully studied, they yield a sensible meaning only

if we understand Sahagun as describing the use of peyote among the Northern nomads, and comparing that use with the use of inebriating mushrooms among the Aztecs. It is as though the Aztec compilers were saying, "The Chichimecas have their peyote just as we have our mushrooms." This interpretation, which we accept, was offered to us as a tentative suggestion by Dr. Anderson. If it is right, then apparently the northern limit of the use of the inebriating mushrooms was roughly the Valley of Mexico and the Nahua civilization.

[9A. *From the Spanish]*

[The Teochichimecas] also possessed great knowledge of herbs and roots, and knew their properties and virtues: It was they who discovered and first used the root they call *peyotl,* and those who ate and took it, made it serve in place of wine and in place of what are called *nanacatl* [?], which are the evil mushrooms that inebriate just like wine. And they would gather together on a level spot after having drunk and eat, where they would dance and sing a night and a day, according to their pleasure, and this for one day, for on the morrow they wept much, and they would say that they were cleansing and washing their eyes and faces with their tears.

[IOA. *From the Spanish]*

There is another herb, like earth's testicles [truffles], which is called peyotl. It is white and grows in the direction of the north. Those who eat and drink it see frightful visions, or laughable ones. This state of drunkenness lasts two or three days and then goes away...

[pB. *From the Nahnatl]*

And the Teochichimecas had knowledge of the herbs, the roots; how they were, how they propagated. These people discovered the so-called peyote. They esteemed it in place of wine or mushrooms [?]. They gathered somewhere, assembled on the plain. At that place there was song and dance all night and all day. And on the morrow once again they gathered; wept, wept copiously. It was said their faces were washed. With their tears they cleansed their eyes.

[IOB. *From the Nahuatl]*

Peyote: this peyote is white and it grows only in the land of the Chichimecas, the land of the god MixcoatJ, which is called the land of the dead north. Whoever eats or drinks of it becomes intoxicated as if by mushrooms. Likewise he sees many things which are frightening or laughable. Perhaps one day or two days he is intoxicated . . .

The fourth and final passage in Sahagun is the most interesting of all. Here he calls the inebriating mushroom by the name that Motolinia used-teo-*nandcatl* - which in its first element carries the religious association that Sahagun avoided elsewhere. Here the mushroom is described in some detail, and the Nahuatl text is much longer and more interesting than the rather arid Spanish:

[HA. *From the Spanish]*

In this land there are certain little mushrooms that are called *teonanacatl.* They grow beneath the grass in fields or moors. They are round, have a long little stem, thin and round. When eaten they have a bad taste, hurt the throat, and inebriate. They are medicinal for fevers and the gout. Only two or three are to be eaten, not more: those who eat them see visions and feel palpitations of the heart. The mushrooms incite lust in those who eat many, or even be they few. To wild or mischievous youngsters people say that they have eaten *nanacatl.*

[IIB. *From the Nahuatl]*

One mushroom is called *teo-nanacatl.* It grows in the waste places, under the grass. The cap is round, the stem is elongated. By its bitterness it hurts, it hurts the throat. It intoxicates one, makes one dizzy, makes one violent. It helps in fevers, gout. Only two or three are to be eaten. It makes one suffer, causes affliction, makes one restless, causes one to flee, frightens one, makes one hide. He who eats many, many things sees. He terrifies people, makes them laugh. He strangles himself, hurls himself from high places, cries out, is afraid. When he eats it in honey he says, I eat mushrooms, I bemushroom myself. Of the boaster, the braggart, the vain one it is said, "He bemushrooms himself."

So far we have quoted only from i6th century sources. Our ninth witness belonged to a later generation. He is Jacinto de la Serna, a cleric who in the middle of the iyth century composed a guide for clergy ministering to the Indians. His work was entitled *Manuel de Ministros de Indies para el Conocimiento de sus Idolatnas y Extirpation de Ellas.* He was a garrulous busybody, zealous in rooting out and extirpating all expressions of the Indians' old religion, and eager in his narrative to leave a record of his own zeal. Chapter IV of his work continues a recital of incidents that had happened to the author proving (as he says) that idolatry was still rampant among the Indians in his own time. In Section 3 of this chapter lie is discussing native physicians and midwives, especially the role of 'witchcraft' in their practices, and certain goings on in his own household that had aroused his liveliest suspicions. A certain Indian, master of the native lore, had lately arrived in the village and had officiated at a religious rite in which the intoxicating mushrooms had been a central feature. The description of the religious ceremony reaches us through Don Jacinto by hearsay only, as of course he was not present, but it carries a ring of authenticity, and reminds us of the stirring words with which Motolinia ended his observations on the mushroom:

[12]

And what happened was that there had come to [the village] an Indian, a native of the village of Tenango, great maestro of superstitions, and his name was Juan Chichiton,

which means 'little dog', and he had brought the red-colored mushrooms that are gathered in the uplands, and with them he had committed a great idolatry, and before I tell of it, I wish to describe the property of said mushrooms, which are called in the Mexican language *Quautlannamacatl,* and having consulted the Licenciate Don Pedro Ponce de Leon, the great Minister and Master of Masters as I said in Chapter II, he told me that these mushrooms were small and golden, and to gather them it was the custom for the priests and old men deputized as ministers for this kind of humbuggery to go up into the mountain, and they remained almost the whole night in prayer and superstitious entreaties, and at dawn, when there sprang up a certain breeze that they knew, then they gathered the mushrooms, attributing divinity to them, possessing as they did the same effect as *ololiuqui* [rivea corymbosa (L.) Hallier filius] or *peyote* [Lophophora Williamsii (Lem.) Coulter], because whether eaten or drunk, it intoxicates them and deprives them of their senses, and makes them believe a thousand foolish things. And so this Juan Chichiton, having gathered the mushrooms on a certain night, in the house where everyone had gathered on the occasion of a saint's feast, the saint was on the altar, and the mushrooms with *pulque* and a fire beneath the altar, the *teponastli* [a percussion instrument peculiar to the Aztecs] and singing going on the whole night through, after most of the night had passed, said Juan Chichiton, who was the priest for that solemn rite, to all those present at the fiesta gave the mushrooms to eat, after the manner of Communion, and gave them *pulque* to drink, and finished off the festivities with an abundance of *pulque,* so that what with the mushrooms on the one hand and the pulque on the other, they all went out of their heads, a shame it was to see.

Don Jacinto goes on to relate how he had made utmost efforts to ferret out and lay his hands on Chichiton. There was a hot chase, but by the skin of his teeth the 'Little Dog' had eluded his pursuer's clutches - to the considerable relief of the modern reader, who hopes that Chichiton lived to preside over many another mushroomic agape.

Our tenth and final source is French: the *Histoyre du Mechique,* written by Andre Thevet not later than 1574. His text is a translation or paraphrase of a lost work, *Antiguedades Mexicanas,* written about 1543 by the Spanish cleric Andres de Olmos. The historian is speaking of events that had taken place in the middle of the 15th century, and thus he is placing the use of our mushrooms earlier than any of our other sources, and he places them in an Otomi context. Thevet's manuscript lies in the Bibliotheque Nationale and was first published in 1905, edited by Ed. de Jonghe, in the *Journal de la Societe des Americanistes de Paris* (Nouvelle Serie, vol. n). Our quotation is from the fourth chapter, page 18:

[13]

. . . Said Lord of Tezcuq [Tezcoco] . . . paid great reverence to the gods and took great care of the temples and ceremonies; he commanded also that the youths and maidens should dance in the temples, . .. that they should strew the temple with roses and flowers,

dancing constantly before them, both those of the city and the near neighbors, whom the devil abused making them eat some herb that they call *naucatl,* which made them lose their senses and see many visions.

Our ten documentary sources treating of the divine mushrooms are supported by other linguistic evidence. There are several early lexicons to cite. The year 1571 saw the publication in Mexico of a Nahuatl dictionary, ***Vocabulario*** *en lengua castellana y mexicana,* compiled by Alonso de Molina. In its pages we discover under *hongo* a series of names for mushrooms that inebriate, *hongos que emborrachan* or *que embeodan.* Here are these words, with their literal translation:

xochi nanacatl: 'flower mushrooms'
tepexi nanacatl: 'cliff mushrooms'
ixtlauacan nanacatl: 'savannah mushrooms'
ma$auacan nanacatl: 'mushrooms of the stag's places'
teyuinti nanacatl: 'mushrooms of the divine inebriation', with *te-* derived from *teotl,* 'god', and *-yuinti* from *yuintia,* 'inebriation'.

Molina, born in Spain, arrived with his parents in Mexico in 1523 and after learning Nahuatl served the Franciscan friars as interpreter. We know not how reliable his mushroom names are. Hernandez, as we have seen, also mentions the *teyuinti,* but neither Hernandez nor Molina uses ***teo-nandcatl,*** which we find only in Sahagun and Motolinia.

More interesting for us than Molina's work is a Zapotec lexicon, *Vocabulario Castellano-Zapoteco,* compiled by Fray Juan de Cordoba and published in 1578 in Mexico. In it we find the words *pea$6o, peya$6o,* which he defines as *honguillo o xeta con que se emborracha,* 'little mushroom or toadstool on which one gets drunk'. (The accents on his words appear to represent glottal stops.) Under *xeta* he reports an intoxicating mushroom that grows in trees, which he calls *nocuana peneeche,* a designation that the Zapotec of today fails to recognize.[1]

Here then is proof that the inebriating mushroom was familiar to the Zapotecs, and thus we establish as a minimum range for the use of the inebriating mushroom an area that includes the Nahua and Otomi peoples, the Mixtecs, and southeastward to the Zapotecs of the Valley of Oaxaca and probably the Isthmus of Tehuantepec. If our interpretation of Sahagun is right, the use of the mush-

i. Pedro Carrasco reports that in old Otomi lexicons, under *hongo,* there are names for the inebriating mushrooms. This would support the testimony concerning the Otomies that we have quoted in our text. See Carrasco's *Los Otomies,* Mexico, 1950, p. 230. We have had no access to these lexicons. All old dictionaries for the Indian languages of Mexico and Guatemala should be combed for such references.

room petered out as one advanced north from the Valley of Mexico, being replaced by the peyote of cactus origin. To the southward we cannot define the boundaries. Our information about the important Zapotecs is relatively

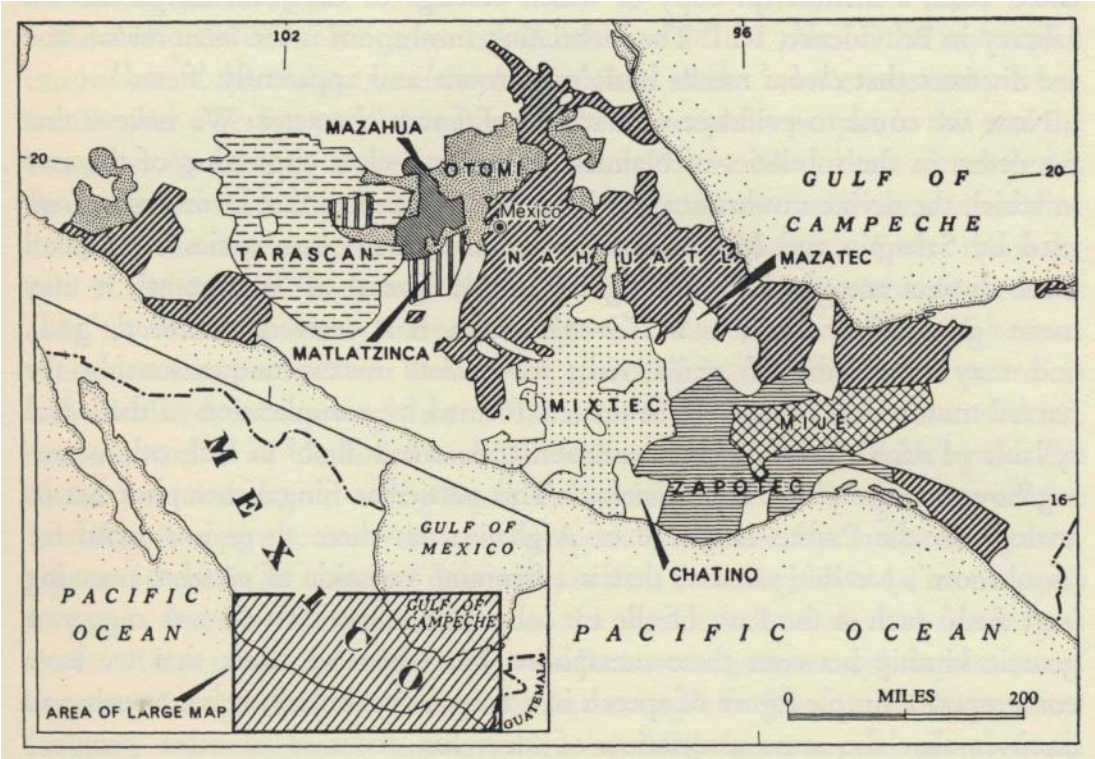


Fig. 1^. THE MUSHROOM CULT IN l6th AND lyth CENTURIES

Linguistic areas where contemporary reports establish use of divinatory mushrooms. As modern evidence indicates that the cult prevails only in uplands, all contours below, say, 600 meters should probably be excluded. Conversely, upland areas such as Mazatec and Chatino as to which early evidence is lacking undoubtedly used the mushroom. Northern limits are quite definitely fixed, but eastern limits in Chiapas are uncertain.

rich, by comparison with the complicated mosaic of other Indian cultures on all sides of them.

But there are a few other old lexicons that document the use of our mushrooms. Some years ago Walter Miller discovered the manuscript of an early Mije dictionary in the Mije village of San Lucas Camotlan. It now lies in the Museo Nacional. In it 'the little mushroom with which people get drunk', *el* ***honguitto*** *con que se emborrachan,* is rendered by the Mije word *maxmux.* The manuscript may date from the i8th century. A Tarascan lexicon composed by Fray-Maturino Gilberti and published in 1559 translates 'the mushroom that inebriates' by the expression *cauiqua terequa,* wherein the second element means

'mushroom'. The Tarascans live in Michoacan, to the west of Mexico City. Already we have placed the mushrooms in the Matlatzinca country: our previous evidence is confirmed by the Matlatzinca lexicon of Fray Diego Basalenque, dated 1642, a manuscript copy of which belongs to the John Carter Brown Library in Providence, R. I. The inebriating mushroom is the *intza chohui,* and we discover that *chohui* means both 'mushroom' and apparently 'fiesta'!

Now we come to evidence of a wholly different character. We believe that we detect in the subtleties of Nahuatl grammar a clear expression of the awe in which the divine mushroom was held. Let us examine that term ***teo-nandcatl,*** used by Sahagiin and Motolinia. The initial element *teo-* carries in Nahuatl three distinct meanings. It can signify simply 'great' or 'important'. It may mean 'genuine' or 'real', as in *Teo-chichimecas.* It is derived from *teotl,* 'god', and may mean 'divine' or 'sacred'; ***teo-nandcatl*** means unquestionably the 'sacred mushrooms'. *Nandcatl,* in turn, is formed by a duplication of the initial syllable of *ndcatl,* 'flesh'. Thus mushrooms are called 'flesh' in Nahuatl, assuming however the plural form *nandcatL* This particular fungal metaphor has its analogy in the Pashto language of Afghanistan, where there is a word for 'mushroom', ***poczl&i*** *(potsakdi)* that is a feminine variation of *potsdkai,* meaning 'soft flesh' such as the flesh of the ear lobe. (Of course we do not suggest a genetic kinship between these metaphors, but when we think that we have come upon a simple figure of speech in a fungal vocabulary, it is reassuring to discover that the same association of ideas has occurred to other peoples.) The figure of speech in *teo-nandcatl* was a living one in the i6th century, for Motolinia translates the term as *came de dies,* 'god's flesh', and then immediately this good Catholic offers his own substitute, *came del demonio,* 'Satan's flesh', thus illustrating the old truth that one man's God is another man's Devil. Perhaps the interesting thing about *nandcatl* is its plural form. In Nahuatl nouns representing inanimate things are invariable as to number, and by this grammatical convention the vegetable world is inanimate. But there are significant exceptions, of which the following three are outstanding:

	SINGULAR	PLURAL
Sky	*ilhuicatl*	*ilhuicame*
Mountain	*tepetl*	*tetepe*
Star	*dtldlin*	*citlaltin*

These exceptions are apparent rather than real, for the Nahua personified the sky, mountains, and stars, and the plural form simply expresses the way of feeling that attributed to these cosmic beings a soul. There are other exceptions

similarly suggestive. For example, *tetl,* 'stone', becomes *teme* in the plural, but only when it refers to graven images. We believe that another exception is our *nandcatl,* a plural form expressive of the divine afflatus dwelling in the inebriating mushrooms.[1]

How impressive is this grammatical evidence of the role of the mysterious mushroom in the Nahua mentality! It becomes all the more noteworthy when we discover a perfect parallel among another mycophilic people, in this case the Russians. At an early stage in the evolution of the Slavs there developed a tendency to substitute the genitive case for the accusative when a masculine noun representing an animate creature was the goal of the verb. Today this is the rule in the various Slavic languages. In folk Russian this genitive is used not only for nouns denoting animate beings, but also for the names of various mushrooms and sometimes for certain trees, when the mushroom or tree is individualized, i.e., is a single entity.[2] This use is widespread in Russian dialects, and occurs also in Ukrainian and White Russian. One hears *nashol griba,* 'he found the mushroom', **wither/fed** in the genitive case; *nashol grusdja, ryzhika, borovika.* Among the trees the oak is especially favored by similar treatment, e.g., *srubil duba,* 'he chopped down the oak'. The oak used to be worshipped in pagan times by the eastern Slavs as the thunder tree dedicated to the god Perun. Thus in the folk language we discover a grammatical expression of animism. It is possible to offer yet another example in Russian. In the standard language the mushroom known as the *masljenik* has a special plural form, *masljata,* and the plural of another mushroom name is *opjata* in certain uneducated circles. The plural suffix here used is normal only with certain nouns designating young animals, birds, and children! These peculiarities in Russian grammar show that our interpretation of *nandcatl* does not strain credulity. Parallels in unrelated languages and cultures of this kind reinforce each other; that is, they illuminate a common trait, in this case the inclination of peoples strongly mycophile to personify their beloved mushrooms.

After our long parade of early authorities and learned analysis, let us sum up what we have discovered. When the Spaniards arrived in Mexico, they found an inebriating mushroom in wide use among the Indians from the Valley

1. It goes without saying that for our discussion of Nahuatl linguistics we have relied on several of the outstanding Nahuatl specialists of our time, to wit, Professor Wigberto Jimenez Moreno of Mexico, Professor Charles E. Dibble of the University of Utah, and Dr. Arthur J. O. Anderson of the Museum of New Mexico in Santa Fe. We are the first to point out the significance of the plural form that we discover in *nandcatl,* a thesis to which the aforementioned authorities give their reserved and tentative blessing.

2. For guidance on this feature of Russian grammar see A. A. Shakhmatov's *Kurs Istorii Russkogo Jazyka,* St. Petersburg, 1911, vol. m, p. 338. We are also indebted to Prof. Roman Jakobson for his elaboration of the same theme in private correspondence.

of Mexico southwards. This mushroom produced hallucinations that the Indians thought were divinely inspired. One author, Hernandez, says expressly that there were various species of such mushrooms, and as he was a botanist his testimony is weighty. The lexicographer Molina mentions five species. There is a multiplicity of names for the inebriating mushrooms in Nahuatl, for which various explanations may be offered. Each species would have its own name, of course, and furthermore the names might vary according to the region. A third possibility is that the divine aura bathing the mushrooms might cause people to take refuge in euphemistic alternative names. The mushrooms of course were wild and seem to have grown both in meadows and in the woods. (Jacinto de la Serna refers to them as *quautlannamacatl,* 'woodland mushrooms'.) As to one species, Sahagun says that they were small, with a stipe long for the height, thin and round. Sahagun describes these as black, but others speak of the inebriating mushrooms as golden or tawny or approaching red. In two authors we hear of ceremonies attending the gathering of mushrooms - nights of prayer and vigil. Four clearly associate the mushrooms with religious rites. Six agree that it was used in communal festivities that bordered on orgies and led to wild excesses. The mushrooms were eaten raw, and the taste was acrid or bitter, honey being used as the vehicle for swallowing them. There is no reason to believe that our Spanish witnesses tasted the mushrooms, for (unless they came from Catalonia) they were mycophobes and this cultural heritage would reinforce an initial repugnance for native 'idolatries'. But some of our witnesses were Indians, albeit converted, and they must have known the taste and accurately described it. Sahagun alone speaks of a medicinal virtue in the mushrooms: he says that the *teo-nandcatl* were good for gout and fevers. But on this point it is noteworthy that the mushrooms are not even mentioned in the great medicinal herbal of the Aztecs, known as the Badianus manuscript, which was compiled in Sahagun's own convent, the Colegio de la Santa Cruz at Tlaltelulco, and doubtless under his supervision.[1]

There may well be references to our sacred mushrooms in the old writers that we have not come upon, and in the voluminous archives of unpublished documents in Mexico additional references will surely be discovered. At the same time we must also stress the fact that by our method of culling and distilling the references to the sacred mushrooms we inevitably convey an impression of their importance that is scarcely supported by the whole corpus of docu-

i. The authors were Indian converts, Martinez de la Cruz and Badianus the translator. The ms. lies in the Vatican, but was published in facsimile by the Johns Hopkins Press in 1940, edited by Emily Walcott Emmart.

ments relating to i6th century Mexico. That documentation is immense. Other narcotic herbs also play a role therein: *poyomatl, ololiuqui, peiotl;* and tobacco *(pisiete]* was also treated as though it belonged in the same category. There are important i6th century sources dealing with such matters where references to the inebriating mushrooms are strangely absent: one of these is that valuable work, *Problemas y Secretes Maravillosos de las Indias,* written by Juan de Cardenas and published in Mexico in 1591.

From the beginning of our inquiries into the sacred mushroom of the Nahua we were on the lookout for i6th century illustrations of it. The botanist Hernandez in his text said that he was depicting four kinds of mushrooms including the ***teyhuinti,*** but the 1790 edition carried no illustrations, and his drawings, which would have been precious for us, must have been consumed in the Escorial fire. However, our searches have not been bootless. In the Florentine Codex we have discovered one picture, hitherto unremarked by students, and Robert J. Weitlaner has drawn our attention to a second in the Magliabechiano Codex.[1] We take pleasure in reproducing both in faithful color, this being facilitated by a happy chance: the two codices, though lying in different libraries, are both in Florence.[2] The illustrations are singularly significant for us, being complementary, one of them executed by a Spanish artist and the other by an Indian in the tradition of his people, though he shows traces of Spanish influence. Both illustrations are in the nature of pictographs, vignettes intended to convey almost a verbal message. Neither tells the mycologist anything mycological about the sacred mushrooms, but both are eloquent and curious expressions of the contrasting attitudes of the two peoples toward them.

Sahagiin's great work survives in two principal codices, of which the Florentine Codex, profusely illustrated, ranks first. Although most of the illustrations were done by native artists, some were by Spaniards, and it was a Spaniard who made the five small pictures representing various mushrooms that Sahagun

1. In 1952 Mr. Weitlaner discovered an old topographical codex or *lienzo* in the possession of the local authorities in the village of Tlacoatzintepec, three days'journey by foot or animal from Chiltepec, in the State of Oaxaca, where the people belong to the Chinantec culture area. A copy was made and is now preserved in the Museo Nacional. At one place in this chart, in a glade, there is a pair of crossed mushrooms. They might represent *teo-nandcatl,* but as the Indians are generally mycophagous, they might simply indicate a good spot for gathering edible fungi. That a *pair* of mushrooms is pictured may, however, be significant, as will become evident later in our argument.

2. What we call the Florentine Codex lies in the Biblioteca Laurenziana, Florence, where it is designated Med. Pal. 218-220. The Magliabechiano Codex is in the Biblioteca Nazionale, Florence, and carries the designation B. R. 232. The miniatures of the former were badly reproduced in the Paso y Troncoso edition (uncompleted) of Sahagun, Madrid, 1905-6. The Magliabechiano Codex has been twice published in facsimile, the so-called Loubat edition, Rome, 1904; and by the University of California, Berkeley, 1903, under the guidance of Zelia Nuttall.

mentions. A close inspection of the five pictures and Sahagun's text makes it clear that the artist worked from the text, and possessed no knowledge of the mushrooms outside the text. When he came to the inebriating mushroom, he undertook to convey his iconographic message in a way natural to a i6th century Spaniard: a demon is portrayed rising from a cluster of tawny (not black) mushrooms, and the demon carries those conventional stigmata that

Fig. *14.* TEO-NANACATL
as represented by a i6th century Spanish artist. From Florentine Codex of Bernardino de Sahagun's *Historia de las Cosas de la Nueva Espafia.* Biblioteca Laurenziana, Florence.

commonly identified Satan in the Gothic and Spanish worlds. He is clothed cap-a-pie in fur, a huge beak emerging from his fur-enclosed face. For hands he has claws. One foot is unformed or malformed, perhaps a splay foot. This is the malformed foot that survives in the English 'cloven hoof, that led the French to speak of the Devil as *k Bot,* the Cripple.[1] In this French word and in this picture we find blended the recurring themes of our book - Satan portrayed as *le Bot,* a demonic mushroom, and offstage, by metaphoric transfer, the toad called *le hot* that constitutes the third of our unholy trinity.

The second illustration offers us three elements - mushrooms, a man eating mushrooms, and behind and over him a ghost. The reader will notice that the

I. Malformed and bestial feet characterize various Aztec divinities. Thus the demon Tezcatlipoca was distinguished by a club-foot, and Mictlanteculltli had the claws of a gigantic bird. But in the demon of the Florentine miniature we think it is rash to perceive any influence of Mexican divinities. The craftsmanship reveals a European mind, and the imp is the obvious visual expression corresponding to the verbal denunciations that the clergy, as we know, were heaping on the demonic mushrooms.

man holds a mushroom in each hand. According to Professor Jimenez Moreno, the ghost is probably Mictlantecuhtli, Lord of the Underworld, who is depicted on other pages of the same Codex. How far removed from the Spaniard's conception is the Indian's! Not only is the craftsmanship of these artists, contemporaries of each other, poles apart; their message is likewise. The Spaniard reports rather prosaically the existence of a demonic mushroom to his European

Fig. 15. TEO-NANACATL
as represented by a i6th century Mexican artist. From
Magliabechiano Codex, Biblioteca Nazionale, Florence.

public. The Indian, though undoubtedly a baptized Christian, conveys a sense of the awe that he still felt in the presence of the mysterious *teo-nandcatl.* That the mushrooms in this miniature are green should not disconcert the mycologist: green, the color of jade, meant in Mexican iconography that the object so depicted was of great worth.

1 he last of our citations from old Spanish documents was from the mid-seventeenth century: Jacinto de la Serna's episode with Chichiton. With him the references to the inebriating mushrooms ended. Thereafter observers no longer reported on the mushroom cult, and except in new editions of old books and in works based on them, the cult was never more mentioned. The cult itself was apparently extinct, and only a handful of specialists knew that it had ever existed. For example, Francisco A. Flores, when in 1886-8 he brought out in Mexico his three volume *Historia de la Medidna en Mexico,* listed the Nahuatl names for the inebriating mushrooms as given by Molina, translated

them, and then rashly by sheer guesswork tried to identify them according to the classifications of mycologists. William H. Prescott in his classic *Conquest of Mexico* ignored the subject. Yet we know that he was familiar with it. He drew on most of the sources that we have cited, and in particular the two accounts of Montezuma's assumption of office. In Book II Chapter 6 he speaks of the 'honorable entertainment' offered to the Tlascalan princes by Montezuma, but he deftly excises the reference to the sacred mushrooms. By now one is so used to the subconscious rejection of mushrooms by the mycophobic Anglo-Saxons that it would be more a matter of remark if Prescott had mentioned the *teo-nandcatl.*

Then suddenly one day the sacred mushrooms sprang to life again. On May 4, 1915, an ethno-botanist of established and deserved reputation, W. E. Safford, read a paper before the Botanical Society in Washington in which he flatly and sweepingly denied that there had ever been an inebriating mushroom in the indigenous cultures of Mexico. His paper was published later in that year in the *journal of Heredity,* and it was a full-dress presentation, richly illustrated and documented. Dr. Safford said that the Spanish 'padres' (as he somewhat condescendingly called them) had been confused: they had taken for mushrooms what had really been dried buttons of a cactus, the Lophophora Williamsii, the *peyotl* of Aztec times, the mescal button of Texas. He declared that three centuries had failed to reveal a fungal intoxicant in Mexico. He quoted Sahagun as saying that the Chichimecas had been the first Indians to discover the alleged intoxicating property of the 'mushroom'; he went on to say that the Chichimecas had occupied northern Mexico, that that was therefore the region where to seek the mushroom, that he had pushed his own researches exhaustively in those areas and in the Southwestern states of the United States, and that he had found nothing.

Dr. Safford's paper drew wide attention and was widely accepted. Many learned from it for the first time that there had been a belief in an inebriating mushroom, at the same time that they learned the mushroom had never existed. How ironic it will be if Dr. Safford himself, in the long run, should be remembered chiefly because of this resounding blunder that he made, a classic example of the fallibility of the specialist! For of course the Spanish 'padres' were right and Dr. Safford was wrong. Dr. Safford's paper was extraordinary for the vehemence (may we say 'telltale' vehemence?) that this Anglo-Saxon showed in rejecting the *teo-nandcatl.* It never occurred to him that he had to demolish not only the Spanish 'padres' but also all the native informants on whom they relied, and even the Nahuatl vocabulary that they used!

The source of Dr. Safford's error lay in his misreading of Sahagun's sentence about the Chichimecas and the emphasis that he placed on this single misconstrued passage. Loosely constructed though the sentence is after the fashion of 16th century prose, its meaning is clear. The Chichimecas were the first to use *thepeyotl,* says Sahagun, and they used it in the way that we the Nahua (Sahagun's informants) use the inebriating mushroom. We may be sure that Dr. Safford canvassed the Chichimeca country thoroughly, and his negative findings there and in the Southwest of the United States tend to confirm our interpretation of Sahagun.

Just as toxins appropriately administered stimulate the growth of anti-bodies, so the Safford paper served a useful purpose in stimulating the inquiries of Mexican workers, who properly resented the charge that early Spanish observers could not tell a mushroom from a cactus button. The details of this inquiry need not detain us here. To Dr. Bias Pablo Reko, a Mexican of Austrian birth and Slavic provenience, belongs the primary accolade for persisting in the search for the mushroom cult. He was the first to declare his belief that the cult still survived. He so expressed himself shortly after the Safford lecture, and he began to look for the cult in the State of Oaxaca. To Robert J. Weitlaner goes the distinction of having first re-discovered the sacred mushrooms themselves. This excellent anthropologist and tireless worker laid his hands on samples in the remote town of Huautla de Jimenez, Oaxaca, in 1936. He sent them to Dr. Reko who in turn forwarded them to the botanical authorities at Harvard. They arrived in bad condition but could be identified as a species of panaeolus. Huautla is the chief town of the Indians known as Mazatecs.

In that same year Dr. Reko's cousin, Victor A. Reko, had published in Stuttgart the first paper challenging the Safford argument, *Magische Gifte: Rausch- und Betaubungsmittel der Neuen Welt.* In 1938 a young Harvard ethno-botanist, Dr. Richard Evans Schultes, visited Huautla and obtained additional samples of the mushrooms and photographs of them in a fresh state. With the help of Dr. David Linder of the Farlow Herbarium, Harvard University, he identified them as panseolus campanulatus L. var. sphinctrinus (Fr.) Bresadola. His specimens, carefully preserved, were again examined in the fall of 1955 by Roger Heim, who confirmed without hesitation the previous identification. In that same year 1938, on the night of Saturday-Sunday, July 16-17, four white persons in Huautla attended a mushroom rite performed expressly for them. The four were the promising young anthropologist Jean Bassett Johnson, his wife Irmgard Weitlaner-Johnson, Bernard Bevan, and Louise Lacaud. In a paper published the following year Mr. Johnson gave to the world the first account of the ancient

rite: there is no evidence that any white persons had ever before attended it.[1] He did not identify the mushrooms that were used.

In European sources there is some evidence of inebriating mushrooms in addition to the fly amanita. Indeed, the earliest recorded reference to psychic symptoms caused by mushrooms clearly did not relate to the amanita muscaria. Before describing the fly amanita Albertus Magnus in *De Vegetalibus* remarks on the propensity of certain mushrooms to bring about mental disturbance:

> Signum autem, quod habcnt humidum vaporosum, est, quod comesti frequenter oppilant vias spirituum animalium in capite, et inducunt insaniam.
>
> [Op. cit., Book 2, Chap. 6:87]

Moreover, an indication that they [fungi] are of a moist humor is that when eaten they often stop up in the head the mental passages of the creatures [that eat them], and bring on insanity.

I. The Johnson paper is important. Entitled 'The Elements of Mazatec Witchcraft', it was published by the Gothenburg Ethnographical Museum in Sweden in 1939 as Ethnological Studies 9. Dr. Schultes published two papers, one as a Botanical Museum Leaflet, Harvard University, Feb. 21, 1939, vol. 7, no. 3, *The Identification of Teonanacatl;* the other, 'Teonanacatl: the Narcotic Mushroom of the Aztecs', in the *American Anthropologist,* n.s., 42, 1940. These three and Dr. Reko's *Mitobotdnica Zapoteca,* published by himself in 1945, constitute our basic modern bibliography. Victor A. Reko's *Magische Gifte,* of which a third edition appeared in Stuttgart in 194.9, must be read with caution. For example, he guesses at the identity of the inebriating mushroom, postulating an 'amanita muscaria var. mex.' More disturbing is his assertion that *poyomatli,* a narcotic plant, was a mushroom. He arrives at this conclusion by misquoting a passage in Sahagun (substituting *llamados* for *llamada),* and by ignoring another passage in Sahagun where the *poyomatli* is described in detail as a plant. (See *Magische Gifte,* 1949, p. 126; Sahagun, Book X, Chap. 24, *Canute de Humo;* also Book xi, Chap. 7, Sec. 7.) Since Victor Reko published his work in German, German writers frequently cite him and are misled by him. The modern discussions of our subject are also bedeviled by two idle conjectures of the late Marshall H. Saville, the archeologist, who without a shred of supporting evidence suggested (i) that the Aztec ruler Tizoc had been murdered with poisonous mushrooms, and (2) that the astonishing dental work found in the teeth of Zapotec skeletons had been performed with the aid of mushrooms as narcotics. For the Tizoc reference, see J. Eric Thompson's *Mexico before Cortez,* Scribner's, New York, 1933, p. 31. As for the Zapotec dental work, Saville tossed out his fanciful notion in an extempore, unrecorded talk before the Explorers' Club, New York *(Explorers Journal,* 1934, vol. 12, p. 7) and a subsequent interview *(The New York Times,* April n, 1934). The Swedish archeologist S. Linne took Saville's dental suggestion seriously; see *Ethnos,* Stockholm, Jan. -June 1940, p. 7. Schultes in his two papers quotes Saville (via Thompson) on Tizoc. Safford's mushroomic nihilism may have led, by reaction, to Saville's postulating mushroomic agents right and left in pre-Conquest Middle America. As Saville never offered his mushroomic ideas formally, we infer that he regarded them as speculative. Bias Pablo Reko in his *Mitobotdnica Zapoteca* (pp. 13, 14, 44, 53, and 95) reported names for inebriating mushrooms in contemporary Zapotec, but he failed to place his informants. In a typewritten note of his left with Mr. Weitlaner he states that in 193 5 he found the divinatory mushrooms in use among the Zapotecs of Santiago Yaveo and the Chiiiantecs of Teocalcingo, two villages situated hard by the Mije country. He gives Chinantec names for these mushrooms *(a-ni* and *a-mo-kia).* The Chinantecs generally do not know the mushrooms, and if Dr. Reko's report is reliable, we suspect a cultural borrowing from the neighboring Mijes. Our own efforts to discover knowledge of the divinatory mushrooms among the Zapotecs of Tehuantepec and the Valley of Oaxaca have been unsuccessful. Pedro Carrasco reports the present day use of the divinatory mushroom in Zapotec country, among the Zapotecs of the southern coast, in the western part of the district of Pochutla, in the village of San Bartolo Loxicha, where he says it is called the *santo nanacate.* See his 'Una Cuenta Ritual entre los Zapotecos del Sur' in the Festschrift entitled *Homenaje al Doctor Alfonso Caso,* Mexico, 1951, p. 93. On the strength of his evidence we visited the southern Zapotec country in 1955, with successful results. See pp. 307 ff.

The great Clusius may have described, an inebriating mushroom. In the section on the *Fungi pernidaks* of Hungary he arrives at the eleventh of the evil species and says this concerning it:

Ungaricum nomen nullum intellexi, sed Germanicum est *Narrenschlvammen* ac si diceres fatuum vel fatuorum fungum, quoniam forte, si quis vescatur, mente turbetur . . . Corpore dum e sua volva erumpit, est boleto dissimili, longiore pediculo subnixum minimo digito graciliore, sescuncialis latitudinis, in metam assurgens, superna parte Candida, inferna camerata, & multis striis, a pediculo in ambitum productis, notata.

I did not learn its Hungarian name, but in German it is *Narrenschwamm,* i.e., 'foolish fungus' or 'fungus of fools', since one may see that he who eats becomes mentally upset... Its body, when once it has broken its volva, is unlike the Boletus, with a stipe thinner than the little finger, [the cap] less than 4 cm. in diameter, heading up into a conical top, white above, partitioned below with multiple furrows, radiating from the stem in a circle.

Our Hungarian friend, Dr. Stephan F. Borhegyi, has supplied us with the Magyar name that Clusius failed to get: *bolondgomba,* 'fool-mushroom', a term still familiarly used in Hungary, especially in the rural areas, as when one asks of a person behaving foolishly, "Have you eaten the fool's mushroom;", or when one rejects a proposition by saying, "Do you think I have eaten a fool-mushroom, that I should do such a thing?" Or again: "He is laughing as though he had eaten fool's mushrooms." In Hungary the 'wise-woman', *javas asszony,* is said to use this same mushroom in love philtres, and the angry lover sends the philtre on to the object of his passion. We think this is the same mushroom that, as we saw on page 78, the Slovakian peasant calls *salene huby.* The Slovakian word finds a surprising echo in the iyth century verses of the Polish poet Waclaw Potocki, which we mentioned on page 15. He is advising his readers about mushrooms, and warns them against a kind called *szmer,* lest it render the reader foolish *(szalec)* 'as from opium'! In Vienna one may hear the saying, *Er hat verruckte Schwammerln gegessen,* 'He has eaten the mad mushrooms.' Whether this is native to the Austrian countryside, or a loan made in imperial times from Hungary or the Carpathians, we do not know.

Thanks to Clusius and the Continental usage, John Parkinson in his *Theatricum Botanicum* (1640) speaks of the 'foolish mushroom', describing it rather well:

... about half an inch broad, spiring a little at the toppe, and being of a whitish colour, with a long stalke, of the thicknesse of ones little finger: this is called the foolish or the fooles Mushrome. [P. 1321]

What was and is this fool's mushroom that Albertus Magnus mentioned and Clusius described and the peasants of central Europe invoke in their old saws ?

Our only good clue lies in the paintings that Clusius made, now preserved in Leiden: for Clusius the *Narrenschwamm* was, beyond a doubt, the amanita vaginata. Is it possible that this edible mushroom, if eaten raw, causes psychic disturbance? Clusius' identification is uncorroborated. Is it possible that he made a mistake, that his informants in Hungary were not heirs to the true tradition, that they were not privy to the secret ? Perhaps the folklorists of Central Europe can yet run to earth the haunting reference incapsulated in the *Narrenschwamm,* with its echoes of far-off fungal knowledge.

We might have expected the 'fool's mushroom' to be a species of panaeolus, for there is medical evidence to support the intoxicating virtue of this genus of mushrooms. A surgeon named G. Glen, Esq., reported on a case in the *London Medical and Physical Journal,* 1816, on pages 451-3. It seems that on October 16 of that year a poor man living in Knightsbridge gathered a mess of mushrooms around a copse behind the Horse Guards barracks in Hyde Park. He thought they were field mushrooms, and after stewing them, proceeded to eat them. About eight or ten minutes later, when only six or eight mushrooms were left on his plate, he was seized with giddiness, dimness of vision, and a general loss of power. With utmost difficulty and only by the help of a friend whom he met, he made his way to Mr. Glen's consulting room five hundred yards away. He was reeling like a drunken man. It is noteworthy that Mr. Glen says his patient spoke with hesitation and reluctantly, and was greatly inclined to sleep. There was no nausea. By the next day the patient was well on the road to recovery, and Mr. Glen was inclined to the view, natural to medical men under the circumstances, that his own ministrations had either saved the poor man's life or spared him a prolonged illness. Mr. Glen examined the mushrooms left from the stew and also gathered fresh ones from the place where the first had been found. He identified them as panseolus campanulatus Linn., and this was confirmed by a Mr. William Salisbury of Sloane Street, a person deemed competent in the matter. Mr. Glen drew attention to the fact that two parallel cases had been summarily reported in the August 1815 issue of the *Gentleman's Magazine,* the same species being held accountable in those instances also.

Exactly one century after Mr. Glen's experience, in the summer of 1916, an American surgeon, Dr. Beaman Douglass, gathered a mess of mushrooms that he believed were of the genus panasolus, though the species remains uncertain. He, his wife, and the maid ate them, spreading the cooked mushrooms on toast. One hour later Mrs. Douglass developed psychic symptoms, and his followed shortly afterwards. Both lost their sense of balance and mental control. There was pronounced stimulation. Mrs. Douglass manifested "a tendency

to be jolly, hilarious - she laughed and talked inordinately and foolishly." As for Dr. Douglass, this is what he recalled, "I wished to be noisy, to laugh and joke. My own trivial remarks met with my own warm personal appreciation . . . Thoughts flew through my brain. . . Objects near seemed far away, sounds were diminished. . . ." The maid underwent a similar experience. Six hours after eating and five hours after the first symptoms all evidence of intoxication had disappeared. At no time had there been nausea.[1]

Mushrooms of the genus panasolus are found everywhere in the temperate and tropical zones, and there are many species. Henri Fabre knew them, of course, and we offer to our readers a reproduction of his painting of the panaeolus campanulatus. To us it seems outstanding in artistic composition, in the delicacy of the curves, the lilt of the caps. This mushroom is not normally eaten in France, but so far as we can learn it is not regarded as inebriating even by the mycophilic country folk of the Provence. There is no reason to think that Fabre considered it uncanny. Yet is there not something eerie about the cobra-curves of the little mushrooms in his painting, as though he sensed a secret >

There is a reproach to mycologists in these unexplored hints and evidence of psychic effects caused by mushrooms, hints deeply rooted in Europe's folk-ways, evidence clearly reported over centuries from Kamchatka, New Guinea, and Middle America. It seems strange that archaic peoples should still possess secrets of this kind that our laboratories have not exhaustively analyzed. Indeed, Swiss and English workers may lately have arrived, at last, on this exciting terrain for scientific inquiry. From the fungus known as ergot Swiss pharmacologists have recently isolated an alkaloid that causes massive psychic reactions in human beings, including hallucinations that duplicate with astonishing fidelity the testimony of our old Spanish writers. Experiments with this alkaloid in England and America seem to open up promising vistas for its use in the treatment of psycho-neurotic disorders.[2]

1 hat Dr. Reko and Dr. Schultes brought back a panasolus from their quests for the divinatory mushrooms was not the full answer to our problem. Were there not other divinatory species, belonging to different genera? Both Dr.

1. For the Douglass episode see his papers on 'Mushroom Poisoning', published in *Torreya,* vol. 17, No. 10 and No. 12, Oct. and Dec. 1917. See also Louis C. C. Krieger, *A Popular Guide to the Higher Fungi (Mushrooms) of New York State,* Albany, N. Y., 1935, p. 147.

2. See, *e.g., Journal of Mental Science,* vol. 100, No. 419, April 1954: 'The Therapeutic Value of Lysergic Acid Diethylamide in Mental Illness', by R. A. Sandison, A. M. Spencer, and J. D. O. Whitelaw, pp. 491-507; and 'Psychological Aspects of the LSD Treatment of the Neuroses', by R. A. Sandison, pp. 508-515, being reports on the treatment of certain neurotic patients at Powick Mental Hospital, Worcestershire.

Reko and Dr. Schultes thought so, and the former even obtained specimens of two other genera. Further questions suggested themselves, and we resolved to pursue our inquiry on our own account.

In response to an inquiry of ours, Dr. Reko wrote us on February 12, 1953, that he had nothing further to add to the information he had published, but suggested that we address ourselves to a Miss Eunice Victoria Pike, an American linguistic student and Bible translator who had been living for many months each year since 1936 among the Mazatec Indians, with her headquarters in Huautla. She spoke Mazatec, he added, and thus she had access to the thoughts and feelings of the monolingual elements in the population. Immediately after thus introducing us to Miss Pike, Dr. Reko died. We wrote to her, and she has proved a most helpful and understanding correspondent. Even Miss Pike after all these years has never attended a performance of the divinatory rite, but speaking the language and living among the people, she reports the words of those who know and understand, and their words are more valuable than would be the uncomprehending testimony of an outsider witnessing the event. Is there anything more difficult than to enter intelligently into the inner religious experience of a people far removed culturally from one's own; We reproduce in full Miss Pike's letter to us, as a primary source on a theme of absorbing anthropological interest, superior by far in quality to anything on the *teonandcatl* given to us either by the early Spanish writers or recent inquirers. There is an immediacy of experience, an intimacy, about this report that carries its own proof of credibility.

Here is Miss Pike's letter:

Huautla de Jimenez • Oaxaca, Mexico
March 9, 1953

Dear Mr. Wasson:

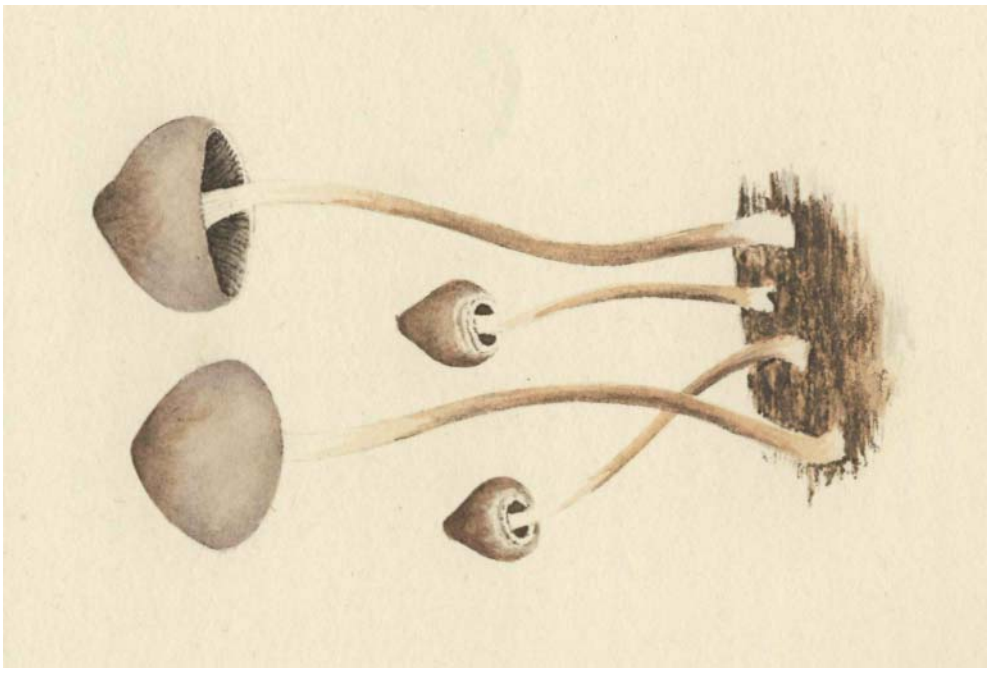
I'm glad to tell you whatever I can about the Mazatec mushroom. Some day I may write up my observations for publication, but in the meantime you may make what use of it you can.

Mazatecs seldom talk about the mushroom to outsiders, but belief in it is widespread. A twenty-year old boy told me," I know that outsiders don't use the mushroom, but Jesus gave it to us because we are poor people and can't afford a doctor and expensive medicine."[1]

Sometimes they refer to it as 'the blood of Christ' because supposedly it grows only where a drop of Christ's blood has fallen. They say that the land in this region is 'living' because it will produce the mushroom, whereas the hot dry country where the mushroom will not grow is called 'dead'.

i. Miss Pike informed us later that this and other translations were from the Mazatec, not from Spanish.

PLATE XXXIX Jean-Henri Fabre. Panseolus campanulatus Fr. ex L.



They say that it helps 'good people' but if someone who is bad eats it, 'it kills him or makes him crazy.' When they speak of 'badness' they mean 'ceremonially unclean'. (A murderer if he is ceremonially clean can eat the mushroom with no ill effects.) A person is considered safe if he refrains from intercourse five days before and after eating the mushroom. A shoemaker in our part of town went crazy about five years ago. The neighbours say it was because he ate the mushroom and then had intercourse with his wife.

• When a family decides to make use of the mushroom they tell their friends to bring them any they see, but they ask only those whom they can trust to refrain from intercourse at that time, for if the person who gathers the mushroom has had intercourse, it will make the person who eats it crazy.

Usually it is not the sick person nor his family who eat the mushroom. They pay a 'wiseman' to eat it and to tell them what the mushroom says. (He does so with a loud rhythmic chant.) The wiseman always eats the mushroom at night, because it 'prefers to work unseen'. Usually he eats it about nine o'clock and it starts talking about a half an hour or an hour later. The Mazatecs speak of the mushroom as though it had a personality. They never say, "The wiseman said the mushroom said…" They always quote the mushroom direct.

The wiseman always eats the mushroom raw; "If anyone cooks or burns the mushroom it will give them bad sores." There is no specified number of how many he should eat, some wisemen eat more than others, usually they eat four or five. If he eats a lot, it 'wants to kill him'. At such a time the wiseman falls down unconscious, and comes to little by little as the other people in the room 'pray for him'. This may also happen 'if he has had intercourse too recently'.

When all goes well, the wiseman sees visions and the mushroom talks about two or three hours. "It is Jesus Christ himself who talks to us!" The mushroom tells them what made the person sick. He may say the person was bewitched; if so, he tells who did it, why, and how. He may say the person has 'fear sickness'. He may say it is a sickness curable by medicine and suggest that the person call a doctor.

More important, he will tell whether or not the person is going to live or die. If he says he will live, then "he gets better even though he has been very sick". If he says he will die, then the family start making arrangements for the funeral and he tells who should inherit his property. (One of my informants admitted, however, that the mushroom occasionally makes mistakes.)

One of the "proofs" that it is "Jesus Christ himself" who talks to them is that anyone who eats the mushroom sees visions. Everyone we have asked suggests that they are seeing into heaven itself. They don't insist on that point, and as an alternative they suggest that they are seeing moving pictures of the U.S.A. Most of them agree that the wisemen frequently see the ocean and for these mountain people that is exciting.

I have asked what the wiseman looks like while under influence of the mushroom. They say that he is not sleeping, he is sitting up, with his eyes open, "awake". They say he does not drink liquor at the time, but that he may in the morning. Some of them go right out to work the next day, but some stay home and sleep "because they have been awake all night".

CHAPTER FIVE

Although we have never been present when the mushroom was eaten, we have observed the influence it has on the people. One of our neighbors had tuberculosis and was coming to us for medical help. Then one night they called in the wiseman to eat the mushroom in his behalf. It told them that he would die.

The next day the patient no longer had any interest in our medicines; instead he began to set affairs in order for death. He quit eating solid food, restricting himself to corn gruel. About two weeks later he refused even gruel, accepting only an occasional sip of water. A few days later even water was rejected. In less than a month after he had consulted the mushroom he was dead.

Another neighboring family had a series of sicknesses. They consulted the mushroom for their twenty-two year old son. The mushroom said he would get better, and he did. When their eighteen-year old daughter became ill, they consulted the mushroom. It said she would get better and she did.

Then the ten year old daughter became ill. The mushroom said that this one would die. The family were amazed because her illness had not seemed serious. Of course they were grief stricken, but the mushroom said, "Don't be concerned, I'll take her soul to be with me." So, following her mother's instructions the little girl prayed to the thing talking to her, "If you don't want to cure me, take my soul." A day or two later she was dead.

- Not all the Mazatecs believe that the mushroom's messages are from Jesus Christ. Those who speak Spanish and have had contact with the outside world are apt to declare, "It's just a lot of lies'."Most monolinguals, however, will either declare that it is Jesus Christ who speaks to them, or they will ask a little doubting, "What do you say, is it true that it is the blood of Jesus?"

I regret the survival of the use of the mushroom, for we know of no case in which it has had beneficial results. I wish they'd consult the Bible when they seek out Christ's wishes, and not be deceived by a 'wiseman' and the mushrooms.

In answer to your questions:

The mushroom (called *si^{3}tho^{3},* or affectionately *'nti^{1} si^{3}tho^{3})* is brown in color and grows biggest in June and July when the rainfall is heaviest. At that time they may be four inches across and about four inches tall. They are still plentiful in September and October. By March and April, the dry season, the mushroom is scarce, but small ones may still be found.

The mushroom grows in the grass, but when people are hunting for it, they look first in the places where cattle have been, because the mushroom is most frequently found growing out of cow manure.

They do not dry the mushroom. If they cannot find one growing, they go without. The person I asked doubted that it was possible to dry them. At first she thought they would not. Then she said that maybe they could be dried, but she doubted that they would serve as medicine that way.

I do not know that the Mazatecs ever use the mushroom in connection with a fiesta. For the most part it is used in connection with sickness. I have heard of one other minor use

however. They say a man may slip a piece into an enemy's liquor while he is drinking in a saloon. If he drinks it while ceremonially unclean, he may go crazy. Or he might go crazy because the man who gathered it was ceremonially unclean. Wishing you success ih your research,

Sincerely,

(Signed) Eunice V. Pike

Miss Pike's letter settled one question for us. For some time we had been considering a visit to Huautla. Now we were resolved to make it. Much of her information was of that precious kind which can only be obtained when one speaks with the Indians in their own language on terms of long standing friendship and complete mutual confidence. We could not hope to improve on her contribution. But there were many unanswered questions. For one thing, her mushrooms reached four inches in diameter; they could not belong to the genus panasolus. What then were they?

In the Mazatec country there are two seasons of the year when mushrooms should be abundant, at the beginning and at the end of the rains, in June and in the first half of August. We decided on August for our trip. Miss Pike would be absent then, but her colleague in Mexico City, Mrs. George Cowan, proficient in Mazatec and intimate with Huautla, would know how to help us get there. We also were successful in exciting the interest of Mr. Weitlaner, who agreed to accompany us. This was our greatest stroke of fortune, for with his knowledge of the country and the Indians, at least some measure of success was assured. Our objectives were simple: to obtain specimens of the sacred mushrooms, for purposes of identification and trial consumption by ourselves, to learn about the present state of the cult, and to attend the mushroom rite.

We set out from Mexico City on Saturday morning, August 8, 1953. Apart from the chauffeur we were four - Robert Weitlaner, whom we shall call hereafter Don Roberto, VPW, RGW, and our sixteen year old daughter Masha. On that day we drove through Puebla to Tehuacan, a watering resort, where we dismissed the car and spent the night. On Sunday we took the train to San Antonio, about two hours away, and from the mournful railroad station reeking in the torrid heat of a semi-arid countryside we drove a mile or so in a ramshackle bus, loaded with Spanish-speaking Indians and their worldly goods, over the worst road in the world to Teotitlan del Camino, a bustling market town and the stepping off place for the Mazatec country. We spent Sunday night there, in the inn kept by Julia Martinez, a woman unforgettably obese. Early the next morning Victor Hernandez was at the door with six animals, five mules and a horse, all of them miserably small and thin. He was a Mazatec

from Huautla who spoke a fair amount of Spanish. He had come for us in response to a telegram that Mrs. Cowan had sent to a friend in Huautla, the school teacher Herlinda Martinez Cid. Our belongings in duffle bags and knapsacks were soon loaded, and off we started up the steep trail into the mountains east of Teotitlan. After two hours of climbing we reached San Bernardino, a village superbly perched on a mountain spur looking back over the hot low country that we had left behind. There we breakfasted on tortillas and beans and then off we went again, on a long steady climb until we arrived at the first of the passes, known as La Cumbre, perhaps 9,000 feet high. Here we thought to stop for a bite to eat from our provisions, but Victor would not hear of it. He said the Cumbre was a favorite spot for robbers, who would beset the wayfarers on animals spent from the long climb and then vanish in any of various directions down the slopes. We noticed for the first time that Victor was armed with a revolver at his waist. Later we learned that four robbers, many years before, had been hanged on the Curnbre, and their bodies left swinging for months in that desolate wind-swept place. And so we hurried on down into the next valley, and up again to a second pass, and down again, and finally up the last steep climb into the town of Huautla, itself perched on a mountain side at an altitude ranging from 5,500 to 6,000 feet. We had been on the road for eleven hours through country of wild grandeur, the mountains covered with vegetation, with only two or three thatched villages discerned in the distance. But on the trail itself there had been considerable traffic, as strings of animals kept passing us, laden with sacks of coffee and other produce bound for the market in Teotitlan. Like our Victor, the drivers were all on foot, barefoot or wearing sandals, hurrying along at a dogtrot. Their animals gave us some trouble in the narrow way, as the beasts, stepping along, would brush us with their heavy sacks and push us uncomfortably toward the precipitous outer edge of the path. Victor observed our difficulty, and soon it dawned on us that on-coming drivers were halting their animals and letting us pass. Victor had been notifying them of our approach and bespoken their consideration. He had not uttered a word, or so we thought. But we had read, in preparation for our trip, about the Mazatecs, and knew that the language could be whistled as well as spoken. Yes, in a well-modulated, penetrating whistle Victor had been conversing about us with the on-coming muleteers, even before they would come around a bend into view, and at his request they were letting us pass! At the end of the day, as night was falling, we walked our animals slowly up through the town of Huautla, across the public plaza, up the hill to the house where Herlinda was waiting for us, standing in her door and smiling at us.

We were tired out, and the warm reception that this Indian school-teacher cheered us with was most welcome. That night we all slept on the packed-earth floor of one of her three rooms. Herlinda's aged mother lay moaning, critically ill, in the front room. On the following day we rented a new, un-occupied house nearby, paying five pesos (or fifty-five **U.S.** cents) for a week's

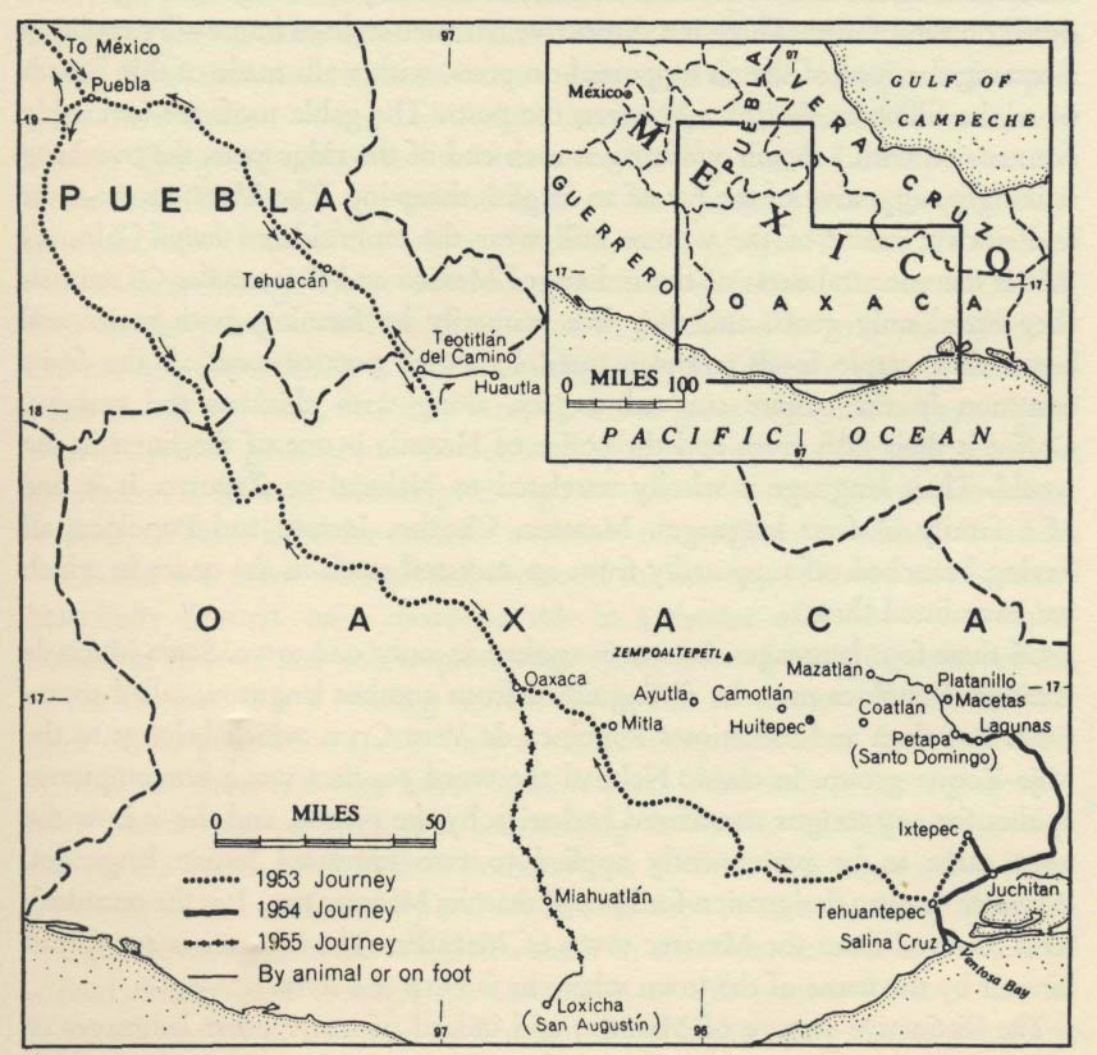


Fig. 16

use. There we also slept on the ground, and we had our meals with Herlinda, who stayed home from school to take care of us. From Victor and others during our stay we heard stories of the lawlessness of these Mazatec Indians, and it is true that no one goes abroad after nightfall, whether on the trails from one town to another or within the town itself; and armed with their machetes the Indians

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looked to us fearsome enough, when we would meet them on the road. But the fact is that they treated us always with perfect courtesy and gentleness, and those few whose aid we sought in confidence in our mushroomic inquiries were most understanding in their efforts to help us.

The Mazatec Indians number about 60,000, all of them concentrated in the mountains of north central Oaxaca. They live chiefly in villages, though some dwell on their farms. There is a distinctive Mazatec style of house - by tradition a rectangular roof of thatch supported on posts, with walls made of thin boards or adobe filling in the space between the posts. The gable roofs are invariably constructed with a thatch overhang at each end of the ridge pole, the overhang strikingly suggestive of the ear of an English sheepdog. The Mazatecs are short and stocky; many of the women still wear the embroidered *huipil* ('blouse') that is the ancestral dress of the Indians of Mexico and Guatemala. Of animals they breed only goats, and they live primarily by farming, with maize and beans their staple foods, supplemented by sweet potatoes and all the fruits common in the tropics and sub-tropics, along with chickens and turkeys. Coffee is their cash crop, and the coffee of Huautla is one of the finest in the world. Their language is wholly unrelated to Nahuatl or Zapotec. It is one of a family of four languages, Mazatec, Chocho, Ixcatec and Popoloca, all having branched off supposedly from an ancestral stock in the order in which we have listed them.

Of these four languages, Ixcatec is spoken in only one town, Santa Maria de Ixcatlan. Popoloca must be distinguished from another language, called sometimes Popoluca and sometimes Popoloca de Vera Cruz, which belongs to the Mije-Zoque group. In classic Nahuatl the word *popoloca* was a contemptuous epithet for any tongue considered barbarian by the Nahua, and this is how the term came to be permanently applied to two unrelated Indian languages. 'Mazatec' is not a designation for himself that the Mazatec uses. It is the outsider's term, derived from the Mazatec town of Mazatlan. The Mazatec is apt to call himself by the name of the town where he is born and lives.

The distinctive feature of Mazatec, and indeed of many other languages of the Oaxaca cultural mosaic, is the tonal system. In Mazatec the pitch at which successive syllables are uttered is of primary semantic importance. This is what makes communication by whistling or humming simple. The Chinese is a tonal language too, but the 'contour' tones of Chinese are basically different from the 'registered' tones of constant pitch in the language of the Mazatecs. When the Mazatec muleteer initiates a whistled conversation with a friend some distance away, the key that he adopts sets the key for his friend's answer

and the whole conversation follows in that key. Anything that can be said in the language can be said whistling. Mrs. Johnson had sent by us some trinkets - earrings, a ring, a bracelet - to an Indian godchild of hers, living outside the village of San Andres, a few miles from Huautla. With Victor we walked thither along the ancient mountain path. He found the Indian cottage, high above the path. He tilted his head far back, and in a pleasant whistled discourse explained the circumstances - certainly unusual ones for this isolated Indian family. Soon there were signs of activity above, and down a precipitous footpath came three women - the grandmother, the mother, and the child herself, now sixteen. The grandmother and mother were bearing simple homespun textiles across their forearms, a gift to send back to Mrs. Johnson in exchange for her remembrance. None of the women knew a word of Spanish, and after a brief conversation through Victor as our interpreter, we withdrew, the women raising their hands, palms turned to us at shoulder level, and bowing us a friendly and moving farewell. By Victor's whistling they had learned exactly who had come to call and why, and they came down to greet us on the path equipped with reciprocal gifts, not to be outdone by our courtesy. There is a curious convention in Mazatec whistling: though women understand it and know how to do it, a rule of behavior makes it improper for a woman to whistle in public.

Huautla is a town with several thousand inhabitants. It could not be more beautifully situated, on a mountain side in a theater of verdant mountains, bathed in flowers and sub-tropical vegetation, free of mosquitoes by reason of the altitude. It is a bustling market town, full of movement and life. Yet most of the population speaks only a tongue that, until now, has never been written, and those few who know Spanish often know only a smattering of it.[v] Most Mazatecs never sleep in a bed, rolling themselves in their sarapes on a mat on the beaten earth in their houses. Most of them have never worn shoes. Victor could not read time by a clock-face. Except in Huautla where there are wheelbarrows, there is no wheeled vehicle in the Mazatec country, and until a road thrusts itself through the mountains to this remote Mazatec world, most Mazatecs will continue to live and die without using the wheel. How strange to come upon a people remote from the modern world, still shut in by their mountains and the barrier of their difficult language, where we can see' how our own ancestors lived for most of human history, living almost solely in and for the present, but pursuant to patterns transmitted orally from one generation to another, a people abounding in vitality, intelligent, yet still largely untouched by the currents of the modern world!

At breakfast on the morrow after our arrival Don Roberto and RGW took

Herlinda into their confidence and told her the purpose of our visit. She admitted that she, like her neighbors, had wondered why we were coming. A close friend of Victoria Pike and Florence Cowan, she had no faith in the sacred mushrooms, but she said she would ask her brother-in-law, Aurelio Carreras, widower of her late sister, to help us. He turned out to be a one-eyed Indian, about 45 years old, the owner of two or three houses built around a patio almost next door. He had learned Spanish from his wife, but could not read or write it. We bespoke his help to get the sacred mushrooms for us, and he promised to do his best, but the rains had ended prematurely and the mushrooms might be hard to find. He warned us to discuss the mushrooms with no one.

We walked through the town. Don Roberto dropped in at a little general store, and introduced RGW to the ancient woman behind the counter, Cleofas Cid, an aunt of Herlinda's. When no other customers were about, he asked her whether she could find the mushrooms for us. She told us that the *curandero*[1] who had officiated for the party in 1938 had died, and she knew not where to turn for another who would accommodate us, but there was Concepcion, the wife of a *curandero* who had taken to drink and gone to the dogs. She knew the mushrooms and would get them for us. Concepcion did not speak a word of Spanish. - When approaching the Indians with our inquiries, we were careful to speak of the mushrooms with the deepest respect. (After all, it was a bold thing that we were doing, strangers probing the innermost religious secrets of this remote people. How would a Christian priest receive a pagan's request for samples of the Host?)

On Wednesday word reached us from the priest of the huge church on the plaza that he would like to see us. We had already paid a courtesy visit on the Presidente, a big, tough-looking cacique who spoke good Spanish. Now we called on Father Alfonso Aragon. He turned out to be Indian, but Zapotec not Mazatec, and with most of his parishioners he could not converse. (In man's memory there had never been a Mazatec priest in Huautla.) He was curious about our visit. We explained our interest in the old customs of the Mazatecs, and then on his initiative he told us of the strange faith, ridiculous in his eyes, that the townspeople placed in certain mushrooms. Lately a physician in Puebla had asked him to forward a kilogram of them. Father Alfonso had succeeded in laying his hands on the mushrooms, and had wrapped them up. The parcel was still there, on the shelf in front of us, for he had lost the address of the Puebla

i. We have found no English word that renders *curandero*. Medicine man, shaman, witch doctor, sorcerer- all are misleading. The *curandero* heals with herbs and engages in divination. *Curandero* is the respectful designation of which *brujo* is the pejorative counterpart.

physician. Did we care to examine them? We did not conceal our interest, and quickly untied the parcel. Alas, as was to be expected, the contents were reduced to a black and putrid mass.

We talked with Victor the muleteer about the mushrooms, and how we hoped we could consult a *curandero* in the course of our visit, and he set off full of promises, saying he would seek out either of two *curanderos* whom he knew in San Andres.

Then we waited.

And as we waited, we picked up more and more information about the sacred mushrooms. Herlinda talked freely with us. She knew much, though she professed to have little knowledge and certainly she had no faith in them. Victor the muleteer was captivated by our interest. He and Aurelio and Concepcion would come to us separately, often after dark, Aurelio and Concepcion with little parcels of a few mushrooms wrapped in banana leaves or a cloth, which they would deliver to us secretively and reverently. Aurelio and Victor would warn us to speak of the matter to no one, for it was *muy delicado,* Very perilous'. This was the expression they used independently of each other, for we talked with them always individually, but in the case of Concepcion, as she was monolingual, we had to bring in Herlinda to interpret for us.

We learned that the Mazatecs are mycophagous and many kinds of edible mushrooms are offered on market day in the plaza. Each has its own name and the general word for 'mushroom' is *tai*^{3}, the *t* being explosive and each of the vowels being nasalized.[1] But this word embraces only mushrooms other than the sacred ones. Each of the sacred kinds has its own name, and all together they are called *si*^{3}*to*^{3}. This name is invariably preceded by another verbal element so that the normal expression is, as Miss Pike had told us, *'nti*^{1} *si*^{3}*to*^{3}, the first syllable conveying a sense of deference and affection. (The apostrophe represents a glottal stop.) The word *si*^{3}*to*^{3} means literally 'that which springs forth', and while it is impossible for us to prove that this sense explains the name, in the context of the sacred mushrooms it is a felicitous mystical metaphor. Victor explained the name as meaning "that jwhich comes of itself, no one knows whence, like the wind that comes without our knowing whence nor why" - *que viene por si mismo, no se sabe de donde, como el viento que viene sin saber de donde ni porque.* The word is saturated with *mana:* it is uttered in a whisper and Victor was loath to pronounce it at all; when he had to use it, he would substitute a gesture - his gathered fingers making an eating motion before his mouth.

In the Mazatec language there seems to be no name for the occupation of the

I. The superscript digits in Mazatec words indicate the pitch, V being the highest and '4' the lowest.

shaman or *curandero.* In the proper context one speaks of him as 'he who knows', *co'td'ci'ne'.* Only on his advice should one eat the sacred mushrooms. The *curandero* himself does not necessarily gather the mushrooms; others may do this for him. Nor is the gathering attended by prayers and vigils. But according to Concepcion the best time to find them in good condition is early in the morning "when the air is fresh" - *con el fresco* - a turn of phrase that reminds us of the 'little breeze before dawn' that Jacinto de la Serna mentioned. The best time to find them is when the moon is new - *la luna tierna.* According to Aurelio, in and around Huautla there are today about twenty or thirty *curanderos,* roughly the same number as in the past, and women are as acceptable as men in this function. Usually the *curandero* takes in hand the instruction of his son or relative who will succeed him, but this presents no problem, for the neophyte learns in two or three months. After all, it is the mushroom that speaks, the mushroom that teaches the beginner what to say and do. The rite of the sacred mushroom is performed only as an *ad hoc* consultation, and the prevailing fee when we were in Huautla was from twenty to twenty-five pesos, from $2.50 to $3.00. For this service the *curandero* must fast from noon to noon, and drink no alcohol. He must be (ceremonially) clean, *nta*^{3}*co*^{4}*ta*^{4}. He begins his session between nine and ten o'clock in the evening, and does not finish before three in the morning. But the trance leaves no unhappy after-effects. He can work the next day, and his head is so clear that he remembers all that he has said in the course of the night.

The *curandero* eats the mushrooms raw and unwashed and preferably fresh, but he may conserve them in a dried state for as long as six months. The *curandero* eats the mushrooms near the beginning of the seance, and at his discretion he may offer them to the family who is in attendance or to the patient whose fate is in the balance. Among our informants we found no one who had ever heard of a public communal feast of sacred mushrooms. This feature of the cult, so eloquently described by the old writers, seems obsolete. Here is an important alteration in the old customs, and for the change two explanations suggest themselves, either of which would be sufficient of itself. For public celebrations the mushroom could hardly stand the competition of distilled alcohol, and the unhappy addiction of the Mazatecs today to strong liquor is sufficient evidence of this. But there may be another reason. We know that from the earliest times the Catholic Church exerted itself to the utmost to extirpate the mushroom cult, and under that threat the use of the mushroom would be driven into hiding. Indeed this may be the forgotten but once powerful motive behind the atmosphere of secrecy that hung over all our discussions during our brief

sojourn in Huautla, and what on its face looks like a reverential tabu may be merely a legacy of persecution.

How shall we convey the sense of gravity and doom that seemed to hang on Aurelio's words when he would whisper to us about the sacred mushrooms in the evening ? The mushroom itself 'is speech', *es habla,* he would say, and it speaks of many things, of God, of the future, of life and death, and also it tells where to find things that are lost. One sees everything, one sees where God is also-.se *ve todo; se ve donde estd Dios tambien.* These were our good friend Aurelio's very words. We discovered that it is usual to talk of these mushrooms in pairs. The *curanderos* use four kinds, and each kind has its valence, so to speak, measuring its potency, and the *curandero* eats so many pairs of this kind, and a different number of pairs of another; or in case of a shortage, he can use two or more kinds, calculating the valence of each to arrive at the right dose. We discovered also that each of the four kinds has various specific names, and not all of our informants knew all of these names, but each was certain in his own mind of his own names. It is as though in a single community of a few thousand souls there were various oral traditions using different names, and the traditions did not intermingle and coalesce. On the last day of our stay in Huautla, Victor arranged for us to pay a visit to Teodoro Garcia, and it was obvious to us from his installation and bearing that he was a 'fashionable' *curandero.* He told us he was a native of Huautla, yet later we learned from Herlinda and Aurelio that neither had ever heard of him, and Herlinda suggested that he must hail from San Lucas, a Mazatec village some distance away speaking a dialect different from the dialect of Huautla. More probably 'Teodoro Garcia' was a fictitious name, invented on the spur of the moment. For the Mazatec his name is part of his very being. He is loath to disclose it, for he thereby places himself in the other person's power.

It was interesting to watch the behavior of our Indian friends as one by one they would talk to us about the mushrooms lying on the table before us in the shelter of our house. Victor would hold them to his nose and sniff them, and then report how much *gaz* the specimens contained. Aurelio would say of the little ones that they had a higher rating - *ten tan mas grades* - than the larger ones. They would tell us how many pair were to be eaten of each kind, and the maximum that a strong man might cope with. They told us the specific names for each kind, and from the variety of these it was clear that the names were euphemistic escapes, metaphors rather than names, metaphors expressing respect and affection. As soon as our friends would leave us, we would lay out the specimens, some to be photographed, and all of them to be either dried and

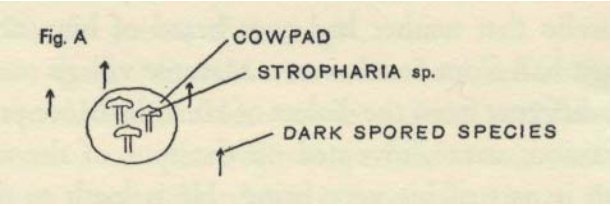
packed in cotton batting or else sealed in bottles with a formalin solution. In the course of our expeditions to Mexico we have collected hallucinatory mushrooms of many species, belonging to four genera. Professor Heim has defined them mycologically in the *Comptes rendus* of the Academic des Sciences, Institut de France, vol. 242, pp. 965-8 and 1385-95, sessions of March 12 and February 20, 1956. Here we add only these notes on the kinds used in Huautla.

1. Our Huautla specimens included many small mushrooms, some with black and others with purple-brown spores. The Indians esteem them highly and the *curandero* will take up to 15 or 20 pair. They grow in pastures and in the vicinity of dung but not in dung. They belong to various species but the Indians do not distinguish among them myco logically. In Spanish they are called *angelitos;* in Mazatec *'nti[1] si[3]tho[3] ni[4]se[3]'[4],* of which the distinguishing final element means 'bird'.[1]

2. Stropharia sp. This is the largest of the hallucinatory mushrooms used in Huautla, and the least esteemed. It grows directly out of cow's dung. In Spanish it is called the *honguillo de San Isidro Labrador,* the little mushroom of St. Isidore the Plowman. In Mazatec, Concepcion called it the sacred mushroom of the bull's dung, *'nti[1] si[3]tho[3] y'e[4]le* nca*ha*.* Concepcion added that inasmuch as these grow in dung and the first kind around but not in dung, people say in Mazatec that these two kinds talk to each other. (See Fig. A).

3. Psilocybe sp. This is an ochraceous spored agaric. It is called in Mazatec *'nti[1] si[3]tho[3]* fe/[3]5V, the 'landslide'.

"4. We were told repeatedly that another kind of mushroom growing on dead or dying trees is used, but we saw no specimens nor could we arrive at the native name.



As the days went by we felt increasingly disappointed that we were not amassing an abundance of the sacred mushrooms. The early ending of the rains had made them scarce. RGW depleted our precious store by eating three of the small ones and one of the large, but more could not be spared. Bitter to the taste, they were not sufficient to cause psychic symptoms.

We were even more disappointed by our inability to meet any of the *curanderos* and to engage one to perform the ritual for us. Our Mazatec friends seemed slow to bring us into contact with them. Apparently the initial pourparlers had to be conducted through an intermediary. At any rate, for days no one

I. In Mazatec words the apostrophe represents a glottal stop. In *sttto^* the letter Y has the same value as in English, the value that linguistic specialists conventionally represent by 'th'. Cf. spelling of this word in Miss Pike's letter.

PLATE XL

Ceremonial mushrooms.
i. Psilocybe mexicaiia Heirn. 2. Stropharia cubensis Earle.
3. Psilocybe cxrulescens Murr. var. maxatecorum Heirn (in dried state).
Water-color by Michelle Bory.


1a
1b
1a
3
2f
2a
2e

PLATE XLI

Accessories to the mushroom rite.
Pisiete, candil, kernels of maize, *amate, guacamaya* feathers, cacao beans, tapers, eggs (chicken and turkey), and sacred mushrooms.
Water-color by VPW.

gave us so much as the name of one, and our friends spoke of them like real but rather mysterious characters who forever remained off stage. Here again there is perhaps a legacy of the era of persecution. Twice Victor disappointed us. He announced to us that first one and later another *curandero* of San Andres would minister to us, for a fee somewhat larger than the standard one. In each, case the *curandero* failed to keep the engagement.

To justify the ministrations of a *curandero,* the suppliant must present a specific problem on which he needs the advice of the divinatory mushroom. We had resolved that our problem lay in our anxiety over our 18 year old son Peter, working in an industrial plant outside Boston, from whom no news had reached us (naturally enough) since we had left home a few days before. This was not a good excuse, but it was the best we could conjure up and it seemed legitimate to our Indian friends.

Our itinerary was going to compel us to leave Huautla not later than Sunday morning the i6th. Saturday came, and we still had failed in our efforts to engage a *curandero.* At that point a brilliant idea came to Don Roberto: was it possible that Aurelio himself, our one-eyed Indian friend, was a *co^{4}ta*ci*ne^{4}* ? Hardly had Don Roberto advanced this conjecture than Aurelio himself came into view, his sarape over his shoulder, approaching us discreetly with that quiet measured gait that by now we knew so well. We felt indebted to him for all he had done for us. Now the big test was to come. We chatted with him, and then, quite casually, Don Roberto asked:

"And tell us, Aurelio, when you give treatments *[hace curaciones],* are they successful?"

"Yes", he answered, "always."

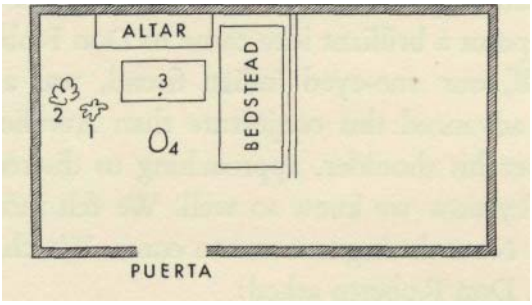
For days we had been talking with a *curandero* all unawares.

Don Roberto went right on. "Will you help us tonight?" Aurelio hesitated. He needed time to think the matter over. Why was he undecided? Was he perhaps ceremonially unclean? Was it because we were aliens to him and his people? Or was it because Herlinda's mother lay dying in the house and he was not in the mood? He went away and consulted Herlinda. This she told us later, explaining that her mother's condition was what had held him back, but she had advised him that we had come from afar, in need of the secret of his people, and he should help us. He came back to us, and told us to be ready at 9 o'clock in the evening. Then he went on to explain to us that different *curanderos* had different styles in performing the ritual. Some chant and sing and even shout. His own style, he said, was simple: he always remained composed and never raised his voice. But the mushroom speaks only in Mazatec, and he

would have to have his son Demetrio with him. to interpret the mushroom's words for us. Before leaving us he obtained our assurance that we would discuss the matter with no outsiders in Huautla.

On the dot of 9 o'clock that evening Aurelio called for us, just as the last rays of daylight were vanishing. He led us by a short-cut across a corn patch or ***milpa*** to his houses, and we entered the door that he led us to. For hours we were to remain in the little room, perhaps eight feet square, where we now found ourselves. In front of us was a kind of shelf or mantel or altar. On the right there was a crudely carpentered wooden bedstead. Under it lay two small children, Aristeo and Julia Elvira, sleeping on a mat. Someone gently pulled the mat with them on it over the dirt floor to the other side of the partition that bisected the house. We were four in our own party. Then there was Aurelio and his grown-up son Demetrio (Figure B, i), and Demetrio's young and pretty

Fig. B



wife Clara (2), who lay on the floor in her clothes and wrapped in her sarape, and who seemed to doze through the night. Next to her lay her baby, born on June 4 and still nameless, for she was as yet unbaptized. Clara seemed to doze, but when her husband Demetrio faltered in translating the words of the mushroom, she had a way of interposing the Spanish words that he was seeking. We were eight in all, with the two children around the corner making ten. The setting for us' strangers had its unusual aspects. Throughout the long ceremony the only illumination inside the room came from tapers or an oil wick, and sometimes from a single taper, and for more than an hour we sat in complete darkness and silence. The air grew foul, for the bean-eating Indians are not an inhibited people. After n o'clock a terrifying rain storm with thunder and lightning broke on Huautla, and through the knot-holes and chinks of the flimsy board walls of our hut the lightning would suddenly reveal every detail of the room and the huddled figures in it. After the storm ended there was more excitement. A shot was fired in the night and Demetrio cried out, " *Un homicidio"* -a murder! Then there was the running of naked feet in the path

outside our house, a loud knocking at a door not far away, and three more shots, but not a single human voice. Throughout the storm and the shooting Aurelio proceeded deliberately with the ritual.

With Aurelio's permission Don Roberto and RGW were taking notes, Roberto's being especially full and accurate. The following description is based on the notes that we both took. The successive steps seemed interminable, so slow were they, but each was executed with nice care for detail. There were knots to be tied, and then Aurelio sought the aid of his son, doubtless because his single eye made the tying too difficult. We shall describe the ritual as accurately as we can, and analogies with other religions may occur to the reader at certain points, especially when the mushrooms are consumed. But need we warn him that such analogies and correspondences are superficial; Students of religious rituals often observe similar gestures and acts in unrelated religions. The similarity is accidental. A given ritual is stamped with meaning by the myths, the theology, the creed, the emotional responses, the whole cosmology peculiar to the culture that has evolved it. The ritual of the divinatory mushroom must be interpreted against the background of all the religious beliefs and practices of the Indians of Middle America, an absorbing subject far too complex and difficult for us to cope with. Though we could not enter into the subjective associations that the ritual evokes in Mazatec believers, it was easy for us to perceive the mystery that bathes each successive step in the ceremony. For us as mycophiles and ethno-mycologists it was a stirring event to see our Mazatec *curandero* reverently raise the mushrooms from the cloth, pair after pair, a mushroom in either hand held by the stipe; and then see him eat the pair, first one and then the other, beginning with the pileus and then the greater part of the stipe, masticating each mouthful of the fresh raw mushroom a long time and then swallowing it, and depositing the stub of the stipe carefully in a piece of paper on one side. Yes, the *curandero* eats first one mushroom and then the other, holding one of the pair in either hand, exactly as the illustrator represented the act in the Magliabechiano manuscript. What we saw confirmed the meaning of that picture. What we saw was consistent with the hearsay accounts of the ritual handed down to us by Motolinia and Jacinto de la Serna. It confirmed in all essentials the account given by the late Jean Bassett Johnson of the performance that he and his party attended in Huautla on the night of July 16, 1938, fifteen years and one month before our experience.

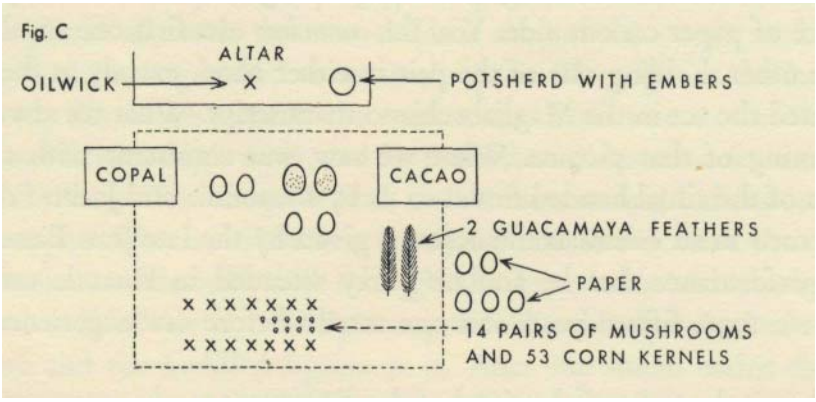
Jrlere then is the order of the ritual of the divinatory mushroom as we witnessed and recorded it in Huautla de Jimenez. Our drawings were made by Robert

Weitlaner, and we are grateful to him for allowing us to use them and his notes. Our plate in color giving an impressionistic grouping of the accessories of the rite was done by VPW.

Though the room has a kind of altar, the entire ritual takes place on the floor, with Aurelio seated most of the time on a small, low stool (Figure B, 4). Later, when he consumes the mushrooms, he is kneeling on his folded sarape. In front of the altar and slightly to the right of center, he begins by laying a sack on the ground, and on it a square of cheap yellow sateen, and on top of this another layer of heavier material, dark blue, probably from a ***rebozo*** or shawl (3). We are lighted at first by a wick in an oil tin. Someone brings in a few glowing embers, which are placed in an old potsherd on the ground between the altar and the blue material. From first to last, except for the utterances and the long silences, the ritual consists of the ceremonial handling of accessories that are laid out on the blue cloth. Of these accessories all save the mushrooms can be seen for sale in the market place every day and are familiar to students of Middle American religious practices. These accessories are:[1]

1. Lumps of copal, a pale resin used as incense.
2. A handful of cacao beans.
3. A handful of maize kernels. (The precise number in our case is 53.)
4. A heap of *pisiete* - ground green tobacco.
5. Four hen's eggs.
6. Two speckled *guajolote* (Mexican turkey) eggs.
7. Two brilliant feathers of the *guacamaya* bird, a kind of parrot.
8. Six rolls of bark paper, called *amate.*
   Also tapers of virgin wax.

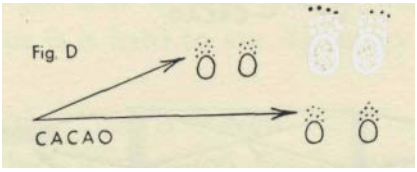
These with fourteen pair of mushrooms make up the accessories, and initially



i. One of the *curanderos* in San Andres had told us through Victor that, in addition to the other accessories, we should provide a chicken. This suggests the possibility that some *curanderos* sacrifice a fowl during the rite.

they are laid out on the blue material as shown in Figure C. Aurelio takes a

long time to arrange all this. He counts the mushrooms and the cacao beans, and then places five cacao beans next to each hen's egg and 13 next to each of the two turkey eggs. He divides the maize kernels roughly in half, picks up half, shakes them from hand to hand, casts them on the cloth, contemplates them, repeats the same steps with the other half, and separates out the two grains that he says are the Wasson children. He asks whether we are in agreement with what goes on and we say yes. He casts the kernels again, and a third time. Speaking of Peter, Aurelio says, in Demetrio's translation, *"Estd, pero iquien sake donde esta?"* - He is, but who knows where he is? It is now 10.15 o'clock.



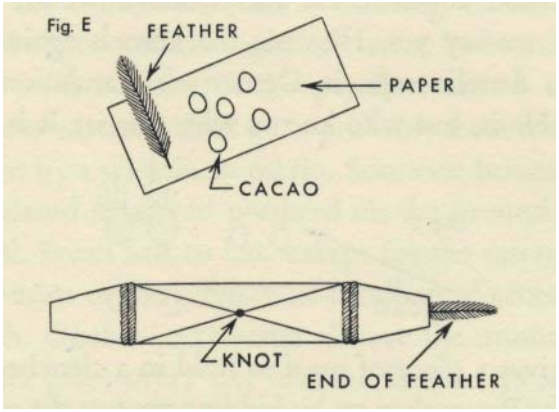
To each of us he gives a piece of *copal* to hold in a clenched fist, and to VPW he gives two, one for Peter; then on his bidding we toss the copal into the embers glowing in the potsherd.

Aurelio kneels on his folded *sarape,* crosses himself, invokes the Trinity and some of the saints, takes a pair of mushrooms, holds them briefly over the burning copal, and begins to chew them. Now only a single taper is burning, aided by light from the embers. After chewing for a time, he swallows, and then does the same with the rest of the mushrooms, pair by pair, until 14 pair are consumed. He finishes eating them at 10.30 o'clock. He has now eaten u pair of the large ones and three pair of the others. Having finished the mushrooms, he binds his head tightly in a kerchief.

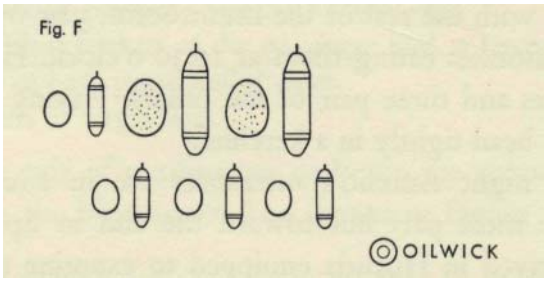
Throughout the night Aurelio's utterances are in a conversational tone, in Mazatec for the most part but toward the end in Spanish. VPW, being a physician, has arrived in Huautla equipped to examine the *curandero* during the performance with stethoscope, thermometer, blood-pressure gauge, and ophthalmoscope. Now that the moment has come, for many reasons each alone sufficient it seems hardly wise to inject these extraneous and exotic utensils into the proceedings. Aurelio breathes heavily and audibly, and his single eye often disappears for long stretches behind its closed lid. Aurelio's whole demeanor expresses concentration of mental effort. From first to last he manifests no unmistakable symptoms of trance or inebriation, but by this we do not wish to be understood as denying psychic effects from the mushrooms. Here is a matter that calls for serious study under controls.

Immediately after consuming the 14 pair of mushrooms Aurelio takes the

amate, rips off a part *o£ a guacamaya* feather, places it on the paper near the edge, and along with 13 cacao beans wraps it tightly in the paper, the end of the feather extending beyond the paper wrapping. He makes a neat little bundle, which he ties up with cotton threads that Clara has been preparing for him (Figure E). He puts the parcel by the side of one of the turkey eggs. He repeats this



with a second parcel and the second turkey egg. He puts the eggs back where they have been with the two parcels lying between them. Then Aurelio makes four smaller bundles, cutting out small rectangular pieces *of amate,* wrapping up in each one the piece of feather and five (instead of 13) cacao beans. The six parcels and the eggs are now disposed of as in Fig. F. We assume that the inebriat-



ing mushrooms are producing the desired effects while Aurelio busies himself with these duties.

Aurelio rolls up his sleeves, takes the *pisiete* or finely ground green tobacco, rubs it on his forearms, then on his exposed belly, the top of his head, and the back of his neck. He takes matches and places them beside the eggs. He picks up the kernels of maize and casts them with the right hand. He pauses as in thought, breathes deeply and audibly. He rises and then sits down on the stool, wrapping his sarape around him. He sits in thought. He asks where Peter is, and RGW replies that Peter is in Boston. It is now 11.05 o'clock.

Aurelio rises and goes to the dark corner near the door, where he sits down

on a chair. The last waxen taper is now extinguished and we remain in complete darkness until 1.05 o'clock in the morning. The storm breaks on Huautla. Aurelio spits on his hands and rubs them together. He asks where we left Peter, in whose house. We tell him. He asks if it is agreeable to us that he should ask these questions, and we say yes. At about this time the shooting and the running by our hut take place.

Wrapped in his sarape, Aurelio sits on his chair deep in thought. He asks a series of simple questions about Peter, says he has trouble seeing Peter because he is so far away in a city big and strange. Finally he says that Peter is alive but 'they' are reaching out for him to send him to war. Possibly 'they' won't 'get' (= *aganar)* him, but it is hard to say. Germany seems to enter into the situation.

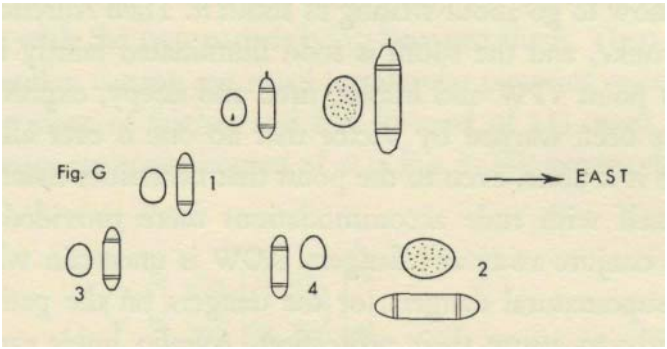
Then Aurelio declares that Peter is in New York, not in Boston; that Peter's thoughts are on us, that he is in a turmoil, that he is well but in a difficulty that he can hardly cope with, that his thoughts are on us to the point of tears, that he is stumbling, that he is not used to this difficulty where he finds himself, and does not know how to go about writing us about it. Then Aurelio says suddenly that we may smoke, and the room is soon illuminated faintly by two cigars.

At about this point VPW and Masha, tired and sleepy, express a wish to go home. We have been warned by Victor that no one is ever allowed to leave the ritual before it is done, even to the point that necessities must be performed in the room itself with rude accommodations there provided. But Aurelio says that he can conjure away any dangers. RGW is uncertain whether Aurelio is referring to supernatural dangers, or the dangers on the path to the other house. Apparently to assure their protection, Aurelio holds each of them in turn for a long time by her right forearm, rubs the forearm with *pisiete,* and takes the pulse *with his thumb.* (Physicians always take the pulse with the fingers, for in the thumb there is a pulse beat that would confuse the count of the patient's pulse.) Demetrio accompanies them through the *milpa* to the cottage.

At 1.05 Aurelio lights the four tapers and contemplates the flames. He gives to Don Roberto and RGW a piece of copal each, stirs the embers in the potsherd, asks us to throw our copal on the embers, and under his breath utters a prayer or incantation. He asks us if we believe in one true God, and we so affirm. He holds the four tapers in his two hands, and then asks Demetrio to hold them, declaring then that nothing bad has happened to Peter. He asks how many are present - "Only four?" He asks whether one o'clock has passed, and when we say yes, he comments, *"Ya es buena hora"* -now a good hour has come. Then he asks RGW whether he believes in all that is going on here. Inexperienced,

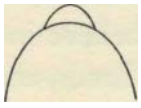
RGW begins to reply weakly that he thinks he believes, whereupon the experienced Don Roberto overtakes his words and in a deep, resonant, loud voice declares, *"Creemos"*. Then Aurelio declares in a sure voice that nothing is wrong with Peter and that all goes well. A little later he says that what we are all witnessing is *"muy delicado"* - most perilous, and that of course we are not used to all this. He says that he can render treatment in absentia on our behalf, after we leave Huautla, and in fact he recommends that we ask him to do this. It is now 1.30 o'clock.

Aurelio mixes the maize kernels in his two hands, casts half of them and then the other half, and then all the kernels at one time, and then all the kernels a second time. He places one of the hen's eggs toward the left side of the cloth and casts the kernels for the fifth time. He places one of the large eggs on the right hand side, and points it in the direction that he says is east. He asks RGW when he will arrive in Mexico City and whether he has a house there. He casts the kernels again, for the sixth time, and then arranges the eggs and bundles in the fashion indicated in Figure G. Then he declares that a relative of RGW



is destined to fall seriously ill within the year, and he gravely fixes on RGW his single eye. It is now 1.45 o'clock.

Demetrio replenishes the supply of copal in the potsherd. Aurelio leaves the room a moment, taking some *pisiete* with him. He returns and again casts the kernels. One kernel happens to stand on end. Aurelio concentrates his attention on it, saying it is RGW's son. Then he repeats that a relative of RGW is destined



to fall ill within the year. Then he asks RGW whether he can carry bundle no. I to his home and keep it for 13 days, along with the corresponding egg. On the I4th day RGW may throw them into water or bury them. Aurelio takes one of

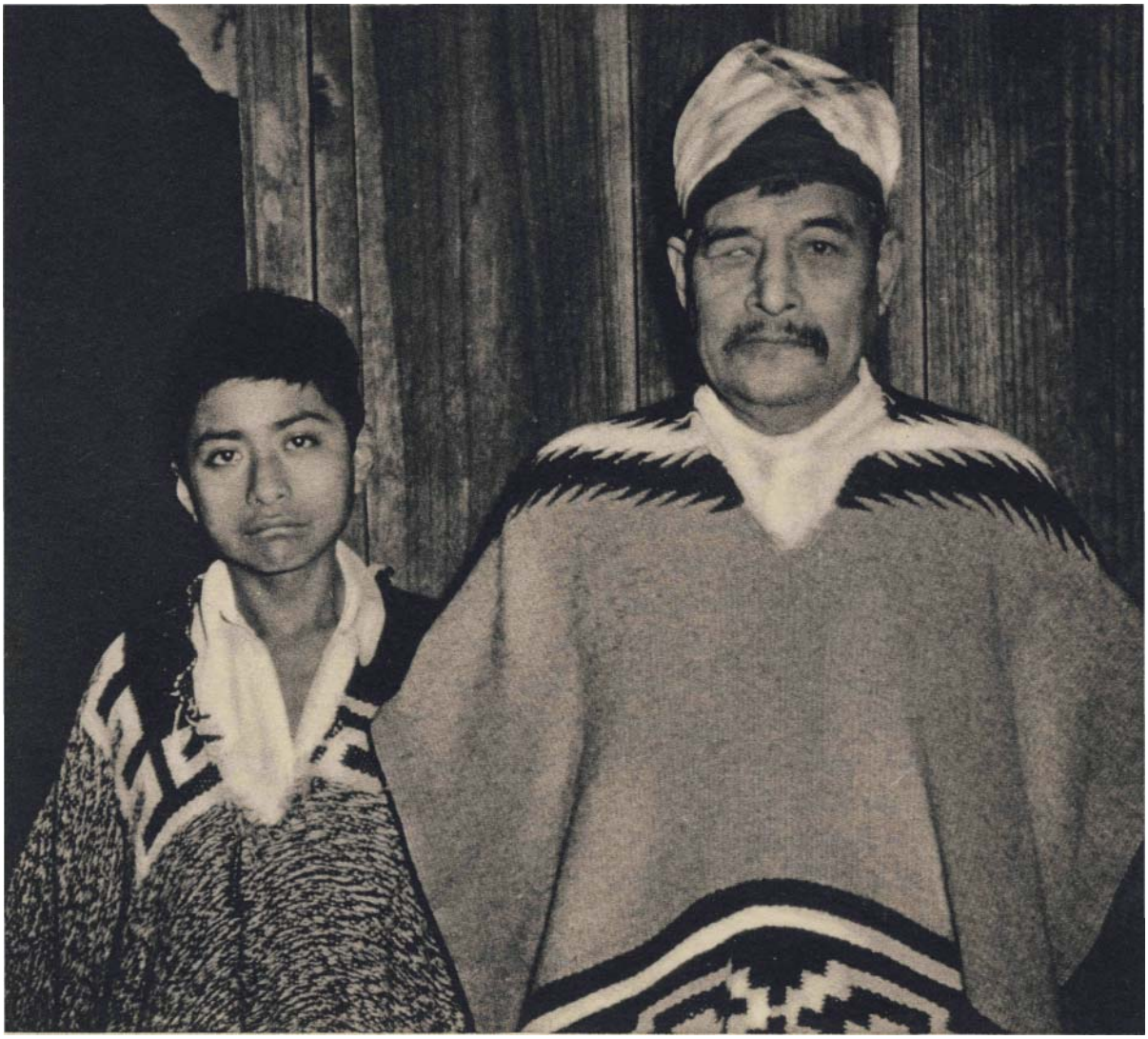
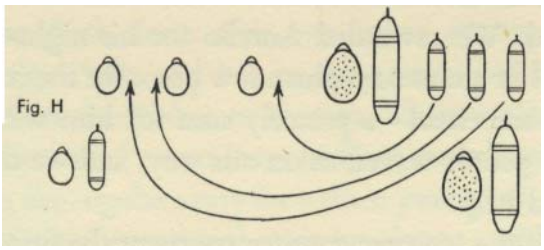


PLATE XLII. Aurelio Carreras, curandero, and his son Mauro.
Huautla de Jimenez, July 5, 1955.

the turkey eggs and to the blunt end affixes a small lump of copal, which being hot and soft appears to adhere to the egg shell securely. He does the same with each of the hen's eggs and finally the other turkey egg. He places the eggs and



bundles as shown in Fig. H, but immediately shifts three of the small bundles to the places shown by the arrows. It is now 2.10 o'clock.

In another potsherd Aurelio stands the four tapers upright, and he asks RGW to sit on the chair and roll up his sleeves. Aurelio passes the potsherd with embers over RGW's head, along with two of the eggs and two bundles, praying the while, and then he gives the two bundles and eggs to RGW to hold in both his hands. He passes the potsherd under RGW's hands, and Demetrio stirs the embers. Aurelio then passes the potsherd with copal over RGW's head, then over the ground, then over his head and under his hands, repeating all this several times, relieving RGW of the eggs and bundles but only to hand him another pair of eggs and bundles; asking him then the name of his daughter and repeating the various passes, always making all the passes counter-clockwise. Then Aurelio empties the paper containing the stubs of mushrooms into the fire of the potsherd. He gives this little paper bag to RGW along with a second one, both containing now some *pisiete,* and he says to RGW that they contain something good from St. Peter and St. Paul. At this stage in the night Aurelio is speaking Spanish or Mazatec, passing from one to the other without apparent reason, and he addresses RGW with the familiar *tu* instead of the formal *Usted.* It is now 2.25 o'clock.

Then Aurelio gives RGW certain specific instructions. The turkey egg with copal on the blunt end is for him, and similarly a chicken egg for VPW, each with its respective bundle. These are to be held for 13 days, and then the eggs must be buried with the pointed end down and with the corresponding bundle buried next to each, perpendicularly, the bundle to be carefully placed on the *eastern* side of the respective egg. In the course of the closing phases of the ritual, Aurelio observes that *pisiete* is excellent for stomach troubles and that one may eat a little of it. He himself puts something in his mouth, between teeth and cheeks, and presumably this is *pisiete.*

At 2.30 o'clock the session draws to a close, and Don Roberto with RGW leave the house to return to their own.

Before 7 o'clock on the following morning we were all in the saddle and away. Aurelio and Herlinda had arisen betimes, Herlinda to serve us breakfast and bid us godspeed. We rewarded Aurelio for his night-long vigil with us, giving him 120 pesos or about $ 15, plus a few pesos for the cost of the accessories that he had used in the ritual - a princely sum for him which we did not begrudge. These good people waved us on our way, and we shall long remember their friendliness and help.

On our way out of the Mazatec country we spent the first night in the village of San Bernardino, lodging with the owner of the general store, Dona Toribia Cid de Mendes. This is the village, perched high on the edge of the mountains, that looks far down over the low-lying plain to the west of the Mazatec country. After we had eaten our tortillas and eggs and as we sipped our coffee and mescal, Dona Toribia captured our attention with stories of the Mazatecs. She was herself a Spanish-speaking Mazatec from Mazatlan. Before long she got on the subject of the miraculous mushrooms, and she went on and on until late in the night about the miracles they had worked in those mountains to the east, now sleeping in darkness, until in the end it seemed as though the very hills themselves, where the little mushrooms grow, were bewitched by them.

Jhlere we should prefer to bring our story of Huautla to an end, but candor compels us to add a few more lines. Our attitude toward the divinatory performance and especially the oracular utterances had been one of kindly condescension. We said to ourselves that it was cruel on our part to ask Aurelio, locked up in his unlettered Indian world, to enter understandingly into the problems of the Wassons of New York. His divinatory powers, put to this appalling test, had seemed to us pitifully thin, but of course we had duly entered in our notes all that he had said. In brief, he had declared that Peter was not in Boston but in New York, that Peter was alive but in a deep emotional crisis and longing for our help, and finally that the army was reaching out for him and might yet get him. There was a hint of foreign military service - Germany was mentioned. Later in the night Aurelio predicted ominously that a member of the Wasson family would be gravely ill within the year.

We reached home in the second week of September. In the kitchen of our New York apartment we found the leavings of a party that during our absence Peter and his friends had held. The bills from the purveyors supplied the date: the weekend of August 15-16! Peter easily confirmed this when we saw him.

Laughingly we credited the sacred mushrooms with a hit, a palpable hit, and then gave the matter no more thought.

Aurelio's prediction about the army had seemed badly aimed. After all, Peter at the age of 17 had enlisted in the National Guard, and this gave him exemption from the draft. Soon after our return to New York, RGW left for Europe on a business trip, and late in the morning of Monday, October 3, he arrived at the Hotel du Rhone in Geneva. There a cablegram from home awaited him with sensational news: Peter had just made known his settled determination to enlist in the regular army for a three year term. He had come to this decision after a prolonged emotional crisis involving a girl, and that crisis, we now learned, had been boiling while we were in Mexico. Would RGW please send a cablegram at once begging Peter to postpone his rash step ? RGW sent the message but, before it reached Peter, he had signed up. The army, after all, had reached out and got hold of him! At the moment of the October crisis our thoughts were so far removed from Huautla that days passed before suddenly Aurelio's pronouncement came to mind. Another hit, a palpable one indeed!

A few months later, after the usual training period, the army sent Peter abroad for duty, but to Japan not Germany.

There remained one final prediction: grave illness was to strike the Wasson family within the twelvemonth. (In the Mazatec world the 'family' embraces all the kin.) This seemed on its face unlikely, for our families are unusually small. No one of the previous generation survives. VPW had only a brother and a sister and some nieces, as well as a few cousins and their children. RGW had only five first cousins and four first cousins once removed. In January one of RGW's first cousins, in his 4o's and abounding in vitality, suddenly died from heart failure.

We record, as in duty we are bound to do, but without further comment, these strange sequelae to our Huautla visit.

On January 14, 1954, Robert Weitlaner wrote us exciting news: his daughter Irmgard Johnson had recently returned from a journey through the Mije country, and in San Juan Mazatlan a *curandero,* through an interpreter, had told her about two kinds of sacred mushrooms. The Mije are known as a remote people, shut off from the world and in turn disposed to shut out the world. Among them the mushroom cult might manifest archaic traits, and in any case would give us perspective on the Mazatec practices. Would we care to join him on a second pilgrimage in quest of the secrets of the sacred mushrooms ? The proposal was too tempting to resist, and through further correspondence

the details were worked out for a fast incursion into the Mijeria, as the land of the Mije is called.[1] It proved impossible for VPW and Masha to leave New York, but others were recruited to take their places. Allan B. Richardson, a friend and photographer of New York, eagerly accepted the challenge and prepared himself to serve as official photographer. The Summer Institute of Linguistics consented to let Walter S. Miller join us: a professional linguist, he is the foremost student of the Mije language and culture. For guide, Don Roberto enlisted Francisco Ortega, known as Chico, a thirty-nine year old Zapotec living in Tehuantepec, whose extraordinary talents and character have given him an outstanding reputation among all who explore seriously in the remoter regions of Oaxaca and Chiapas. He in turn engaged a boy named Filemon to help with the animals, three horses and a mule.

Among those who know about the Indians of Mexico, the Mije enjoy a legendary reputation. It is said of them that in the old days of Zapotec power, centuries ago, the Mije stood off the Zapotecs, and the Spaniards never subdued them in war. They are seldom visited. Even famous writers about the Mexican Indians like Miguel Covarrubias discuss them by hearsay, never undertaking the arduous journey to their mountain villages. Their language for Europeans is of the utmost difficulty, with stress, quantity, and tone, palatalization, glottal stops, retroflexion, and numerous consonants unfamiliar to English or Russian ears. It belongs to a group of which the others are the Popoluca of Vera Cruz, Zoque, and the dying or extinct Tapachultec. Some 60,000 in number, the Mije live in the mountains of northeastern Oaxaca, these mountains rising to their peak in the famed Zempoaltepetl, almost 3,400 meters high. These mountains constitute part of the rugged massif where the Mazatecs live also, but the two peoples are far removed from each other. By comparison the Mazatecs are well advanced toward incorporation in the great world, and the two peoples are separated from each other by no less than three tribes. Next to the Mazatecs on the east live the Cuicatecs, then the Chinantecs, then a swath of Zapotecs, and at last come the Mije. To the east of the Mije he their kin the Zoques in Chiapas and the whole world of the Maya. For us it might prove significant that this people shut off from the world had always been a culture contiguous with the Maya tribes. The reputation of the Mije is that while not aggressive they are uncommunicative with outsiders and even surly. For the most part they live at altitudes below 1,500 meters, and their mountains are clothed in

i. We use the spelling 'Mije' rather than 'Mixe', favored of scholars, because the value of the 'j' is that of standard Spanish, whereas 'x' in Mexico represents any of three consonants. The Mije must not be mistaken for the unrelated Mixtecs, of course.

tropical vegetation and abound in wild life. They live on maize and beans, chickens and turkeys, and they sell to the outside world a small amount of good coffee. In all of the Mijeria there is not a single road for wheeled vehicles.[1]

On Friday, May 21, RGW flew to Mexico City with Allan Richardson. On the following day, by the gracious generosity of the Banco Nacional de Mexico, the bank's De Havilland Dove with Captain Carlos Borja piloting lifted us to the airstrip at Ixtepec in the Isthmus, having stopped at Oaxaca on the way to pick up Walter Miller. At Ixtepec we met Don Roberto and Chico. After laying in some provisions at Ixtepec and Juchitan, we drove by car eastward along the Pan American highway, then north on the Trans-Isthmian highway, and finally westward down an execrable road through Laguna to Santo Domingo Petapa, a stretch of about fifty-five miles. This Zapotec village was our stepping-off point. Next day we set out for San Juan Mazatlan, sometimes called Mazatlan de los Mijes. After a long day we spent the first night sleeping in the school house at Platanillo. Then followed another long day of slow progress up mountains and down, and across arroyos. We slept the second night in the forest, and the following day shortly after noon we entered Mazatlan. From Platanillo to Mazatlan we had met only four Indians and had not seen a single habitation.

We happened on Mazatlan during the annual fiesta in honor of the Virgen de la Soledad. The village was thronged with Indians bedecked in their finest garbs and there was much music, dancing, and drinking. The thatched houses of the village, perhaps two hundred in number, are strung along the ridges of radiating mountain spurs, the mountain sides themselves being clothed in tropical vegetation and alive with brilliantly colored and highly vocal birds. On all sides the distant horizon is closed in with superb mountains. The altitude of the town is about 3000 feet.

We made our way to the Municipio, where we found the Presidente, the Secretario, and the Sindico busily engaged in supervising the progress of the fiesta. They received us with reserve, but after we showed our credentials they informed us that we might occupy the *curato,* the house that would belong to the priest if there were one, a one-room thatched adobe structure adjacent to the thatched church. This suited us admirably, and there we stayed for six

I. There exists one excellent study of the Mije and their culture, *Ethnology of the Western Mixe,* by Ralph L. Beals, University of California Press, 1945. Being of Anglo-Saxon origin, this excellent and respected ethnologist naturally failed to inquire about the role of mushrooms in theMije culture. The divinatory cult completely eluded his attention. He dealt only with the western Mije, in Ayutla and thereabouts. The Popoluca-Zoque cultures were described by Frans Blom and Oliver La Farge in *Tribes and Temples,* Tulane University, Louisiana, 1926. They also seem to have made no ethno-mycological inquiries.

days while we pursued our inquiries and took photographs. Allan Richardson with his cameras proved a sensational attraction for the Indians, whose reserve broke down as they besought him for *retratos* or 'portraits', and paved the way for our inquiries. We found that there were eleven *curanderos* in Mazatlan, four of them women. We talked with four of the men. Don Roberto and RGW called on one of the oldest, Francisco Policarpo, in his home, where we found him reclining in his hammock. He knew no Spanish, and through a feeble interpreter we finally learned that in his practice he had long since given up the use of mushrooms, relying instead on a certain *bejuco,* a plant of some kind, either a creeper or a climber, perhaps the *ololiuqui.* We also visited the *curandero* from whom Irmgard Johnson had learned in January of the use of the divinatory mushroom among the Mije, a discovery for which priority goes to her. She had known him as Francisco Jose, but with us he was Francisco Claudio. He remembered Mrs. Johnson's visit well. He spoke almost no Spanish, and his brother Alvaro was to interpret for us, but Alvaro was so sullen that our interview was a failure. We were fortunate, however, when another of the *curanderos,* Manuel Agustin, came to us with various ailments for treatment: Walter was skillful with massage and manipulation, and also relieved his pains with analgesics, whereupon the old man answered patiently all our inquiries. The *Vocal* of the town, Felipe Luciano, a leading citizen, also proved friendly, and persuaded the *curandero* Timoteo Quirino to discuss mushrooms with us. In addition to these local informants, we were the beneficiaries of a windfall, a delegation from another Mije village of whom we shall speak later.

The divinatory mushrooms play a role among the Mije as important as among the Mazatecs, with many similarities and many important differences. Like the Mazatecs, the Mije always speak of these mushrooms in pairs. For 'pair' they use in their language a word borrowed from Spanish, *casada,* which is invariable as to number and which in Mije is used only when 'pair' means a couple of opposite sexes. Here then is evidence suggesting that in the Middle American mushroom cult, the habitual pairing of the sacred mushrooms carries a sexual connotation. For this there is support also in a folk tale from the town of San Lucas Camotlan, which we shall recount shortly. But we must add that in Mazatec the word for a 'pair' of mushrooms, *nka*[2]*,* has apparently no sexual association.

In Huautla our *curandero,* as he ate the mushrooms, bit off the caps and all but the butt of the stipes, chewing them thoroughly and then swallowing them. Among the Mije this is done differently. The caps are severed by hand from the stipes; the stipes are firmly attached to the caps and, for their size,

tough. The stipes are put back into *thcjicara* or gourd bowl, while the caps are quickly swallowed, without chewing, one after the other. If the mushrooms do not take effect, then the suppliant addresses a prayer to the stipes in their *jtcara,* and eats more caps. Afterwards *the jicara* with the stipes is carried to a nearby cross and there, reverently, the stipes are spilled out as an offering, and a *vela* is lighted. All of our informants stressed the separation of the caps from the stems and the separate use of each.

The mushrooms come only during the rains of June and July, and they can be kept in a dried condition for only fifteen or twenty days. This limits their use to a short season. We arrived unhappily before the rains and we saw no specimens, nor could we see them in use. We were told that in the hot low country the mushrooms do not grow. The atmosphere of secrecy about the mushrooms that was so striking in Huautla is less heavy in Mazatlan, perhaps because this remoter people had never come under such close control by the ecclesiastical authorities. Indeed, there seemed no particular reluctance to discuss the mushrooms. On the other hand, the mushrooms are consumed in private, in the dead of night, if possible under conditions of absolute quiet, usually with only two persons present, the one who eats them and another. As in the Mazatec country, among the Mije we discovered no trace of a communal agape such as the early writers described.

In Huautla the *curandero* eats the mushrooms on behalf of his patient or client. Here lies the vital difference with the Mije. For in the Mije country the *curandero* never eats the mushrooms, except as he himself may wish to consult them. The sick person eats them, or the person who seeks tidings of absent relatives or help in finding lost and stolen property. Among the Mije the divinatory mushroom carries no hieratic attributes; it is secular. Everyone knows how to use the mushroom and the *curandero* is not usually a party to the performance.

Like the Mazatecs, the Mije possess a general term that embraces all of the divinatory species, but unlike them the Mije consider these species as a subdivision of the order of mushrooms. In Mije the word for 'mushrooms' is *mus,* and the collective word for all divinatory mushrooms is *na :swin mus,* of which the first word means the World, the Universe. This word enfolds a curious figure of speech: *na:s* means 'ground' and *win* means 'eye'. (Here and in other words the colon means that the preceding vowel is long in quantity.)

Manuel Agustin, an old man, disclosed to us a surprising fact: for *na:swin mus* there is a synonym, *tu:muh.* Our friend Felipe was helping Walter as our interpreter with Manuel, and Felipe changed the word to *tu:m 'ungk,* which another elder of the town, Geronimo Antonio, later confirmed. They and

others knew the word and its meaning, and they all agreed that its inner sense was 'that which is born of itself', *lo aue nace por si mismo.* Here is the same figure that we find in the Mazatec *si^{3}to^{3}1 Tu:m* of itself means nothing in Mije and occurs elsewhere only in the distinctive Mije calendar of day names, where in the complicated rotation of the native calendar it might turn up in the combination *tu:m 'uh.* The term seems to be an archaism, with mystical implications that will have to be explored by further study.

Both Manuel and Timoteo agreed that there are three species of divinatory mushrooms, and their descriptions tallied also:

1. *pi:tpa,* 'thread-like', the smallest, perhaps two horizontal fingers high, with a cap small for the height, growing almost anywhere, often by the side of the mountain trails. Where one is found more should be sought. The cap is yellowish above and blackish below, and hemispherical.

2. *atka:t,* 'alcalde' or Mayor; like the *pi:tpa* but bigger, three or four fingers high, with a flatter cap.

3. *kong* or *kongk,* the 'chief or 'head-man', which is the biggest, perhaps eight fingers high with a stem % inch in diameter, the color of the' cap being more yellow than the others.

Our informants agreed that the three kinds differ as to species and not merely in age. They agreed that these mushrooms, eaten raw (either fresh or dried), have an agreeable odor like flowers. The taste is like nothing else. One informant said that in the throat they felt like soda water. As for the dose, every man figures it out according to his tolerance for *mescal.* Of the *pi:tpa,* some take six pair, but others take eight, ten, or even twelve; of the *atka:t,* from three to six pair; of the *kong,* if two mushrooms are available, one eats around the edge of the two caps; but if only one is available, then one entire cap.

Anyone may gather the mushrooms. On finding them you may send a sigh of thanks to God, but this is as you please. On the evening when they are to be eaten, toward nightfall, you carry them in *ajicara* to the church. If the church is locked, you seek out *the fiscal* or *mayordomo* and he opens it for you. On the altar you place the *jicara* with the mushrooms, and burn *copal* or incense, and either one *vela* or three. You invoke God's blessing and his permission to consult the mushrooms, and you promise him alms, one peso or two or two and a half. Then you bear the mushrooms to the house. A house on the edge of the village is best, where all will be quiet. You place the mushrooms in *the jicara* on the ground before the household altar, with one *vela* burning. Someone now goes back to the church with the promised alms.

The person who is to eat the mushrooms has been on a ceremonially restricted

diet for four days. According to Timoteo, for four days you cannot take coffee or liquor, nor eat of any fowl, nor eggs, nor anything fat, nor flesh of pig. But you may eat beef and beans and maize *(tortilla* and *atole),* and cheese. During this period you must have no carnal relations. On the morning of the appointed day you may breakfast on the fourth part of a tortilla, a little *atole,* and a bite of cheese. From then on you fast, eating no lunch or dinner or supper, so that you eat the mushrooms on an empty belly, *barriga vacia.* Then for the four ensuing days you are on the same diet. A woman with child must never take the mushrooms, for she is sure to go raving mad for good, but they cause no abortion. Our informants were ready with specific instances where this person or that had gone mad for breaking the rules. There was that woman in Platanillo, for example. Being ill, she took the mushrooms, and then, feeling better, she ate chicken forthwith, whereupon she went mad. That was around 1947. She wandered raving through the Mijeria for a long time, until finally she disappeared in the mountains. If a woman with child needs to consult the mushrooms she may take them vicariously, a relative or friend eating them for her.

The reader will observe that the Mije sense no impropriety between the ancient cult of the divinatory mushroom and the cult of the Christian God. In Mazatlan the pagan and the Christian legacies - the latter a comparatively recent innovation - seem fully blended, to a degree remarkable even for Latin America. No priest is in residence in Mazatlan and visits by one are rare. The Sunday services, well attended, consist of readings by a cantor, while the *curanderos,* men and women, at the very altar, under the compassionate countenance of the Virgen de la Soledad, treat the sick and infirm and halt with prayers and ritualistic gestures and the application of eggs to the ailing organs according to pagan rites of great antiquity. To all this we ourselves were witnesses.

Now we return to the mushroom ceremony. It is night and you hope that all will be quiet. You have eaten the mushroom caps, swallowing them fast, one after the other. The stipes he in *thejicara* on the ground in front of the household altar, with one *vela* burning. You and a friend or relative are alone, the second person to watch over you and listen to you, but he says nothing. If the mushrooms work, they work rather fast, in fifteen minutes or a half hour. If they don't work, then you make supplication to the stipes, and perhaps light three *velas* instead of one, and perhaps then they will work. When they work, you begin to talk and you ask questions of the mushrooms and the mushrooms answer. You go on and on with this dialogue until the cock crows, when the talking ends. The person who is with you hears everything but never says anything. It is good to have a relative or friend with you. The whole performance

is *muy delicado,* not to be taken lightly. If someone happens to pass by and perceives what goes on, he withdraws quietly. Afterwards you are faint and weak, and for a time you cannot walk, but you remember all that was said.

When the mushrooms do not work one should look for either of two explanations. Perhaps there was an interruption. Any undue noise, the wailing of a cat, the braying of an ass, a child bursting in - these things are enough to put the mushrooms off. Or again if the person eating the mushrooms has spoken ill of them, or even thought disrespectfully of them, there will be no success. If he is guilty of this sin, then the mushrooms cause him to see horrible visions of snakes, *tigres,* and such like. But when all is well, then he who eats the mushrooms begins by invoking San Juan, the patron saint of Mazatlan, and then says the Pater Noster, the Credo, and the Confiteor,' and the mushrooms begin to speak, and they are likely to answer not merely the questions put, but all other questions too. Manuel remembers when the prayers were all said in Mije, but now they are said in Spanish, even by people who know no Spanish. All is according to the ordinance of God and the World, says Timoteo. Here again the World - *na :swin* - appears. With good fortune a virtuous man hears music and may see heaven. As the evening wears on, the mushrooms themselves dictate the program, ordaining such things as the number of *velas* to be lighted.

In Mije the cap of the mushroom is called the 'head' - *kobahk* in the dialect of Mazatlan. The top of the cap is the *kopk* or summit. The stipe is the *tek* or leg. The edge of the cap is the *'ai,* 'leaf. It will be recalled that in the case of the *kong,* sometimes only this edge is eaten. The lamella or gill is *pa:t.* Let the reader bear in mind that the cap or pileus is called the 'head'.

To the south of Mazatlan, ten hours away by foot, lies the Mije village of Santa Maria Nativitas Coatlan. One of Walter's colleagues, Searle Hoogshagen, is working there, and we had been in Mazatlan only a few hours before he called on us. Moreover, on his bidding two Mije boys of Coatlan came too, Severiano Sanchez, age 33, and Candido Faustino, age 25. Both of these young men proved first rate as informants, speaking Spanish and understanding the purport of our questions. They described vividly the effect of the mushrooms, how the eater behaves like a drunken man, and how he carries on both sides of a colloquy, posing questions to the mushrooms and then voicing the mushrooms' answers, for hours on end, in the presence of a relative or friend. They also knew the *pi:tpa,* the *atka:t,* and the *kong.* Of the former the dosage in Coatlan is significant-for children, 6 pair; for grown-ups, 9 pair, or if this be not enough, 13 pair, or at most 18. The dosage jumps thus from 6 to 9 to 13 to 18. According to native belief, the World or Universe - *na :swin* - is served by nine Lesser

Servants and by thirteen Major Servants. The nine pair and the thirteen pair of mushrooms represent the Lesser and the Major Servants. The word for 'Servant' is *tungmi:tpa.* Is it a coincidence that the Mije calendar has eighteen months, and that the Mije week consists of thirteen days, each with its name? A number of other native calendars in Middle America likewise divide the year into eighteen months and the week into thirteen days. Dr. Borhegyi makes a further observation. In the cosmology of the Maya there were nine gods of the Underworld and thirteen gods of Heaven. Are not these the Lesser Servants and the Major Servants of the World of the Mije? If so, we discover here a significant cultural correspondence between the Mije and the Maya.

Candido and Severiano told us an extraordinary story of a recent development in the use of the divinatory mushroom in their town of Coatlan. These boys, cousins, have an uncle, Feliciano Faustino. In former times only the *curanderos* knew the secrets of the mushrooms, but this changed in 1943, when their uncle, Don Fehciano, took in hand a famous *curandero* of the neighboring town of Santa Margarita Huitepec, by name Pe:t Murnt. (Pedro Mundo in Spanish, 'Mundo' rendering the Mije word *na:swin.)* One day at about three in the afternoon Don Fehciano with *mescal* put Pedro Mundo into a state where he disclosed all the secrets of the mushrooms, and straightway the whole of Coatlan learned the story. From that day on the use of the divinatory mushrooms in Coatlan has become general, everyone invoking the aid of the *na :su>in mus* when they are available and needed. Both Don Feliciano and Pedro Mundo are still alive and they will tell you about all this. (We do not-question the good faith of our informants when we suggest that their story is a myth-in-the-making to explain the secular possession of holy mysteries.)

Long before Walter Miller had heard of the mushroom cult or of us, he was living in the Mije town of Camotlan, twenty walking hours to the west of Mazatlan.[1] There he had put down on paper the folk tales that he heard from the mouths of the Mije, and in the course of that work he came upon tales of strange mushrooms, some with a power to heal, and others divinatory, and others of a kind to drive people mad for good. Here is what he heard:

I. Enigmatic but relevant to our theme is the following information supplied by Walter Miller. Just to the east of Camotlan, in the *llano,* there is a hill *(kopk)* that the people call *muzut kopk.* No one recalls the origin of the first part of this name, but it could be *mus hut,* 'mushroom cave'. In this hill there is a cave that the villagers call *muzut hut.* The supposition suggests itself that the hill was called after the 'mushroom cave", and long afterwards, when the origin of the name had been forgotten, the cave in turn was called after the hill. Deep in the cave the floor is strewn with fragments of ancient pottery and other artifacts, but there are no representations of mushrooms. A local informant has told Mr. Miller that on the top of the hill can be seen a stone shaped to resemble a gigantic spindle whorl, *malacate.*

CHAPTER FIVE

Of mushrooms there are various kinds. One kind has been used as a medicine, says Jose Trinidad. His own nephew, Alefonsa, had been ill for five years with an unnamed illness. He could not walk but moved around on a stool. He would sit in the patio and slide the stool from place to place. Then they gave him a kind of mushroom to eat, and he was cured and began to walk as before.

Jose says there is another kind of mushroom about which there is a belief that it will induce a dream, a particular kind of dream, one in which two *duendes* or spirits appear to the eater, one male and the other female. They talk with him, and he asks questions and they answer. They will tell you where lost things may be found, and name the thief who has stolen something and say where the stolen thing is. When you plan a trip, they will tell you what luck you will have on the journey. Cerilo of Santa Margarita Huitepec has eaten these mushrooms several times. The first time they didn't give the result. Cerilo has a son named Delfino. When he was about to eat the mushrooms, he was afraid and so he had Delfino watch over him. When he had eaten them, sure enough the spirits appeared. He talked with them and asked about the trip he was going to make, for he had five burros and was about to set out for the Isthmus with Delfino. The spirits told him not to go for the burros would all die. They talked about different things. Then the spirits said, 'We must go, for the cock is crowing.' The spirits disappeared and Cerilo awoke. Straightway he asked his son if the cock had crowed and was told that it had. But he didn't believe the spirits and went on his trip anyway. Just as the spirits had said, all five of his burros died on that trip.

Another who used these mushrooms was a woman of Camotlan named Rosa. She was of a family from Zacatepec who had moved to Camotlan to live. Later she lived with her own father as his woman. He finally died in Huitepec. So Rosa ate the mushrooms and began to tell the people that the world was coming to an end. And she began to say that she was the mother of the Virgin. She was really deceiving the people very much. Many folk went to her place daily and there they were all day, waning and weeping about their sins. Then some of the younger ones who had been to school talked to the town authorities and got them to threaten to jail her if she didn't stop it. The authorities told her they'd run her out of town if she ate any more of those mushrooms. Why, people were taking offerings to her and getting her to pray for them. That was in 1945. She stopped it then, but some say she seemed to go crazy and wandered around in the woods. She died several years later.

Here end, for the present, our notes on the role of mushrooms in the Mije culture. On Monday, June i, we set out on our return journey, and Allan Richardson and RGW reached New York on June 5.

vv e have now brought to a close our account of the divinatory mushroom cult in Mexico, insofar as it is known to exist today and is recorded in the annals. Here we would stop, were it not for evidence of an order different from anything so far mentioned, evidence that, if relevant, vastly extends the former range of the Middle American mushroom cult both in time and space. If this enigmatic

PLATE XLIII. Mushroom stone. Attributed to early classic period, Highland Maya, c. 300 A.D. to c. 600 A.D.
About 30 cm. high. *Zurich, Rietberg Museum.*

PLATE XLIV. Mushroom stone. *New York, Collection of Hans Namuth, Esq.*

evidence really relates to mushrooms, as we believe it does, a cult of the sacred mushroom goes back among the highland Maya of Guatemala at least to B.C. 1000, and in that area persisted for close to 2,000 years, until the archeological evidence fades out in what is known as the late classic period, around A.D. 900.

On September 9, 1952, Dr. Hans Mardersteig of Verona wrote us that he had observed in the new Rietberg Museum of Zurich a curious stone statuette, about one foot high, representing a mushroom with a human face carved in high relief on the stipe. The Museum attributed this artifact to Middle America but seemed to know no more. It had come to the Museum as one of many items in the collection of a private donor. With this letter and this artifact our inquiries into Middle American ethno-mycology began. We reproduce photographs of the remarkable Rietberg mushroom stone.

By almost the same post Robert Graves sent us a cutting from a pharmaceutical publication[1] referring to the i6th century use of an inebriating mushroom among the Indians of Mexico. This was our first intimation of a mushroom cult in Mexico. At once we embarked on a double-barreled inquiry, pursuing on the one hand the secret of the mushroom stone and on the other hand the cult of the mushroom in Mexico.

From Dr. Gordon Ekholm of the American Museum of Natural History we quickly learned that the Rietberg artifact was one of many 'mushroom stones' known to Middle American archeologists, almost all of them discovered in the highlands of Guatemala, most of them in that part of the highlands now inhabited by the Quiche Indians, but a few apparently found to the east across the border in Salvador and to the west in the Ocosingo region of Chiapas, the Mexican state adjoining Guatemala. We quickly made another discovery. In scanning the references to the mushroom stones in specialized publications, we came upon a reproduction of our Zurich artifact in *Globus,* a learned periodical published in Brunswick, with commentary by the geographer and ethnologist Carl Sapper. The notice appeared in 1898, and it turned out that this Rietberg specimen, unbeknownst to the Rietberg Museum itself, was the earliest mushroom stone to have drawn the attention of the learned world. In its excellent state of preservation and the bold simplicity of its lines, it remains to this day one of the most striking examples of its kind.

Dr. Sapper described the artifact as mushroom-shaped but he did not suggest that the carving might really represent a mushroom. From Dr. Sapper's day

i. CIBA *Symposia,* vol. 5, Feb. 1944, No. n, published in Summit, New Jersey.

to now all archeologists know these artifacts as 'mushroom stones', but not ,one has ever come to grips with the possibility that they represent what they look like. Indeed it is customary to set off the designation in inverted commas and the learned writers often add a safety clause expressly saying that of course the designation is only one of convenience. Have we not here yet another example of the subconscious rejection of mushrooms by scholars of the mycophobic West; The pattern is too consistent to be accidental. Gitlow shows no curiosity about the mysterious inebriating mushroom in New Guinea. Prescott in his *Conquest of Mexico,* exercising his editorial discretion, chooses to pass over in silence the inebriating mushrooms of the Nahua. Safford denies their very existence witli^ vehemence suggestive of a violent gastrocolic upset. Beals overlooks the mushrooms in the Mije culture. The archeologists fail to see mushrooms in the 'mushroom stones'. But, after all, are not these the phenomena that we should expect? The anthropological traits of the anthropologists (which of course they ignore) poise them in a precarious relativity vis-a-vis the cultures that they observe with a god-like superiority, and introduce into their findings a big coefficient of defective perception.

As we progressed in our inquiries we made a further discovery. None of the archeologists who had contemplated the mushroom stones had ever heard of the mushroom cult of the Indians in Mexico. Conversely, none of the anthropologists of Mexico who knew about the divinatory mushroom had ever paid attention to the mushroom stones of Guatemalan provenience. Apparently we were the first to suggest (be it noted: we do not *assert)* that the 'mushroom stones' were actually stone effigies of mushrooms, that there had been at one time a cult of the mushroom in the highlands of Guatemala, and finally that the possibility should be considered of a kinship between such a cult and the surviving divinatory rite of the inebriating mushrooms in Mexico.

No sooner had we raised the question of the mushroom stones with Dr. Ekholm late in 1952, than he informed us that a brilliant young anthropologist and archeologist of Hungarian origin, Dr. Stephan F. Borhegyi, was at that moment engaged on the first comprehensive and intensive study of all the mushroom stones known to exist. He was in Guatemala City on a Bollingen Foundation grant, engaged primarily in a reorganization of the collections of the Museo Nacional. We communicated at once with him, contributing our mushroomic suggestions, and thus there began a collaboration that for us was most fruitful and exciting. After our visit to Huautla in August 1953, we motored down through the valley of Oaxaca to Tehuautepec and the famous Isthmus. There, on the airstrip at Ixtepec, the private plane of the Banco Nacional de Mexico

met us and lifted us to Guatemala City, a few hours away. Thereupon for almost three weeks we devoted ourselves with Dr. and Mrs. Borhegyi to an intensive ethno-mycological inquiry among the Indians of the Guatemalan highlands, to discover whether there was any surviving trace of a mushroom cult.

Dr. Borhegyi had already brought close to completion his minute examination of all the known mushroom stones, totalling more than a hundred. Additional

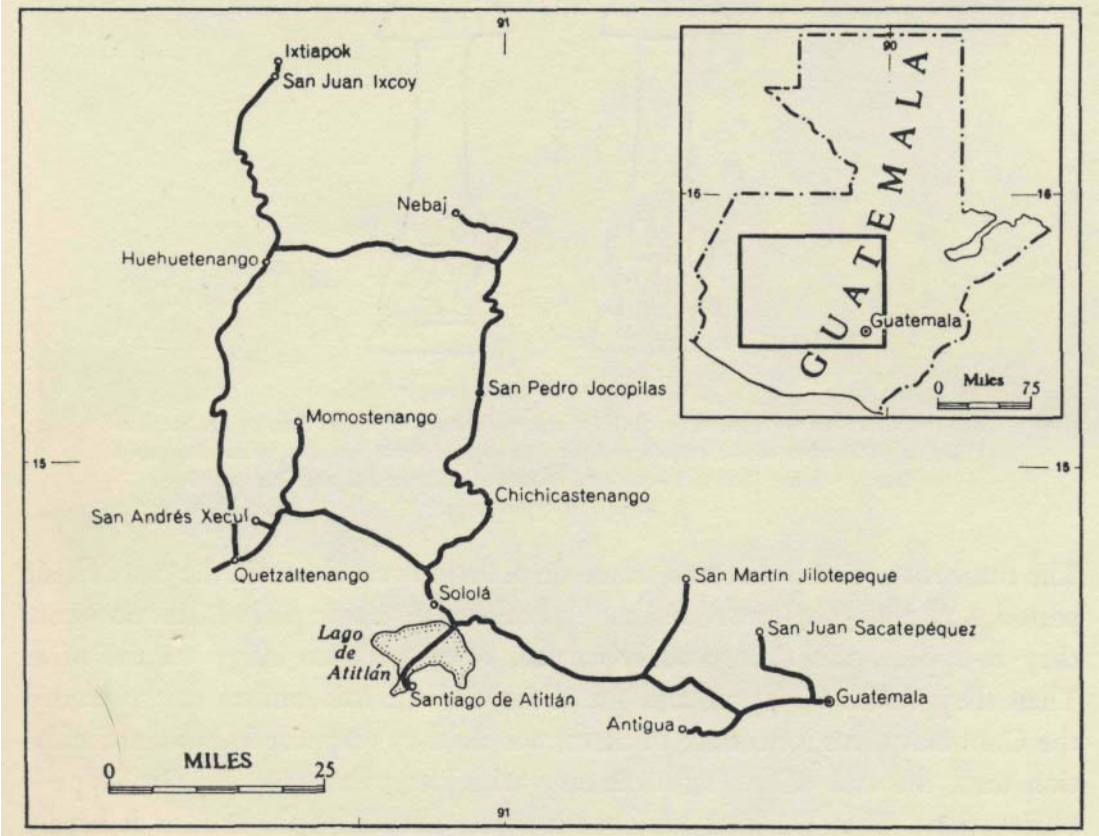


Fig- 17

ones are certain to be discovered as time goes on. They are an extraordinary cultural expression for several reasons. The earliest seem to go back to the period known to Maya students as the early pre-classic or developmental era, in the second millennium B.C. In general the early ones for the layman are the most striking: they are beautifully carved and the figure jutting out from the stipe is often gripping in the vitality of the facial expression. We reproduce one of the best of these, from the collection of Mr. Hans Namuth of New York. This one is late pre-classic, that is, dating from the long stretch of years from B.C. 500 to A.D. 200. The Rietberg specimen appears to be also from the same period. Instead of a human figure, the carved effigy is often of an animal

or bird - a jaguar, *pisote,*[1] deer, a stylized bird impossible for us to identify, and-here is for us a surprising discovery - the toad! We reproduce by line block the best example of a toad mushroom-stone known to us, in profile and full face. The face itself is anthropomorphic, but the four toes are the sure stigma of the amphibian. Dr. Borhegyi considers this specimen pre-classic.

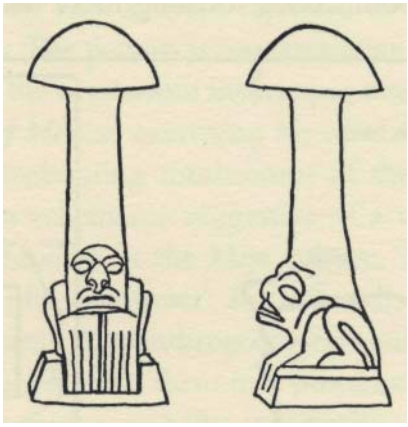


Fig. 18 MAYAN **'TOADSTOOL'**
Represents a toad with anthropomorphic face; tentatively identified thus by Dr. Stephan F. Borhegyi because of the crouch and the four-digited front feet. Ht. 35 cm. Probably late pre-classic (500 B.C. -200 A.D.). Cerro Alux, near Mixco, Guatemala. Museo Nacional 2209.

The mushroom-stones become scarce or perhaps even absent in the early classic period, A.D. 200-500, but around the end of the late classic period, A.D. 600-900, they re-appear, this time crudely carved, often with no effigy on the stipe. Then they vanish for good, and for about the half millennium that preceded the Conquest there is no trace of them, nor do they reappear in human circulation until the end of the ipth century with the publication of Dr. Sapper's observations. That the later mushroom stones should be the crudest is hardly surprising: a cult in its pristine vigor expresses itself most freshly.

Dr. Borhegyi has generously made available to us his chart of the mushroom stones, typing them by chronological and geographical provenience, and we reproduce it here for the first time folded in the pocket at the end of our book.

The Maya still live in the Yucatan peninsula, Chiapas, Tabasco, and Guatemala. All of the many Indian languages spoken in Guatemala today, both in the low-lying Peten and the Highlands, belong to the Maya family. In the Highlands there are several linguistic families, but three of the languages form

I. This is the native name of the coatimundi (nasua narica), of the same family as the raccoon, a family distinguished anatomically by the fact that the males possess a phallic bone. The *pisote* was associated with phallic matters by the Maya, but no phallus is present in any mushroom stone so far discovered. In Mexico the *pisote* is called the *tejon.*

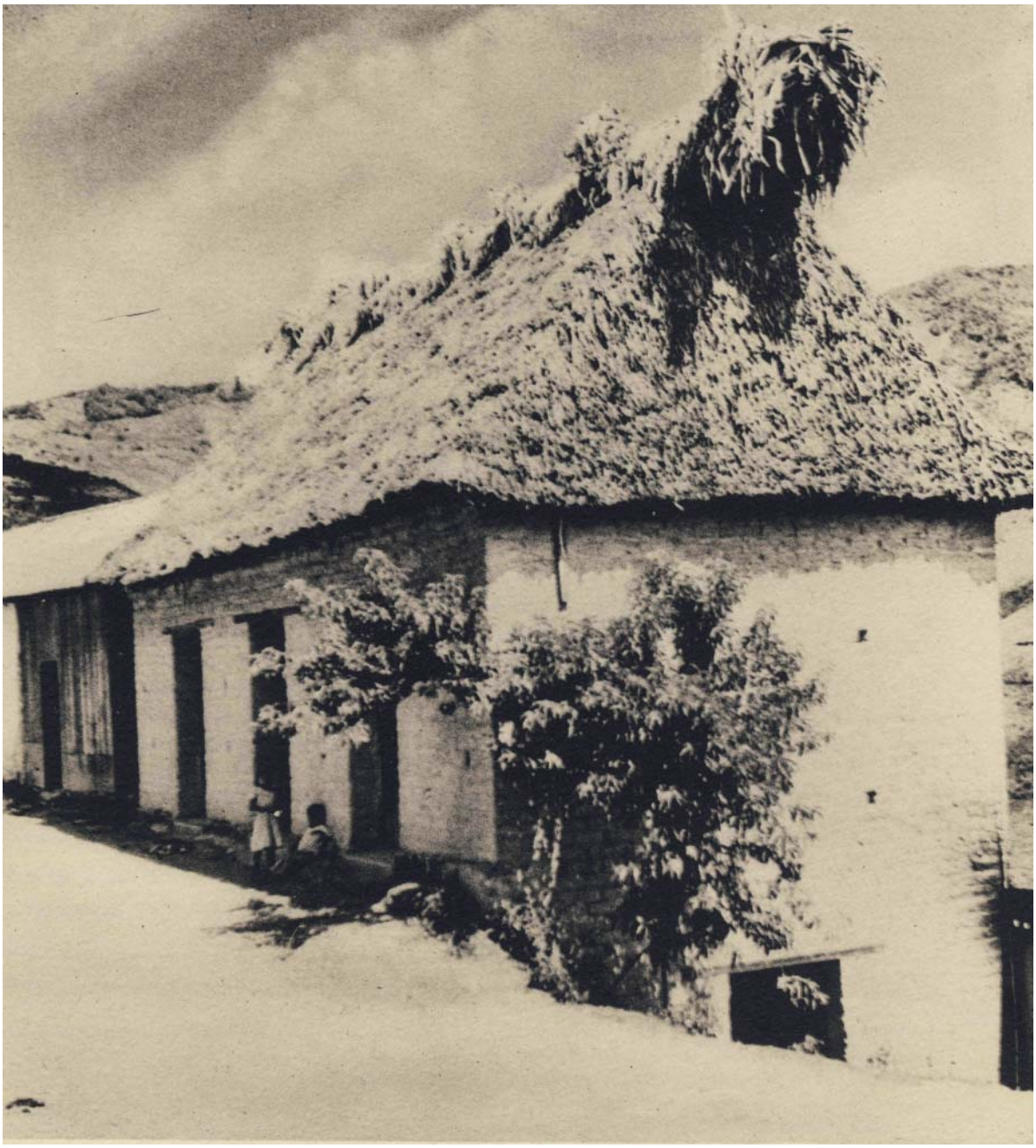


PLATE XLV. Cayetano's House, Huautla de Jimenez. June 1955.

a contiguous and kindred nucleus, the Quichoid family - the Quiche, Kakchiquel, and Tzutujil. Most of the prehistoric mushroom-stones have been found roughly in the area known today as the Quiche and Kakchiquel country. We visited Indian villages of these three peoples, and also Nebaj and San Juan

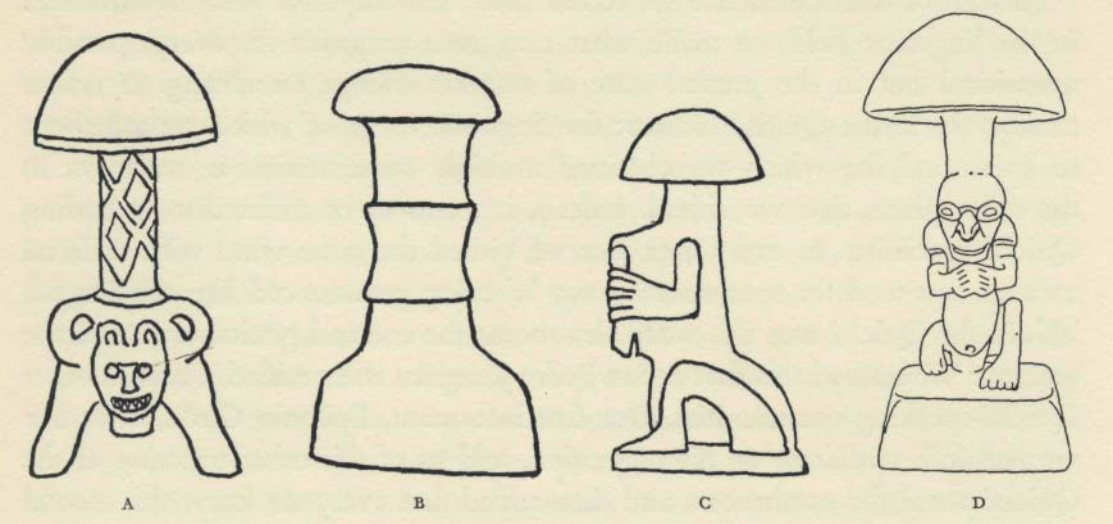


Fig. I). MUSHROOM STONES

A. Represents a jaguar, traces of red paint still visible. Kaminaljuyu, Mound £-111-3, tomb I. Ht. 37 cm. Miraflores phase, 1000-5003.0. Museo Nacional, Guatemala, 3450.

B. Ocosingo, Chiapas, Mexico. Now in regional museum of Tuxtla Gutierrez. Probably late pre-classic (1000 B.C. - 200 A.D.) or early classic (200-500 A.D.)

c. Represents a pisote (nasua narica) in characteristic pose with forefeet over nose. Salcaja, near Quetzaltenango. Ht. 25.5 cm. Late pre-classic or early classic (Vitalino Robles collection).

D. Formerly in Museo Nacional, Guatemala. Probably late pre-classic.

Ixcoy, where Ixil and Kanjobal are spoken, languages related to the important Mam-Maya group. We did not visit the Peten or Yucatan, as no mushroom stones have yet been reported from those regions.

So far as a living mushroom cult or knowledge of such a thing is concerned, our findings were conclusively negative. The elders in the villages that we visited[1] were friendly and not reticent. We would bring the conversation around to

i. For workers in the field we supply the names of our informants and their towns. Kakchiquel-speaking: San Juan Sacatepequez, the official interpreter Bravlio; San Martin Jilotepeque (the language here influenced by ancient Pokomam occupation), Don Francisco Martinez del Rosal, owner of finca Las Pilas, and Alberto Calan, 3rdregidor; Solola, Nicolas Akichi, textile vendor. Quiche-speaking: Chichicastenango, Miguel Ignacio, the maker of wooden dance masks, and Diego Panjojehan, who lives in Chujupen; San Pedro Jocopilas, Epilonio Giron, head of the municipal guard, and Don Ignacio Barrios, Mayor; San Andres Xecul, Pedro Raimundo Hernandez; Momostenango, Aparecio and Santiago Lajpop. Tzutujil-speaking: Santiago de Atitlan, the cripple Don Salvador Ramirez and the artist Juan Sisay. The following are sub-divisions of the Mam group. Ixil-speaking: Nebaj, Trinidad Gomez, candle-maker. Jacalteca-speaking: Concepcion Huista, Antonio Ramirez Paz, former alcalde. Kanjobal-speaking: San Juan Ixcoy, Mateo Velazquez, alcalde, and F. Ruben Gonzalez, first official.

mushrooms, collect vocabulary, and finally begin to discuss the inebriating virtue of certain kinds. Our informants were invariably surprised to learn that such mushrooms existed, and showed themselves most curious and even envious as we described the divinatory mushrooms of the Mazatecs.

Though of direct evidence we found none, our inquiries were not fruitless. In the linguistic field we made what may be a pregnant discovery, possibly sensational but in the present state of our knowledge tantalizing. It relates exclusively to the Quiche Indians: the linguistic usage of which we are about to speak and for which we obtained multiple confirmation is unknown in the other places that we visited. Indeed, it seems to be unfamiliar to leading Quiche specialists. In every area that we visited the same word with dialectal variants was used for mushroom: *ocox,* V being pronounced like the English 'sh'. In the Quiche area this word also means the external genital organs of the woman. We learned this first in San Pedro Jocopilas and verified it later in other Quiche-speaking communities. Our first informant, Epilonio Giron, after our women folk withdrew on his suggestion, told us of this other meaning of the Quiche word for mushroom, and then added that everyone knew this second sense, but that one should never use it. In short, it is tabu. In Momostenango Suzanne Borhegyi and Masha, off on their own, accompanied by a young Indian woman as interpreter, broached the subject with a flock of Indian women there, whom they discovered washing clothes in the rushing stream. Their inquiries evoked peals of merry laughter, but no elucidation whatever. The women refused to develop the subject, and who shall blame them?

In our Mazatec inquiries we had uncovered a curious linguistic usage concerning mushrooms. The reader will recall that there is no single Mazatec word that embraces all the mushrooms. There are two, one for all kinds save the divinatory species, and another general term for the various species held in honor as vehicles of divine inspiration. The Indians of Guatemala are not so mycophagic as the Mexicans, but in the market places there mushrooms of various kinds are on sale, and we were startled to discover in Guatemala city that the Spanish word *hongo* covers all species except one. That one is the favorite for the table and its common name is *anacate.* In all likelihood *anacate* is an eroded form of the Nahuatl *nandcatl.* Whether the borrowing took place before or after the Conquest, we do not know, but already when the Spaniards arrived the Nahuatl influences in the Maya area were powerful. This verbal fission, dividing the mushroom world into two without an overriding collective term, is a curious thing, especially as it recurs in two places as far removed from each other as Huautla and Guatemala City. We took pains to identify the

anacate of Guatemala, eating it in quantity and in San Juan Sacatepequez going out after them in the woods with our interpreter Bravlio. We found them exactly where the market women of Guatemala City had said we should, among the *encinos blancos,* 'white oaks', which turned out to be the oak known to botanists as the quercus fulva. The mushroom could be taken either for a large cantharellus or for a craterellus, and it is in fact the craterellus cantharellus Fr. ex Schw. It is a chanterelle without lamellae.[1]

Dr. Borhegyi later combed the Quiche and Kakchiquel chronicles and legends for references to mushrooms. There come down to us from early times two native narratives of the Highland Maya, one in Quiche and the other in Kakchiquel, the *Popol Vuh* and the *Annals of the Kakchiqnels.* Written in the native languages, they have been translated into Spanish and English. Dr. Borhegyi discovered in each of them one reference to mushrooms, and in each case mushrooms are associated with religious observances. These texts were certainly composed after the era we assign to the mushroom stones, but they give us documentary evidence that mushrooms played a role in the religious life of the Highland Maya. (We realize that the ancestors of the Quiche and Kakchiquel peoples are supposed to have arrived in their present location as conquerors around the 12th century, but whoever the conquerors may have been, it is probable that the indigenous culture absorbed them.) Here is the passage in the *Popol Vuh,* as presented in the English text by Delia Goetz and Sylvanus Griswold Morley:

> And when they found the young of the birds and the deer, they went at once to place the blood of the deer and of the birds in the mouth of the stones, that were Tohil and Avilix. As soon as the blood had been drunk by the gods, the stones spoke, when the priests and the sacrificers came, when they came to bring their offerings. And they did the same before their symbols, burning *pericon* and *holom ocox.*
>
> [University of Oklahoma Press, 1950, p. 192]

We do not know what *pericon* was.[2] 'Tohil' was the Quiche variant of the Toltec Quetzalcoatl, the 'feathered serpent', but we know not how the god Avilix looked. *Holom ocox* means 'mushroom head'. In San Martin Jilotepeque our informant Alberto Calan had told us of an unwholesome mushroom known to him as the *holom ixpek,* 'toad's head', a name doubly interesting for us because it links the mushroom with the toad and because of the fungal use of the word for 'head', reminding us of the passage in *Popol Vuh.*[3]

1. Our specimens of the *anacates* were the subject of a note by Professor Roger Heim that appeared in the *Revue de Mycologie,* April 1954, Tome xix, Fasc. i, pp. 53fF.
2. If it is the plant known commonly in Mexico today by the same name, it is the tagetes lucida Cav.
3. The Quiche word for 'toad', *ixpek,* is startling because of its superficial resemblance to the Indo-European

CHAPTER FIVE

The passage in the *Annals of the Kakchiquels* as translated from the original by Adrian Recinos and into English by Delia Goetz reads thus:

At that time, too, they began to worship the devil. Each seven days, each thirteen days, they offered him sacrifices, placing before him fresh resin [i.e., *copal],* green branches, and fresh bark of the trees [i.e., *amate?],* and burning before him a small cat, image of the night. They took to him also the mushrooms of the trees, and drew blood from their ears.

Fig. 20. INDIAN DRINKING FROM A SPANISH GOBLET
As represented by a i6th century Spanish artist; from Florentine Codex of Bernardino de Sahagiin's *Historia dc las Cosas de la Nueva Espaiia.* Biblioteca Laurenziana, Florence.

Again the words in the original tongue are *holom ocox,* 'mushroom heads', and they are described as 'of the trees'.[1] We had learned in Huautla that one of the four kinds of sacred inebriating mushrooms grows hi trees, and Juan de Cordoba in his Zapotec lexicon calls it the *nocuana peneeche.* Here then hi the Kakchiquel

root discussed on pp. 92 ff. We found several variants — *xepek, ixpuk, xpuk* —• in the towns we visited. In all cases V has the phonetic value of English 'sh'. The word carries other meanings, such as 'cave' in Quetzaltenango. In Chichicastenango we found that a similar word relates either to the vagina or the womb. We are told that in the Zapotec dialect spoken at Mitla *xkep* means 'womb'. We had neither time nor competence to explore the suggestion here of a cultural association linking toads to fertility such as we find in Europe. I. In the Recinos-Goetz translation, University of Oklahoma Press, 1953, pp. 82-83, the passage is rendered thus:

. . . the mushrooms (which grow at the foot) of the trees . . .

The interpolated words are obviously superfluous, the translators presumably not knowing that many mushrooms grow in trees. This reference to tree fungi reminds us of a curious passage in the *Relation de las Minas de Temazcaltepec,* where Caspar de Covarrubias enumerates briefly the kinds of food that the people eat, and in the brief list he finds place to include *ongos de arboles,* 'tree-mushrooms'. See *Papelcs de Nueva Espaiia,* Paso y Troncoso, Madrid, 1905, vol. vn, p. 31.

Juan de Cordoba's i6th century Zapotec lexicon refers to arboreal fungi, and in Huautla our *mrandero,* Aurelio Carreras, spoke of a divinatory species growing on wood. It seems probable that arboreal fungi play a distinct role in Middle-American fungal lore, one that remains to be explored.

text, which was put down on paper after the Conquest under Spanish influences but which recalls pre-Conquest events, we read of a religious rite in which arboreal mushrooms were used.

Both the Quiche and the Kakchiquel narratives use the same expression - *holom ocox.* Obviously this should be translated as 'mushroom caps', and we know from our Mije notes that the cap in Mije is a 'head'. We find the same metaphor in Mazatec, where the cap of the mushroom is the *hko*^{4}*,* meaning 'head'. Perhaps the reader has hit on the further observation that we now make. The Mije and Mazatecs in their mushroom cult lay stress on the separation of pileus from stipe, and the virtue lies primarily in the pileus. They are still following the practice recorded for us by the ancient Quiche and Kakchiquel narrators, still decapitating their ceremonial mushroom.

As we thumb through the pages of Sahagun's immense work, in the Florentine Codex, we discover yet another miniature relevant to our argument. Executed by an Indian under Spanish influence, it is pregnant with mushroomic meaning. On the left we discover an Indian drinking from a Spanish goblet. On the right are two mushroom caps, 'heads', the Quiche *holom ocox,* the Mije *kobahk,* the Mazatec *hko*^{4}*.* There are a pair of these caps, i.e., the Mije *casada.* A decapitated stipe stands on one side. Thus in this picture we come upon themes familiar to us from present-day usages among the Mije and Mazatecs and in the pre-Conquest annals of the Quiche and Kakchiquel peoples. We have found in Sahagun's text no passage that this miniature illustrates. What does it mean? We venture a rash but tempting guess. There must have been a moment in the social history of i6th century Mexico when the fire-water of the Spaniards confronted the inebriating mushrooms of traditional use with a challenge deeply disturbing to the emotions of the conservative Indians. Does not this miniature illustrate that moment of challenge ? The mushroom caps are disproportionately big: this is the artist's device for showing their subjective importance, just as in the earlier miniature, on page 235, Mictlantecuhtli, Lord of the Underworld, hovers with giant stature over the Indian who is eating his pair of *teo-nandcatl.*

In the indigenous cultures of Middle America one of the crucial problems for anthropologists is the interplay, over thousands of years, between hieratic cultures on the one hand, rising and falling spasmodically and sporadically and often leaving behind spectacular monuments, and on the other hand, the folk cultures of the farming population, simple, relatively homogeneous, and singularly tough in resisting outside influences.[1] Humble artifacts such as incense

I. For an illuminating discussion of this problem see Stephan F. Borhegyi's 'Cultura Folk y Cultura Compleja

burners, figurines, and clay effigies fashioned so as to serve also as whistles have been made in virtually the same styles for three thousand years and are still being sold at the present hour in the native market places. The mushroom stones do not belong to this folk culture. If they are a clue to a mushroom cult, we must suppose that the cult was hieratic, the attribute of a priestly elite, and that that cult passed away with that elite. The highest achievements of the Mayan culture, which are known to have been hieratic, belonged to the lowland Maya of the Peten and Yucatan, where no mushroom stones have been found.[1] However, there could also have been priest-governed societies in the Highlands, and in fact in the Highland excavations at Kaminaljuyu, near Guatemala City, there has been found in a pre-Classic tomb that was probably sacerdotal one of the effigy mushroom stones, representing a jaguar.[2] We suggest that there was once a mushroom cult in the Highlands in the formal, organized sense, a liturgy administered by priests on set occasions, perhaps for the laity to join in. How different such a cult would be from the intimate, family use of the divinatory mushrooms that we have witnessed among the Mazatecs and Mije, where the mushrooms are consulted, when available, if needed, in the dead of night, with only two or three gathered together! But there is no necessary contradiction here. Our i6th century writers tell us of the large gatherings where the mushrooms were consumed in public. And what could have been more inviting to a priestly elite than to take over from the folk culture their divinatory mushrooms, and clothe the deeply stirring faith of the people in those divine mushrooms with the ceremonial habiliments that an elaborate ritual would have required? As we review our evidence, we discern an endemic use of inebriating mushrooms from earliest times in the enduring folk culture of Middle America, not in the low, hot country, but throughout the higher country, over an area extending from the Valley of Mexico into Guatemala and Salvador. We see this endemic folk usage seized upon, taken over, lifted up, and reverently exploited by the sophisticated priestly elite in certain hieratic phases of the upland cultures.

Certainly we have not discovered the tie that would unequivocally bind the mushroom stones of Guatemala and Chiapas with today's intimate folk cult. That

en el Area Maya Meridional", *Ciendas Saddles,* published by the Pan-American Union, Washington, D. C., vol. v, No. 26, April 1954.

1. Is it coincidence that, just as the mushroom stones are found only at a certain altitude and never in the hot, low country, so according to our informants in Huautla and Mazatlan, the use of the divinatory mushroom is unknown among the Mazatecs and Mije living today in the *ticrra caliente?*

2. For further illustrations and discussion of this remarkable specimen, one of the oldest known, see Publ. 596 of the Carnegie Institution of Washington, 1952, which is vol. xi of the series *of Contributions to American Anthropology and History,* paper No. 53, 'Mound E-m-3, Kaminaljuyu, Guatemala', by Edwin M. Shook and Alfred V. Kidder, fig. y8fand 13 (No. 193), and p. 112. We reproduce this mushroom stone in fig. 19 A.

such a link will be discovered is unlikely but not impossible. Perhaps on some holy hill or *ce.no,* or deep in the recesses of some cave, in a remote corner of Oaxaca or Chiapas, the Indians still direct their humble supplications to a stone image of a mushroom, unbeknownst to circumambulating ethnologists. Unless someone discovers such a survival, how can we hope to establish a connection between the ancient stone carvings and the divinatory mushrooms ;

Yet the evidence that we have assembled points toward such a connection. We know that the Indians of Middle America are mycophiles with extensive knowledge of mushroomic properties and corresponding vocabularies. In their cultures mushrooms have always been emphasized, not ignored. Among these Indians religious associations have always interpenetrated every aspect of human existence, and it would be rash to assume that this fusion of daily life with religious beliefs excluded the fungal world at the time when the mushroom stones were carved. We know furthermore what a profound hold the ceremonial mushrooms have to this day on certain of the remoter Indian tribes, and the range of this cult doubtless runs beyond the limits that we have had opportunity to explore. In the case of the Mije, their country overlaps the area where the later mushroom stones seem to have been found. We know from surviving annals that before the Conquest ceremonial mushrooms were used in religious observances in the Guatemalan Highlands, where most of the earlier stones have been found. A divinatory mushroom grips the imagination, and it would justify the functional use, in religious ceremonies, of the mushroom stones. The presence of a divinatory mushroom is rare in human cultures: would it not be extraordinary to find a mushroom cult in the same area with the mushroom carvings - themselves unique - and yet unrelated to them? Whereas in the past no one was suggesting a mushroomic explanation for the mushroom stones, we think that the presumption favors such an explanation now, and that the burden of the argument must he on those who oppose it.

Meanwhile many exciting questions remain unanswered and cry for the further field work that we cannot undertake. We have not fully identified the divinatory mushrooms that the Mazatecs and Mije use, to say nothing of other peoples where the cult may survive. They must be securely identified, with multiple corroboration. Their specific properties as understood by the Indians must be fully set down. Then they must be proved empirically, under controlled conditions. The Mije have developed sweeping explanations for any failures in the use of their divinatory mushrooms: this suggests that auto-suggestion plays a role, or that sometimes the wrong mushroom is taken, or that the virtue

varies under differing circumstances. The difficult task of chemical analysis, with the isolation of the active agents, will be the final achievement.

The Mije are related linguistically to the Zoques, their neighbors to the east in Chiapas. What do the Zoques know of the divinatory mushrooms> If they use them, perhaps we shall discover, after all, that the Maya peoples immediately to the east of them also share the cult, or remember having practiced it in the past.[1] Robert Weitlaner knows the Chinantecs as well as any other living anthropologist. Among them he has failed to find any trace of the divinatory mushroom, though they live between the Mazatecs and the Mije. How strange this is! But it only points up the importance for all workers among the Indians of Middle America, both linguists and anthropologists, to include the divinatory mushrooms in their inquiries, and to report their findings whether negative or positive. Where the cult does not survive, memories of it may, and where no memories exist, perhaps in the names for mushrooms the linguists may trace forgotten knowledge. Slowly we should begin to pinpoint the results of such inquiries on a cultural map of Mexico keyed to the mycological lore of the Indians. But the search for evidence should not be limited to our contemporary world. The whole corpus of surviving pre-Conquest artistic expression in the highland areas of Middle America should also be reviewed, on the chance that divine mushrooms figuring therein have hitherto escaped detection. Later we shall venture some suggestions of our own in this archeological field.

I. There are grounds for Unking together the Maya and the Mije-Zoque cultures, the two linguistic groups being perhaps descended from a common parent stock. See J. Alden Mason's paper on Middle American linguistic groupings in *The Maya and Their Neighbors,* D. Appleton-Century, N. Y., 1940 (a Festschrift in honor of A. M. Tozzer), p. 72.

15

TEO-NANACATL

The Mushroom Agape

VS/ith the concluding words of the previous section we had thought to end our discussion of the divine mushrooms. But in 1955 we returned again to Mexico to push our inquiries, and, at last breaking through the barrier of native shyness, we penetrated into the mushroom cult much more deeply than before, eating the mushrooms ourselves as participants in a communal agape. We experienced subjectively for the first time what we had previously been able to describe only as witnesses from the outside or at second hand by the testimony of informants. Just as our book goes to press we add the following notes on our 1955 adventures.

On Friday, June 24, VPW, Masha, and RGW flew to Mexico City. We installed ourselves in a small villa in San Angel, at Reyna 9, which we had rented with servants as a base for our excursions. Thither we could return and relax in the quiet of a lovely garden, the high walls festooned with blooming bougainvillea, after our sorties into the Indian country. Two days later Allan Richardson joined us, to serve again as our photographer, and on Monday he and RGW set out for the heart of the Mazatec country. By Tuesday night we were bedded down with a Mazatec family in one of the villages of that remote world in northern Oaxaca. On this trip Robert Weitlaner was prevented by other duties from accompanying us, and we therefore considered ourselves doubly fortunate when almost at once, in a new circle of Indians, we found ourselves received as friends.

We shall call our host Cayetano and his wife Guadalupe. Intelligent, vigorous, and gentle, this couple, in their thirties, were the key to the success of our expedition. As soon as RGW imparted to them in confidence his interest in the sacred mushrooms, they pledged their cooperation, and they more than made good their pledge.

Cayetano and Guadalupe's house is on the outskirts of Huautla de Jimenez and opens directly on the village thoroughfare that runs along a mountainside. With roof of thatch and adobe walls, it has two storeys. You enter on the upper level from the street, and then by a small trap-door in one corner you climb down a steep and twisting stairway to the floor below, where the events that we shall relate took place. This lower storey is built on one side against the mountain face, and on the other side by a door it opens on a terrace perhaps six feet wide, which then falls sharply away to the ravine hundreds of feet below.

CHAPTER FIVE

Across the valley and beyond, the Sierra Mazateca in all its verdant glory fills the distant view. On the terrace at one end of the house a flimsy wooden and thatch annex has been constructed to serve as kitchen. The interior is divided by a whitewashed adobe wall into two rooms. There is no window in either room, but over the door on the terrace an aperture allows in some light. This room was well sheltered from the life of the village, and doubly so at night when Mazatec villagers refrain from stirring abroad. The family circle was large: our hosts' small children were numerous, and Cayetano's brothers and parents were also much in evidence, as well as other kin. Chickens and turkeys had the run of the lower floor. A hen sitting on her eggs on one of the cluttered tables was a silent witness to all that went on.

On the day after our arrival, early in the afternoon of Wednesday June 29, Cayetano and his brother Genaro took us down the mountain side to the edge of the stream in the gully. In the lower reaches of our descent we skirted a field planted to sugar cane, and then arrived at the spot where it is the custom to mill the cane, a flat space the size of a threshing floor, thick with rotting bagasse, as the refuse from the mill is called. There in the bagasse, just as Cayetano had promised, we found an immense crop of mushrooms, of the sacred kind known to our Mazatec friends as *ki*^{3}*so*\ 'landslide'. We photographed them to our hearts' content. We gathered them in a pasteboard box: the sacred mushrooms must always be carried in a closed parcel, never exposed to the view of passers-by. They were a noble lot, mostly young, all of them perfect in their moist health and fragrance. Then we carried them up the steep mountain side to the house. We were warned that if we saw any dead animal on the way, the mushrooms would lose their virtue — happily we saw none. It was in the rainy season, and in the humid heat of that sunny afternoon the climb was long and exhausting.

Hardly had we arrived back when Cayetano sent us, with his brother Emilio as interpreter, to a cottage some distance farther up, where he said we would find a *curandera de primera categoria,* a *cumndera* of the first class, Maria Sabina by name. We were to ask her whether she would help us that night. We found the Seiiora, as our hosts always called her, resting on a *petate,* or mat made of a certain palm. She was alone with a daughter who was up and about. After introducing ourselves through Emilio, we showed them our mushrooms, whereupon the two women went into raptures over their fine condition and beauty. We put our question to the Senora, and without hesitation, looking steadily at us, she said yes. Neither she nor her daughter spoke a word of Spanish. We do not know whether they had been told to expect our visit.

Maria Sabina is a woman in her fifties, grave in demeanor, with a grave smile,

short of stature like all Mazatecs, dressed in the Mazatec *huipil.* Her daughter is in her thirties and in all respects takes after her mother. She is following her mother's vocation. The Senora herself is at the peak of her powers, and it is easy to see why Guadalupe had said to us of her that she was *una Senora sin mancha,* a lady without blemish, immaculate, one who had never dishonored her calling by using her powers for evil. She alone, said Guadalupe, had brought the latter's children through all the diseases that take a frightful toll in early childhood in the Mazatec country. After that initial talk we were to pass two all-night vigils with Dona Maria and her daughter, and we can testify that she is a woman of rare moral and spiritual power, dedicated in her vocation, an artist in her mastery of the techniques of her office. It was her example that drove home for us for the first time a rule that must govern all field anthropologists. In the archaic cultures as among advanced peoples, there is a hierarchy of excellence when it comes to the individuals who are the culture-bearers. It is not sufficient to rely on the first informants that present themselves, on any shaman who is willing to talk. The whole cultural area must be discreetly surveyed and communication must be established with the finest exponents of the old traditions. None of the formidable difficulties of physical existence in these remote regions nor of communication should be permitted to blunt this obligation.

On that last Wednesday of June, after nightfall, we gathered in the lower chamber of Cayetano's house. In all, at one time or another, there must have been twenty-five persons present, mostly members old and young of Cayetano's family. The Senora came with her daughter Polonia. They and all the others were pleased when we photographed them, and we took numerous pictures throughout the preliminaries. But the Senora requested through Cayetano that when the power would seize her — *cuando la fuerza le aganara* — we should desist, and of course we did so. Cayetano served us chocolate to drink, somewhat ceremonially. (RGW's thoughts went back to Sahagiin in the l6th century, who had said that chocolate was served before the mushrooms were taken. Cayetano also offered us coffee and sweet wheaten bread, neither of which had been known to his ancestors in pre-Conquest Mexico.) Both Allan Richardson and RGW were deeply impressed by the mood of the gathering. We were received and the night's events unrolled in an atmosphere of simple friendliness that reminded us of the agape of early Christian times. There was no familiarity. The mushrooms were treated respectfully, as sacred, but without marked formality. The proceedings went forward with an easy decorum. Neither on this occasion nor at any other time or place did we ever see or hear the mushrooms

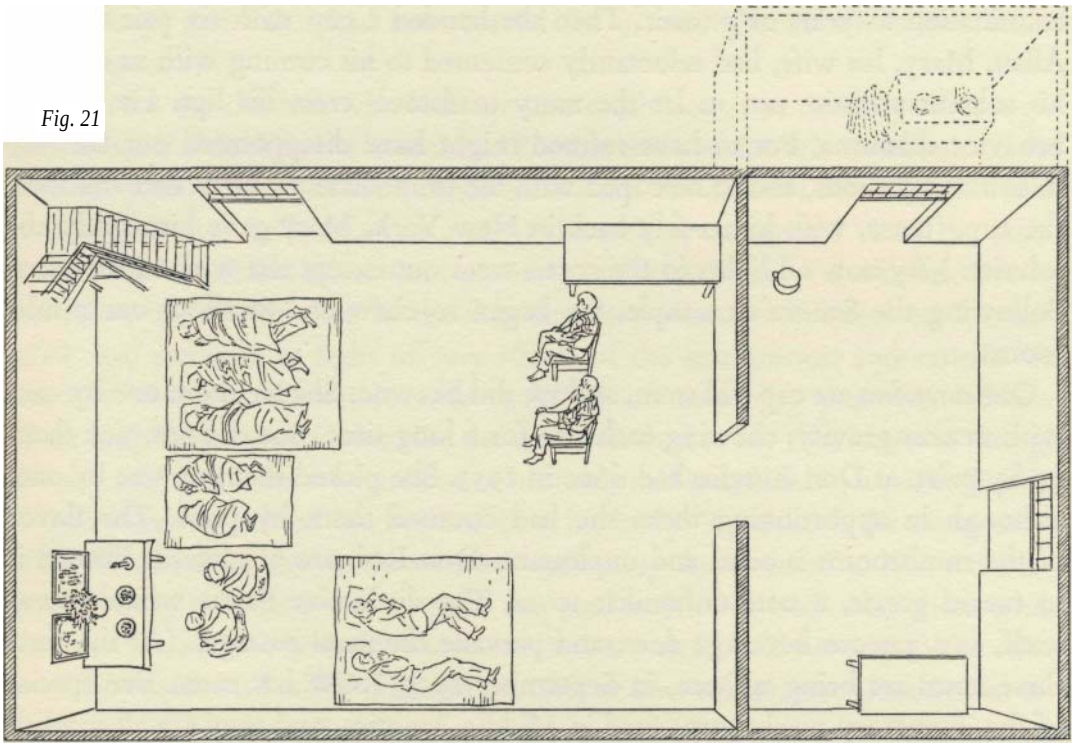
treated as a subject for jocular vulgarity, of the kind that often marks the use of alcohol among fully civilized peoples. The atmosphere of respectful friendliness was infectious, and we enjoyed reciprocating the welcome extended to us. There is no record that any white men had ever attended a session of the kind that we are going to describe, nor that white men had ever partaken of the sacred mushrooms under any circumstances. For reasons deeply rooted in the mortal cultural conflict of Spaniards and Indians, it is unlikely that any unrecorded event of the kind had ever taken place. By hearsay the early Spanish writers had reported gatherings of Indians where the mushrooms were served to many, but we had thought from our previous visits to Mexico that such observances were today unknown. We were now to learn that they still go on, and that they are even today a central experience in the culture of the Mazatec people. The only change is that the gatherings now are held behind closed doors. Cayetano told us early in the evening that no one on any account should leave the house before break of day, and for the necessities of nature he showed us the rudimentary provision that had been made in one corner of the other room. The contempt of the Spaniards for indigenous rites and the Church's condemnation of them as idolatrous heresies have not killed these assemblies of ancient lineage, but have driven them under cover.[1] Our hosts were obviously pleased by our intense and sympathetic interest in all that went on before our eyes. The very fact of our participation must have made the evening memorable for them. They were dressed up for the occasion. Genaro in particular was resplendent in his handsome striped sarape and his freshly washed white cotton trousers or bags, which Indian-style were buttonless, being supported by strings tied around the waist. By our respectful behavior we did all we could to make clear that for us the rite we were witnessing possessed full religious stature. We were mindful of the drama of our situation. We were attending as participants a mushroomic Supper of unique anthropological interest, which was being held pursuant to a tradition of unfathomed age, possibly going back to the time when the remote ancestors of our hosts were living in Asia, back perhaps to the very dawn of man's cultural history, when he was discovering the idea of God.

There were a few home-made wooden chairs in the room, and in the beginning Allan and RGW used them. Cayetano's brother Genaro and possibly one other

1. Dr. Harold Alexander Abramson of New York, a specialist in psychotic research who has studied the action of lysergic acid diethylamide and other hallucinogens, believes that persecution was certainly not the only reason for holding the mushroomic agape behind closed doors. He is sure that the participants, if released from the centripedal influences of the intimate circle, would sometimes behave in extreme ways, even killing themselves or murdering others or engaging in assaults. When he expressed this view, Dr. Abramson knew nothing of the 16th century accounts of those very excesses perpetrated by persons who, having eaten the mushrooms, went out on the town.

remained seated on chairs the whole night through. The others lay or reclined on mats on the floor, wrapped in *sarapes,* except of course for the Sefiora and her daughter, who, wearing clean *huipiles* with identical reddish-yellow birds embroidered on them in front, sat before the altar-table on mats. They sat with what seemed a half-studied formality, the daughter a little behind her mother and slightly to her mother's right. Later, in the dark, we could barely discern their

Fig. 21



triangular shadows as first one and then the other lifted her voice in song. It was then, when the details were erased by night and only the geometric mass persisted, that they suddenly reminded RGW of the pyramids that are the outstanding feature of architecture in pre-Conquest Mexico. Could the pyramids have been originally a geometric stylization of the worshipping Indian seated on his mat, of the gods that were his magnified projection of himself?

At about 10.30 o'clock the Sefiora and her daughter took their positions before the small table that served for an altar. On it were two holy pictures, on the left the child Jesus and on the right the Baptism in Jordan, with a bouquet in front of them, a crucifix hidden in the flowers, three lighted candles of virgin beeswax, and a lighted wick in a glass of wax. There were also two pottery bowls and some cups. The Senora then went through our box of mushrooms, brush-

ing off with her fingers the grosser pieces of dirt and passing them in her hand over copal that was burning on a metal lid on the floor. Into each of the two bowls she put 13 pair of mushrooms; one bowl was for her and the other for her daughter. Into each cup she put four pair, or five, or six, and then handed the cups to the grown-ups that were to take them. The children received none, and we were told that she never gave mushrooms to children. To RGW she handed a cup with six pair. Our readers will imagine his joy at this dramatic culmination to years of pursuit. Then she handed a cup with six pair to poor Allan. Mary, his wife, had reluctantly consented to his coming with us only on his solemn promise not to let the nasty toadstools cross his lips. He faced a behavior dilemma, but to have refused might have disappointed our friendly Indian companions, and so he coped with the immediate problem first and took the cup. (Later, with him safely back in New York, Mary gave him ready absolution.) By now all lights in the room were out except the wick in the glass. Following the Seiiora's example, we began to chew and swallow our mushrooms.

Our *curandera* ate cap and stem, and we did likewise. She ate them one by one, with utmost gravity, chewing each one for a long time. She did not pick them up by pairs, as Don Aurelio had done in 1953. She picked them up one by one, although in apportioning them she had counted them by pairs. The flavor of the mushrooms is acrid and unpleasant. Don Roberto afterwards likened it to rancid grease, a taste unfamiliar to us. The distinctive flavor would repeat itself, as a gaseous beverage does, and pervade the nasal passages. (At the time these notes are being written, in September 1955, RGW has eaten five species of the divinatory mushrooms used in Middle America, and they are all marked by this singular and unforgettable taste and after-taste, which seem to be the veritable signature of the divine species.)

We all ate our mushrooms facing the wall where the small altar table stood. We ate them in silence, except for Cayetano's father, Don Emilio, who was consulting the mushrooms about his infected left-forearm. He would jerk his head violently with each mushroom that he swallowed, and utter a smacking noise, as though in acknowledgement of their divine potency. The Senora had asked us to take care not to invade the corner of the room on the left of the altar table, for down that corner would descend the Holy Ghost. We sat near-by, taking about a half hour to eat our six pair of mushrooms. By 10.40 o'clock we had all finished our respective portions, the Sefiora crossing herself with the last swallow. Then we waited in silence. After about twenty minutes the Senora plucked a flower from the bouquet and with it put out the last of the *velas.* We

should have been in Stygian darkness, but by good fortune the night was clear and a gibbous moon, by the opening above the door, gave us just enough light to make our darkness visible.

At about 11.20 o'clock Allan leaned from his chair and whispered to RGW that he was having a chill. We wrapped him in a blanket. A little later he leaned over again and said, 'Gordon, I am beginning to see things,' to which RGW gave him the comforting reply that he was too. Allan lay down along the wall on the large *petate* that had been spread for us, and shortly afterwards RGW joined him.

Except for the children who had eaten no mushrooms, no one slept that night until about 4 o'clock in the morning. (The last entry in RGW's notebook carries the hour 3.50.) There was no inclination to sleep. At all times we were alert both to our subjective hallucinations and to the goings-on around us in the dark. RGW took imperfect notes intermittently and kept track of the hours. But he and Allan were both alive to the fact that they were not themselves. Though RGW had resolved to fight off any effects of the mushrooms and remain the detached observer, the mushrooms took full and sweeping possession of him. There is no better way to describe the sensation than to say that it was as though his very soul had been scooped out of his body and translated to a point floating in space, leaving behind the husk of clay, his body. 'Landslide', the designation of the Mazatecs for the mushroom we were using, had seemed to him a clumsy name before; now its awesome truth imposed itself. Our bodies lay there while our souls soared. We both felt nauseated; RGW twice made his way to the other room to vomit, and Allan three times. One or two others, not identified in the darkness, did likewise. But these episodes seemed of no moment. For we were both seeing visions, similar but not identical visions, and we were comparing notes in whispered interchanges. At first we saw geometric patterns, angular not circular, in richest colors, such as might adorn textiles or carpets. Then the patterns grew into architectural structures, with colonnades and architraves, patios of regal splendor, the stone-work all in brilliant colors, gold and onyx and ebony, all most harmoniously and ingeniously contrived, in richest magnificence extending beyond the reach of sight, in vistas measureless to man. For some reason these architectural visions seemed oriental, though at every stage RGW pointed out to himself that they could not be identified with any specific oriental country. They were neither Japanese nor Chinese nor Indian nor Moslem. They seemed to belong rather to the imaginary architecture described by the visionaries of the Bible. In the aesthetics of this discovered world attic simplicity had no place: everything was resplendently rich.

CHAPTER FIVE

At one point in the faint moonlight the bouquet on the table assumed the dimensions and shape of an imperial conveyance, a triumphal car, drawn by living creatures known only to mythology. With our eyes wide open, the visions came in endless succession, each growing out of the preceding one. We had the sensation that the walls of our humble house had vanished, that our untrammeled souls were floating in the universe, stroked by divine breezes, possessed of a divine mobility that would transport us anywhere on the wings of a thought. Now it was clear why Don Aurelio in 1953 and others too had told us that the mushrooms would take you *ahi donde Dios estd* — there where God is. Only when RGW by an act of conscious effort touched the wall of Cayetano's house, would he be brought back to the confines of the room where we all were, and this touch with reality seemed to be what precipitated nausea in him.

On that night of June 29-30 we saw no human beings in our visions. On the night of July 2-3 RGW again took mushrooms in the same room, with the Senora again serving as votary. If we may anticipate our story, on that second occasion RGW's visions were different. There were no geometrical patterns, no edifices of oriental splendor. The patterns were replaced by artistic motifs of the Elizabethan and Jacobean periods in England - armor worn for fashionable display, family escutcheons, the carvings of choir stalls and cathedral chairs. No patina of age hung on them. They were all fresh from God's work-shop, pristine in their finish. The beholder could only sigh after the skill that would have fixed those beauteous shapes on paper or in metal or wood, that they might not be lost in a vision. They too grew one out of the other, the new one emerging from the center of its predecessor. Here as in the first night the visions seemed freighted with significance. They seemed the very archetypes of beautiful form and color. We felt ourselves in the presence of the Ideas that Plato had talked about. In saying this let not the reader think that we are indulging in rhetoric, straining to command his attention by an extravagant figure of speech. For the world our visions were and must remain 'hallucinations'. But for us they were not false or shadowy suggestions of real things, figments of an unhinged imagination. What we were seeing was, we knew, the only reality, of which the counterparts of every day are mere imperfect adumbrations. At the time we ourselves were alive to the novelty of this our discovery, and astonished by it. Whatever their provenience, the blunt and startling fact is that our visions were sensed more clearly, were superior in all their attributes, were more authoritative, for us who were experiencing them, than what passes for mundane reality.

Following the visions that we have already described, on both occasions RGW saw landscapes. On Wednesday they were of a vast desert seen from

PLATE XLVI. Maria Sabina and her daughter Polonia, curanderas.
Huautla de Jimenez, June 29, 1955.

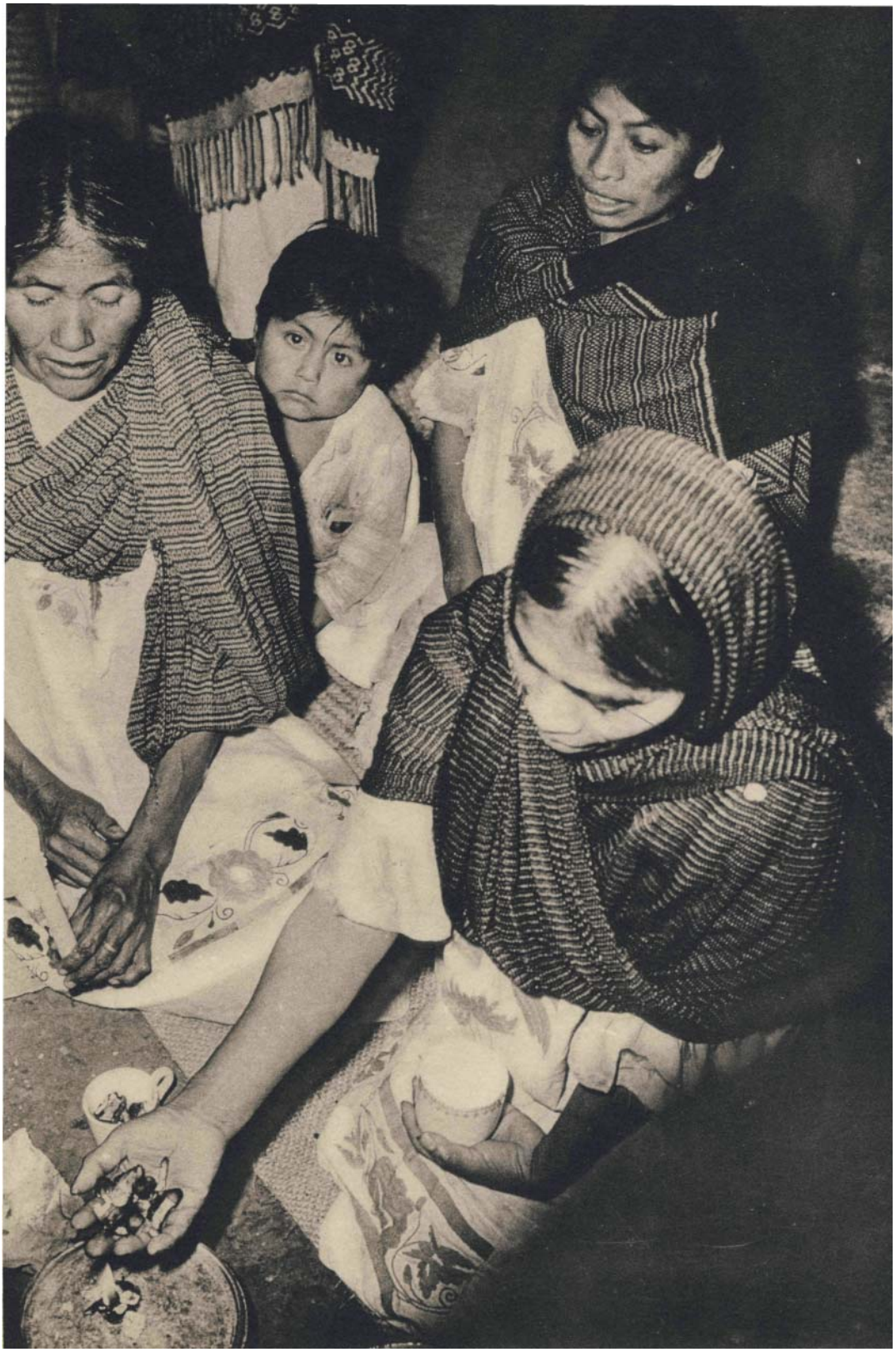


PLATE XLVn. Maria Sabina, curandera, passing mushrooms over incense (copal);
also her daughter Polonia and Cayetano's mother.
Huautla de Jimenez, June 29-30, 1955.

PLATE XLVIII. Adoration of the mushroom. Maria Sabina, curandera, and her daughter Polonia.
Huautla de Jimenez, June 29-30, 1955.

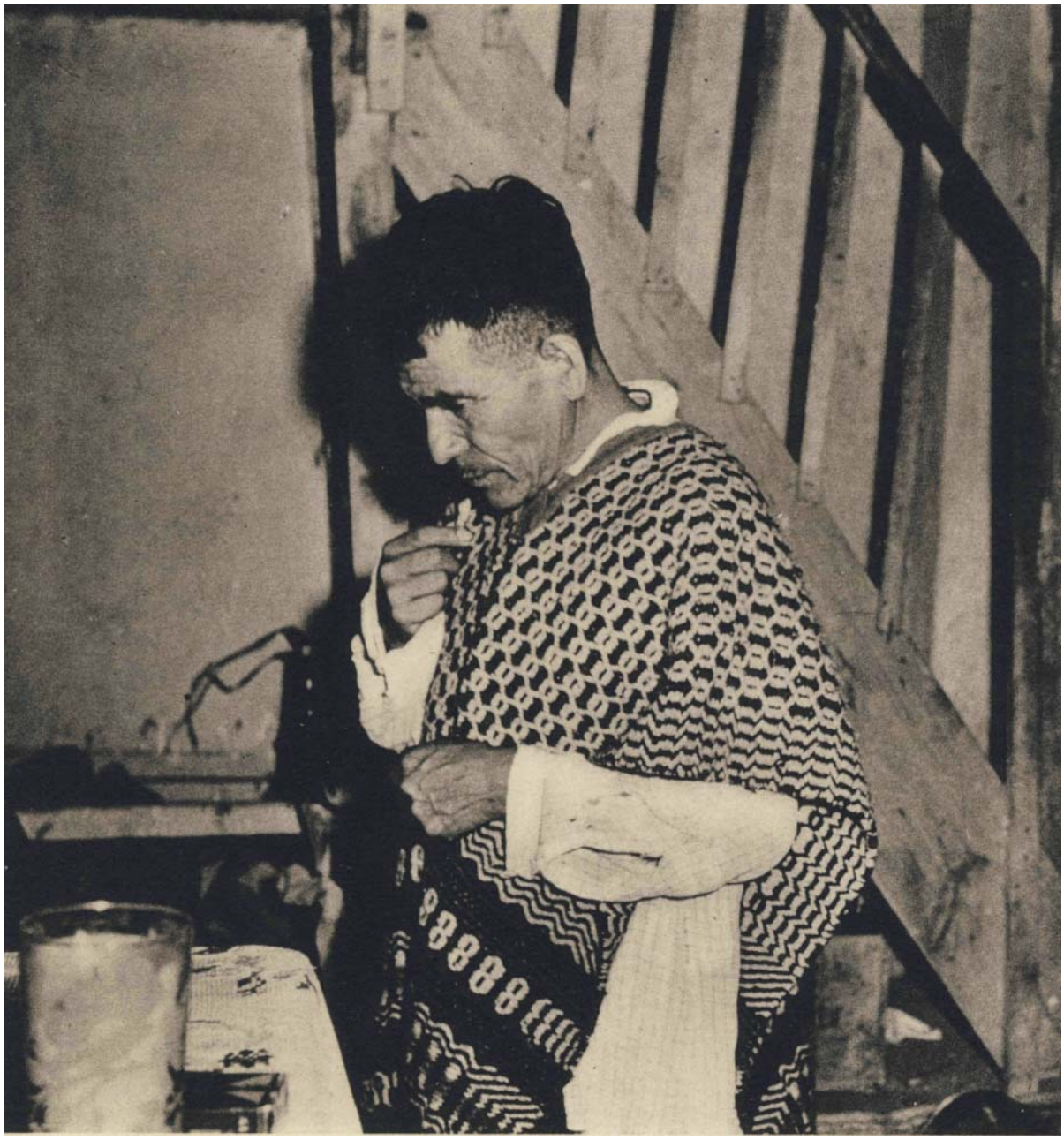


PLATE XLIX. Emilio Garcia taking *Teo-nandcatl* or 'God's Flesh'.
Huautla de Jimenez, June 29, 1955.

afar, with lofty mountains beyond, terrace above terrace. Camel caravans were advancing across the mountain slopes. On Saturday the landscapes were of the estuaries of immense rivers brimming over with pellucid water, broad sheets of water overflowing into the reeds that stretched equally far from the shore line. Here the colors were in pastel shades. The light was good but soft as from a horizontal sun. On both nights the landscapes responded to the command of the beholder: when a detail interested him, the landscape approached with the speed of light and the detail was made manifest. There seemed to be no birds and no human life in the river estuary, until a rude cabin suddenly appeared with a woman motionless nearby. She was a woman by her figure and face and costume, and of course the vision was in color. But she was a statue in that she stood there without expression, doing nothing, staring into the distance. She might be compared to those archaic Greek sculptures where the woman gazes into space, or, better yet, the departing woman on the Greek funerary stele who looks into eternity, except that our vision was of a living woman whereas the Greek sculptures, marble white, are mere imitations in stone of what we were seeing.

On both nights RGW stood up for a long time in Cayetano's room, at the foot of the stairway, holding on to the rail, transfixed in ecstasy by the visions that he was seeing in the darkness with his open eyes. For the first time that word 'ecstasy' took on subjective meaning for him. 'Ecstasy' was not someone else's state of mind. It was no longer a trite superlative cheapened by overuse. It signified something different and superior in kind, about which RGW could now testify as a competent witness. There came one moment when it seemed as though the visions themselves were about to be transcended, and dark gates reaching upward beyond sight were about to part, and we were to find ourselves in the presence of the Ultimate. We seemed to be flying at the dark gates as a swallow at a dazzling lighthouse, and the gates were to part and admit us. But they did not open, and with a thud we fell back, gasping. We felt disappointed, but also frightened and half relieved, that we had not entered into the presence of the Ineffable, whence, it seemed to us at the time, we might not have returned, for we had sensed that a willing extinction in the divine radiance had been awaiting us.

We know not what manner of visions is induced by opium or hashish or coca or mescalin, nor whether the agent in our mushrooms that releases the visions is related to the agents in them. Later in the Zapotec country, the *curandero* Aristeo Matias told us that it takes three or four experiences with mushrooms to overcome the initial surprise and the disorder that marks the sequence of

visions on the first occasions. (Here was fatherly advice from an old hand to us who had told him that we aspired to enter upon his vocation.) This would suggest that there is or at least can be a growth, an evolution, in the hallucinatory experiences induced by the mushrooms.

Throughout the night we were strangely split in the very core of our being. On one level space was annihilated for us and we were traveling as fast as thought to our visionary worlds. On another level we were lying there on our *petates,* trying to take notes, RGW and Allan exchanging whispered comments, alive to every twitch and twinge in our heavy (oh so heavy!) earth-bound bodies of clay. At the same time we were both held in thrall by what was going on in the room around us. For the Senora and her daughter were engaged all night in a religious performance that we had not expected and that no one had ever described to us.

Before we go further we must mention that when we had bespoken the Senora's services in the afternoon, she had asked us what problem was troubling us. Once again RGW trotted out the question of his son Peter, now in the army. How was he? Alive or dead, or ill, or in good spirits, or in some trouble; This had seemed to her a sufficient justification. We had counted on Cayetano to stay with us through the night as our guide and interpreter. We observed that neither he nor Guadalupe were taking the mushrooms. As we were finishing ours, Cayetano informed us that he and his wife were withdrawing up the stairs and through the trap-door to the room above, where they would guard us against interruptions from the street. He was leaving his brother Emilio to act as our mentor. We sensed that each of the other adults who were taking the mushrooms was consulting them, as we were, about individual problems.

After the Senora had put out the last *vela,* a silence of perhaps twenty minutes followed. The moon was shining brightly outside, and its orbit was such that the shaft of moonlight entering above the door fell squarely on the altar-table, but it did little to relieve the general darkness in the room. Suddenly the Senora began to moan, low at first, then louder. There were silent pauses, and then renewed humming. Then the humming stopped and she began to articulate isolated syllables, each syllable consisting of a consonant followed by a vowel, sharply pronounced. The syllables came snapping out in rapid succession, cutting the darkness like a knife, spoken, not shouted. After a time the syllables coalesced into what we took for words, and the Senora began to chant. The chanting continued intermittently all night, first by the Senora and then by her daughter, and afterwards alternately by one or the other. The chanting was in Mazatec, and there was no one to translate the words for us. Neither Allan nor RGW is

instructed musicologically, and we cannot say whether the provenience of the music was European or indigenous. That the chanting was in Mazatec, and not in Latin or Spanish learned by rote, adds point to this question. (If the chants are old, the language may be archaic, which would be a discovery of high interest for the handful of first-rate scholars who have devoted themselves to Mazatec linguistics.) Both women chanted in that distinctive way which seems always to mark the intoning of age-old chants; the singing was soaked in weary melancholy. Our Senora's voice was not loud, probably not loud enough to be heard in the village thoroughfare. But there was a confidence and resonance in her primitive utterance that imposed itself. There came a moment late in the night when the Sefiora made her way to the door on the terrace and went outside, holding her hand on the door. (To this extent she was free of the prohibition laid on the rest of us not to leave the house.) When she re-entered, she left the door slightly ajar, and we saw her advance *on her knees* across the open space in the room, and then turn to the right toward the altar-table. Her hands were uplifted to shoulder-level, palms exposed. As she slowly progressed, she sang a canticle that seemed like an introit, indescribably tender and plaintive in its musical phrases. Her daughter sang well too, but lacked her authority. From time to time, as they sang, the men who had taken the mushrooms, notably Genaro and young Emilio, ejaculated words, groans, short sentences, and vocal noises. We know not "what they said, but they seemed to intervene with their voices to suit the singing, in such a way as to produce a strange, barbaric harmony.

The singing was not continuous. For stretches the Senora would talk, as though invoking the Spirits or as though the Holy Ghost was speaking through the mushrooms. We heard the names of Christ (which she pronounced with an intrusive V, *Khristros),* of St. Peter and St. Paul. We heard her cry out 'Pedro' repeatedly in an imploring tone, and knew that the mushrooms were wrestling with the problem of Peter. Emilio made his way to us and whispered that Peter was alive and well, and contrite for not having let us hear from him. We asked for further details, but Emilio said that since we ourselves had eaten the mushrooms, we could expect them to speak to us directly. Our interpreter Emilio then vanished into the darkness for the rest of the night.

Unlike the chants, the spoken utterances were fresh and vibrant and rich in expressiveness. The mushrooms were talking to the point. We had never suspected how sensitive and poetic an instrument the Mazatec language could be. The intermittent snatches of the Senora's monologue seemed quick with subtle feeling, laden with dramatic import. In our very presence a priestess of the old

religion was pronouncing oracular dictates in spurts, hot and firm with authority. How we regretted that we had no means to record her voice! (At the time we asked ourselves, and we have repeated the question often since then, whether our critical faculties were deranged by the effects of the mushrooms, so that we over-rated the quality of the Senora's performance. Perhaps so. But if this is an aberration typical of the syndrome of mushroomic ecstasy, our account at least serves to document it for the record, and to establish that our hallucinations were auditory as well as visual.)

The chanting and the oracular utterances turned out to be only a part of what we were to witness. At an early stage we sensed that the Senora was either kneeling or standing before the altar-table gesticulating with her arms. We detected this by ear and confirmed it uncertainly with the aid of the meager moonlight. Then, much later in the night when her daughter took over the chanting, the Senora made her way to the open space between us and the door, and she embarked on a kind of dance that must have lasted for two hours or more. We do not know precisely what she did, because of the darkness, but she was between us and the aperture above the door, and we could just make out that she was turning clock-wise, facing in succession each of the four compass points, at the same time raising and lowering her arms. Her daughter was singing, but she was not silent. She was engaged in a lengthy, rhythmic percussive utterance of a kind unfamiliar to us. There was a differentiation in the pitch of the beats, and at times the pattern or phrases seemed to us complex. We cannot say for sure how she made her sounds, but we are almost sure that she clapped her hands, slapped her knees, smacked her forehead, and whammed her chest. We were impressed by the cleanness of the utterance. Every clap or slap or smack or wham was resonant. Remembering the role played by pitch in the Mazatec language, we asked ourselves whether the Seiiora was speaking percussively. On each of our two nights with her, she rinsed her mouth once with water, and the gargling was also rhythmic, and perhaps tonally differentiated. Then she would spit out the water on the ground unrhythmically. On Saturday night, in a moment of illumination by flashlight, we saw and heard her twicking her long finger nails rhythmically. A remarkable feature of her percussive utterance on Wednesday night was its ventriloquistic property. For a long stretch we were in the blackest darkness while the daughter sang and the Senora was performing her strange dance with percussive accompaniment. As she would snap out her resonant claps and smacks, we seemed to catch them out of the night from various directions. Let the reader remember that all the while we were seeing our visions *and* attending to the auditory sensations served to us by the two women. There

we were, visually suspended in space before the vast panorama of, say, the Gobi Desert, with a singing accompaniment and with percussive cracks assailing us, now from above, now here, now there, exactly like Hamlet's ghost *hie et ubique,* hitting us with a cutting crispness from unpredictable quarters, as though an air-borne choir of invisible creatures was peopling the dark void around us, perplexing us with their assorted and shifting cries. Possibly this ventriloquistic effect was caused by the Senora's turning in different directions as she performed, so that the sound caromed to us from the ceiling or walls. And all the while there was the irregular chorus, subdued in volume, of ecstatic exclamations from the Indians reclining on the ground. Confined though we were in a room without windows or open door, at one point we felt a swish of air, just as though we were really suspended in the great outdoors. Was this too an hallucination? If so, all shared it, for when the wind blew on us, there was general excitement, flashlights were switched on, and our Indian friends were sitting up, amazed at being stroked by the Divine Afflatus.

At one point in the night RGW made a discovery. In the light of a cigarette that someone was inhaling, he saw the Seiiora, who was performing her dance, lift a small bottle to her lips. From her posture the bottle seemed almost empty. A few minutes later she began to thump the butt end of the bottle on the *petate.* She did this with a fast, uniform, perfect beat, perhaps a hundred to the minute, and she kept at it for an eternity, minutes on end, until Allan and RGW could hardly stand it any longer and groaned in agony. The iterated thump, somewhat resonant, became excruciatingly painful, a torture such as Poe might have described. After the night had passed and we were all getting up, RGW made a point to find the bottle and smell it. There could be no doubt: it was the familiar six-ounce bottle of *aguardiente,* a distillate of cane. Presumably the Sefiora had shared it with her daughter, but of this we are not sure. We asked Cayetano about it. Yes, invariably the person who retains the Seiiora is expected to present her in advance with a *cuarto* (fourth of a litre) of this strong drink. We in our ignorance had neglected our duty, but Cayetano had come to our rescue. Recalling as we did how Don Aurelio and our friends in the Mije country had all said that alcohol was tabu before, during, and after the consumption of the mushrooms, we are still at a loss how to reconcile the conflicting evidence. But of course the Senora's performance from first to last had differed from what Don Aurelio had shown us in 1953. We had now attended two all-night vigils, both using the sacred mushrooms, but otherwise utterly different from each other. Don Aurelio's divinatory liturgy, with the elaborate role in it of accessories, could conceivably go on without mushrooms, but in Cayetano's

house the mushrooms were the key to everything. We spoke to Cayetano about that other performance that we had seen in the Mazatec country in 1953. He knew all about that kind too, and he told us that the Senora was equally proficient in both ceremonies. We failed to learn, however, when one method is used in preference to the other.

At intervals throughout the night, perhaps every forty minutes or so, there would be what we can only describe as intermissions. After working up to a powerful climax in utterance, the Senora and her daughter would subside into silence. We recall one such climax when the Senora, half-singing, half declaiming, spat forth in endless repetition and with barbaric violence the two syllables *chung-ha* (the first element riming, not with 'sung', but with the Chinese 'Sung'); we were never able to learn what this meant. After such climaxes our two votaries and our reclining Indian friends would light cigarettes (ordinary ones) and smoke and engage in the most animated conversation. Clearly they were discussing what was happening, but we had no interpreter. They would light the electric torches. We took advantage of these moments to study the Senora. She was not in a trance. That is to say, she was one of us, talking and smoking. But she was in a state of excitement, her eyes flashing, her smile no longer that grave smile which we had observed before, but now quick with animation and, if we may use the word, *carltas.* For there is another aspect to the mushrooms that we must mention. The spirit of an agape of which we have already spoken was a prelude to a wave of generous or tender feelings that the mushrooms aroused in everyone. To illustrate this, we recall how, when nausea first sent one of us into the adjoining room to vomit, the Senora, who had been in full song, immediately stopped the performance, and she and the others manifested the most embarrassing solicitude about the unhappy episode, which after all was wholly unimportant. On the two nights that we passed in Cayetano's house, we were aware of no erotic stimulation among those present and we think there was none. But the feeling of brotherly affection was strong indeed. Twice in the course of that first night the Senora reached out her right hand to RGW and sought contact with his fingers in friendly greeting, across the chasm of the language barrier. The Indians of Middle America are known for their reticence in the display of affection, even within the family circle. It was now clear that the mushrooms emancipate them from inhibitions of this kind, and what we witnessed on Wednesday night was abundantly confirmed during our second session on Saturday, July 2.

After the first performance Allan and RGW, quite stunned and even numbed by what we had witnessed, were disposed to say, 'Never again'. But by Saturday

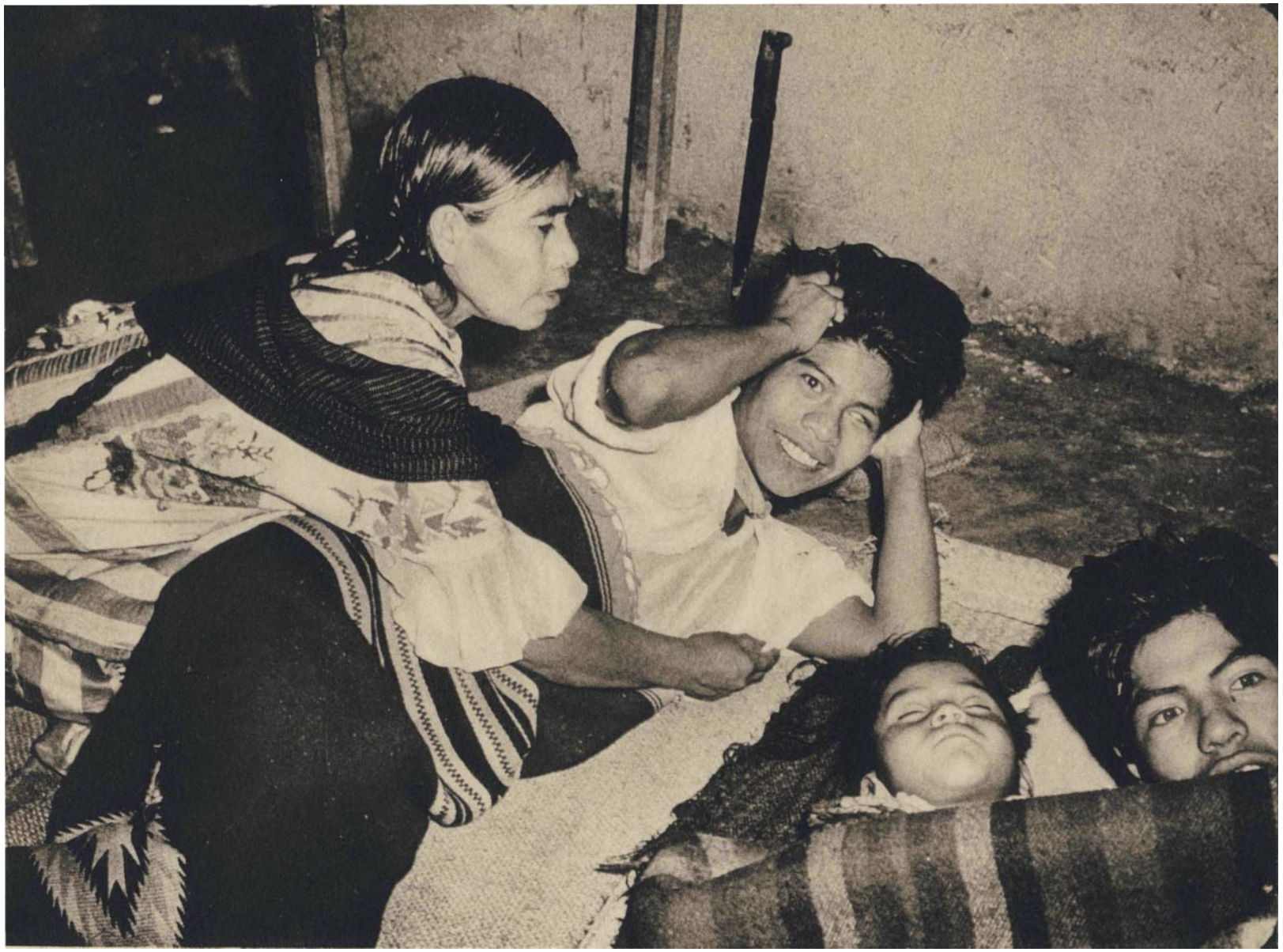


PLATE L. Maria Sabina, curandera, and her son Aurelio under the influence of mushrooms.
Huautla de Jimenez, June 29, 1955.

morning there were many questions that we needed to clarify, and so through Cayetano we asked the Sefiora if she would give us a repetition. This she agreed to do. We pled with her to let us take a few photographs by flashlight while the power was on her. She said yes, and in the course of that night from Saturday to Sunday Allan took perhaps twenty pictures in the darkness, guessing of necessity as to the distance and direction. (It was raining in torrents all that night, and so there was no moon.) But the Senora's behavior differed much from what we had seen the first time. Everything was reduced in scale. There was no dancing and virtually no percussive utterance. Only three or four other Indians were with us, and the Sefiora brought with her, not her daughter, but her son Aurelio, a youth in his late teens who seemed to us in some way ill or defective. He and not we were the object of her attention. All night long her singing and her words were directed to this boy. Her performance was the dramatic expression of a mother's love for her child, a lyric to mother-love, and interpreted in this way it was profoundly moving. The tenderness in her voice as she sang and spoke, and in her gestures as she leaned over Aurelio to caress him, moved us profoundly. As strangers we should have been embarrassed, had we not seen in this *curandera* possessed of the mushrooms a symbol of eternal motherhood, rather than the anguished cry of an individual parent. But by any interpretation this untrammeled and beautiful outpouring, touched off in all likelihood by the sacred mushrooms, was behavior of a kind that few Middle American anthropologists would ever expect to see.

On this second occasion Allan took no mushrooms, for the sake of his photography. The Sefiora asked RGW how many pair he would take, which he interpreted as a compliment to his status as one already initiated, and he said five. The effect seemed as strong as he had experienced from the larger dose on Wednesday, but this time there was no nausea.

Both of our nights with the Sefiora drew to a close in the same way. On the night of Wednesday-Thursday, our last notes seem to have been scribbled a few minutes before 4 a.m., and soon afterwards we slipped off imperceptibly into a dreamless slumber. Apparently everyone else did likewise. At any rate, at about 6 o'clock we woke up, our heads clear. Some of the others were already stirring, and in a few minutes everyone was on his feet. RGW changed the roll in his camera and resumed picture-taking, as did Allan. Cayetano and Guadalupe asked after our welfare but were discreet in their inquiries about the night's doings. They served us coffee and bread. By 7 o'clock we were ready to sally forth into the world. We felt no untoward sleepiness that day.

Perhaps in some respects we can define better than we have done the psychic

disturbance caused by the sacred mushrooms. On the one hand, they unhinge one's sense of time. Visions that seem to last an aeon run their course in a minute or so. Only by reference to a time-piece does one keep track of the passing hours. On the other hand, the faculty of memory is heightened by the mushrooms. All the impressions, visual and auditory, are graved as with a burin in the tablet of the memory. Our narrative of what took place has been checked with the notes that we jotted down at the time, but our memory is far richer and fuller than those notes.

What can we say about the source of our visions ; Did they bubble up out of our own past ; We have no conscious memory of having viewed previously the scenes that we saw. There was nothing in them that repeated themes familiar to us in our adult experience, no modern highways, cars, cities. Yet all that we saw could be related to themes latent in our imagination, not necessarily things seen, nor even things seen in graphic representation, but those things transmuted afterwards in the imagination, imagined from reading, seen in the mind's eye. All of the visions had that pristine quality which we associate most often with the magic of supreme literary expression, especially great poetry. In the lives of us all, even those who are most earth-bound, there are moments when things, even the most humdrum, suddenly and unaccountably clothe themselves with beauty, haunting and ravishing beauty. It now seems to us that all such flashes must emerge from the subconscious well where our visions have all this time been stored, for the mushroomic visions are an endless sequence of those flashes. There are those like Keats who have possessed the power to see such visions in abundance without the mushroomic stimulus. Could the mushrooms have done better by Keats than he did without them; What would they have shown him that he did not see; What precisely do our Indian friends see, with their different background; Clearly the visions come from within the beholder, either from his own unconscious or, as some will surely think, from an inherited fund of memories of the race. What an amazing thing that we should all be carrying this inventory of wonders around with us, ready to be tripped into our conscious world by mushrooms! Are the Indians far wrong in calling these divine; We suspect that, in its fullest sense, the creative faculty, whether in the humanities or science or industry, that most precious of man's distinctive possessions and the one most clearly partaking of the divine, is linked in some way with the area of the mind that the mushrooms unlock.

We believe that the mushrooms are not habit forming. If we are right, they differ in this respect, not only from alcohol, but from the drugs such as opium and marihuana that are reputed to stimulate beatific visions. In the course of

our three expeditions to Mexico, covering four cultural areas, we never heard of a mushroom addict. We believe that use of the mushrooms does not affect the threshold of tolerance for them; that is to say, one does not raise the dose on successive occasions to obtain the same effect, either for the short run as when we used them twice in four days, or over the long term. Our Sefiora and her daughter took more than twice the dose of the others, but this quota goes with their vocation. Everyone's dose seems to remain constant throughout life, though the dose varies somewhat from person to person. We have seen no evidence that the mushrooms can cause harmful psychic effects but our experience is too limited for us to generalise about this. Are persons with neurotic or psychotic inclinations endangered by the mushrooms? After a life-time of use do mushroom-eating *curanderos* show mental deterioration; May there be individuals whose mushroomic visions are horrifying and who are stimulated to violence by them; We do not know. In considering the clinical effects of the mushrooms, let us not overlook the extraordinary performance of the Sefiora and her daughter. They had each eaten more than twice as many pair of mushrooms as the rest of us, and they not only kept hold of themselves: they staged a liturgy that called for disciplined virtuosity of a high order.

On Friday, July i, VPW and Masha joined us in our village. We had all planned to leave immediately after the Saturday night experience, but the rains came and we found ourselves marooned among our Mazatec friends for most of the following week. On Tuesday the 5th VPW and Masha, having nothing else to do, took the mushrooms in the afternoon, VPW five pair and Masha four, and then they lay down in their sleeping bags. This was the first occasion on which white people ate the mushrooms for purely experimental purposes, without the aura of a native ceremony. They too saw their visions, for hours on end, all pleasant, mostly of a nostalgic kind. They felt little or no nausea. Their pupils dilated and failed to respond to our flashlights. The pulse showed a tendency to slow down. There were no auditory hallucinations. But six weeks later, when RGW in New York took the mushrooms for the third time on August 12, his visions were accompanied by an insistent beat with variation of pitch, perhaps an evocation of the Senora's percussive performance. The beat was not unpleasant. It seemed freighted with meaning, as though it was the rhythmic pulse of the universe. When the Sefiora had performed for us, we had passed most of the night in virtual darkness - an environment adapted to dilated eyes. Our experience in New York took place in a room illuminated by lights from the street, and moreover on that night of the I2th a hurricane known at the time as Connie was brushing by the city. We found that the mushrooms

had retained their full potency in a dried state, if indeed their power had not increased. We made another discovery. As we stood at the window and watched the gale tossing the trees and the water of the East River, with the rain driven in squalls before the wind, the whole scene was further quickened to life by the abnormal intensity of the colors that we saw. We had always thought that El Greco's apocalyptic skies over Toledo were a figment of the poet's imagination. But on this night we saw El Greco's skies, nothing dimmed, whirling over New York.

Now we come to the end of our Mazatec experience. We had agreed from the beginning to pay the Senora her usual fee for her services. We paid her fifty pesos for each night, which was somewhat more than she expected. In dollars this meant $ 4.00 a night, but in her world the fee meant much more, perhaps subjectively as much as $ 50.00 in New York. Before we left the village we asked Cayetano what we could pay him for his contribution to the success of our visit. He turned to his wife and let her speak. *'No hicimos esto par dinero* , she said, which is to say, 'We did not do this for money', and they would accept none. We were especially grateful to the Senora for having allowed us to take photographs while the power of the mushrooms was on her, during that second night. It had not been easy for her to consent to the rude interruption of the flashlight, and we ourselves knew also that the pictures would be misleading, as they would convey no idea of the darkness that Allan and ROW will always associate with the mushroomic agape. We noticed at the time that the flashlights upset the pace of her performance, interrupted the spontaneity of her singing. On the morning after, a messenger came to us from her. We were welcome to the pictures, she said, but would we please refrain from showing those particular ones to any except our most trusted friends, for if we showed them to all and sundry, *sena una traidon,* it would be a betrayal. We are doing as the Senora asked us, showing these photographs only in those circles where we feel sure she would be pleased to have them shown. In order that she be not disturbed by the importunities of commercially-minded strangers, we have withheld the name of the village where she lives, and we have changed the names of the characters in our narrative. On our next visit we shall ask for permission to publish our pictures for general circulation.

On Friday evening, July 8, we all arrived back in our home in San Angel, and after a good night's sleep we were ready on the following day to pursue our quest for the divine mushrooms in new directions. RGW had received a letter in May from Mrs. Carmen Cook de Leonard of

Mexico City, the well known student of indigenous cultures, with surprising information. It seemed that she and her colleague, Miss Bodil Christensen, had discovered that the use of the divine mushrooms still survived in a village not far from the capital city. They would be glad to place their information at our disposal, and to try to arrange for a *curandera* to consult the mushrooms on our behalf. After our arrival in Mexico and while we were in the Mazatec country, Mrs. Cook de Leonard and Miss Christensen talked with their *curandera* and she agreed to serve us on the evening of Saturday, July 9.

On that Saturday afternoon we drove out to the town of Amecameca some forty miles away, and thence by a dirt road three miles to the bleak forbidding Indian village of San Pedro Nexapa. (The -*x*- in this name has the sound of a Spanish -/'-.) We were now on the slopes of the volcano Popocatepetl, at about 8,000 feet altitude, above the Valley of Mexico. This was Aztec country, where even now the old people still can speak classic Nahuatl. We sought out the humble house where the *curandera* Marina Rosas lives, a flimsy wooden structure that freely admitted the cold, dank breezes. We found the aged lady seated on a *petate* and wrapped tight in her shawl near the wood fire on the floor. Though she must have known Nahuatl, Spanish was clearly her language of preference. She informed us that she was ill and therefore could not help us. She was sorry, but what could she do? She was ready to appoint another day, and we settled on Saturday, July 30. If we may anticipate the later events, we returned three weeks later, on that appointed day, only to discover that Marina Rosas, seated on the same *petate* in the same place, was again unable to help us, not because of illness this time but because, doubtful whether we were really going to arrive, she had broken her fast and eaten a midday meal. *Para aue contesten ellos, ha de ser limpio el estomago* - for the mushrooms to reply, the stomach must be clean. The old lady was lovable in her excuses and protestations, but RGW felt that she really did not wish to eat the mushrooms for us.

But our visits to San Pedro Nexapa were not fruitless. We learned from Marina that only one kind of divinatory mushroom is known in the village and we obtained a small packet of dried specimens. As in the Mije and Mazatec regions, one considers that the mushrooms speak, not the person who eats them. The mushrooms are gathered in September, around the time of the Cholula fair, above the village on the slopes of the volcano, perhaps as high as 10,000 feet. In the Mije and Mazatec regions we had learned that in the hot low country the mushrooms are not used. Now we discovered that the higher limits are high indeed. They are eaten only in a dried condition and they keep for a year, until the next ones are gathered. According to Marina, the whole mushroom is

eaten, pileus and stipe. Marina never used the word *curandero.* He who knows how to use the mushrooms is a *trabajador del cielo,* a heavenly worker. Sometimes the *trabajador* gives them to the sick person to eat, but the mushrooms will not speak through the sick person because he is not chosen. We discovered from Marina that she customarily takes six pair, but with the six pair she also takes twelve seeds possessed of parallel psychic powers. These seeds are called in Nahuatl 'bird's-eyes' and in the Spanish of Mexico *colorines.* To botanists they are the seeds of the rhynchosia pyramidalis (Lam.) Urban, also known as the rhynchosia phaseoloides (Sw.) DC. They are bright red with a large black spot, the size of a bird's eyes. The black spot does not cover the hilum or eye of the seed, and this is precisely what distinguishes the seeds used by Marina from the poisonous seeds of the abrus precatorium L., which superficially look alike but whose hilum is black. Marina spoke of the divinatory mushrooms as *los ninos,* 'the children'. The significance of this name becomes apparent only when we learn that the Nahuatl term in Marina's village is *apipiltzin,* wherein *-tzin* is the diminutive suffix, *-pipil-* means 'children', and *a-* stand for *atl,* 'water'. In this village high in the mountains where classical Nahuatl is spoken, our mushrooms are the 'little children of the waters'. There will be occasion elsewhere to revert to this name. Marina told us that the mushrooms 'speak' only in Nahuatl. If she is right, the divinatory mushrooms would seem to be linked irrevocably with the fate of the old language, and doomed to disappear when the old generation fades out.

For some years Robert Weitlaner had been hearing rumors, which he conveyed to us, that the mushrooms were still being used in the Valley of Toluca about two hours by car from Mexico City, where the altitude is also around 8,000 feet. During our stay in Mexico Donald Leonard, the husband of Carmen Cook, made two trips thither for us, accompanied on one occasion by Don Roberto. They went first to Tenango del Valle, the very town mentioned by Jacinto de la Serna in his account of mushroomic idolatries in the iyth century. In the market place of that town they learned from an old woman that two kinds of divinatory mushrooms are still being used thereabouts, the larger known as *mujerdtas* and the smaller as *hombredtos,* the little women and little men. Collectively they are called *ninos* or *nandcatl.* These mushrooms are not exposed in the market place but are obtainable there. The supply comes from a village called San Pedro Tlanixco, only a few miles away, where it seems that the people make a specialty of gathering and preparing these 'children of the waters'. Mr. Leonard brought back specimens of both kinds.

Thus thanks to the diligence of the Leonards and Miss Christensen we have

discovered the mushroom cult surviving to this day in the very land of the Nahua. Whereas forty years ago W. E. Safford was denying that any such cult had ever existed, we now find it on the door-step of the capital city of Mexico. In the Valley of Toluca the Aztecs overran and superseded the earlier Matlatzinca population, of whom there still exists one village speaking the old tongue, and the region where the people speak Mazahua is hard by. We know from our early quotations that both these peoples knew the mushroom. Where is the anthropologist who will do the study that cries for doing in the Valley of Toluca and thereabouts ? He might well start in San Pedro Tlanixco. Here apparently he would confront a most curious problem in economics, a village that specializes in supplying consumers with a sacred product that never enters the ordinary channels of trade. The student should try to discover the circumstances surrounding the mushroom harvest, attend the drying of them, learn where and how they are stored, and as best he can trace them to the ultimate consumers, recording for us all the associations, religious, social, folkloric, and linguistic, that accompany them on their way. Here is a study in little things pregnant with cultural meaning. Who knows > Perhaps he would discover that some of the product reaches Mexico City itself, and that heavenly workers in its very precincts are still consulting the little children of the waters.

In 1949 Dr. Pedro Carrasco, the gifted Mexican anthropologist, visited a number of villages in the coastal sierra of southern Oaxaca, a region almost unknown to travelers. He gave his account of this trip in the paper that he contributed to the Festschrift honoring Dr. Alfonso Caso, which appeared in 1951, and in it he dropped the remark that the villagers were still using the sacred mushrooms, as well as other hallucinogens. One of the goals of our 1955 trip was to repeat Dr. Carrasco's visit and amplify his observation. For our guide we engaged once again our friend from the Mije trip, Francisco Ortega, known as Chico, who at our behest made a quick trip to the area early in June to learn whether it was at all accessible in the rainy season. He reported that the trip was feasible, but that the villagers were suspicious of strangers and inhospitable, and that we should not think of going unless we carried letters of commendation to the local authorities from the Governor of the State and the Commanding General of the Military Zone.

Equipped with these credentials, we set out from the city of Oaxaca on Friday morning, July 15. Our party, in addition to Chico, consisted of our old friend and mentor Robert J. Weitlaner, Professor Howard E. Brunson of the East Los Angeles Junior College, and RGW. In the afternoon of the following day

we reached the town of San Agustin Loxicha,[1] a cluster of houses on a mountain ridge, some 1,700 meters high, that looks south across rugged and verdant terrain to the Pacific Ocean some ten or fifteen miles away. The town is almost due south from Oaxaca and about 100 miles by road and trail. In the rainy season the mornings are usually bright and clear, so clear that the breaking surf can be descried in the distance. But soon the clouds roll in from the sea and the rain is likely to come down in torrents for hours on end. The town is idyllic in its loveliness, almost all of its houses of adobe with roofs either of thatch or home-made shingles beautifully weathered, everything washed clean by the rain, the air pellucid in the morning sun, the whole sparkling community perched as it were in an upper balcony of a vast amphitheater of mountains overlooking the distant Pacific sea. We arrived at the moment when the *floripundio* was in bloom, a tree arrayed in trumpet-like blooms, dazzling white, that greets the eyes at every turn. This is the angels' trumpet of Florida, the datura suavaeolens of botanists.

The people of this area are Zapotecs, speaking one of the several Zapotec languages. But these languages differ much from each other, and Chico, versed in the tongues of the Isthmus and the Valley, could not cope with the speech of San Agustin. There was an element in the village who were hostile to us from the beginning, just as Chico had warned us to expect, and we were glad for the measure of protection that our letters gave us. The hostility grew as the days passed, but the concern that we felt at times for our safety is, in retrospect, merely an incidental phase of travel such as this, and we shall not dwell on the details beyond saying that we were all relieved when we had left the town behind us on Saturday morning, July 23, after we had stayed there one week. All the experience and tact of Don Roberto and Chico had been needed to keep the hostility in bounds.

In June Chico had made contact with a leading villager of San Agustin, Ismael Jimenez Reyes, a store-keeper and coffee grower, who had promised Chico the cooperation of a *compadre* of his, a *curandero* of the first rank, Aristeo Matias by name. We called on Ismael at once. In fluent Spanish he told us that he himself never has recourse to the mushrooms, but he knew much about them by hearsay and he told us all he knew. What he said echoed many things that we had heard in the Mije and Mazatec country, in Miss Pike's letter, and in the old books. Like our Mije friends, he said that if a dog barks or if a cock crows

I. This is one of nine towns or settlements in the region to the names of which 'Loxicha' is added, the others being Santa Catarina, San Bartolo, Magdalena, San Francisco, Buena Vista, Candelaria, Santa Marta, and San Baltasar. Scholars seem not to have arrived at the meaning of'Loxicha', in which the 'x' has the phonetic value of V.

nearby, nothing can be expected from a mushroom vigil thus interrupted. Reminding us of the i6th century botanist Francisco Hernandez, he said that one kind of mushroom makes the eater give himself over to sheer laughter, *pura risa.* (Later Don Aristeo corrected this. There is no such species, he explained, but any of the divinatory mushrooms can provoke this effect when taken by weaklings or cowards.) Ismael told us a story that reminded us of an episode in Miss Pike's letter. On his farm Ismael had once had a hired hand, a *mozo,* who fell ill. " 'They will never cure me with medicine,' the *mozo* said; 'I am going to take me a mushroom.' And so he did. Then he said, 'Give up hope. I am going to die.' Still possessed by the mushroom, he added, 'I no longer live'. 'They have already come, and taken hold of me, and are carrying me away.' Shortly afterwards he really died. Yes, with the mushrooms he saw how his soul was already being torn from his body. His soul was already in the other world."[1] This episode, told to us with moving simplicity by Ismael, serves to illustrate a fact about the use of divinatory mushrooms in Middle America that all our evidence supports. The mushrooms play a major role in the folk medicine of the various archaic cultures where they are used, but in native thinking never as therapeutic agents. The Indians use them for diagnosis and prognosis. The mushrooms are expected to reveal the cause, nature, and course of the illness, and if the outlook is not hopeless, to declare what must be done for the patient to recover. Under the spell of the mushrooms, the *mozo* in the story saw himself die, and he accepted the death verdict. (Of course by modern medical criteria the mushrooms produce a powerful psycho-catharsis with somatic consequences.)

Aristeo Matias the *curandero* was working his acres when we arrived in San Agustin. Ismael sent his son-in-law Pedro Garcia to fetch him, first to a *rancho* three hours below, and then, not finding him there, to another *rancho* high in the mountains in a different direction and also far away. At last he found Don Aristeo and they arrived back in San Agustin on Sunday evening, joining us where we were all huddled together in Ismael's little store. Don Aristeo presented an extraordinary appearance, a little man, clearly weighing less than a hundred pounds, in his fifties, with an expressive little face and almost no teeth. He had no Spanish whatever, and during the long hours that we were to pass with him during the following week, we had as our interpreters Ismael, Pedro, and his own son Serafin. Don Aristeo was an informant of value in the sense that he

I. In Ismael's words: Tuve una vez un mozo en la rancheria, y se enfermo. 'No me curan con la medicina,' me dijo. 'Me voy a tomar un hongo.' Tomo. Entonces me dijo, 'Pierda la esperanza. Yo me voy a morir.' Y murio. Antes de morir dijo, 'Yo ya no vivo,' y despues, 'Ya vinieron y me agarraron y me llevaron.' Le habian ya sacado el alma. El alma ya estaba en el otro mundo.

was a product of his world little touched by outside influences, but his responses were slow, it was difficult for him to grasp the import of our questions, and patience was often needed to arrive at his meaning.

We told Don Aristeo that we had come from far away to learn the secrets of the sacred mushrooms with the idea that we might take up his vocation, and we asked him also for news about the fate of RGW's son Peter. All this seemed reasonable to him, but the Zapotecs are a race notorious for their hypertrophied pocket nerve, and the next day, before we got down to work, Don Aristeo sent us word by Ismael that he would help us for 1,000 pesos. There were further interchanges through our intermediaries Ismael and Cliico, and we finally settled on 500 pesos, or about $40 U.S. How different from the nobility of Cayetano and Guadalupe in the Mazatec country! But when we had once agreed on the price, Don Aristeo kept his bargain, and some days later, on the eve of our departure, we kept ours, paying him off, and our interpreters too, with solemn formality, by the light of a candle, in Ismael's store.

The *curandero* in San Agustin is called *menjak,*[1] 'he who knows', exactly the same figure of speech that we had found in the Mazatec country. The designation *menjak* retains its literal sense, so that instead of *menjak,* in the appropriate context one uses *sanjak,* 'that man knows'. In speaking Spanish Ismael rendered the Zapotec words by *sabio,* the wiseman, rather than by *curandero.* Don Aristeo told us that his father had given him the mushrooms for the first time at the age of 12. His father had been a *menjak,* and his father's father before him. But his son Serafin showed little promise; alcohol was his undoing. Women are just as good as men in this vocation, perhaps better, he said, for they are not given to alcohol; and he cited one Ebrigida Santiago, in the village, to illustrate his point. The woman who pursues this calling is a *ngol'njak.* Don Aristeo said that the beginner must take the mushrooms several times before he can cope with them as a *menjak.* 'On taking the mushroom for the first time, the mushroom introduces himself to the novice, *Asi me llamo yo* ['thus am I called'; note the parallel with Exodus 3 :i4]. Then terrible things happen, but one must not be afraid. You rush to the sea, you plunge in, you go up to heaven, there where Jesus Christ is, and then to hell where the criminals are. You see the whole world lying in the middle of the sea. On the second try you are thrown into the sea, but be not afraid. Then you see two women and two men who are gathering up the blood where Christ was born [sic]. On the third try everything changes, and now you are strong and the voices begin to come. Then on the fourth try you

I. In Zapotec there are three tones: high indicated by', low by', middle by no accent. In our spelhng, 'j' is as in 'judge'. A synonym for *menjak* is *ngwe'dz,* the apostrophe here as elsewhere representing a glottal stop.

arrive there where the Virgin Mary is, and the Lord Jesus Christ, and then they explain good things. Then all the Spirits come, all the Virgins, all the Saints. Then you know, and you are *menjak?* From that moment the mushroom teaches you all things.'

Don Aristeo told us that all the *curanderos* of the region are known to each other, and that there are three elders among them, of whom he is one. The three take counsel together from time to time, when questions come up, and in difficult cases one of them calls in another, who takes the mushrooms and wrestles with the problem. For four days before taking the mushrooms the *menjak* must refrain from alcohol, even beer, and also from sexual relations. But you may eat any food and smoke tobacco. The four day period is called a *noven,* adapted from the Spanish *novena,* and you count back from the end of the mushroom session. Thus if the session ends at dawn on Friday, then Friday, Thursday, Wednesday, and Tuesday are the four days, and you begin to observe the regime from Tuesday noon on.

The word for 'mushroom' in the Zapotec of San Agustin is *mbey,* and this appears to be the basic word in all the Zapotec languages. There is no other word to designate the sacred mushrooms, but this function is served in some measure by *mbeydo',* an important and curious term that is a 'collective': it means a batch or lot or mess of sacred mushrooms. It is never used for mushrooms other than the sacred ones. The cap or pileus of the mushroom is the *yek,* 'head', the same figure that we have found in the Mije and Mazatec country. The stipe is the 'leg' and the gills are the 'inside' of the mushroom.

Don Aristeo uses four kinds of mushrooms for divinatory purposes. First, there is the *piule de churls,* wherein *churls* means 'the small ones'. *Piule* is a word widely used in Mexico in the vocabulary for the hallucinogens, but its etymology, range, and application seem not to have been a subject of study. In this case the *piule de churls* is a mushroom that grows in pastures and cultivated fields. Don Aristeo gave us samples. (Query: Is *piule* derived from *peyotb.}*

The second and third kinds are both called *piule de barda,* wherein *barda,* 'thorn', stands for Christ's crown of thorns. One of these species grows in clumps near but not in marshy ground, and it is black, and it stains the ground and plants nearby with its own blackness. It appears to be abundant, and Don Aristeo had a large supply which he had gathered lately and dried in the sun. The other kind is much larger, rising to six or seven inches in height. It grows in the shallow water of marshy land, singly, and it is much harder to gather in quantity. The upper surface of the cap is bright yellow, but the gills and stipe are dark. To distinguish this from the first, it is called in Spanish the *grandote,*

'big fellow'. It is said to appear on the day of St. Anthony, June 13. In the Zapotec country the marshy places are considered holy, and these two kinds of mushrooms are linked with the holy marsh land. They told us that beneath the marsh a great *culebra* or serpent *(mjd'mdo'* in Zapotec) lives. I asked what it looked like, and they said no one had ever seen it. Thus the belief in the Middle American serpent deities lives on to this day.

The fourth kind of divinatory mushroom, of which we saw no specimens, is the *ndotan de venado,* the Lord of the Deer. While all four kinds can be used in substitution for each other for all purposes, this one is especially good for help in hunting, because you see in your visions where all the animals are, in a great corral, shepherded by the *Dueno de Todos los Animales,* Lord of all Animals, another survivor of the pre-Columbian divinities of Middle America. According to Don Aristeo, this mushroom is some five inches across, and yellow above and below, growing in dry earth near any ditch, along any roadside, especially in low country.

Don Aristeo said that the mushrooms were just as potent when dried as fresh and that they keep for months. When there are no mushrooms, the *menjak* uses instead either of two kinds of seeds, and by extension the word *mbeydo'* embraces a dose of divinatory seeds, just as though they were *mbey* or mushrooms. This usage indicates that in the thinking of these Zapotecs the role of the vegetable hallucinogens is secondary. Both in San Agustin and in the Mazatec country it seems that there is recourse to the seeds or leaves only when the mushrooms are not available. In the Zapotec of San Agustin the two kinds of seeds are called the yellowish piule and the black piule, *men nagadz* and *men nagat;* in Spanish, 'the male' and 'the young lady', *el macho* and *la Senorita.* We brought back with us seeds and leaves of the second kind, and they were later identified by Joseph Monachino of the New York Botanical Garden as *ololiuqui,* the famous Aztec hallucinogen known to botanists as rivea corymbosa.

Early in our visit we asked Don Aristeo to give us a mushroom session, and this he did on the night of Thursday, July 21. Don Roberto called on him that afternoon to pursue further the calendar problem, and found him casting kernels of corn. There was a heap of 51 kernels disposed in little piles, and he went through the casting five times, to learn what fortune he would have with us that night.

We arrived at Don Aristeo's house shortly before nine o'clock in the evening. We were eight, our *menjak,* Don Roberto, Howard Brunson, RGW, and Chico; Ismael, Serafin, and Pedro. The house was on the outskirts of town, down the mountain side, well secluded. It was a typical one-room adobe cottage

with thatch roof, no windows, and a door in the middle of the long side. There was a table on the right as one entered, and a wood fire was burning in a circle of stones in front of the table. Don Aristeo's place was next to the fire, where he alternately lay and sat *onapetate* covered with sacks. There was a bench for some of us to sit on, and the rest lay on *petates* where they pleased. The embers of the fire and a candle were our only illumination.

Slowly the program got under way. Don Aristeo prayed at length under his breath, and then opened a paper wrapping in which he had a large supply of

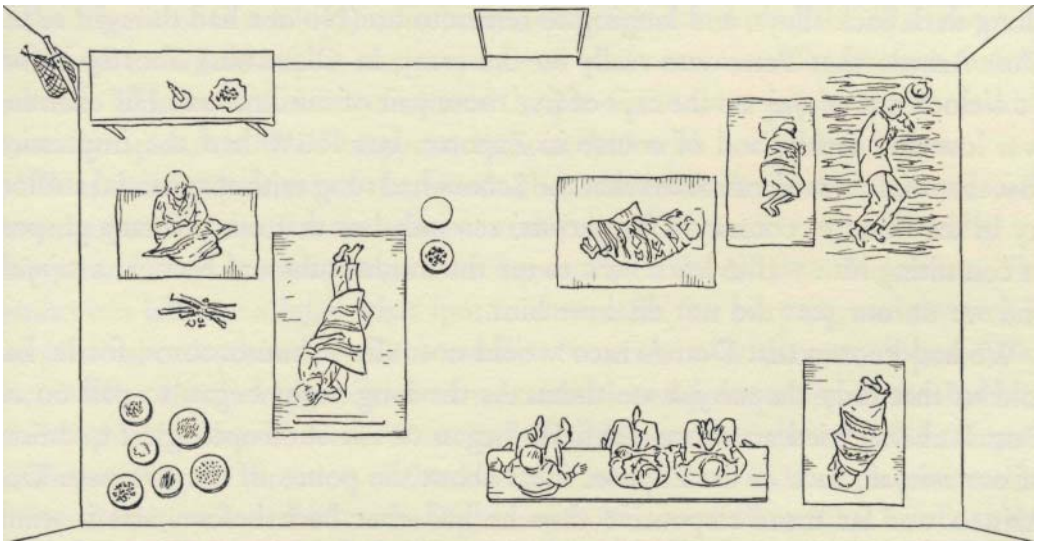


Fig. 22

piule de barda. He took out the mushrooms pair by pair, rinsed each pair well in a bowl of water, and placed the clean mushrooms in another empty bowl, praying the while. Having rinsed enough mushrooms, he tied up the rest in the paper wrapping, poured out the water on the ground, and then, pair by pair, took the mushrooms from the second bowl, severed the caps from the stems, placed the caps in the empty bowl, and held the stems in his hand. To our surprise he severed the caps of 25 pair of mushrooms. He explained to us that the stems are never eaten: they are respectfully laid aside and on the following day they are scattered (not buried) in any place off the beaten track where people will not pass.

Shortly after 9 o'clock, seated on the sack, he began to chew and then swallow the mushroom caps, scooping them out of the bowl in one big handful after another, seven mouthfuls in all, chewing them at length. By 9.35 he had finished them. He lay down for a time, his head on a rolled blanket. Then he sat up,

lighted a cigarette, and spoke conversationally. Toward 10 o'clock he began to hum, and this became a musical hum, which in turn grew into a chant. He was lying on his right elbow and made sweeping gestures with his left arm. He asked our religion, and we thought it best to say Catholic. Then he said in Zapotec that our son Peter was alive and would return to us, that we should address prayers to St. Augustine, the Holy Virgin, and St. Joseph; and that we should burn votive candles of virgin wax in Oaxaca before the Virgin of Solitude and later make a similar pilgrimage to the Virgin of Guadalupe. He said that Peter was in Vera Cruz, plunged in sadness, living a hidden life, slinking along dark back alleys, and longing to return to us. (No one had thought to tell Don Aristeo that Peter was really in the army in Okinawa.) Shortly before ii o'clock our *menjak* ate the caps of five more pair of mushrooms. His chanting was low and feeble, and of course in Zapotec, but RGW had the impression that the music was identical to what the Seiiora had sung with magisterial authority in the Mazatec country. Don Aristeo reminded us that our primary purpose in consulting him was to learn how to use the mushrooms and become a *menjak,* and we on our part did not disabuse him.

We had known that Don Aristeo would not offer us mushrooms, for he had told us that only the *menjak* ate them. As the long night began to pall on us, Don Roberto tried an experiment. He began to ask anthropological questions of our *menjak,* such as the Zapotec ideas about the points of the compass. Don Aristeo was far more responsive than he had ever been before, and it seems possible that the mushrooms offer a key to half-remembered things, a key that might be used in anthropological inquiries. But when all is said, it must be admitted that Don Aristeo's performance dragged, his vitality seemed low, and we were heavy with sleep. At one o'clock he told us we could go home. We think he felt the evening was unsuccessful: the initial dose of mushrooms that he took was abnormally large, and he followed it with a booster dose, as though the response was not to his liking. However, we were well pleased with the rich evidence that he had given us of the mushroom cult in this Zapotec area, the fourth cultural area in Middle America where we now know that it survives.

I3ut we have not done with Don Aristeo. In the course of our talks with him he had made a revelation to us that was so startling, so enigmatic in its implications, that we have left our discussion of it to the last.

Two of our early Spanish authors wrote of the religious observances that accompanied the gathering of the sacred mushrooms. The i6th century botanist

Francisco Hernandez spoke of. the 'night-long vigils, awesome and terrifying', that accompanied the quest. Haifa century later, Jacinto de la Serna said that the priests spent the whole night in prayer and entreaties before going out at dawn to look for the mushrooms. Our informants in the Mije and Mazatec regions had known of no such religious practices, but Don Aristeo did.

Our *menjak* told us that when he gathered the sacred mushrooms, he would cross himself, kiss the mushrooms seven times, and say in Spanish or Latin (learned by rote, of course) five Pater Nosters, seven Ave Marias, five Credos, and seven Salve Reina Madres. He would place the mushrooms before the image of the Virgin of Guadalupe in his house, and each day during the observance of the *noven* he would repeat the prayers and wash ceremonially his face, hands, and feet. Thus in Don Aristeo's world the pre-Columbian practices recorded by the early Spanish authors reappear, but overlaid with a Christian veneer.

When the mushrooms of the fourth class, the hunter's mushrooms, are consumed, immediately after they are eaten the *menjak* places five righted candles on the ground, one at each corner of a square with the fifth in the center. The mushroom tells the *menjak* what spot to choose for this purpose, and flowers or leaves are also deposited with the candles. From the way they are disposed, the five candles clearly represent the five cardinal compass points of the Indians' world - North, South, East, West, and Zenith - and are the *menjak's* compass for discovering the direction of the deer. The *menjak* then addresses an invocation to five divinities: to *mdldo'* or the 'lightning bolt', to *mdida* or 'Our Lord', to the Divine Pastor, to the Divine Huntsman, and to San Pedro Chapa in the Church of San Pablo Mitla. Only two of these five divinities bear a Christian aspect. (The Divine Pastor belongs to the Middle American pantheon.) Here we discover our first association in Middle America of the sacred mushrooms with the lightning bolt, *el rayo.*

There is a third rite. Four days after the *menjak* gathers any of the divine mushrooms, he returns to the spot where he has found them and with candles and flowers he gives voice to a supplication for an increased yield of mushrooms in the following year. He addresses his prayers to five divinities: -

1 the earth,
2 God the Father Most Holy,
3 the Trinity,
4 the Great Lightning Bolt that bred *[crio]* the*piule (mdi'ndd' pse' btul),* and
5 the Great Lightning Bolt that put blood into the *piule (mdi'ndo' bio ren blul).*
In Spanish: *El gran rayo que le echo sangre al piule.*

The second and third of this quintet are, clearly, Christian interpolations. Omit-

ting them, we have left a religious explanation, wholly pre-Columbian, for the generation of the divine mushrooms, and that explanation lies in the union of the lightning bolt with the fecund mother earth. As Don Aristeo put it through our interpreters, *el rajo es lafuerza de la tierra,* the lightning bolt is the earth's force.

Those of our readers who have long memories will recall that in Section 7 we drew attention to the extraordinary range of the archaic belief in lightning as the generative agent for mushrooms. We documented this belief in ancient India, Greece, and Rome, and in modern Kashmir, Persia, and the Pamirs. Outside the Indo-European world, we found it among the Semitic Bedouin, the Chinese, and the Polynesians of New Zealand. Now, thanks to the experienced handling of our difficult informant by Robert Weitlaner, we rediscover this self-same belief in a Zapotec village where the ancient Zapotec culture strongly survives. And in this Zapotec recension we pinpoint it with greater precision than elsewhere: for Don Aristeo and his people the divine mushrooms are the progeny of coitus between the lightning bolt and our mother earth.

At once the question posed by our evidence assumes new and deeper meaning. Parallels in mythic beliefs among archaic peoples are of course numerous, but is there any other example that is as specific in explaining a simple phenomenon in nature? Plutarch pondered over the very belief that Don Aristeo, the Zapotec *menjak,* holds today, and Plutarch's puzzlement is as nothing compared with ours, now that we discover the belief even in Middle America. Plutarch asked why men believed that lightning made mushrooms grow. Have we perhaps, at the end of a long trail, discovered the answer >.

No mycologist thinks that lightning causes or encourages mushrooms to grow. It is therefore impermissible to suppose that the various branches of the human family arrived independently at this notion by close attention to nature. (We must not wholly exclude the possibility that the mycologists will change their minds. Scientists are as dogmatic about the knowable as churchmen about the unknowable, but there is a difference: the dogmas of the Church are immutable, whereas men of science change theirs daily without a blush.) Perhaps someone will suggest that just as men of science, unknown to each other, often hit on the same idea at about the same time, so archaic cultures may hit on the same mythic beliefs. But the analogy in its application to our enigma is invalid. Scientists are working in a closely integrated, homogeneous intellectual atmosphere, and even if two workers have never heard of each other, they handle identical data and ideas. But who will assert that cultures far removed from each other in time and space must inevitably, in an early phase of their evolution, link

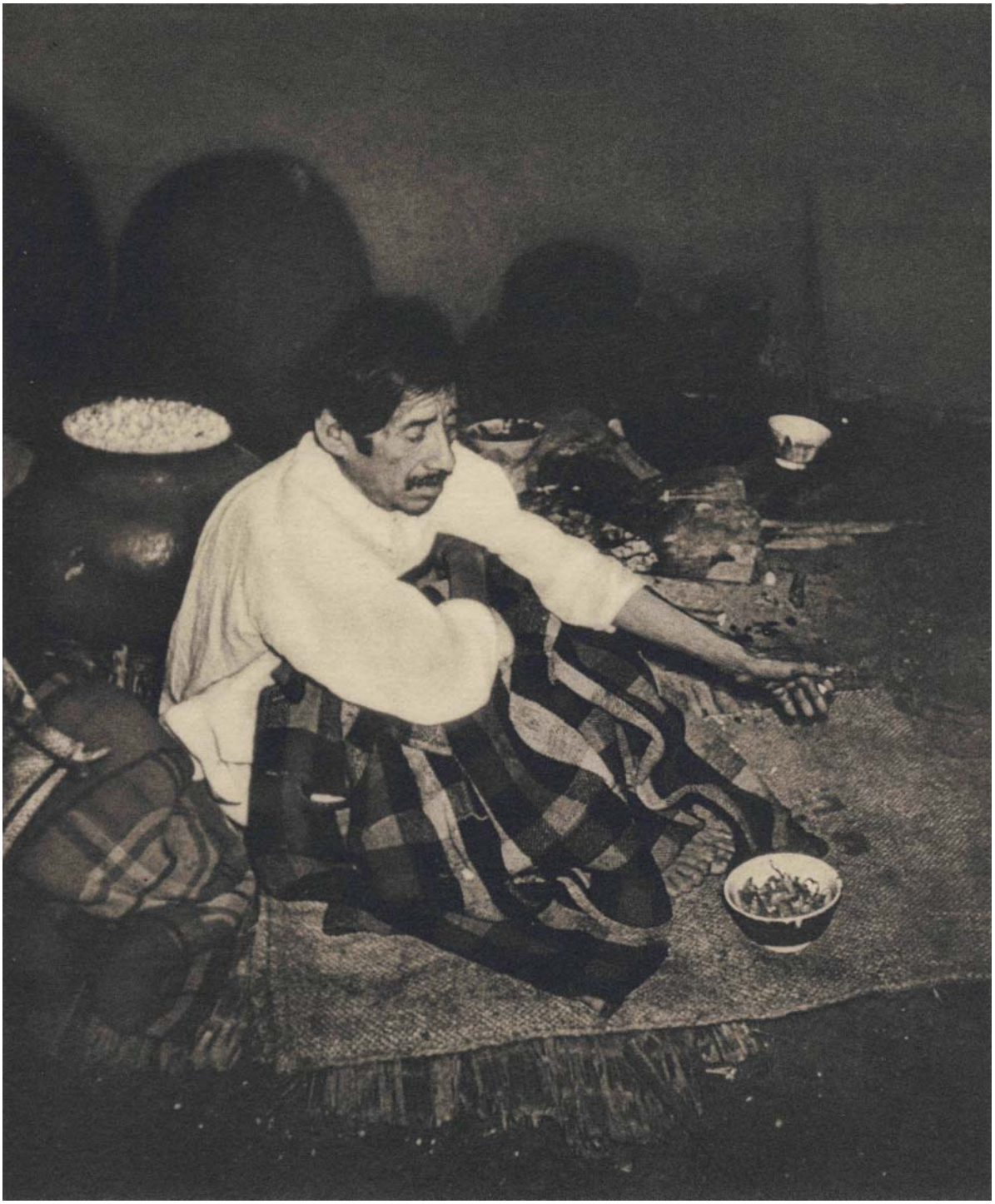


PLATE LI. Aristeo Marias with bowl of divine mushrooms.
San Agustin Loxicha, July 22, 1955.

lightning with fungal procreation? Surely independent genesis is highly improbable.

But how about a simple diffusion of the idea? Today students of the neolithic and later cultures know that cultural communication was active in those early times over large areas. Technological discoveries, artistic and magical motifs, and certain kinds of products would spread quickly to distant parts, thanks to contacts from village to village or to travelers plying the trade routes. The alphabet was invented only once, in the Near East, and by diffusion, that first alphabet led to the birth of scores of alphabets elsewhere. When tobacco was released from the New World, it penetrated everywhere in a few years, faster than explorers and geographers could travel. But was it not always the new idea or gadget that spread thus by diffusion, rather than mythic beliefs as old as the hills? Sometimes with the birth of a new and aggressive religion, its mythology would burst forth like a tidal wave and inundate an area before its strength was spent. But if anyone is bold enough to say that the link between lightning and mushrooms was a belief propagated in this way, at what point in time did the diffusion take place and from what focus;

There is the third possibility. Was not our belief handed down lineally for many thousands of years? Do we not discover in it a surviving trace of an early cosmology elaborated when the ancestors of the Zapotecs and Greeks and Semites and Polynesians and Chinese were neighbors, were not yet differentiated, in their Eurasian home-land? The Zapotecs link lightning, not with all mushrooms, but only with those that by divine grace translate the eater to Paradise. Perhaps their belief is the original one. On an earlier page we saw how mushrooms as primary tinder were linked with fire, and the procreation of fire with their aid was a divine event and a sexual act. Was it not a natural extension of ideas to suppose that the spark or spunk of fulminating Jupiter procreated the divine mushrooms? The Zapotecs could have answered Plutarch's question, but he clearly had never heard of our miracle-working mushrooms. The popular belief that puzzled him was an archaic survival in Greece that had lost its meaning. If the divine mushrooms were still being used in the Aegean, they were the secret of initiates in the mysteries. When myths lose their vitality like molluscs their shells last on, and the figures of speech, the anecdotes, being curious in themselves, inspire popular etymologies, those explanations that are more or less inept after-thoughts. In this way the lightning that had once generated only the divine mushrooms became associated with truffles and terfezia, with mushrooms generally. The 'fly-mushroom', which we think had once harbored the demonic fly of our sacred mushrooms, shrank to an ineffectual insecticide.

With our Mexican experiences fresh in mind, we re-read what Jochelson and Bogoras had written about the Korjaks and Chukchees. We discovered startling parallels between the use of the fly amanita in Siberia and the divine mushrooms in Middle America. In Mexico the mushroom 'speaks' to the eater; in Siberia 'the spirits of the mushrooms' speak. Just as in Mexico, Jochelson says that among the Korjaks "the agaric would tell everyman, even if he were not a shaman, what ailed him when he was sick, or explain a dream to him, or show him the upper world or the underground world, or foretell what would happen to him." Just as in Mexico on the following day those who have taken the mushrooms compare their experiences, so in Siberia, according to Jochelson, the Korjaks, "when the intoxication had passed, told whither the 'fly-agaric men' had taken them, and what they had seen," In Bogoras we discover a link between the lightning-bolt and the mushroom. According to a Chukchee myth, lightning is a One-Sided Man who drags his sister along by her foot. As she bumps along the floor of heaven, the noise of her bumping makes the thunder. Her urine is the rain and she is possessed by the spirits of the fly amanita.

There must have been a potent reason why from western Europe to Eastern Greenland people have believed down to our own days in the demonic nature of mushrooms, and we think that reason lies in the strange hallucinatory powers of certain species. From Eastern Siberia to France these mushrooms are linked with 'flies', i.e., the insect world that is itself saturated in demonic *mana.* Suddenly the Tadzhik myth of the falling 'lice' which give rise to a crop of mushrooms takes on meaning. Those lice are falling demons, falling 'angels' if you will, and naturally they yield a crop of demonic mushrooms. And now suddenly Bosch's painting of those falling angels as 'flies' (= lice) takes on fresh meaning. In that left-hand panel of the Hay Wain God sits on a thunderhead, and from the billowing folds of his garments tumble forth the expelled 'angels' that will yield the crop of demonic growths, where the demonic toads dwell. The Tadzhik myth, the falling 'flies' of Bosch, the 'flies' of the Paleo-Siberian tribesmen, all begin to relate themselves to the primitive myths of our own tradition.

Our divine mushrooms, along with the secondary vegetable hallucinogens, may have played a role in the origins of human culture. How the strange virtue of those little children of the lightning must have stirred the soul of early man! Here is our remote ancestor of the Old Stone Age emerging from the mental confines of his animal background, possessed of only the most rudimentary tools and skills, knowing the emotion of fear but not yet acquainted with awe. He discovers the secret of our mushrooms. They produce in him a self-limiting pseudo-psychosis, the fission of his soul. (How cold, condescending, and dubious

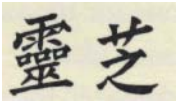
do such medical labels as 'psychosis' seem to one who has known the truth of the divine mushroom!) He experiences self-perception. He visits heaven and perhaps hell, he holds the key to the miraculous. Yes, our mushrooms must have unlimbered the imagination of those first men who ate them, stirred their curiosity and speculative faculties. Our mushrooms could have sparked in them the very idea of God. When Don Aurelio and our other friends tell us that the mushrooms translate them to God's domain, perhaps this is no modern figure of speech devised for our benefit. The phrase that seems to us fresh and arresting may have been the conventional one for thousands of years. We may be tapping the very well-spring of the religious idea.

Let us pause for a moment to consider the name that the Nahua gave to the divine mushroom - *teo-nandcatl,* God's flesh! How those words echo down the centuries of religious experience! (In the Book of Common Prayer, in the Prayer of Humble Access, the faithful are summoned to eat 'the flesh of thy dear son Jesus Christ'.) The Christian doctrine of Transubstantiation is a hard saying, calling for great faith. (Who was that Saint who, in piety, said that of the miracles there were three above all the rest, the Virgin Birth, Transubstantiation, and, the greatest of the three, the faith given to man that enables him to believe in the other two?) The Mexican Indian with his *teo-nandcatl* has no need for Transubstantiation because his mushroom speaks for itself. By comparison with the mushroom, the Element in the Christian agape seems pallid. The mushroom holds the key to a mystical union with God, whereas only rare souls can attain similar ecstasy and divine communion by intensive contemplation of the miracle of the Mass. Our Sefiora took of two elements, the mushrooms and *aguardiente,* but the second she withheld from the laity.

Is not the odd phenomenon of mycophilia vs. mycophobia a latter-day echo of early man's shattering experience when he discovered the potent mushrooms, a response, positive and negative, divine and diabolic, to these holy miracle-workers? The toad of our 'toadstool' is that daemon which the Great Lightning Bolt seeded in the mother earth and which sprang forth in the little mushrooms.

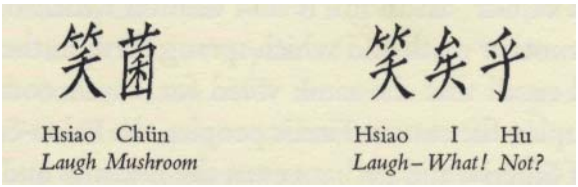
Our readers will recall that the same word for 'mushroom' is shared by the Indo-European peoples, the eastern Finnic peoples, the Paleo-Siberian tribes as far as the eastern tip of Siberia, and perhaps even the Eskimos and the Arabs. Do we not now discover the potent secret of the mushrooms that might explain the wide dissemination of a single pre-Indo-European word ? For the cultural historian it becomes imperative that the surviving traces of the mushroom cult among the peripheral peoples of Siberia be minutely and sympathetically examined on the ground by anthropologists and linguists, and likewise the similar use of a mush-

room in the interior of New Guinea. It becomes imperative for the anthropologists everywhere to take cognizance of ethno-mycology as an avenue for promising cultural inquiry. In various directions there seem to be fruitful areas for the re-study of ethno-mycological evidence, such as, for example, the strange absence of mushrooms from the immense corpus of ancient Egyptian art and texts. Is this because the Egyptians ignored the fungal world or because Egyptologists have ignored it; In China, long before the Buddhist era, in the Taoist philosophy of Lao-Tse, we discover the theme of the *ling-chili:*



wherein 'ling' means spiritual or potent or divine, and 'chih' is a word for 'mushroom'. According to the legend as it survives today, the *ling-chih* was a mushroom that conferred immortality on the eater. Overlaid in the course of time by the artificialities of Chinese literary and artistic sublimation, this theme must have had its genesis in the country-folk and in a mycological fact. "Was not the divine mushroom of the early Chinese our divine mushroom? Modern commentators such as S. Wells Williams in his *Syllabic Dictionary of the Chinese Language* (1909) report that the *ling-chih* was the fomes fomentarius or fomes igniarius. This could hardly have been so in the beginning, for these hard, bitter tree fungi are inedible; though they could have been ground to a powder and drunk in a potion. Perhaps it is significant that as the source of primary tinder they are linked with fire, and thus with the lightning bolt, and this may explain why they were chosen as evasive substitutes for hallucinatory mushrooms.

Dr. Hu Shih, alive to our interest in mushrooms, has given us additional evidence of a knowledge of hallucinatory mushrooms in China. In the *Ching-i lu,* usually attributed to T'ao Ku who lived in the loth century, there is a reference to a mushroom which, when eaten, will cause the disease of the dry laugh.



The natives call it the *hsiao-i-hu,* which can be translated either by 'Shall-we-laugh?' or by 'Laugh - What! Not?' But Dr. Hu tells us that such a name is on its face a literary invention. This mushroom is the 'Laugh-mushroom', as it is more commonly called, of which the statesman and writer Yeh Meng-te (A.D. 1077-1148) speaks in the *Pi-shu lu-hua,* 'Notes of a Summer Vacation':

... the Maple tree Mushroom which, when eaten, causes the eater to laugh without stopping, and is called the *hsiao chun.*

or 'Laugh-mushroom'. What can this be but the mushroom *de pura risa* of our friends Ismael and Don Aristeo, of the botanist Hernandez, the *Nanenschwamm* of Germany and the *bolondgomba* of Hungary?

In the Buddhist world there is another clue to explore. According to orthodox tradition, the Buddha died after a Last Supper with his disciples at which he reserved for himself a dish of tender boar's flesh, *sukara-maddava.* Some have seen not pig but mushrooms on that fateful plate. *Sukara* is cognate with the Latin *sus,* English 'swine'; our readers will recall that *suillus* in Latin is also a fungal name. In Russia there is also a 'swine-mushroom', the *svinukha.* In the light of our discoveries, should not this problem in exegesis be re-examined? That the Buddha should have died as a sequel to eating bad pork seems a shocking discord hi the rarefied spirituality of the Buddhist legend. What could be more fitting than for the Master to be translated to Nirvana by the divine mushroom >

if, as we believe, the hallucinatory mushroom persists even today as a major theme in the emotional and religious lives of many of the more withdrawn Indian peoples of Oaxaca, and if, as we believe, the i6th century writers bear witness to the important role of the mushroom in the Indian cultures as far north as the Valley of Mexico and among the Otomi and Tarascan peoples, it is fair to look for the mushroom also in the archeological evidence of far earlier times. That archeologists have not revealed it to us is not necessarily conclusive - they have not been on the lookout for it. Furthermore, in spite of the spectacular discoveries made in Middle America by archeologists in the past, what they have done until now may some day seem only a beginning by comparison with the discoveries that he in the future, so many are the major sites that have not been fully explored or even touched.

There is the further question of the role that the mushroom might be expected to have played in Middle American art. On this *a priori* opinions are of little value. In Christian art the cross as a symbol is all-pervasive, and it would be natural to look for the mushroom in a similar role. If we are right, the mushroom stones of the early Maya periods in the highlands confirm this analogy. But it does not follow that a major idea always receives corresponding direct emphasis in art. Take for example the Host in the Christian world, the Divine Wafer that is the daily reiteration of the Christian's faith in the miracle of Christ's unique mission on earth. The Mass is the very heart of all Christian liturgy, and the Mass hangs on the elements of Bread and Wine. By comparison with its importance the bread of the Sacrament appears surprisingly seldom in religious paintings. In representations of the Last Supper the faces of Christ and the Apostles take priority over the loaf. For more than a thousand years the best artistic talent was occupied with representing altars, ecclesiastics habited to officiate at Mass, and churches that housed the altar and the Sacrament. All of this pictorial eloquence took for granted the central feature, the miracle of transubstantiation and the Holy Communion. How seldom, relatively, did the artist stop to paint the Host itself! So may it have been with the mushrooms in pre-Columbian Mexico. We may discover its accidental appearance and at the same time begin to sense its constructive presence there where it does not appear.

In 1954 Mrs. Irmgard Johnson drew our attention to certain mushroomic

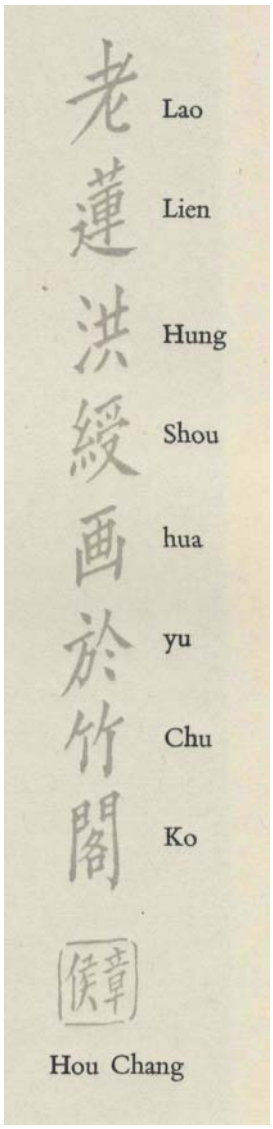


PLATE LII Chinese sage

contemplating *Ling-chih,* the Divine Mushroom.

Painted by Chen Hung-shou (1599-1652), probably late in life in early years of Ching dynasty. This artist was an eminent figure- and landscape-painter, known as an individualist. 'Lao-lien' and 'Chang-hou' were his fancy names. 'Hua yu' means 'painted in', and 'Chu-ko' means 'Bamboo Pavilion', doubtless a studio that he frequented.

Reproduced by courtesy of Wango Weng, Esq.

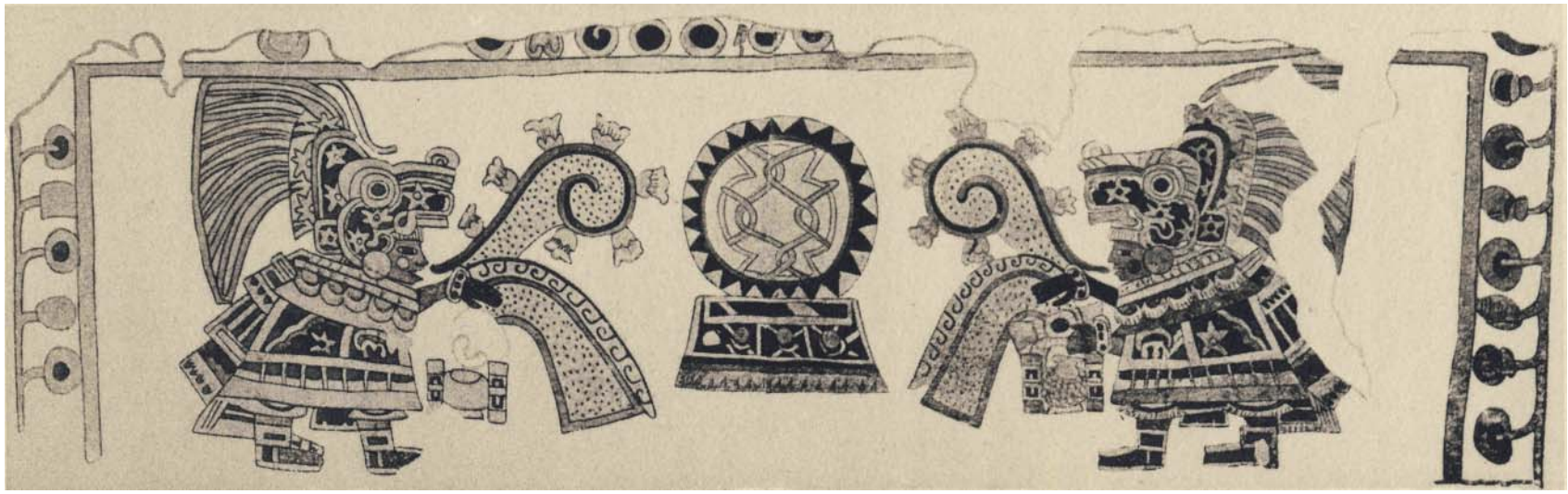


PLATE LIII. Teopancalco fresco. Teotihuacan, in the Valley of Mexico.
From Teotihuacan III period, A.D. 300-600.

shapes in the border of the famous Teopancalco (or Teopancaxco) fresco in Teotihuacan. Discovered in 1894, this fresco was carefully copied soon afterwards by Dr. Antonio Penafiel and Miss Adela Breton.[1] Two pre-Columbian priests facing each other are engaged in a rite, wearing the vestments of their office, their heads burdened with serpent masks. It is supposed that they are pouring *pulque* on the ground, and if so the rite is associated with inebriation and divine possession. In the center, between the two priests, is a motif of interlaced cords, symbol of the mat *(petate)* that is in its turn a symbol of authority in Middle America. It is surrounded by a circle of outward pointing triangles, and this design rests on a ceremonial stand. The border consists of a sequence of repeated motifs. On the right hand side are three shapes that look mushroomie, separated from each other by designs that we know represent sea-shells. The sea-shells are of two kinds, conch and bi-valve.[2] The shells and the mushroomic shapes stem from a stream of water that flows around the outside border of the fresco. No Americanist has ever suggested that the mushroomic discs are mushrooms and at first the idea seems unlikely. The combination of mushrooms with sea-shells is, *a priori,* disparate. Why should not these discs be some other sea growth, not yet identified? There seems a further objection to the mushroomic possibility. The 'stipes' of the 'mushrooms', if we judge by the sea-shells, are simply streamlets from the mother stream, so that we are left with mushroomic discs balanced on the end of these little tributaries. But then we remember that the virtue of the hallucinatory mushrooms resides in the pileus or 'head', and the stipe is secondary, and these 'stipes' could serve a dual purpose, as stipes and as the umbilical cord through which the life-giving 'blood' (to use the word of our Zapotec *curandero)* flows into these 'children of the waters'.

This fresco dates from the period known as Teotihuacan III, extending from c. 300 A.D. to 600 A.D. This was a period rich in cultural achievements. There is no way to determine what language was then spoken in the Valley of Mexico, but it could have been an early form of the classical Nahuatl. The archeological

1. See *Teotihuacan, Estudio HistSrico y Arqueologico,* by Dr. Penafiel, Mexico City, 1900, chap, xm, plates 81 fT. Dr. Eduard Seler's analysis of the fresco will be found in *Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde,* Berlin, 1915, vol. v.

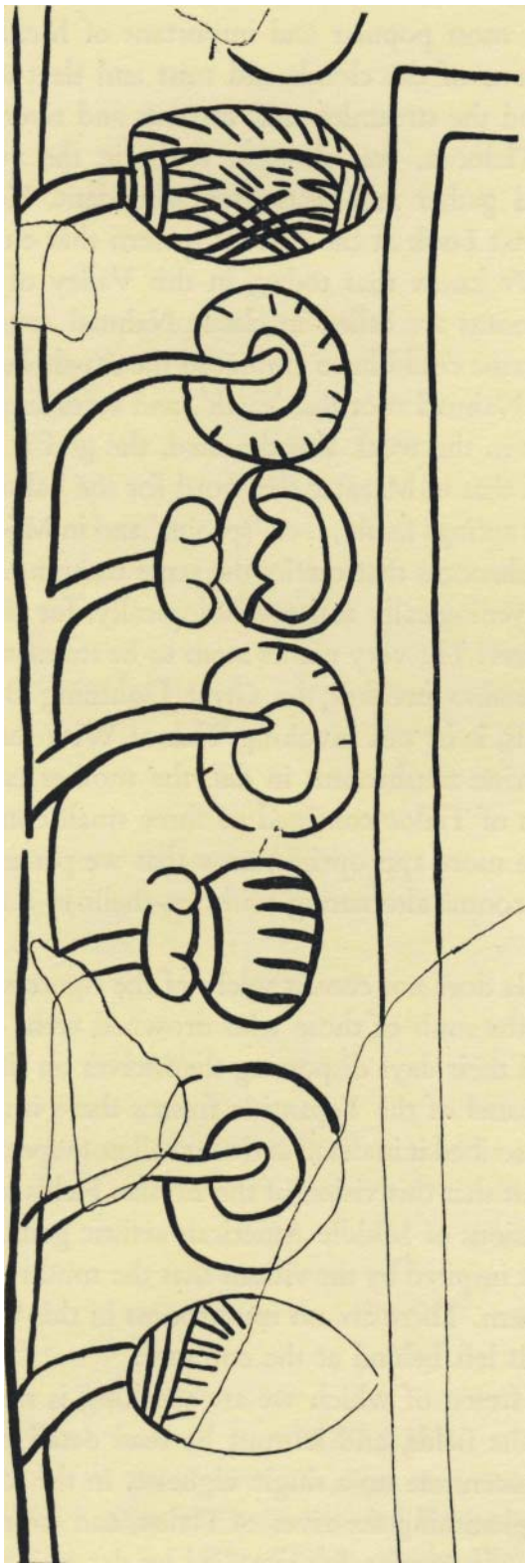
2. For an excellent discussion of the role of sea-shells in the culture of the Valley of Mexico, see Hasso von "Winning's paper, 'Shell Designs on Teotihuacan Pottery', in *El Mexico Antigua,* vol. 7, Dec. 1949. Possibly we discover the explanation for the shells in the Valley of Mexico in Wm. E. Safford's paper on the psychogenic snuff derived from the plant known as piptadenia peregrina, which is used by the Indians of the Orinoco. Safford drew attention to the use of snail shells in conjunction with the snuff, the shells being burned to quicklime whiter than snow, and then mixed with the *yupa,* as the natives call their product. See Safford's 'Identity of cohoba, the narcotic snuff of ancient Haiti', *Journal of Washington Academy of Sciences,* 1916, pp. 547 ff. Could a similar use of lime have been known in Mexico in former times?

excavations of this period in the Valley have produced large numbers of seashells, and whoever the people were, it is clear that in their ceremonials seashells played a conspicuous, if for us undefined, role. In Plate XLI we have illustrated the accessories of the divinatory mushroom rite as it is practiced today in the Mazatec country: these accessories, for one unfamiliar with Middle American anthropology, make up a disparate lot. If we postulate for the Teotihuacan period a liturgical use of shells with hallucinatory mushrooms, this border becomes intelligible. The fresco itself, according to Seler, invokes the rites of inebriation, which is consonant with our hypothesis of hallucinatory mushrooms.

We examined the Teopancalco fresco in the summer of 1955, and found it sadly deteriorated but with the surviving portions now well protected. On the wall of the little room immediately to the right of our fresco, there had once been another one of which only a stretch of the border survives in good condition, and this border repeats the motif of the one we already know! Mr. Eduardo Noguera has graciously copied it for us, and we publish this design here for the first time. Again the mushroomic meaning suggests itself, tempting but uncertain.

Dr. Gordon Ekholm has drawn our attention to the identical pattern of motifs in the Tepantitla fresco, dating from the same period and only a mile or so away from the first. This is an elaborate composition sufficiently well preserved for its meaning to be analyzed.[1] There is a representation of the rain god Tlaloc, and a more aquatic divinity was never portrayed. From his hands drip great drops of water, and a stylized river with star fish and shells flows in both directions from the base of the figure. Beyond the big drops of water, on both sides, from the fingers of other hands drop streamlets of water, and from the side of these streams nearest to the central figure we discover the same series of shell and disc motifs with which we are already familiar. Seeds are scattered on the other side of one of these streamlets. Were these seeds mere symbols of fertility, one would look for kernels of maize among them. But maize is absent. If our surmise about the divine mushrooms is justified, we should expect hallucinatory seeds. The ones in the fresco are diverse, but among them we discover some that forcibly suggest the *colorines* used with mushrooms for divinatory purposes in the Valley of Mexico to this day. They are red and black, with the hilum, quite properly, in the red field.

I. This has been done with magisterial authority and consummate literary grace by Dr. Alfonso Caso in his paper entitled 'El Paraiso Terrenal en Teotihuacan', published in *Cuadernos Americanos,* Nov.-Dec. 1942, Mexico City. For an earlier analysis of the role of Tlaloc in the pre-Conquest religion of Middle America, see Eduard Seler's volume entitled *Codex Vaticanus No.* 2775, published in German and English in Berlin and London in 1902-3, pp. 106 ff.



F'S- 23

TEOPANCALCO FRESCO

Detail, reduced to half of original size.

CHAPTER FIVE

Tlaloc was one of the most popular and important of Mexican deities. He was the god of the waters, of the clouds and mist and sleet and hail, of the lightning bolt, of rain and the streamlets and torrents and rivers and lakes and the ocean. His home, Tlalocan, was thought to be in the verdant uplands, where the clouds would gather and water was abundant. How was Tlaloc related to our mushrooms? Look at the curious pattern that emerges from the philological evidence. We know that today, in this Valley of Mexico where the fresco is, the mushrooms are called in classic Nahuatl *apipiltzin,* 'children of the waters', and this name could have embraced the sea-shells too. The name 'Tlaloc' comes from the Nahuatl root *tlal,* 'earth', and according to the etymology elaborated by Seler in the work already cited, the god is 'he who makes things sprout'. "We recall that in Mazatec the word for the hallucinatory mushrooms means 'that which springs forth', i. e., 'sprouts' and in Mije we discovered a word for the same mushrooms that carries the same meaning. How felicitous are these names, both mycologically and psychologically, for the divine mushrooms with delphic powers! The very names seem to be translations of'Tlaloc'. When our Zapotec *curandero* invokes the Great Lightning Bolt for a larger yield of these mushrooms, is he not invoking Tlaloc ? With the lightning bolt Tlaloc engenders the divine mushrooms in *tlal,* the mother earth. We know that one of the emblems of Tlaloc consisted of three small conches in a triangular sac. What could be more appropriate, now that we perceive the context, than hallucinatory mushrooms alternating with sea-shells in a fresco honoring Tlaloc?

The fresco of Tepantitla does not consist solely of the figure of Tlaloc. It was the Mexican belief that the souls of those who drowned went directly to Tlalocan, where they passed their days disporting themselves on the playing fields of Paradise. In another panel of the Tepantitla frescos there is a picture of this Paradise. Dr. Caso has described it in detail and we shall not repeat the description here, beyond pointing out that this vision of the Elysian Fields is one of the few lovely and gentle expressions of Middle American artistic genius. We ask ourselves whether it was not inspired by the visions that the mushrooms of Paradise give to those who eat them. There are no mushrooms in this vision, of course, for the key to Paradise is left behind at the entrance.

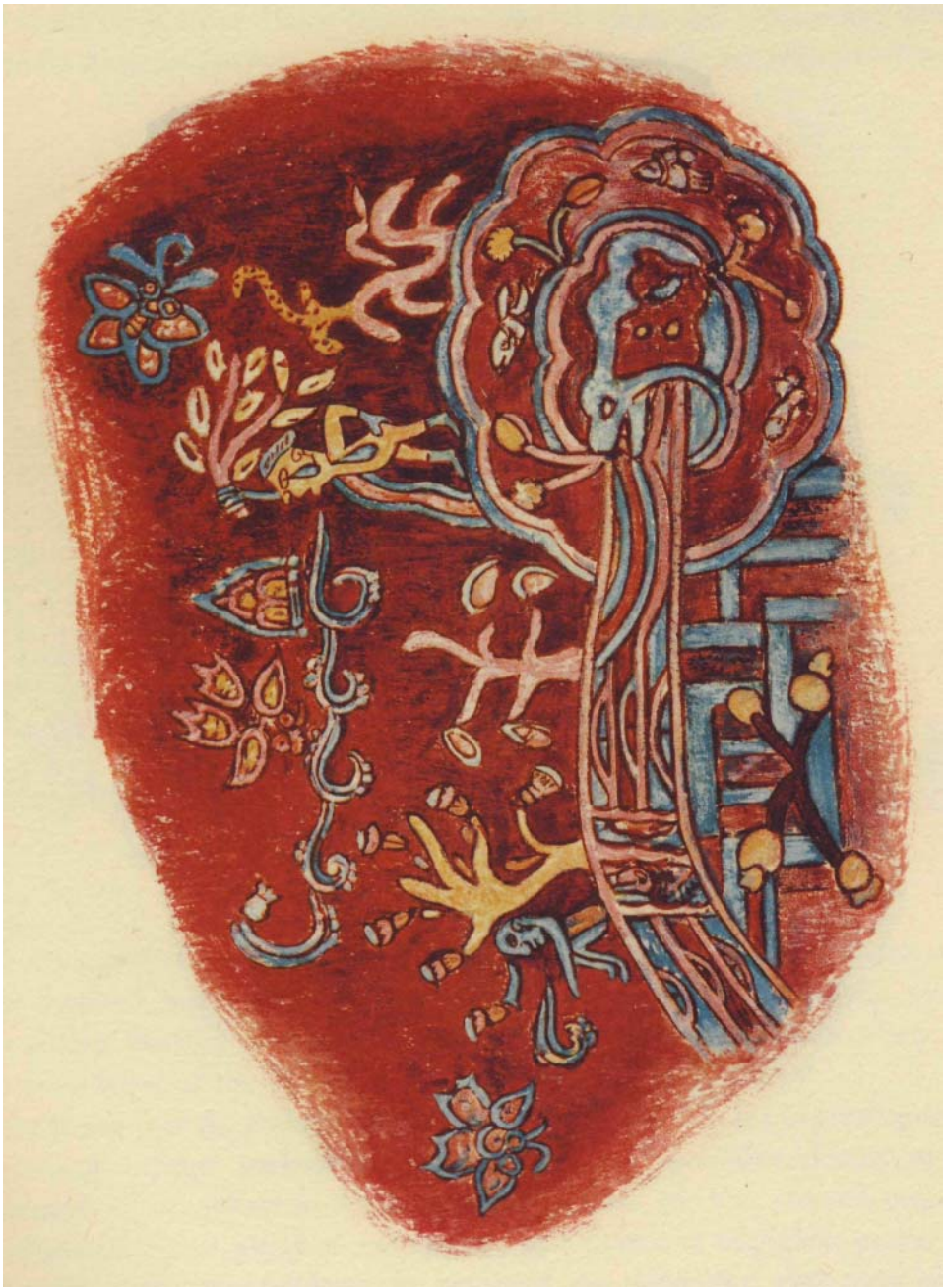
The panorama in the fresco of which we are speaking is made up of small figures scattered across the fields, and it must be read detail by detail, pictographically. We shall concentrate on a single vignette. In the lower right hand corner there is a lake replenishing the river of Tlaloc, and from it there emerges the unclothed figure of one who has just died by drowning, the water still

PLATE LIV

Detail of Tlaloc effigy. Tepantitla Fresco.
(See text, page 324, and Fig. 24, page 327.)
Reproduced by Marilyn Weber.

PLATE LV

Tepantitla Fresco.
Detail: Soul arriving on the playing fields of Paradise.
Reproduced by Marilyn Weber.



gushing from his lungs. Facing toward the left where lie the fields of Paradise, two great tears of nostalgia still falling from his eyes, with a branch of luxuriant foliage in his uplifted right hand, confidently he advances singing an anthem, which is represented by the five-fold scroll emerging from his mouth. Above that scroll is the emblem of Tlaloc (the three-fold sea-shell) and a butterfly, which in Middle America (as in European folklore) is frequently the reincarnation of

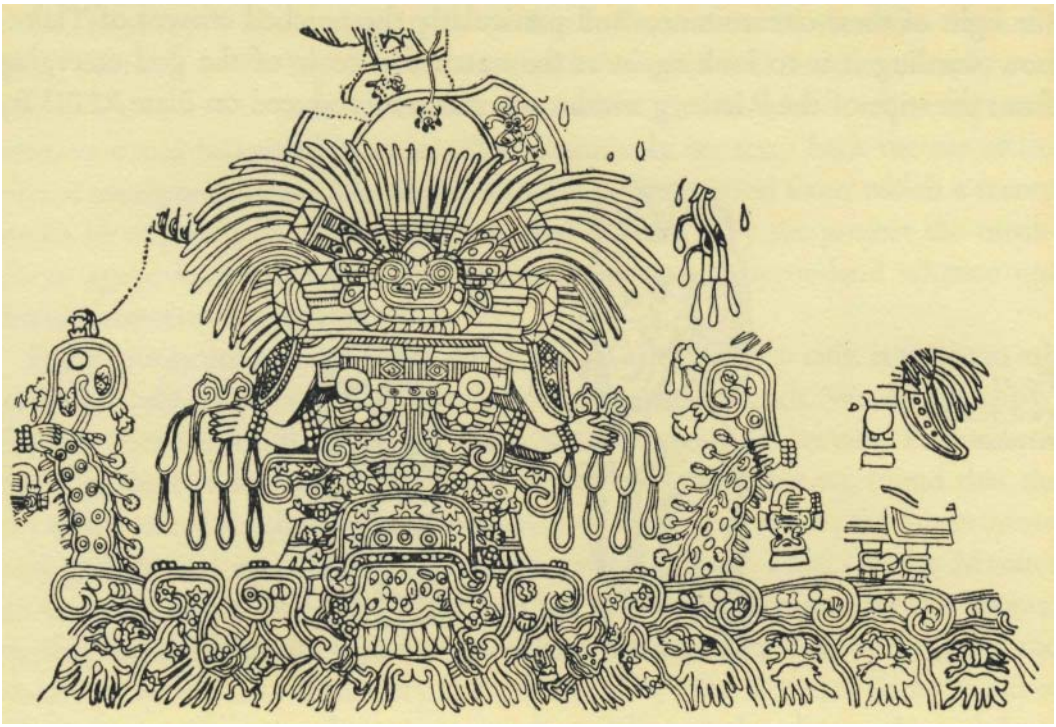


Fig. 24. **THE TEPANTITLA FRESCO**

a defunct soul. In the lake, below the human figure, we are delighted to discover, thrice repeated, what we will tentatively call the shell-and-mushroom motif. How fitting that the divine mushrooms should have been present when our hero takes leave of this world to enter the Paradise of Tlaloc!

Seler found that the stylized features of Tlaloc evolved in the beginning from intertwined serpents, perhaps the very serpents that specialists identify in the headdresses of the priests in the Teopancalco fresco. He also pointed out that the effigies of Tlaloc are often surmounted by a crown of triangular peaks, and with some supporting evidence he ventured the suggestion that these peaks were stylized mountain heights around which the waters of the god would gather. Seler in his work on the Vatican Codex accompanied his exposition

with cuts of two such effigies, which we here reproduce. The crowns remind us of the circle of triangular peaks that is an obvious symbol of divinity in the Teopancalco fresco. As others have pointed out, this fresco manifests Maya influence. The Teotihuacan III period, contemporary with classic Maya, was notable for the cultural interchanges that were taking place between the two civilizations. Kidder has shown how the butterfly symbol of the Valley of Mexico at that very time made its appearance in the Highland Maya area.[1] In the light of these circumstances and particularly the notched crowns of Tlaloc, how startling it is to look again at the notched aureole of the god emerging from the stipe of the Rietberg mushroom stone, reproduced on Plate XLIII! By

Fig. 25
TWO TLALOC EFFIGIES

the Borhegyi dating, the Rietberg artifact would be either late pre-classic highland Maya, or early classic. And there is that other mushroom stone, much earlier, found at Kaminaljuyu, with the triangular design on the stipe, which we reproduced on page 279. This last one is early pre-classic, c. 1000 B. c.

The use of the mushrooms distinguished the upland cultures, the very slopes of Tlalocan, the home of Tlaloc, where mushrooms abound. The kinship of sea-shells with mushrooms, which left us at first nonplussed, now seems natural. If we were to postulate mushrooms in pre-Conquest art in Mexico, we would direct our search precisely to frescos dealing with Tlaloc and the Paradise of our mushroomic visions, to the very frescos where we have found mushroomic shapes. The mushrooms here are casual, incidental, like the bread in paintings of the Last Supper. In the notched motif of the Rietberg mushroom

I. See *Excavations at Kaminaljuyu, Guatemala,* by Alfred V. Kidder, Jesse D. Jennings, and Edwin M. Shook, Carnegie Institute of Washington, 1946; p. 220.

stone we may even have hit on a direct link between the mushrooms of the Valley of Mexico and the mushroom stones of the Guatemala highlands.

The little houses where the Tepantitla and Teopancalco frescos survive may have been two of many where the devout once gathered to receive and consult the divine mushrooms in the sacred purlieus of Teotihuacan. If sea-shells were used in the rites, this explains the large numbers still found in those precincts, within sight of the great pyramids.

Dr. Borhegyi's chart suggests to us that hallucinatory mushrooms were the focus of a cult in the highland Maya world that goes back at least to early pre-classic times, to B.C. 1000 or earlier, the earliest period when technically such artifacts could be carved in stone. Thus tentatively we trace back the use of the divine mushroom in Middle America to the earliest period from which a record could be expected to survive. Beyond that horizon may we project the mush-room agape back through millennia, to the Eurasian home-land whence our Indians' ancestors migrated?

If the 'mushroom stones' were accessories in a mushroom cult, it is fair to ask why that cult disappeared long ago from the Maya highlands. We do not know, but the social institutions of the Maya world suggest an answer. Let us look again at the Mexican evidence. In the remote Mije country we found that the use of the sacred mushrooms was secular. Everyone there knows the mushrooms, and gathers and uses them. No *curandero* is needed for them. In the Mazatec country we find a dual cult. There was the superb performance by the Seilora, sharing the mushrooms with her coven and leading it by song and dance; and there was an intricate divinatory rite celebrated by Don Aurelio, with the aid of divers accessories, according to a complicated liturgical sequence. Don Aristeo in the Zapotec country followed the Senora's procedure, but withheld the Element from his congregation. Do we not discern here, in contemporaneous celebrations, the distinct phases of a cult that might mark a chronological evo-lution and in certain circumstances lead to its extinction > The sacred mushrooms with their miraculous powers could have been bathed in *mana* from an early time, and become the exclusive privilege of the priesthood, and ultimately of the highest priest-kings. As the mushrooms are not habit forming, there was no popular addiction to them that would have been an obstacle to this trend. When the regime of the priest-kings toppled over, the secret of the mushrooms, like so many other secrets of the Maya theocrats, disappeared with them.

I?

'GAMA NO KOSHIKAKE' AND 'HEGBA MBODDO'

Our inquiries into the toadstool world are mostly confined to Europe and the Indo-European fungal vocabulary, including the diffusion of the European words across Siberia. We have brought in the Eskimos, the Maoris, and the Tanala people of Madagascar; and we have traveled in Middle America. But the extent to which toads and fungi are associated with each other in the minds of other branches of the human family remains unanswered, and offers endless perspectives for research. We leave most of those inviting prospects for others to explore. (If this announcement inspires in the reader heartfelt Hosannas, let him imagine how much greater is our relief!) For those who take up the pursuit, we here submit two tantalizing items of information, plus a note on Chinese mycophagy.

1 he Japanese people are mighty mycophiles, possessing a large mushroom vocabulary and an especially warm affection for several edible species. In the hierarchy of esteem, they place first the *matsutake,* a gilled species that grows in red-pine woods, related to the genus armillariella, and famous for its inviting aroma. The *matsutake* of the Kyoto woods are the most highly prized, and in the fall of the year picnics are organized to hunt them. Old records speak of *matsutake* as far back as the I3th century; before then a species known as the *hiratake* appears to have occupied the premier position among the Japanese. The *shiitake* is a related species that grows on the trunks of certain trees, and that is cultivated in large quantities on trunks cut down for that purpose. Both the *matsutake* and the *shiitake* are species peculiar to Japan and perhaps Korea. The collybia velutipes, gathered young and small, is a favorite in soup; it bears many names, of which *nameko* is the commonest. An important role is also played by the rhizopogon rubescens, known as the *shoro.* But the species that is of immediate interest for our purpose is the inedible shelf-mushroom known normally in Japanese as the *saru no koshikake,* the 'monkey's stool'. We have discovered that in certain villages of Chiba prefecture, across the bay from Tokyo, the peasants call this fungus *the gama no koshikake,* or toad's stool; notably in three northern *gun* or townships of the prefecture, by name Imba, Katori, and Sousa. *Gama* is the name for 'toad' in the Kanto dialect of Japanese, spoken in Tokyo and thereabouts. On pushing our inquiries, we discovered that *gama no koshikake* was an alternative expression for *kama no koshikake,* which would mean the stool of the household furnace god *o-kama-sama,* and the longer expression and more old-fashioned would be *o-kama-sama no koshikake.* Toads are associated in the pea-

sants' minds with the big stove that occupies an unfloored part of their houses, and there may be a genetic relationship, or at least a semantic association, between the word for toad in the Kanto dialect and the names of the furnace god. The peasants regard the toad with no repugnance; its presence is even considered auspicious in some regions.[1]

Thus in Japan we have irrefutable evidence of an association between toads and fungi of indigenous inspiration, and for us the astonishing feature is that this association is tied to fire and a fire divinity.

.r rofessor Roger Heim described in his *Revue de Mycologie* in February 1936 three giant boleti of Madagascar and tropical Africa. One of these bears the scientific name of boletus (Xerocomus) sudanicus Har. et Pat., and is native to Central Africa. In the course of Professor Heim's article there appears a footnote wherein the reader is told that in the region known as the Chari the native name for this edible and highly esteemed boletus is ***hegba*** *mboddo,* and that this means literally 'toad's stool'. The Chari is an important river running north and west through French Equatorial Africa, emptying into Lake Chad. For our inquiries Professor Heim's report was of the highest interest. Was it conceivable that a people in the heart of Africa used the same fungal metaphor as the peoples in the North Sea basin ? In the cultural crazy quilt of darkest Africa could we discover the race for whom *hegba mboddo* was a fungal designation? Our explorations (by correspondence) covered the Sara and certain other Sudanese languages, and also five of the languages of the Sudan central tribes : Kara, Banu, Gbe, Kaba, and Sango. In every case the results were negative, as they were at first among the Bantu peoples. At this point we consulted Professor Archie N. Tucker, of the School of Oriental and African Studies at the University of London, and he knew the answer at once: *hegba mboddo* is a term used by the little known people of Bongoland, described by the German explorer Georg Schweinfurth following his visit to the Bongo country in the i86o's. His book appeared in English in 1874 as *The Heart of Africa,* and he is the authority for the use of the term that interests us. In Schweinfurth's time no white men had previously visited the Bongo people and observed them, and there can be no possibility of European influence. The Bongo live in the very heart of Africa, in two enclaves, north of the 7° parallel North and to the westward of the 29° East longitude. They are a farming folk. Here is what Schweinfurth had to say about the mycophilia of the Bongo people:

I. We are indebted for our information to Professor Kunio Yanagita, the eminent Japanese authority on folklore and dialects, to Mrs. Chiyo Omachi who assembled and interpreted in English the evidence, and to Professor Toyohiko Kawabata of Chiba University for verifying the usage in the various *gun* of his prefecture.

During the rainy season the country is prolific in many kinds of funguses. The Bongo have a great fancy for them; they keep them until they are on the verge of decay, and then dry and pound them. They use them for the purpose of flavouring their sauces, which in consequence are enriched by a *hautgout,* which without depreciation may perhaps be compared to rotten fish. Throughout the country I never saw any funguses but what were perfectly edible, and some of them I must confess [sic] were perfectly palatable. The natives call them all 'kahoo', while to the larger species they give the special name of 'hegba-mboddoh', which is synonymous with the Low German 'poggen staul', or with the English 'toadstool'. 'Hegba' is the name which the Bongo give to their little carved stools, and 'mboddoh' is the generic term for all frogs and toads, and the proper name for the *bufo pandarinus* in particular. This 'hegba mboddoh' which has thus suggested the same idea in very remote parts of the world, is here a gigantic polyporus; not infrequently specimens may be found of it which grow to a height of nine inches, and a foot in diameter and weigh nearly fifty pounds. In form, size, and color they are not unlike the grey clay edifices of the Termes mordax . . . The funguses which are the most common, and which are moreover the most preferred, are the different species of coprinus, marasmius, rhodoporus, and the tough but aromatic lentinus.

The Bongo have been neglected by anthropologists: Schweinfurth is still the principal authority on them. His testimony about the *hegba tnboddo* is certainly trustworthy, but it should be verified and amplified. The giant fungus is eaten by the Bongo: for them the association with the toad is not an epithet of mycophobic rejection. Who will discover for us the full meaning of the toad in the culture of the natives of Bongoland? Must we go there ourselves to arrive at the answer? The language of the Bongo is one of a large group including Sara (of which Kaba is a member), Kenga, and Bagirmi.

The discovery of the 'toadstool' in Bongoland is sensational for us with our peculiar interest, but this is not the end. Professor Tucker happened to lay our question before Mr. Jalo Gombe, an African in London at the time our letter reached him. He belongs to the Fulani people, in Nigeria, far to the west of the Bongo and separated from them by many African peoples. He is a teacher in the senior high school at Gombe, a community that one reaches by way of Jos. 'Fulani' is the name of this people in the Hausa language. The French call them 'Peul'; in their own language one Fulani is 'Pullo', more than one 'Fulbe', and they call their tongue 'Fulfulde'. It is essential to set forth these various words, as they are all in current use and can cause confusion. Mr. Gombe in a long and informative letter apprises us that in his native language the general word for all wild mushrooms is *kow.wal pa:bi.* (The colon indicates a long vowel; the *b* in this word, like the *dd* in *hegba tnboddo,* is what linguists call 'implosive' or 'ingressive'.) *Koro:wal* means 'stool' and *pa:bi* is the word for frogs and toads. Mr. Gombe further informs us that wild mushrooms are not

eaten by the Fulani, nor do they eat frogs or toads though certain neighboring tribes do so. The Fulani consider toads unclean and some, especially among the women, fear them. Toads are used in folk medicine. There is a disease of the forehead called in Hausa 'monkey's forehead' *(goshin* Inn); to treat it the Fulani rub the forehead with the belly of a living toad, and it is said that the patient then recovers and the toad, thrown away, dies. The skin of the toad is used as a charm and when "placed somehow may cause someone impotency". A certain toadstool mixed with a certain tree fungus and soaked in water is used in treating venereal disorders.

Our African inquiries led us to a third discovery. In Uganda the principal province is Buganda (of which 'Uganda' appears to be a corruption), and the principal native clan in that province is known as the Baganda, whose language, called Luganda, belongs to the immense Bantu family. All of the clans of Buganda are valiantly mycophagous, according to our gifted native informant, M. B. Nsimbi, of Kampala. The Baganda are known as the 'mushroom clan', for they have as their totem two kinds of mushrooms, known in Luganda as the *bubaala* and the *namulondo.* By the native gastronomes of Buganda the *bubaala* are the most highly prized of all mushrooms, but the Baganda must deny themselves these delights, for they may not eat their own totems. For us the interesting feature of the fungal vocabulary of the Baganda is the presence of the toad. There is a mushroom known in Luganda as the *ngngoma-ya-kikere,* which means 'drum-of-toad', and which no one eats. In shape it suggests the native drum, which in Africa is traditionally a symbol of authority, analogous to the parasol in India.

In conclusion, then, we discover in the interior of Africa two peoples, both of them remote from each other geographically, linguistically, and culturally, who possess indigenous terms for mushrooms that are semantically identical to the 'toadstool' of the North Sea basin. One of these peoples, the Bongo, appear to be mycophiles, and the other, the Fulani, are mycophobes. In addition, we discover a third people, who associate a drum-shaped mushroom with the toad. Among Africans both the drum and the stool sometimes symbolize authority.

Up to this point in our book we have only touched on China and the cult of the mushroom in the Chinese cuisine. The subject is vast and the sources of information are inaccessible. We shall do no more than offer two samples of Chinese lore that have happened to come to our attention.

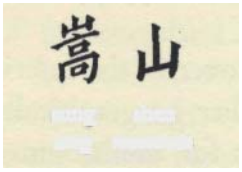
There is the problem of *mo-gu.* This is the colloquial name in northern China of the clavaria pistillaris, one of the mushrooms most highly esteemed by

Chinese epicures. In the Mongolian language we discover a general word for mushrooms, *rndgti,* and the Chinese word may have been imported with the clavaria pistillaris from Mongolia. Is it possible that the Mongolian word was a borrowing from Indo-European, being in short another member of our sponge cluster of fungal words descended from the same root as σπόγγος? The phonetic evolution in Mongolian is not impossible. An initial 'p', passing through 'b', would become 'm'. The alternation between 'b' and 'm' in Mongolian is well attested, e.g., *becin* and *mecin,* meaning monkey. There is also precedent in Mongolian for dropping an internal nasal in borrowed words.

In the fungal hierarchy of the Chinese cuisine the highest rating belongs to the Monkey Head Mushroom, concerning which Mr. K. C. Wu, the former governor of Formosa, has given us curious information. This is a rare mushroom, sells at a high price, and never passes through the vulgar marketplaces. Its *parfum* is of exquisite delicacy, and it transforms any dish that it flavors. So precious is it that only the best cooks are entrusted with it. The Monkey Head Mushroom is represented in Chinese characters thus:

hou tou chün
monkey head mushroom

It is found only in the high mountains of Central China, and the best come from the sacred range of Sung Mountains :



sung shan
sung mountain

They grow out of the trunks of trees, and are of the size of small monkey heads, with yellow hair, two dots for eyes, and curves that are singularly suggestive of a nose and mouth. We are told that where one grows another is always to be found, and they are considered mates, male and female. When you find one, you follow the direction of its eyes, and there on another tree is the other one. They gaze on each other in a perpetual trance. Who is the mycologist that will identify for us the Monkey Head Mushroom?

18 THE ANATOMY OF MYCOPHOBL1

In the course of these pages we have often spoken of the different emotional attitudes toward wild mushrooms that mark the members of the European family of peoples. Heirs of a common Indo-European culture, sharing the same linguistic heritage and folklore, their diversity of response to the fungi is amazing, and, we must admit, baffling. Our information is insufficient in extent and precision for the compilation of a *carte mycophagique* of Europe. But by pulling together the threads of evidence available to us we may suggest what such a map would show, and draw attention to the curious traits that compose the mycophobic syndrome.

In the first place, the feelings of a people for wild mushrooms are unrelated to the supply. Wonderful mushrooms are abundant in both Norway and Muscovy, but the mushroom lore of the Norwegians is poor. The Portuguese are almost as steeped in mycophobia as their neighbors in Castile, though Portugal is by comparison rich in fungi. The Catalans live next door to the mycophobic Spaniards, and yet the Catalans are to be numbered amongst those rare peoples whose folk knowledge of the wild mushrooms is breath-taking in range and subtlety. But perhaps the classic illustration of the point we are making is to be found outside Europe.

The Arabian desert is not a land that mushroom-eaters would think to visit on pilgrimage; nonetheless, we discover that the Bedouin are passionate mycophiles. An authority on the Arabian nomads, Colonel H. R. P. Dickson, mentions this repeatedly in his admirable work on *The Arab of the Desert,* and in a letter to us he has nobly developed the theme. While the Arab eats various kinds of mushrooms with relish, the desert 'truffles' are his favorites. These fungal growths, which never emerge to the surface of the earth, are usually called 'truffles' by Europeans, but in fact they belong to a different genus, the terfezia. From classical times they have been esteemed in northern Africa, and in the market of Damascus they are sold in quantity under the local name of *kame.*

According to Colonel Dickson, scattered over Northeast Arabia, on Bahrain Island, and in the Qatar peninsula, there are spots well known to the Arabs where terfezia grow, always in the company of the rug-rug bush, known to science as the helianthemum Lippi. The Arab cannot count on his mushrooms. He keeps on the lookout for heavy rainfalls in the *wasm* season, which corresponds to our October, and if the rains then are heavy, and if they are accompanied by thunder and lightning, and especially if the rains recur throughout

winter and spring, then the Arab knows the year will be good for mushrooms. When the conditions are propitious, in February and March the black-tent folk strike their tents, and journey to the familiar places, and then the women and children go forth early in the morning for the sunrise, or late in the day for sunset; and the shepherd boys, out with their flocks, are on the lookout too. For as the slanting rays of the twilight sun streak across the horizontal earth, the practiced eyes of the women and children detect the slight shadows cast by the monticules that the swelling terfezia are pushing up. During the spring months of a good year, these growths are as satisfying as meat to the Bedouin. He eats them roasted in hot ashes and dipped in salt, or fried slightly (after soaking in water with a pinch of salt) in clarified or fresh butter. The Arab women also slice them and dry them in the sun, and then keep them for eating in summer, or even for years as a food reserve. There are two kinds of these terfezia known to Colonel Dickson, the white *zobaidi,* which are the best, and the *khlas,* smaller, brown, and less tasty.

Europe is sharply polarized, mycophagously speaking. At opposing ends of the Continent there are two areas where the folk knowledge about mushrooms is prodigious, sometimes truer than the manuals, and where the affection for them is wide and deep. There are also two areas of Europe, poles apart, where mushrooms are generally ignored or loathed. In between are all the other peoples, with varying degrees of knowledge and subtle gradations of feeling.

The Great Russians are a mycolatrous folk, and of this some readers will consider our book manifest proof. The Poles, the Slovaks, and the Czechs are ardent mycophiles, and are sure to resent as an impudent and even imperialistic pretension my view that the Great Russians are in a class by themselves in this respect. I have never heard a contemptuous remark about mushrooms from a Great Russian; I recall none in our literature. But on an earlier page we have seen what Poland's greatest poet says. The Czechs know their mushrooms like few others; but why are they in deadly dread of the boletus satanas > This is a mushroom that, properly cooked, strong stomachs can tolerate; yet the Czechs shun it like the deadly amanita. Our neighbors the Lithuanians are great mushroom eaters. I do not know enough about them to give them a rating. Is their appetite for mushrooms indigenous or borrowed from the Slavs > Here is a pretty problem to be coolly considered. It is certain that the interest in mushrooms among the Slavs slides off as one goes South. The Ukranians show less interest, and the Balkan Slavs are almost apathetic; it is said that the monastic clergy in Rumania and the other Balkan countries maintain a mycophagous tradition well above the level of the surrounding peasantry.

The Finns present an interesting pattern. By tradition mycophobes, they still reject most mushrooms. But over much of the country they have learned from the Russians to eat lactarii, and in Carelia, where Russians used to go on vacations, they know and love many species. In the south-west there is a small area where only the chanterelle is eaten - clearly a cultural emanation from Sweden.[1]

The focus of mycophagy in the West lies in that stretch of Mediterranean littoral which embraces Catalonia and the Provence. In what is perhaps the best list of vernacular names for mushrooms ever assembled, the Catalan savants Joaquim Codina and P. Font Quer brought together a vocabulary of about 220 words, all of them genuine, identified with the localities where they were heard.[2] The country folk of Provence are similarly proficient in mushroomic lore. Whether this intensive mycophilic knowledge prevails west of the Rhone and in Roussillon, thus linking Provence with Catalonia, we do not know.

Just as Muscovy and Catalonia may be taken as the citadels of mycophagy, so as to mycophobia the foci of infection are found on the one hand among the Celts and Frisians along the shores of the Atlantic and the North Sea, and on the other hand in Greece. The Greeks have always been mycophobes. All of the early Greek poets - Homer through the dramatists - ignore the mushrooms. The earliest references to them are in the fifth century, and, as is fitting in a mycophobic world, both refer to poisonings.[3] Next we encounter Nikander of Colophon, the didactic poet of the 2nd century B.C. whom we have already cited. In his *Alexipharmaca* he speaks thus of the mushroom tribe:

> Let not the evil ferment of the soil injure a man; it will often swell up in his chest, at other times it will choke him, when it is fostered over the viper's coil deep in its lair, sucking up the monster's venom and the noxious breath from its moutn. This is the evil ferment which they call Fungi in general. [Quoted by courtesy of Cambridge University Press from translation by A. S. F. Gow and A. F. Scholfield]

From beginning to end in the writings of the ancient Greeks we find not one enthusiastic word for mushrooms. Even Athenaeus, that addict to the fleshpots whose lengthy writings give us an invaluable picture of daily life in ancient Greece, was no friend of the mushroom world. "Mushrooms grow on the ground," he said, "and few of them are edible. Most of them cause death by choking." The botanist Theophrastus was incompetent in his discussions of the fungi, and while Dioscorides and Galen were better, many of their observations

1. The Finnish attitude toward mushrooms is discussed in detail in Toivo Rautavaara's *Suomen Sienisato,* published in Helsinki; for English summary see pp. 420-1.
2. See the botanical journal *Cavanillesia,* vol. m, Barcelona, 1931.
3. Athenaeus quotes Eparchides concerning a tragic episode that came to the attention of Euripides. The other early reference is in Hippocrates, *Epidemicorum,* Book vn, par. 102.

were grossly inaccurate, and they are interesting on this subject chiefly for the further proof they offer that the Greeks were mycophobes. To this day the Greeks pay no attention to wild mushrooms, like the English eating only the psalhota campestris, which they call μανιτάρι, a word descended from the classical άμανῖται.[1]

We believe that this mycophobia of the Greeks holds the key to the meaning, hitherto unperceived, of a famous anecdote about Nero that Suetonius recorded. Suetonius, writing a half century after the event, accused Nero of having been privy to the murder of Claudius, supporting his charge by an inference: 'for Nero used afterwards to laud mushrooms, the vehicle in which the poison was administered to Claudius, as gods' food *[deorum cibum],* as the Greek proverb has it.' This witticism, alluding to the posthumous deification of Claudius, is stale now from age and repetition, but thanks to it we possess a Greek saying nowhere else recorded. Dio Cassius told the same story later, and later still we find it in the writings of Petrus Patricius, a contemporary of Belisarius,[2] who adds a telling detail. When the mushrooms came on, a guest remarked that they were gods' food, θεῶν βρῶμα. This gave Nero his opening, and how the murderous implications of his retort must have chilled the sycophantic company! What did the Greeks mean by 'gods' food' ? Certainly not 'food fit for the gods', which would have called for different phrasing. Robert Graves suggests an answer. We know from Pliny that in the fashionable circles of Rome mushrooms were all the rage. But not so with the Greeks. It was surely a mycophobic Greek who interposed the Greek saying when he saw the mushrooms arrive, just as an Englishman on the Continent turns from a dish of morels because for him they are toadstools, or just as a Fleming in former times would have scorned *duivelsbrood,* 'devils' bread'. 'Gods' food' and 'devils' bread', in their innermost meaning are synonyms, verbalizing the ancient tabu. We suggest that they go back to the time when the divine mushroom was holy and therefore unclean for all save the king-priest.

In one striking respect the lands of extreme mycophilia and extreme mycophobia are alike: they are equally free of mushroom poisonings. Your Frisians never die from toadstools, for they never touch any wild fungi. And your Proven^al villagers are equally safe, for they know which to eat. Henri Fabre in

1. On Mount Athos Russian and Greek monastic communities have lived in close proximity for centuries. In the Eastern Church the dietary rules and customs of the monks play a big role, and it would be interesting to learn how the addiction of the Russian monks to mushrooms has affected their mycophobic Greek brethren. We have done our utmost, by correspondence, to arrive at the facts concerning this cultural tide-rip on Mount Athos, but without success: the good monks seem unable to enter into the spirit of our humanistic inquiry.
2. The three versions of the episode are to be found in the Loeb editions of Suetonius and Dio Cassius.

The Life of the Fly tells us that during his thirty years in the Proven9al village of Serignan, he had never heard of even the mildest indisposition from mushrooms, and this in face of the fact that his neighbors habitually ate many species described in the manuals of the day as poisonous or suspect! Fatalities from mushrooms take place where peoples are in transition, moving up in the scale of mycophagy.

There is abundant evidence that slowly, very slowly, the peoples of Europe are learning to eat wild mushrooms. Their progress is reflected in their vocabulary. Some words that were born with a pejorative curse rise in status and acquire excellence in the course of centuries; such, we believe, are *mousseron* and *cepe* in French, and *boletus* in Latin. More often a new and appetizing word is borrowed from a mycophagic people to designate a mushroom that, seen in a new light, has come to be esteemed for food. Such is 'mushroom' in English, and *champignon* throughout the other Germanic lands, and *boletus,* which in German has become *Pilz.* Specially interesting is the Swedish name for the cep: *Karl Johans-svamp,* named after the founder of the present royal family, King Charles XVI John, a Frenchman, who having risen from the ranks to become Napoleon's General Bernadotte, was elected to Sweden's throne in 1818. It was he who drew the attention of Swedes to the succulent properties of the boletus edulis. We discover without surprise that the Bernadottes were a Gascon family, hailing from that province of France which is renowned for ceps. A good Gascon, General Bernadotte was a missionary of mycophagy to the mycophobic Swedes.

The mycophobic peoples seem to acquire their knowledge in little leaps, suggestive of the quantum theory, learning to like one species after another. The English generally know only the psalliota campestris, and the Norwegians the cantharellus cibarius; the Spaniards of Castile eat two kinds, the *mizcalo* (a lactarius) and the *seta de cardo* (pleurotus eryngii), by contrast with the vast command of the subject enjoyed by the Catalans. The poverty of the Spanish language when it comes to mushrooms occasionally works a hardship on Spanish writers: in the Spanish encyclopaedias the authors of the articles on *hongos* must resort to Catalan and Basque words to piece out the poor Castilian vocabulary. The Spanish public has never been offered a Spanish mushroom manual, and if a Spaniard should seek to explore the mushroom world, he must resort to a Basque work, *Setas u Hongos del Pais Vasco,* a treatise in two slim volumes written in Spanish by Telesforo de Aranzadi and published in 1897. Based entirely on observations in the Basque country, it is precious especially for the wealth of Basque vernacular names that it records. The public demand for this work must have been modest, for the original edition is still in print and copies are available generally in Spanish book shops.

In Portugal the peasants know chiefly the lepiota procera, which they call the *nisco* or *centeiro.* The Basques, with a substantial vocabulary, are well advanced in mycophagy, but many of their words are borrowed, and mycophagy among them is perhaps not indigenous. Strangely, they possess no name for the lactarius sanguifluus, which is esteemed by both Catalans and Castilians. On the other hand, we can testify that in Viscaya the Basques manifest an addiction for the russula virescens. In the west of that western Basque province, this mushroom, which is the best of the russulas, is called by a specific name -*guibelurdina,* but in Guernica it appears to so dominate the field of mycophagy that it becomes simply the 'mushroom' - *perretxiko.*

Various strands of evidence support our view that Western Europe is progressing in mycophagy. Take Italy, for example. Today immense quantities of mushrooms are eaten there, and the local names are numerous. But we observe that poisonings often occur - a sure sign of imperfect knowledge. From Pliny and other ancient writers we know that certain mushrooms were fashionable among the fastidious elite in imperial Rome, but if we ask our question about the rest of the population, we must admit that we know little. Apicius gives us various mushroom recipes, and Pliny describes several kinds with sufficient detail for us to guess at their identity, in two or three cases with confidence. But Pliny himself looked down his nose at mushrooms, and there is one sentence in his *Natural History* that, almost by inadvertence, reveals his own mycophobic leanings. With some impatience he admits that others know more about mushrooms than he. "Who, in fact," says he, "is able to distinguish among them, except those who dwell in the country, and those who are in the habit of gathering them?" That is, who knew the mushrooms except the untutored rustics, mute for us, and the minions of the epicures in the great city? As to the epicures, Pliny with disdain tells us that mushrooms were the only dish they would prepare with their own hands, thus relishing them twice over, once in anticipation and once in the eating. Here are the rich phrases of Pliny's Elizabethan translator, Philemon Holland:

> . . . our fine-mouthed and daintie wantons who set such store by their tooth, take so great delight to dresse this onely dish with their owne hands, that they may feed therupon in conceit and cogitation all the while they bee handling and preparing the same, furnished in this their businesse with their fine knives and razors of amber, and other vessels of silver plate about them.

On an earlier page we saw *that fungus* was an epithet in ancient Rome, the equivalent of 'dunce' or 'gump' in English - an indication that the people who so used the word had little esteem for mushrooms.

Jumping now to Renaissance times, we open the earliest printed cookbook, entitled *De Honesta Voluptate,* attributed to a Vatican dignitary named Platina and printed in Rome c. 1474. There we find a section on mushrooms, and it is a farrago of mycophobic nonsense, of a kind that would not be tolerated by discriminating Italians today. It must have expressed more or less the sentiments of the upper crust in the Rome of Platina's day. This work was translated into many languages and it almost monopolized the cookbook market for a century and more. The French version, of which we have consulted an edition published in Lyons in 1505, has a peculiar linguistic interest: the translator uses various words for 'mushroom' and among them is *fonge.* This may have been the translator's bookish invention; at any rate/onge never took hold in France, the only part of Romanic Europe where *fungus* has had no verbal progeny in the vernacular.

Two centuries before Platina another Italian, Aldobrandino da Siena, composed in French a medical treatise, *Le Livre pour la Sante du Corps,* at the behest of the Countess of Provence, Beatrice ofSavoy.lt appears to have been finished in the year 1256 and it survives in many manuscripts copied in the course of the ensuing centuries. Aldobrandino relied heavily on the writings in Arabic of a 10th century physician living in Egypt, Isaac Judaeus. Here too we find a chapter on mushrooms. Aldobrandino writes in the purest mycophobic vein, the best that he can say of mushrooms being this, that some there are which are not so bad. Though written in French, the Aldobrandino work cannot of course be taken as an expression of a French attitude. It is of special interest to us for the illuminated initial with which the chapter on mushrooms begins.

Coming to France itself, we begin by observing that the French Canadians know nothing of wild mushrooms and never eat them. Their ancestors came largely from Poitou, with a sprinkling of Basques, Bretons, Channel Islanders, and Normans. A conservative people, the *habitants* would not have given up mycophagy in the New World, where the forests are rich in kinds that are common in France. It seems probable that in their ancestral lands mushrooms were not eaten three centuries ago, and certainly this is still true of the Bretons. Mycophagy in France is spreading north from the Midi and Gascony. The reports of poisonings, the modern diffusion of new names like *cepe,* the constant revision of municipal regulations governing the sale of mushrooms - these all bear witness to growing pains as mycophagy gains ground. Though wild mushrooms are commonly offered in the marketplaces of France in the appropriate seasons, it is not unusual to meet French folk who know nothing whatever about them, not even the names of some of the common kinds. Van Sterbeeck

in his *Theatrum Fungorum* on page 117 quotes Clusius, native of the French city of Arras and father of modern mycology, as saying that he had never eaten a mushroom! An underlying mycophobia would explain the readiness of the French to associate wild mushrooms with toxic properties. The king of the elephants in *Babar* dies, in defiance of nature, from eating a fly amanita; and the death of this beloved albeit imaginary beast implants the microbe of mycophobia in the defenceless minds of countless children. One of the best French movies, Sacha Guitry's *Le Tricheur,* hangs its story on the death of a whole family from mushrooms. Jules Romains in his play, *Knock ou le Triomphe de la Mededne,* introduces a lady of the French landed aristocracy who sells a property called la Michouille where mushrooms never grow, the very name being derived from *mycodium,* 'hate of mushrooms', a strange conceit that we think only a mycophobic writer would invoke. But in Marcel Moussy's *Arcole ou la Terre Promise* there is an idyllic setting in which a young couple go mushroom gathering.

Certain *gastronomes* among our French friends resent our imputation of mycophobia to the French. But take Montaigne. This giant of the Renaissance, who poured the rich contents of his mind and feelings into his essays, ignores the fungal world. Not even truffles are so much as mentioned by this son of Perigord. True, Montaigne had apparently little interest in food and drink of any kind. But then let us look at his elder contemporary, whom he admired, Fran9ois Rabelais. When Epistemon visits the abode of the damned, he discovers there all the personages of antiquity, and finds that for all eternity they are condemned to menial and insignificant occupations: Alexander the Great darns breeches while Dido peddles mushrooms! Elsewhere Rabelais presents to his readers an obnoxious character called Lent-observer whose pinched soul knows only denial. He had a *potiron,* mushroom, for a chin, and his excrement consisted of morels and toadstools. There is never a kind word for mushrooms in Rabelais, this native of Chinon in the very heart of France.[1]

It is never easy to trace down the centuries the gastronomic role of a kind of mushroom. Perhaps the distinctive truffle offers us the best opportunity for such a chronicle, yet here too we encounter contradictions. According to M. G. Malen9on in *Les Truffes Europeennes,*[2] for a thousand years after the fall of the Roman Empire no one in Italy or France paid attention to truffles. In the I4th century they reappeared. During the Renaissance the truffle of Perigord - tuber melanosporum - established its ascendancy, and with some ups and downs thereafter maintained a secure place high in the firmament of gastronomic

1. Rabelais refers to mushrooms in Book n, chap. 30; and in Book rv, chapters 31, 50, 57, and 60.
2. Published as Memoir hors-serie N° i by the *Revue de Mycologie,* April I, 1938.

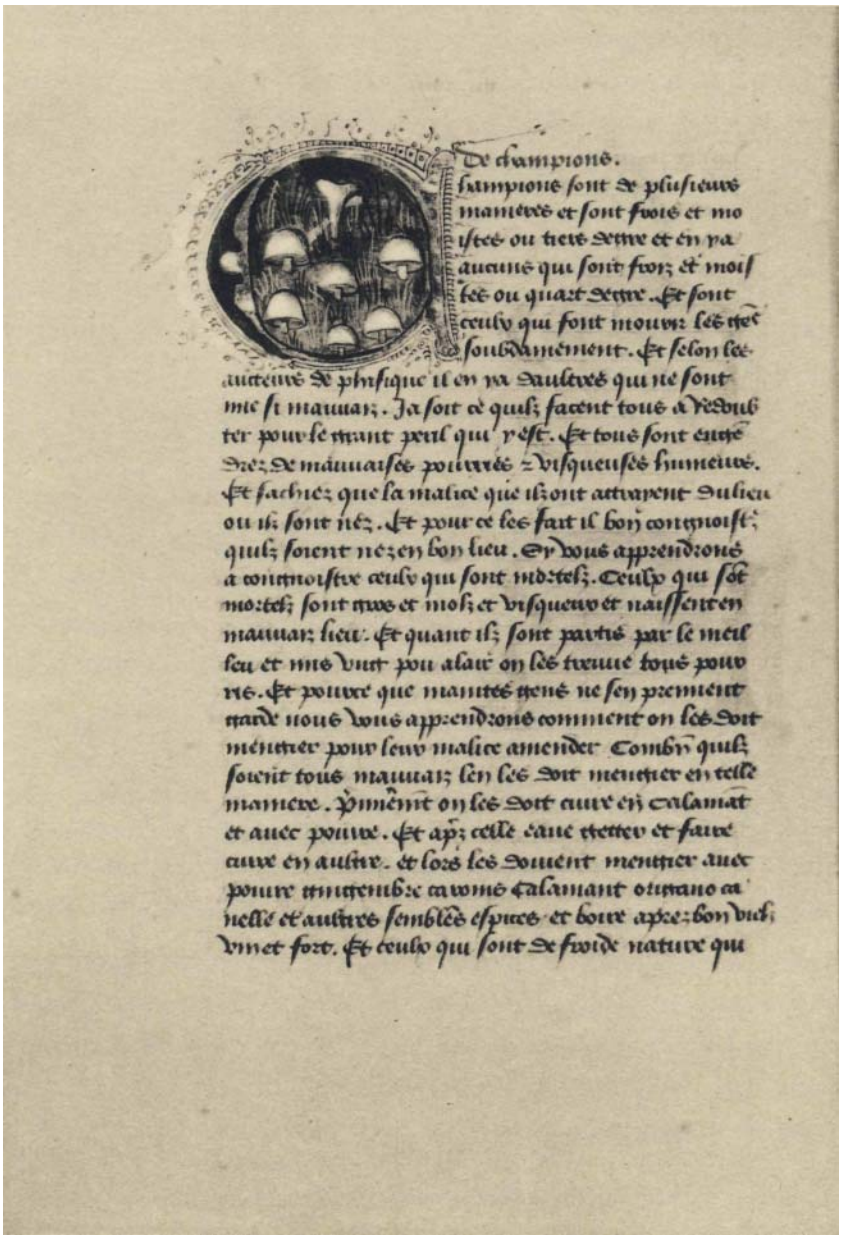


PLATE LVI. Illuminated initial from a I5th century manuscript (No. 165) of *Le Livre pour la Sante du Corps,* by Aldobrandino da Siena, 1256.
New York, The Pierpont Morgan Library.

values in the most exalted circles of France. We have already seen that the English diarist Evelyn was making the acquaintance of truffles in Vienne in the lyth century, and after the Restoration in England they begin to appear in cookbooks across the Channel. Yet we have also seen that Brillat-Savarin in the early iQth century considered the truffle a modern innovation in Paris. These seeming contradictions can be reconciled when we remind ourselves that we are dealing with accidental references by writers belonging to the articulate elite of France and England. In our section on the truffle we produced linguistic evidence showing that the truffle was always an article of commerce in the humble market-places of the Mediterranean peoples, bought and sold and consumed by countless generations of unlettered folk.

In the beginning the Germanic world was steeped in darkest mycophobia. Certainly nowhere in European literature is there a more perfect expression of loathing for mushrooms - all the more eloquent because taken for granted - than in the writings of Saxo Grammaticus, the Danish historian who flourished about A.D. 1200. He was telling of a military campaign waged in Sweden by Hadding the Dane in the loth century, and how the Danes ran out of provisions, and were driven to the last extremities of hunger. Here in Book I: viii: 7 of his *Saxonis Gesta Danorum* we discover the low opinion in which the Danes of olden times held wild mushrooms:

> . . . After the spring thaw, Hadding returned to Sweden and there spent five years in warfare. By reason of this lengthy campaign, his soldiers, having consumed all their provisions, were reduced virtually to starvation, and resorted to forest mushrooms to satisfy their hunger. Finally under pressure of extreme necessity they ate their horses, and in the end they satisfied themselves with the carcasses of dogs. Even worse, they did not scruple to eat human limbs.

Now that the passing centuries have dimmed for us the personal sufferings of Hadding's host, we may permit ourselves to be amused by the graduated stages[1] of their desperation as reflected in their diet, and our thoughts turn to what soldiers of other origins would have done in a like pass. Had they been Celts, they would surely have eaten horses, dogs, and each other before turning to the

I. An amusing parallel to the plight of Hadding's host is to be found in the Spanish classic, *El Viage Entrctenido,* by Agusrin de Rojas, a contemporary of Shakespere. This narrative gives a vivid picture of the miseries and adventures that were the lot of strolling players in Spain at that time. The troupe are making their way from Barcelona towards Madrid:

> After having exhausted our money [five *reales*\, sold everything that we had left, *often eaten of the mush-rooms that we gathered along the way,* slept on the ground, tramping barefoot (not for the mud but because we had no footwear), helped muleteers load their beasts, fetched water for the mules, and sustaining ourselves on turnips for four days and more — stealthily one night we came up to an inn-----

The italics and translation are ours.

foul fungi of the forest. If they had been Slavs of the North, they would have been feasting on those noble mushrooms from the outset of their long campaign, and, fortified by the delectable fare, would have engaged the enemy like lions, and most certainly turned the tide of war. Until General Bernadotte, when King of Sweden, spoke well of ceps, neither Lapps nor Swedes ate mushrooms. We know this because Linnaeus tells us so. In the section on the fungi in his *Flora Lapponica,* he observes that in Sweden only foreigners consider mushrooms fit for eating, nor does he except himself from the general rule. What a pity that the great Linnaeus was a mycophobe!

As for the Lapps, Linnaeus in the same work tells us where their fungal interest lay, and the passage is unique in ethno-mycological records. Linnaeus devotes a lengthy section of his work to the fungi of Lappland, and as he comes to the end and is describing Boletus 522, which he calls 'suavaeolens', he reports that the young Lappish swains when stepping out to keep company with the Lappish girls would carry this fungus in a little bag over the male member, that its scent might please the nymphs. The 'boletus' used in this way, according to Professor Heim, was undoubtedly the trametes suavaeolens Fr. ex Linn., conspicuous for its strong odor of anise. Linnaeus was frank in his description:

> Adolescentes hunc inventum sollicite servant in *marsupio ante pubem pendulo,* ut gratiorem odorem spirantes nymphis suis placeant. [Italics ours.]

When Knut Hagberg brought out his life of Linnaeus in 1939 he deprived this delightful passage of its sap by translating *ante pubem pendulo* as 'on the stomach' *(pa magen),* and his English translator further diluted Linnaeus by hanging the fungus 'from the waist'! Such is the prudery that censors the classics! The Lappish custom moved the mycophobic Linnaeus to indulge in a discursive rhapsody of the kind that lesser scientists frown upon:

> O ridicula Venus, tibi, qus in exteris regionibus uteris caffea & cocholata, conditis & saccharatis, virus & bellariis, gemmis & margaritis, auro et argento, serico et cosmetico, saltationibus & conventiculis, musica & comoediis, tibi sufficit his solus exsuccus fungus.
>
> O whimsical Venus! In other climes you ask for coffee and chocolate, pickles and sweetmeats, wines and goodies, gems and pearls, gold and silver, silks and cosmetics, balls and parties, music and the theater. Here your wants are met with a little withered fungus!

We can show that long after Saxo Grammaticus, and even after the Reformation, mycophobia was still rampant in Germany. A few years ago there was discovered in the Copenhagen Royal Library a document of high cultural interest. It was penned early in the lyth century by a Hanseatic merchant of

Lubeck who had sojourned long enough in Pskov to learn the Russian dialect of that city. The manuscript is a textbook of colloquial Russian, giving as exercises in Russian phraseology authentic dialogues recorded by the author. Among them are a few between Russians and Germans in which each side praises the life of his own home town. In the course of one such colloquy we come upon a German mycophobic boast of priceless value for our argument, proving as it does the contrast between Russian and German attitudes toward the fungal world. Here are the texts in the Russian dialect of Pskov and the German dialect of Lubeck, along with an English translation by Mrs. Elizabeth van Schooneveld, who is now editing the manuscript for publication:

Nashi nemetzkie ljudi zhivut kak [g]ospodari, svezhe mjaso da svezhi ryby jedjaft] da vina da pivo p'ju[t], da vashi ljudi kak psy borzye, ryzh[i]ki griben jedja[t] da p'ju[t] vodu i kvas.

Unse dutsche lude leuen alse heren ehten fersch flesch und fersche fische, und drincken wyn und beer, und juwe volk alse beste und wynthunde ehten poggenstole und drinken wahter und qwasz.

Our German people live like lords, eat fresh meat and fresh fish and drink wines and beer, and your people like beasts and coursing hounds, eat toadstools and drink water and kvas.

The aspersion thrown into the teeth of the Russians by the merchant of Lubeck is corroborated by linguistic evidence of singular probative value. The Jews of Germany some centuries ago migrated east into the Slavic lands, taking with them their language based on medieval German dialects, which we know as Yiddish. The mushroom vocabulary in Yiddish is largely Slavic, borrowed after the migration. The generic term for 'mushroom', however, is *shveml,* a diminutive form from the German *Schwamm;* the favorable *Pilz* has no continuation in Yiddish. It is clear that when the Jews migrated to Poland, they took no tradition of mycophagy with them. Apparently the Germans began eating mushrooms late in the Middle Ages, and needing a word to dignify the new dish, they turned to the Latin *boletus,* which in Valerius Cordus (1551) had become *Boltz* and in Clusius (1601) was *Btiltz* and is today *Pilz.* Thus *Pilz* entered Germany's fungal vocabulary at the top, to suit the dinner-table, while at the lower end of the scale the pejorative *Krotenschwamm,* also recorded by Clusius as current in his day, fell into disuse and finally disappeared from High German. Here we see how a change in names reflected, and at the same time encouraged, a change in attitude toward the eating of wild fungi. It is noteworthy that the growth of mycophagy in Germany appears to have been a response

to Mediterranean influences descending culturally from above, rather than an eruption of the Slavic substratum that was still strong in Central Europe.

Today in Sweden and Denmark and Southern Germany and German Switzerland, bands of young people go out in season from the cities to gather mushrooms. The market places of Southern Germany and Switzerland are well stocked with many kinds of wild mushrooms. Is not this interest a modern thing, perhaps as modern as the sport of mountain-climbing ? Do the rustics know their mushrooms as these city youths do - except as the market demand of the cities has led the country folk to respond by gathering the appropriate kinds > Is there not here a cultural penetration that began with the sophisticated city circles and spread thence to the countryside ? Dr. J. Schlittler, Pilzkontrolleur of Zurich, confirms our suspicion. He tells us that in the back valleys of the Alps the peasants still reject all mushrooms, still view them through medieval eyes, clinging to the old mycophobic beliefs. We also learn that the Romansch-speaking country folk of the Surselva and the Engadine know nothing of edible wild mushrooms and care nothing, though in these lovely valleys they grow in abundance. There is evidence that while Otto Bismarck was serving as Ambassador in Russia around 1860 he discovered and mastered the art of mushroom knowing, and acquired a taste for mushroom hunting and marinated mushrooms that he took back with him to Germany.[1]

Though we think mycophagy among the Swiss is a modern growth, its hold is already secure. A story, told to us in Geneva as true, bears witness to this. An aged countryman in the Suisse Romande found himself borne down by the infirmities of age and the loss of those dearest to him. There came a time when he invited a young friend to pass a long and arduous day with him in the mountains. A glorious day it was, in the course of which the old man took pains to reveal to his companion with painstaking precision all of the spots known to him where mushrooms grew, various kinds of mushrooms but especially morels, knowledge slowly gathered on solitary rambles made for that purpose over the course of a long life. Marveling to himself at this untoward behavior, the young man showed proper appreciation and made careful note of all the locations. That night the unhappy octogenarian took his own life. His penultimate act had been to pass on to the youth of his choice his precious possession, a worldly legacy that no testamentary provision could have conveyed.

Indifference that overlies a sleeping hostility is the attitude toward wild mush-

i. See letter written by Konstantin Leont'ev dated Dec. 3, 1887, published in *Bogoslovskij Vestnik,* 1914, No. 4, pp. 776-7. Professor Cizevsky, who discovered this reference, raises the further question whether the sour cream often served with 'Bismarck herring" was not borrowed from the Russian cuisine, perhaps from a favorite way of serving mushrooms.

rooms of the typical mycophobe in a country like England. He and his neighbors think alike about these creatures; rather, they react alike, for they do not think, ignoring as they do their own infirmity. The mycophobe does not initiate a discussion about wild mushrooms. If the subject comes up in his presence, instantly he is on his guard. He is almost sure to recall some fatal episode involving poisonous mushrooms that, he says, came within his personal experience. He admits grudgingly that some good wild mushrooms exist, but his strongly held view is that all are dangerous save a few, and these no amateur can be relied upon to identify. Yes, identification is difficult and never sure. As like as not, the mycophobe will tell you that every good kind has its deadly counterpart, as though Divine Providence had deliberately laid booby traps to catch the fool who insists upon hunting mushrooms. He is apt to go on and suggest that kinds familiar to you in your country may well be deadly hereabouts. He volunteers his advice for your own good, as one who wishes to be clearly on record that your death will be on your own head. He is dogmatic, his voice has a cutting edge. If you are bold and put questions to him, you discover at once that he knows nothing about wild mushrooms, and that he is happy and even determined to remain in invincible ignorance, feeling that that way safety lies. Furthermore, this mycophobia of the North Sea basin is a dominant trait. The English-speaking mycophobe when he goes to live in a mycophagous country seldom learns to know the mushrooms and avoids eating them. By contrast, the mycophagous Slavs who live in England or the United States sometimes succumb, albeit slowly, to the steady pressure of the hostile environment, weakly accepting the facile advice of well-meaning but ignorant neighbors who assure them that the species they knew and loved in the lands of their childhood become deadly, for some mysterious reason, inside the political frontiers of an English-speaking world. How truly John Parkinson spoke for his countrymen when in 1640, in his *Theatrum Botanicutn,* he begins his chapter on the 'Dangerous Mushrooms' with the observation that he can be brief about them, for it would be to little purpose (as he says) to dwell on them, inasmuch as the English need no caution "to beware of the bad, seeing our Nation is not so enclined to the good".

The Englishman's rejection of the mushroom tribe is a Pavlov reflex. We have known Englishmen who retch at the thought of eating a wild mushroom, just as some orthodox Jews do at the thought of pork. Wilmarth Lewis, presiding over the world of Horace Walpole, has drawn to our attention a delightful passage in a letter that Walpole wrote on October 17, 1758, to Lady Hervey. On the flimsiest provocation, the Duke of Newcastle had lately given an exhi-

bition of violent mycophobia that must be considered classic. For the sake of a quotation from Jeremiah, Walpole changes Newcastle's famous chef Chloe into a woman. Here is the episode in Walpole's words:

> This will be a melancholy letter, for I have nothing to tell your Ladyship but tragical stories. Poor Dr Shawe being sent for in great haste to Claremont (it seems the Duchess had caught a violent cold by a hair of her own whisker getting up her nose and making her sneeze) — the poor Doctor, I say, having eaten a few mushrooms before he set out, was taken so ill, that he was forced to stop at Kingston; and being carried to the first apothecary's prescribed a medicine for himself which immediately cured him. This catastrophe so alarmed the Duke of Newcastle that he immediately ordered all the mushroom beds to be destroyed, and even the toadstools in the park did not escape scalping in this general massacre. What I tell you is literally true. Mr. Stanley, who dined there last Sunday, and is not partial against that court, heard the edict repeated, and confirmed it to me last night. And a voice of lamentation was heard at Ramah in Claremont, *Chloe* weeping for *her* mushrooms, and they are not!

There is a striking contrast between mycophobic and mycophilic peoples when it comes to fungal vocabularies. In Muscovy and Provence and Catalonia the countryfolk possess a huge vocabulary, familiar to all, and ancient. If in those countries there be any who do not know their mushrooms, these benighted individuals are pitiful city-bred waifs, cut off from the land that gave them birth and from their proper cultural heritage. In mycophobic countries, the farmers know almost nothing about wild mushrooms and speak of them with two or three undiscriminating words. But in the cities there will be found little circles of amateurs who make a hobby or cult of their mushroomic knowledge, and who learn from manuals a large vocabulary that circulates only on their lips. The run of rustic English folk know 'toadstool', 'mushroom', 'puffbalT, and possibly a few localisms. If the countryman knows 'fungus', it is as a learned word. Only in cities and in esoteric circles, does one hear of truffles and morels and ceps, not to speak of death-cups, destroying angels, shaggy-manes, and all the other book-words that the manuals carry. The reader of these manuals is at a loss about these so-called vulgar names. Some are clearly of venerable lineage. For example, no mycologist would have invented the 'horse mushroom' for the psalliota arvensis; the term belongs with 'horse-radish', 'horse chestnut', and 'horse mussel', wherein the first element means 'large' or 'coarse'. We think also that 'shaggy mane' for the coprinus comatus may be a word of respectable lineage: as long ago as 1802 A. F. M. Willich in *The Domestic Encyclopedia* was writing about the 'shaggy spunk', a mushroom known to science in his day as the boletus hirsutus. On the other hand, where a common name is wanting, the

mycologists seem to have invented fanciful neologisms to meet the need, without troubling to distinguish genuine localisms from the fruit of their own fancies. Today there are excellent mushroom manuals in France and England, but until our generation the manuals in those countries were often saturated with mycophobic caution. I possess the Russian manual, published in 1903, that originally belonged to Tatiana, daughter of Nicholas II, in which in childish handwriting she wrote her name. It is a delightful book, full of friendliness for wild mushrooms, all of which seem to be considered good except two or three kinds that are cursorily dismissed. By contrast, some of the older manuals of France and England deliberately set out to frighten the reader. They are filled with labored warnings, giving the impression that all mushrooms are bad except a few kinds that even the careful reader can hardly hope to learn, even if he uses utmost care. By a curious twist of fate, this excess of caution in the manuals once accidentally contributed to the undoing of a murderer, as we have seen in our account of 1'affaire Girard.

Wild fungi are an emotional trip-hammer for mycophile and mycophobe alike, and in the poets with their heightened sensibilities the contrast in the response to fungi is sharpest. Professor Roman Jakobson was spending the summer of 1919 in Pushkino, near Moscow, with the poet Vladimir Majakovskij, who would go out almost daily into the forest to look for mushrooms. He would usually return with a large basket full of them. He knew them all and where to look for every kind. He told his companion that mushroom gathering offered the ideal accompaniment for the composition of poetry, and in the course of that summer he composed the best parts of his epic, *150 Million,* while engaged in this pastime. During the previous season, in 1918, he had conceived his play *Mystery Bouffe* in the woods among the mushrooms.

Now contrast Majakovskij's feelings with those of D. H. Lawrence. Not long after the scene in Pushkino, the Englishman wrote his poem entitled *How Beastly the Bourgeois Is,* and to match the repugnance that he felt for his subject, he resorts to mushrooms for his analogy:

> How beastly the bourgeois is
> especially the male of the species -
>
> Nicely groomed, like a mushroom
> standing there so sleek and erect and eyeable -
> and like a fungus, living on the remains of bygone life,
> sucking his life out of the dead leaves of greater life than his own.

> And even so, he's stale, he's been there too long, Touch
> him, and you'll find he's all gone inside just like an old
> mushroom, all wormy inside, and hollow under a smooth
> skin and an upright appearance.
>
> Full of seething, wormy, hollow feelings
> rather nasty -
> How beastly the bourgeois is!
>
> Standing in their thousands, these appearances, in damp England
> what a pity they can't all be kicked over
> like sickening toadstools, and left to melt back, swiftly
> into the soil of England.

Here then in these two literary artists we discover the perfect mycophile and the perfect mycophobe. For the Russian a world carpeted with mushrooms is Elysium. For the Englishman that same world conjures up foul exhalations rising wraith-like from rotting swamps, and the mephitic horror turns his stomach.

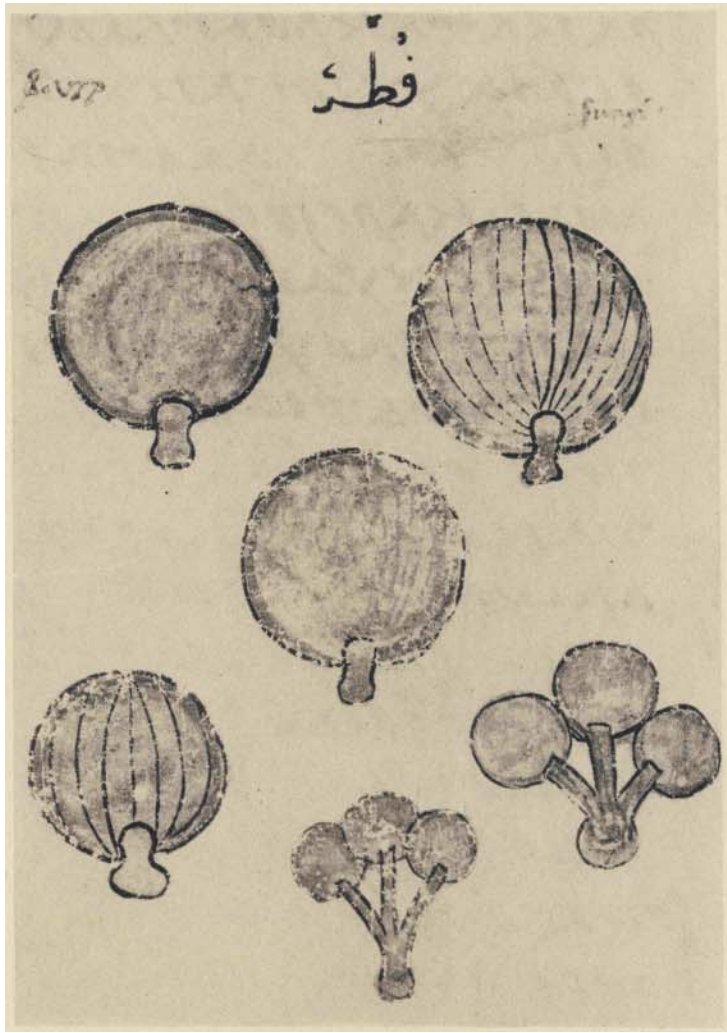


PLATE LVII-A. Mushrooms. Miniature from a pth century codex (Grec 2179) of Dioscorides. P^m, *Bibliotheque Nationale.*

PLATE LVII-B. Mushrooms. Miniature from an nth century manuscript (Arabe 4947) of Dioscorides. *Paris, Bibliotheque Nationale.*

PLATE LVIII. Mushrooms. Miniature from a loth century manuscript (No. 652) of Dioscorides.
New York, The Pierpont Morgan Library.

19

MUSHROOMS IN ART

JVLushrooms are rare in art. In the Christian world they appear first and chiefly as illustrations for mycological texts, primarily utilitarian in purpose. Today our mycological illustrations approach perfection in some of the slick color engravings of modern mushroom manuals. Henri Fabre's water colors might also fall under this heading. But Fabre succeeded in doing more than merely catch the details significant for the student of mushrooms. He perceived and caught with his brush the eerie strangeness of these diverse creatures, he caught their grace and mystery, and in his finest compositions he far transcended the humble functions of the faithful illustrator.

In the earliest illustrations of mushrooms there was a singular unevenness of quality. Already in Plate XXXII we have shown how excellently a miniaturist in the zoth century represented the truffle, and how absurd was the first printed representation of that same truffle (fig. 10), published in Mainz in 1491. On Plate XXII we reproduced from the same loth century Codex the illustration of the fomes officinalis, and in contrast with the excellence of the truffle, the miniaturist here indulged in a startling aberration based on a popular notion that this shelf fungus possessed sexuality of a quasi-human kind. On the other hand, in the *Hortus Sanitatis* where the ill-begotten truffle appeared, the fomes officinalis was rather well portrayed, growing correctly on the trunk of a larch.

The successive scribes who copied the manuscript of Dioscorides seem to have followed various traditions in their illustrations, imitating the predecessor whose work lay before them. The earliest mushroom miniature known to us is in the Qth century codex of Dioscorides now lying in the Bibliotheque Nationale.[1] There the mushrooms look like balloons or cherries or gooseberries. In the same library there is an nth century (or slightly later) Arabic manuscript of Dioscorides, and it is clear that here the miniaturist was working in the same uninspired tradition, if indeed he was not copying from the 9th century manuscript directly. The Freer Gallery in Washington possesses a page from yet another Arabic version, this one written in the year 1224, and here the same globular forms have degenerated far indeed.

On the other hand, in the Morgan loth century codex there appear three capped mushrooms of superior lineage, and we permit ourselves to believe

I. In our quest for early mushroom miniatures we have concentrated on mss. of Dioscorides. There are other promising possibilities that we have not explored, i.e., the mss. of Theophrastus, Nikander, Athenaeus, Galen, Pliny, and St. Isidore.

that they originated with the same artist who depicted the truffle. How exciting it would be to discover who he was and when he lived, the original begetter of this truffle and these mushrooms! Was he perhaps Dioscorides himself, or that mysterious master whom Dioscorides revered - Cratevas, attendant at the Court of Mithridates Eupator a century before Christ ? Except in the various recensions of Dioscorides, we have found mushrooms in only one medieval

CHAMPIGNONS.

Fig. 26. Illustration from Matthiolus' Commentaries on Dioscorides, Paris 1578.

manuscript, the illuminated initial in Aldobrandino da Siena's *Le Livre pour la Sante du Corps.* And here we discover for the first time a sense of composition. Six of the mushrooms in this initial might stem back to the illustrations in the Morgan Dioscorides, but boldly rising above them is a good representation of a craterellus. We reproduce on Plate LVI this illuminated initial from the Aldobrandino manuscript in the Morgan collection, written probably in Rouen about the year 1450, but copied perhaps from earlier versions going back a century or two.

With the *Hortus Sanitatis* in 1491, the tradition of the printed illustration of mushrooms began. In the 1550'$ the Italian Pietro Andrea Mattioli brought out his *Commentaries* on Dioscorides, and this important book quickly passed through many editions. From the French version published in Lyons in 1578 we reproduce the woodcut accompanying the chapter on mushrooms. Here for the first time we discover mushrooms in their habitat, growing around a stump, with snakes about and 'flies' in the air. The illustrator was doing his best to cope with his text and for the first time mushrooms were being portrayed against their natural background, as it was then conceived.

MUSHROOMS IN ART

Europe's storehouse of art is primarily religious in inspiration, and the religious art of Europe ignores the whole fungal world. This is not surprising, for mushrooms are not mentioned in the Bible[1] nor in the Apocrypha nor in the writings of the Early Church Fathers. Unless we make an exception for the Czech folk tale that we recounted in Volume I, mushrooms seem never to figure in hagiographical legends. The deplorable truth must be faced: the Christian religion has no mushrooms in it anywhere. True, four Saints speak of them, but of these, three were scholars writing on natural history.[2] This leaves the fourth, and let us turn to what that great man had to say.

We have seen on an earlier page in what low esteem the Protestant divine Jeremy Taylor held mushrooms. Only a few decades before Taylor's disparaging remarks, St. Francis of Sales in Geneva was giving vent to kindred emotions in that extraordinary classic of Catholic piety, the *Introduction to the Devout Life.* St. Francis and the Protestant clergyman speak from the identical mycophobic tradition, and undoubtedly in the case of these moralists the vogue in their day of certain fungi as aphrodisiacs reinforced their natural feelings. In Chapter 33 of Part 3 of St. Francis's book, he turns his attention to 'balls, and other permissible but dangerous pastimes', and then he goes on:

> I say to you about dances, Philotee, what the doctors say about *potirons* and *champignons,* the best are worthless... If nevertheless you must eat mushrooms, see to it that they are well prepared. If for some reason you cannot get out of going to a dance, see to it that your dancing is well considered . . . Eat few mushrooms and eat them seldom, say the doctors, for no matter how well prepared they are, in quantity they are venomous. Dance little and seldom, Philotee, for otherwise you expose yourself to the danger of becoming addicted thereto. According to Pliny, mushrooms being spongy and porous easily draw to themselves any infection in the neighborhood, so that when near serpents they draw to themselves the serpents' venom.

Similarly, continues St. Francis, dances attract vice and sin. And just as after mushrooms it is wise to drink precious wine as an antitoxin, so after dances one should concentrate on holy thoughts.

With mushrooms virtually ignored in Christian writings, it is not surprising that they hardly figure in the mighty river of traditional European art. When

1. In Leviticus xrv: 34-53, there is a description of a 'plague of leprosy in a house' and some mycologists have seen in it a visitation of the fungus known as the merulius lacrymans. The difficulty with this conjecture is that the house in question was constructed primarily of stone and mortar, as the text itself makes clear, and the stone and mortar were infected. The merulius lacrymans attacks timber.
2. St. Isidore of Seville, St. Hildegard, and Albertus Magnus. St. Hildegard was a German nun who in the nth century composed a medical work entitled *Liber Subtilitatutn Diversarum Naturarum Creaturarum.* In Book i, 'De Plantis', she described the physiological effects (as she understood them) of the kinds of fungi that grow on the different species of trees. See J. P. Migne: *Patrologics,* vol. 197, col. 1194.

once we leave aside the illustrations to mycological texts and turn to the main corpus of European painting, they are almost wholly absent until the idth century. We have already discussed on pages 87 ff. the effigy of a Satanic boletus in Bosch's Hay Wain. This is the earliest mushroom known to us by an Old Master.

The second is in the same tradition, by a Fleming who was surely a mycophobe, Peter Brueghel the Elder. In his allegorical painting *The Misanthrope,* dated 1568 and now hanging in the Museo Nazionale in Naples, an aged man clothed in mourning advances to the left across the open fields, leaving behind him an horizon apparently aflame with fire and war. A thief, having overtaken him from behind, is slyly cutting the cord from which the old man's purse is hanging. The thief is enframed in a shadowy sphere that represents The World. Beneath the painting is an inscription in Dutch:

> Om dat de Werelt is soe ongetru
> Daer om gha ic in den ru.
>
> Because the world is so untrue
> Therefore go I in mourning.

The face of the old man is not saintly, and it is said that Brueghel himself hesitated about the name to give to the picture: *False Hermit* and the *Hypocrite* were two of his choices. (Here is our perfect illustration for *Tartuffe!)* On the path before the pilgrim are three caltrops, sharp metal points of the kind that the soldiery in Brueghel's time would strew for enemy horses to step on. For us the exciting detail in this picture is the presence, close above the metal points, of two mushrooms, and a cluster of vaguely discernible mushrooms to the immediate right of the tree stump. Here again is the 'Devil's bread' of Bosch. These mushrooms suggest boleti, but with the passing centuries the painting has deteriorated and the species cannot be identified. Surely it is fair to assume that they are the *heksenzwam* or *satanzwam,* bathed in the aura of witches or Satan. Bosch in his painting developed his own iconographic idiom. It is Christian but unconventional: the *Hay Wain* is a strange allegory framed inside the Christian cosmogony. Brueghel's mushrooms are an iconographic symbol in a painted homily of profane rather than sacred inspiration. Within the confines of conventional Christian iconography we know of only two paintings, in all the wealth of Christian art, where mushrooms figure. We are indebted to the Director of the Prado Museum, Dr. Sanchez Canton, for drawing to our attention one of them. In the Prado there hangs a superb *Adoration of the Magi,* painted c. 1610 by Juan Bautista Mayno, an artist of the Spanish school about

whom little is known beyond the fact that he was a Spanish Dominican born in Italy. His *Adoration* bears witness to his high quality as a painter. His craftsmanship is impeccable, his composition noble, the delicacy of the figures and faces breathtaking. In the foreground, down below, are two inconspicuous mushrooms growing among some leaves by the side of an unhewn stone. The mushrooms belong to the agaricaceae, for one of them shows a ring. The base of the stipe is concealed by vegetation: we cannot say whether there is a volva. The mushrooms and their boulder are a sinister counterpoise to the Light of the World shining through the aperture from above. Exactly what do they mean?

For Bosch in the *Hay Wain,* for Brueghel in *The Misanthrope,* mushrooms were a symbol of the forces of Satan, and we think that the same meaning attaches to the mushrooms in Mayno's painting.

The Virgin on her finely chiseled block of stone is goodness, truth, and beauty. The boulder with the mushrooms growing in a marshy spot is the realm of unregenerate nature that is now to be offered redemption. Mushrooms belonged to that armory of demonic symbols which painters used in the I5th and i6th centuries when preaching to the world about Satan and his works. It is true that they used mushrooms sparingly, but the symbolism is abundantly clear. Much more common as symbols of the infernal forces were serpents, lizards, frogs and toads, beetles, and flying insects; in short, all those creatures commonly thrown together under the pejorative name of Vermin'.[1]

Our interpretation of these early mushrooms finds support in a painting by a fourth master, Herri met de Bles known as Civetta, 'the Owl', who died in 1550. Of the Flemish school, by cultural heritage he belonged to the world of Bosch and Brueghel. In the Gemaldegalerie der Akademie der bildenden Kiinste, Vienna, there hangs his *Christ Bearing the Cross,* a small and exquisite canvas. The field of the iconographic message in this painting is enframed in the foreground by a close-up of rough untilled land. We were the first to detect in this foreground, near the center, two clumps of minute and delicately delineated mushrooms, and a third clump of the same genus is in the lower right hand

I. The corpus of paintings and sculpture expressing the demonic theme from those centuries is considerable, and has been the subject recently of an illuminating monograph, Enrico Castelli's *II Demoniaco nell'Arte,* Milan and Florence, 1952.

But mushrooms in the i6th century were not always the stigmata of Satan. In the only etching executed by Peter Brueghel the Elder, *The Rabbit Hunt,* dated 1566, two mushrooms appear in the lower right foreground. They carry no iconographic message. Albrecht Dtirer was responsible for a mediocre woodcut of a polypore, dated 1513; see F. Lippmann's corpus of his works, No. 912, or F. Winkler's, No. 632. In Michel Angelo Caravaggio's *Christ with Disciples at Emmaus* (National Gallery, London) there is a basket of fruit among which the mycologist will detect an apple infected with a fungal parasite.

corner. Only by the aid of a powerful magnifying glass can they be fully perceived and properly admired. These mushrooms are off-stage, so to speak, and they might be dismissed as a graceful but meaningless phantasy, did we not recall the sinister meaning of the mushrooms in the works of Bosch and Brueghel. We lean to the view that here also the mushrooms are symbolic of the Powers of Darkness, who in this case are working out their woeful role on the highway to Golgotha.[1]

In the Dutch still-life paintings of the iyth and i8th centuries there was a delayed manifestation of the demonic theme in art, a strange and lovely afterglow that is of peculiar interest to us for the role in it of mushrooms. Among the scores of accomplished Dutch artists who were at work between 1640 and 1770 were a handful who chose woodland settings for subjects, closeups of woodland undergrowth, in which we discover serpents, lizards, frogs and toads, beetles, and flying insects. Often the artists added mushrooms of various species. These Dutch masters were offering to their customers paintings of Vermin', creatures that from earliest times had symbolized the Satanic powers. A century had elapsed since the elder Brueghel's day, and the world had gone through the spiritual upheaval of the Reformation. The minor creatures of the woodland still trailed clouds of evil, but the dark emotions that they now evoked were only reflexes of the former nightmares. They were terrors recalled in tranquillity and suitable for esthetic delectation.

The originator of this theme in Dutch still-lifes was none other than Otto Marseus van Schrieck, whose *Moth with Mushrooms* we have already discussed. Born in the second decade of the I7th century, he died in the late i67o's. No one knows under what master he studied. Little is certain about his life beyond the fact that he lived long in Italy, that he was in Rome in 1652, that he enjoyed considerable success in his day, and that his peculiar choice of subjects set a fashion which persisted for a century and more. It is said that, after his return to Holland, he kept a small private zoo in the garden of his home near Amsterdam where the creatures that he loved to paint were always ready for his brush. He was surnamed 'Snuffelaar', one who ferrets.

Van Schrieck was an artist whose work records a deep cultural transition. On the one hand, he was saturated in the sinister folklore attaching to the humble creatures that he put on canvas, the dark heritage of past beliefs. Was he not in

i. The Art Museum of Princeton University has lately acquired a companion painting by Civetta, representing also the procession on the road to Calvary. Strikingly similar in many respects, it even includes mushrooms, in the foreground on the right hand side, below the owl that is the artist's signature. But they are hesitant and uncertain as compared with the authority of those in the Vienna painting.

fact the last genuine painter of the demonic tradition > On the other hand, he was the discoverer of beauty in the lowliest and most despised woodland creatures. He raised even Vermin' to the democracy of the artist's beauteous world. For the first time snakes and toads were to give esthetic pleasure. He was the first European to perceive and proclaim the visual beauty of mushrooms. He studied nature with minute care. A snake was no longer just a snake: it was a particular species of snake. A mushroom was not just a toadstool, not the Idea of a fungus such as Bosch had given us. The mushroom world was peopled with an infinite variety of discrete growths, each worthy of distinct and precise delineation.

Was not Van Schrieck, in a significant sense, the earliest of the nature painters? Of course many artists before him had caught the beauty of a landscape. Giants like Diirer and Leonardo had executed superb studies of individual plants or animals. Various miniaturists had ornamented the margins of manuscripts with the profile of a bird or bush, catching to perfection the distinctive line of each. But Van Schrieck added a new element: centuries before Audubon and before scientists began to talk about 'ecology', this Dutch painter sensed the importance of the ensemble of nature, the interdependence of plants and insects and mushrooms and the wild creatures that lived in the undergrowth. Long before Linnaeus and the classification of species, he was distinguishing the species with his artist's eye, and observing the cycle of life in which each lives as a link. He was the first artist whom naturalists can call their own. All those who hold wild nature in honor, and especially all amateurs of mushrooms, will pay homage to this neglected Dutch master, this pioneer in the exploration of nature's wonders.

A peculiarity of Van Schrieck was his addiction to nocturnal settings. Was there ever other artist who so specialized in painting the night ? How sensitive his imagination was to the Stygian blackness of deep night in the woodland undergrowth! He seems to begrudge even that light which he is forced to use to give us a picture at all. What we discover in his paintings is caught by the dazzling illumination from an off-stage light, and the shaft that comes from off stage stops short with the creatures that he paints. The moth is caught in air as by a flashlight, but the light does not race on around the moth to strike elsewhere. This effect reminds us of those modern spotlights designed with mathematical nicety to illuminate the exact area of a canvas or a sculpture. Of course Van Schrieck's settings are artificial, like most settings in museums of natural history, but each component in the picture is vibrant with life and individuality. The artist is not content with painting symbols and effigies as iconographs.

He is not content with dead models. The demonic message is there in the nocturnal scene, but conveyed by living individuals caught in the dance of life and death. His settings suggest in a way an aquarium, for the buoyancy of the night air makes itself felt in the way all the creatures and the vegetation seem to float in a life-sustaining medium. The three Van Schriecks that we reproduce are chosen for their emphasis on mushrooms. Almost all his paintings include mushrooms, but these are extreme in this respect, as also for the blackness of the night.

Our artist's peculiar qualities find full expression in the painting that hangs in the Herzog Anton Ulrich Museum in Brunswick. Dated 1662, it was probably executed in Amsterdam. Van Schrieck had just returned from his long sojourn abroad. As usual, the setting is crepuscular. A tulip is overborne in the coils of a snake of the species elaphe quatuor-lineata. To the right flies one of the saturnine moths. A viper is hissing below, and on the ground we discover a bufo calamita ('calamity toad') licking up a slug. This is the toad that the English name the natterjack. On the left a snake that herpetologists call the coluber viridi-flavus emerges from behind a clavaria botrytis and then curls through a cluster of three mushrooms, of which the one in the middle is a russula and the others are Csesar's amanitas. Flies are crawling on the amanitas, and as *Fliegenschwamm* in Van Schrieck's day was a name bestowed on various species, he may have expected his public to call these mushrooms by that name. The air hangs thick with evil import, yet each detail is executed with the care of one who enters fully into the beauty of nature's cruel cycle. Van Schrieck's painting long antedated the scientists' nomenclature, of course; with the artist's eye he was anticipating their labors.

Van Schrieck's success in his lifetime should not surprise us. He was born into circles with a sophisticated palate for art, and his contribution was an original and notable one. He disclosed the beauty of the wilderness with a subtlety that far surpassed his predecessors. The labored efforts of the early scientific writers were tedious by comparison with his discourses on wild nature expressed in line and color. His mushrooms are incomparably superior to those of the professional illustrators who supplied woodcuts for the text of Clusius, Bauhin & Co. His influence soon took hold of other artists, some of whom achieved a more lasting reputation than he. The Neapolitan painter Paolo Porpora surnamed Pavoluccio Napolitano, a contemporary, imitated Van Schrieck repeatedly: two Porporas painted in this vein hang in the gallery of the Banco di Napoli in Naples, and of these we reproduce one.[1] Abraham

I. This little known artist is the subject of a study by Raffaello Causa in *Paragone* (pubhshed in Florence by Casa Editrice Sansoni), March 1951.

PLATE LIX. Pieter Brueghel the Elder. The Misanthrope. *Naples, Museo Nazionale.*

PLATE LX. Pieter Brueghel the Elder. The Misanthrope. Detail. *Naples, Museo Nazionale.*

PLATES LXI, LXII

PLATE LXI. Juan Bautista Mayno. The Adoration of the Magi, c. 1610.
Madrid, Prado Museum.

PLATE LXII. Juan Bautista Mayno. The Adoration of the Magi, c. 1610. Detail.
Madrid, Prado Museum.

PLATES LXIII, LXIV

PLATE LXIII. Herri met de Bles ('Civetta% Christ bearing the Cross. *Vienna, Gemaldegalerie der Akademie der bildenden Kiinste.*

PLATE LXIV. Herri met de Bles ('Civetta'). Christ bearing the Cross. Detail. *Vienna, Gemaldegakrie der Akademie der bildenden Kunste.*

PLATE LXV. Otto Marseus van Schrieck. Poppy with mushrooms.
New York, Metropolitan Museum of Art.

PLATES LXVI, LXVII

PLATE LXVI. Otto Marseus van Schrieck. Mushrooms. *Brunswick, Herzog Anton Ulrich Museum.*

PLATE LXVII. Otto Marseus van Schrieck. Mushrooms. Detail.
Brunswick, Herzog Anton Ulrich Museum.

PLATE LXVIII. Paolo Porpora, d. 1673. Still life. *Naples, Banco di Napoli.*

PLATE LXIX. Abraham Begeyn. Still life. *Rome, Galleria d'Arte Antica.*

PLATE LXX. Frans Hamilton. Still life. *Munich, Bayerische Staatsgemdldesammlungen.*

PLATE LXXI. Rachel Ruysch. Still life. *Oxford, Ashmokan Museum.*

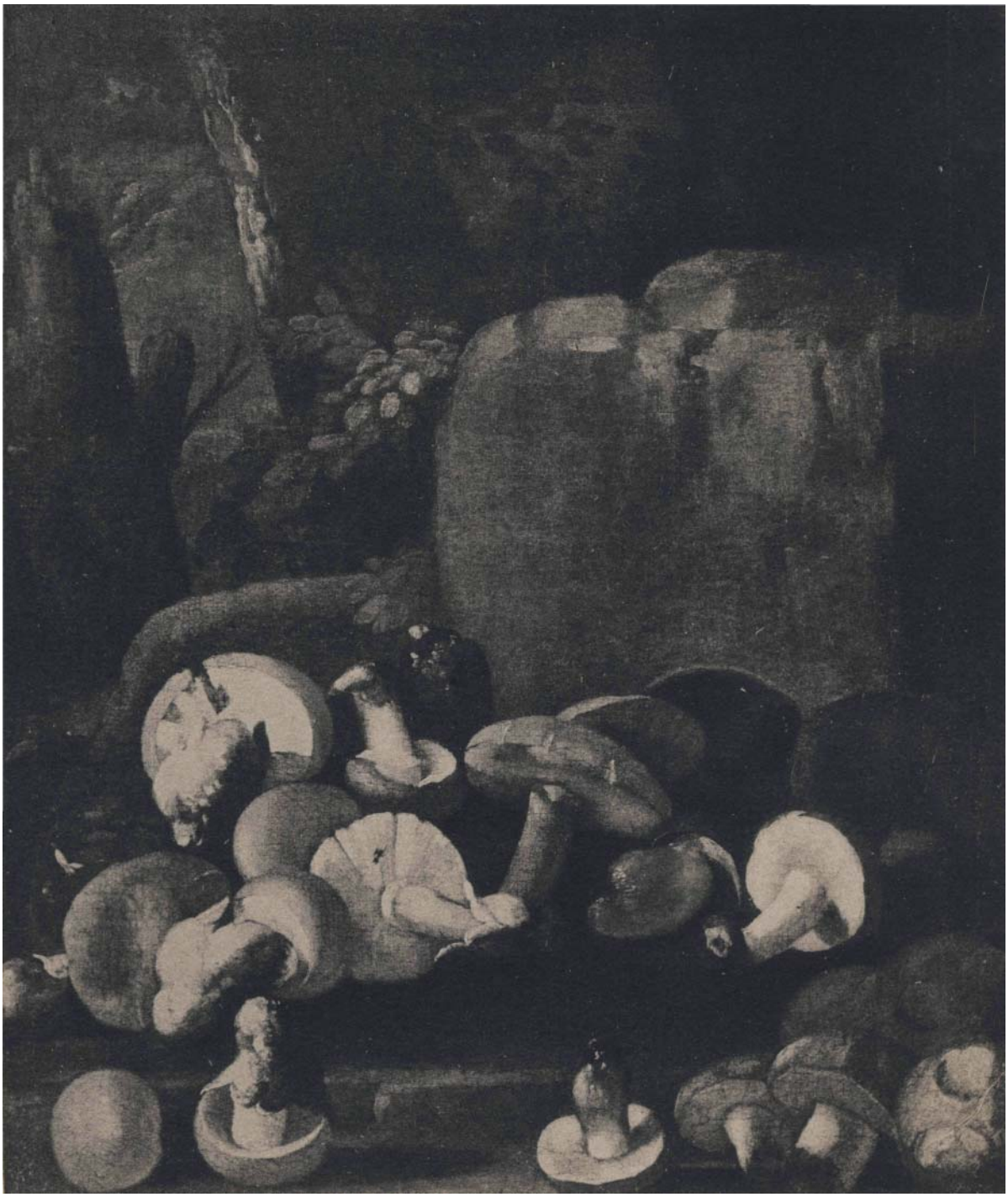


PLATE LXXII. F.W.Tamm. Still life. *Private collection.*

PLATES LXXIII, LXXIV

PLATE LXXIII. Melchior de Hondecoeter. Still life. *Amsterdam, Rijksmuseum.*

PLATE LXXIV. Melchior de Hondecoeter. Still life. *London, National Gallery.*

PLATE LXXV. School of Zurbaran, lyth-iSth century. Chestnuts, cheese, grapes, almonds, and mushrooms, sp. tricholoma personatum.
Chicago Art Institute.

PLATE LXXVI

Mushrooms. From a fresco found at Herculaneum, probably executed about A.D. 50. *By courtesy of the Museo Nazionale, Naples.*

PLATE LXXVII. The dream. Woodcut after J.-J. Grandville.
From the *Magasin Pittoresque*, 1847.

Begeyn, about twenty years younger than Van Schrieck, revelled like him in woodland subjects and mushrooms, as did also the mysterious Frans Hamilton,[1] Anthonie van Borssom, and the German, Johann Albert Angermayer. Later in the same vein came Rachel Ruysch, who lived into the mid-i8th century, and Franz Werner Tamm, born in 1724. All of these distinguished artists loved their rrmshrooms and knew them, though not like Van Schrieck. Van Schrieck's influence went even beyond them. It may be said of him that he effected the integration of mushrooms into the idiom of painters. Before him in all of the painting of Europe the absence of mushrooms is conspicuous, if not absolute. In settings where mushrooms would seem almost compulsory, there were none, as though good taste compelled good artists to rub them out. After Van Schrieck, mushrooms are never again a surprise. Though rare, they recur sporadically and naturally whenever barnyard and outdoor themes seem to call for them.

Those other painters who borrowed Van Schrieck's peculiar theme were less attached to the demonic import of the subject matter than he was. They admitted more light than he did. They would show a patch of daylight sky. They introduced daytime birds. They prettified the whole setting. Van Schrieck's paintings repel the uninitiated by their darkness, while his followers' possess a superficial charm as quaint period pieces. But what they gained in gentleness they lost in focus. They were satisfied with fewer species of mushrooms, and showed a tendency to stylize them, like stage properties. Their snakes and insects tend to be less sharply delineated. In those art circles where the extraordinary merits of the Dutch still-life painters are esteemed, Mignon and Ruysch today rank above Van Schrieck. From one point of view this is a mistake. For connoisseurs both of cultural history and natural history Van Schrieck should stand first. He is unique, a cultural *trait* ***d'union*** between the world of demonic folk beliefs and the beautiful world of nature, where even the lowliest creatures are infinitely precious for the understanding eye.

By good fortune we are privileged to attend the very act of artistic alchemy by which Van Schrieck's peculiar quality was transmuted to suit the conventional taste. The year is 1668. Van Schrieck after years of wandering is back in Amsterdam, active and honored, in his early 5o's. Melchior de Hondecoeter, a brilliant

I. At a time when painting in Scotland was still in its infancy, a cluster of accomplished artists bearing the name of Hamilton were in fashion in central Europe, exponents of the Dutch school. There were James and Frans, whose earliest works seem to date from the i66o's, and James in time gave to the world three sons and one grandson who were painters. James and Frans were presumably kin, but this is an inference unsupported by evidence. It is a fair surmise that they emigrated from Scotland as small children under the Commonwealth, for their schooling in art was wholly Continental. Such biographical data as appear in the reference works about them are meager and dubious. It is strange that Scottish genealogists have failed to identify these distinguished Continental Scots.

young artist of 34, paints a picture after the Van Schrieck manner, with mushrooms, lizard, and butterflies. We can study it today in the Rijksmuseum in Amsterdam. He retains Van Schrieck's nocturnal effect, devising a powerful off-stage light to the left to bathe with dazzling effulgence the foliage and mushrooms on the right. The mushrooms, well delineated, belong to the genus hypholoma and are probably of the species hypholoma fasciculare. Finches in full panoply occupy the center of the canvas, aroused by the presence of a lizard. Some daylight enters from the upper right. The artist signs his painting on the tree-trunk below the knot-hole, and no one challenges the attribution. Hondecoeter was destined to win renown for his skill in painting birds. Almost two centuries before Audubon, he achieved the impossible by catching the stance of a bird in its moment of intense vital performance, and in this work he was already on his chosen path of special achievement.

Now let us turn from the Hondecoeter in the Rijksmuseum to another version of the same painting in the National Gallery in London. It is signed above the knot-hole and dated I668.[1] Here the artist has reassembled the mushrooms, foliage, birds, butterflies, tree-trunk, and patch of sky. Each of the elements carries the same light effects as in the Amsterdam work, but with the redistribution of the parts, the Van Schrieck effect of concentrated off-stage highlighting is sharply diminished. In these two paintings we see the brilliant artist of the younger generation, still under the spell of Van Schrieck, experimenting with the master's methods. In the second he retains mushrooms and Vermin' but abandons the nocturnal trance.

1 here is a noteworthy thing about the mushrooms painted by Van Schrieck and those who followed in his wake: for them all, the attraction of the mushroom seems to have been visual. They discovered that mushrooms, bathed in folklore, were also beautiful, and then they stopped. Is there a single Dutch or German painting of the iyth or i8th century in which mushrooms appear in a context of food; These hereditary mycophobes permitted themselves to be seduced by mushrooms, but not all the way. More than a century before Van Schrieck, Jan Brueghel the Elder, known as Velvet Brueghel, executed

I. In the past this painting has been attributed to Abraham Mignon. We discovered its kinship with the Hondecoeter in Amsterdam and submitted to Frits Lugt, the authority on Dutch still-lifes, the problem presented by the diverse attributions. After carefully examining the picture in London, Professor Lugt wrote us that he failed to see in it the harder, more metallic style of Mignon. Of the signature in the London painting, only 'M' clearly survives, and he interpreted this as the 'M' of 'Melchior d'Hondecoeter'. Afterwards, applying a lens to the area of the signature, we clearly distinguished also the 'd' that precedes the artist's surname. The traditional attribution to Mignon is certainly erroneous, based on a mistaken interpretation of the surviving initial of the name.

two series of paintings to illustrate the corporeal senses, and today they hang in the Prado. Twice he represented the delights of the palate in a riot of foods of all kinds, but among them are no mushrooms. Admirable as Van Schrieck and his followers were, it seems certain that they followed in Jan Brueghel's train and never knew the epicure's delight in a cep or morel. As in the case of Thoreau, mushrooms never made their saliva run. When they painted mushrooms with exquisite perception, they made no distinction between the edible and the inedible: clearly for them all were inedible. Thus Paolo Porpora in his canvas that we reproduce coils his serpents and lizards through a cluster of delectable morels. A painter discovers and reveals such truth as lies within the compass of his visual dimension, and these Dutch artists triumphed over their ancestral mycophobia within the medium at their command but no further.

In Van Schrieck's time we have seen that mycophagy was burgeoning among the Flemings, but this cultural innovation seems to have had no parallel among the Dutch. How odd that the line of demarcation between the Protestant and Catholic worlds should also separate the mycophobes from the mycophagists! There must be exceptions, but just as no Dutchman or German seems to have painted mushrooms in a context of food, so we have found no painter after Brueghel identified with Brussels or Antwerp who used mushrooms as a demonic symbol. Though the still-life artists of the iyth century never tired of painting food, it is a fact that even in Flanders mushrooms figure seldom in those paintings. In addition to those that we have discussed on pages 130 if., there is a superb still-life of the school of Zurbaran in the Art Institute of Chicago, wherein two specimens of the psalliota arvensis (as we think them to be) appear, along with chestnuts, cheese, almonds, and grapes. Robert Graves in Majorca possesses a canvas dated 1656 with a fine show of *rovellons* (lactarius sanguifluus), which the Catalans esteem above all others, and this canvas is attributed to the Majorcan artist Antonio Mesquida.

The oldest painting of mushrooms in the world is a fresco discovered in the excavations at Herculaneum early in the i8th century and now hanging in the Museo Nazionale in Naples. It must have been executed around'A.D. 50, perhaps at the very moment when Pliny was composing his chapters on the fungi for his *Historia Naturalis.* These mushrooms seem to belong to the genus lactarius and are obviously for eating. All of the specific names for mushrooms that we know from classical Latin have been securely identified, and there is none that we can attach to those in this ancient fresco. Here is a wholesome reminder of how little we really know about the mycological knowledge of the ancients, for we may consider it virtually certain that the ancient in-

habitants of Herculaneum knew the mushrooms of the fresco well and had a name for them.

There is a remarkable thing about this Herculaneum fresco. Let the reader compare our reproduction of it with Jan Fyt's canvas, Plate XXIV. In both, mushrooms are scattered in the foreground. In both there are thrushes, stiff in death, laid out on a ledge above and behind, in the fresco mistle thrushes or turdus viscivorus, in Fyt both mistle thrushes and fieldfares or the turdus pilaris. These artists separated by sixteen centuries hit on the same objects for their two still-lifes, and the same composition. The fresco could not have influenced Fyt, of course, for apparently it was not exhumed from its volcanic grave until a century after Fyt's time.

1 he mushroom in Renaissance art was originally and principally demonic in suggestion, as we have seen. In the lovely paintings of Rachel Ruysch and F. W. Tamm this demonic vein had spent itself, petering out in the placid calms of the i8th century enlightenment. Mycophagy was gaining ground, and in addition Gainsborough and later Corot discovered the idyllic beauty of mushroom gathering - a far cry from the terrors of the mushroom in the world of Bosch and Brueghel and Civetta. But the old theme was not altogether dead: after all, it had sprung from the very tap roots of Europe's earliest cultural world, the mycophobia of the Germanic world that gave us Bosch and Brueghel. One of the eminent illustrators in 19 th century France was the artist J.-J. Grandville. He died in the spring of 1847, at 44 years of age. On the eve of his death he submitted to the *Magasin Pittoresque* two woodcuts of astonishing quality, which in due course that journal published.[1] These last works of his were pictorial representations of dreams. The first does not concern us. We reproduce the second and suggest that the reader examine it with some attention. Grandville submitted his explanation for this dream, a banal sequence of meaningless images, as he thought. Perhaps this design expressed more than even so sensitive an artist as Grandville was aware of. Reading from top to bottom, the sliver of a moon emerges as a mushroom. By way of an intermediate metamorphosis, the mushroom becomes a parasol, the *chattra* that was the Sanskrit metaphor for the mushroomic world. The parasol then transforms itself into a bat, *le hot volant* of French demonic folklore. The bat, in turn, becomes a bellows, one of that family of distensible sacs which we found metaphorically linked with the fungal world in various primitive usages. By a strange chance, a number of these successive designs are emitting a flame, that very flame which with its

i. pp. 210-214, 1847.

supernatural and erotic meaning seems to have been at the taproot of Europe's fungal associations. The bellows, indeed, becomes two flaming hearts transfixed by a sword, which in turn give way to a rolling spindle, and then a four-wheeled chariot drawn by flaming steeds in the direction of a starry firmament.

How strange it is that Grandville in the final emanation of his genius should have struck a chord so nicely attuned to the whole argument of our book! It is as though in his subconscious being this ipth century Frenchman recapitulated the emotions of his race vis-a-vis the fungal world since earliest times, and then gave those emotions expression in a design of breathtaking simplicity and beauty. It is almost as though, with a hundred years of anticipation, he was putting the seal of his subconscious approval on a number of our suggestions.

20

UNSCIENTIFIC NOMENCLATURE

JVLycologists sensitive to the fitness of things are the first to admit that their nomenclature for mushrooms offers a spectacle of unscientific confusion, an accumulation of infelicities. Scientific names should be keyed to significant aspects of the organisms that they designate, and there should be uniformity in use. Instead, many of the scientific names for mushrooms serve only to remind us of the errors of early mycologists, and any given species is likely to carry two or more names that are in simultaneous currency in different countries. It even happens that a single scientific name is commonly employed for different kinds! (It seems certain, for example, that two of the famous mushrooms, the amanita muscaria and the amanita phalloides, are different species in Europe from their American namesakes and it is perilous to assume that attributes securely established for them in one continent hold true across the ocean.)

In formal use, following each name is the surname of the mycologist who described it, or perhaps two such names, and so the objectivity that is the proper virtue of science becomes tinctured with the frailty of those who gladly permit their names to be hitched to a mushroom, perhaps tempted by a vain hope for worldly immortality, if only in union with a fungus.[1]

Mycological nomenclature got off to a bad start with Carolus Linnaeus, the 18th century Swedish name-giver. Like Adam he surveyed the living world and bestowed names on all the flora and fauna, but he seems to have hurried a little impatiently over the numerous and baffling and humble fungi. He chose to make use of terms drawn from ancient Greek and Latin, but did not pause to ascertain their rightful meanings. He misapplied almost every one of them. But by the weight of his immense prestige, he stamped the old words with his new meanings, and these are now current the world over. They are current the world over - save here and there among the peasants of Greece and Italy and France, where vernacular variants of the words used by their ancestors two thousand years ago still circulate with their ancient sense, and hold their own against the new-fangled meanings that prevail in learned circles.

In extenuation of the Linnaean terminology it can be pleaded that the classical words had already been misused by his precursors, such as Clusius and the

I. In this book we have not capitalized scientific names, thereby wilfully violating accepted practice. Only in High German are common nouns capitalized, and this German usage disfigures the page with capital letters; it is not to be encouraged. Scientific names are not proper nouns: they designate congregations of similar individuals. There is no more reason why 'lycoperdon' should be capitalized than the synonym 'pufifbalT.

Bauhins, and that he merely refined the application of names accepted in scientific circles since the Renaissance. Even if this be true, we may regret that the great Linnaeus did not rise to the occasion, and with his papal authority impose a sound system of names conforming to the classical meanings of the words that he was using. There was no difficulty about those classical meanings. Before the century was out, the French mycologist, Jean-Jacques Paulet, in his *Traite des Champignons* published in Paris in 1793, was discoursing on the nonsense of the official nomenclature and elucidating the classical usage.[1]

Take the Latin *boletus,* for example. In imperial Rome this was the name of the superb amanita Caesarea, that yellow-capped gilled mushroom which was the favorite of emperors and epicures. It was undoubtedly borrowed from the Greek βωλίτης which in turn was derived from βῶλος, meaning a clod of earth. Mushrooms smell and sometimes look like earthy excrescences, and in *boletus* we discover another of the basic metaphors used in the fungal world, of which we have already identified many others. The same figure underlies the famous Russian *gruzd',* a derivative of *gruda,* meaning 'clod'. The Greek term must have been pejorative, but when fashionable Rome took to mycophagy, *boletus* acquired an aura of excellence that survives to this day. Caesar's *boletus* is said to be still called *thefongo bolado* or *bole* around Verona, and *boule* in some parts of Provence. *Bolet* is the general term for fungi, especially those with gills, among the mycophilic Catalans. When the Germans needed a new and favorable word to make mushrooms acceptable on the table, we have seen that they turned *boletus* into *Pilz;* and one of the general words for 'mushroom' in Rumanian is *burete,* with the same etymology.

In the light of this history, it is disappointing that Linnaeus ratified the severance of that fine old *boletus* from its ancient moorings, and assigned it to capped mushrooms with a spongy undersurface. The untutored peasants of the Mediterranean lands who still apply the word to gilled mushrooms speak with an authority derived from far older credentials than the mycologists can show, and - who knows? - possibly their usage will outlast the new.

The mushrooms that mycologists call 'boleti' were the *suilli* of the Romans, the swine-fungi, a name that comes down to us in modern Italy in the translation *porcino* (boletus edulis) and *pordnello* (boletus scaber). The books are wrong when they explain these names by an alleged fondness among pigs for the boleti. These are the species that develop a greasy texture suggestive of pork

i. The meanings of the classical words for the fungi have been examined twice by English students: (i) by the Rev. Wm. Houghton, 'Notices of Fungi in Greek and Latin Authors', in the *Annals & Magazine of Natural History,* Series v, vol. 15, Jan. 1885, pp. *22 ff;* and (2) by Prof. A. H. R. Buller, 'The Fungus Lore of the Greeks and Romans', *Transactions of the British Mycological Society,* vol. v, part I, May 10, 1915, pp. 21 ff.

when cooked in the fresh state; and when dried, they taste like dried meat. This meatiness explains why they are great favorites among the monks of the Russian Church in the long fasts. Today these 'swine-fungi' are considered *kosher* among the Jews of Eastern Europe, but our friend Professor Uriel Weinreich, authority on the Ashkenazic culture, reports to us a curious fact. From an informant of Polotsk he learned that in that area the Jews down to modern times have regarded the boletus edulis as *treyf,* or unclean, and have not eaten it. May not this be a survival of a very old tradition? For the Jews of Russia mostly migrated thither from the West, passing a long stage in Germany on the way, and the association of these mushrooms with the pig in Italy may well have eliminated them from the diet of Jews.

Reverting now to the mycologists, we find that they have borrowed the Greek word for truffle, ύδνον, to apply to the wholly different hydnaceae family, and the Greek word for puffball, πέζις, to apply to the wholly different peziza group, and the Greek word for the field mushroom, άμανῖται, to apply to the clan known nowadays as the amanitas. The Latin word for truffle, *tuber,* alone survives in its original meaning. No purpose was served by these shifts in meaning: they were merely an evidence of bad classical education and an unscientific carelessness with words.

Another example of this abuse of language is the fate of the Latin word *agaricum,* the Greek άγαρικόν. Surprising as it may seem, the ancient Romans were not unfamiliar with the fungi of the region that we call Russia. Today 'agaricus' is the name for the gilled fungi, but it was Linnaeus who imposed this meaning. The ancients applied the word to the shelf-fungus that grew on the larch, now known as the femes officinalis, used since ancient times medicinally. Dioscorides explained for us that the name was taken from the land of Agaria, lying on the northern shores of what we call the Sea of Azov, there where mariners would steer their course by Point Agarum, halfway between the mouth of the River Don and the ragged peduncle by which the Crimean peninsula hangs from the Continental land-mass. The physicians of Agaria enjoyed renown in those times, and at the Court of Mithridates the Great some of them were always in attendance. Probably the medical school of Agaria was the first to discover the medicinal virtue of the ancient *agaricum.*

On the shaky foundation of Linnaeus' basic names for the mushrooms, errors and infelicities have continued to pile up. There is the spring-tide amanita, or amanita verna, which grows in the autumn. There is the amanita phalloides, which ought to be 'phallus-like'. Not at all! To explain that name we must look at another fungus, most distantly related, which does resemble a phallus and

PLATE LXXVIII

Jean-Henri Fabre. Lactarius deliciosus Fr. ex Lin.
French: *sanguin;* Russian: *ryzhik.*

PLATE LXXIX

Jean-Henri Fabre. Lactarius sanguifluus Fr. ex Paul.
French: *vineux;* Catalan: *rovelU.*

which is called the phallus impudicus. Around the base of the stem of the amanita phalloides there grows a 'cup' that superficially resembles the 'cup' of the phallus impudicus, and this feature, unrelated to any phallus but shared by the two species, is the trivial justification for the name of the amanita phalloides! There is the gyromitra esculenta, widely sold in the market places of Europe, but whose esculent virtues have been occasionally tarnished by mysterious fatalities. Linnaeus himself bestowed on the lactarius deliciosus its misleading name. It seems that reports reached him of the esteem in which a certain lactarius was held in the south of Europe, and he assumed that it was the one with which he was familiar in Sweden, and so bestowed on the kind he knew the name that rightfully belonged to another.[1] By this blunder he started endless confusion and misunderstanding. The lactarius deliciosus is not delicious, and the species that Linnaeus thought he was baptizing is now known as the lactarius sanguifluus, the *rovello* of the Catalans, the species on which the Majorcans bestow the delightful name of *exclatasangs,* or 'blood-spatterers'. The milk of this kind is reddish, whereas the so-called lactarius deliciosus yields saffron droplets.

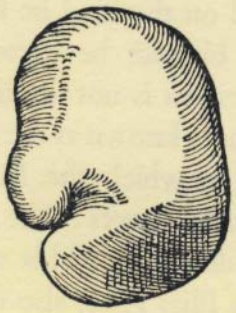
One of the greatest of mycologists was Elias Fries, also a Swede. About him there is a story to tell that, so far as we know, has never been told before. Men of learning are sometimes inclined to patronize lesser mortals, but they are themselves subject to occupational hazards of their own, pedantic errors and odd manifestations of ignorance, and Fries offers us an instructive example of the pedantic fallacy.

It was in 1601, as we have said on an earlier page, that the Frenchman known as Carolus Clusius published his great herbal, *Rariorum Plantarum Historia,* in which he devoted many pages to descriptions of the fungi of Hungary. Among others, he discussed the species known to the French as the *mousseron,* and to science as the tricholoma gambosum or tricholoma georgii. We reproduce in facsimile the relevant passage of his text. The reader will observe that Clusius begins by giving the Hungarian and German names of the mushroom, *Szent **Gyewrgi** gambaia* and *Sant Georg schwammen* respectively. Both names mean the same thing, viz., St. George's mushroom, *gambaia* being the appropriate grammatical form of the Magyar word *gamba* or *gomba,* 'mushroom', a word borrowed from the Slavs and cousin to the Russian *guba.*

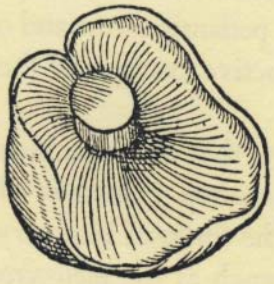
More than two centuries later, in 1821, Elias Fries published his *Sy'sterna Mycologicum,* one of the classics of mycological writing. In it he bestowed on the species that Clusius had already described the name agaricus gambosus, adding

I. Roger Heim retells the story of the misnaming of the lactarius deliciosus in the *Revue de Mycologie,* vol. xv, fasc. 2, July 1950.

III. Genus eſculentorum Fungorum.



Tertiũ genus fung. eſculẽt. Szent Gyevvrgi gambaia. S. Geörg ſchwämen.



Natales

Parandi ratiõ.

GENVS II.

VLTRA Balatonem lacum Vngariæ, in parva inſula cui nomẽ *Fanot*, Simidienſi Comitatu, Aprili etiam menſe naſci intelligebam Fungi genus delicatiſſimi ſaporis, cujus nomen indicare nemo poterat: ſed illi ſimilis eſſe ferebatur, qui inter pernicioſos & lethales Decimum ſextum genus eſt, & ab Vngaris *Kygio gomba*, à Germanis Natter ſchwammen dicitur: pyramidali tamen dorſi tantaliq; apice & anguſto hunc fungũ eſſe.

GENVS III.

TERTII generis, quod Vngari *Szent Gyewrgi gambaia*, Germani Sant Geörg ſchwammen appellant, quia circa diẽ D. Georgio ſacrum (qui in viceſimum tertium Aprilis incidit) invenitur, unicam obſervabam ſpeciem.

Parva autem illa eſt, duarum unciarũ amplitudinem vix æquans, orbiculari ferè formâ, ſupernè quidem aliquantulum extuberante, & quodãmodo pulvinatâ: infernè verò concameratâ, & quibuſdam veluti venis diſtincta, pediculo craſſo, breviq; , coloris exalbidi, cui flavi quidpiam admiſtum ſit.

Creſcit in ſiccioribus atque paſcuis pratis: & fortaſſe is erit fungus, quem Horatius ſatyra quarta lib. II. Sermonum, optimum pronunciat his verbis,

——— *pratenſibus optima fungis*
Natura eſt: alijs malè creditur.

Eſt verò Tertium hoc genus, aliorum fungorum modo præparandus, qui repurgati, ut plurimùm elixari ſolent, & in fruſta concidi, quæ inter binas lances repoſita, inſperſo oleo olivarum vel butyro, & pipere addito, ſuper prunas coquuntur: aut cum larido inijcitur juſculum ex lactis cremore paratum, quod Germani Milcktraum appellant.

Fig. 27. EARLIEST DESCRIP'ION OF TRICHOLOMA GAMBOSUM
by Carolus Clusius, in *Rariorum Plantarum Historia,*
Antwerp, 1601.

the comment that he suspected this was edible because of its odor of fresh flour! (There speaks the mycophobic Swede.) He thought it was the true agaricus georgii, as to which there had been much confusion. Here are Fries's words:

> Hunc pro vero A. Georgii, quo nil magis confusum,
> et ob odorem farinse recentis edulem suspicor.

Fries did not explain his use of *gambosus,* but he referred to the very passage in Clusius that we have reproduced, and therefore it was not at all surprising when, in 1827, a learned confrere, Kurt Sprengel, in editing the i6th edition of Linnaeus' *Sy sterna Vegetabilium,* retained the older name, agaricus georgii, and then added, again in Latin, a slighting reference to Fries's term, saying that it was derived from the Hungarian word in Clusius and that it was an unhappy choice; which indeed it was.

In the following year, 1828, Fries gave vent to his pique at this reprimand in his *Elenchus Fungomm.* Again using Latin, he said that Sprengel, 'most learned in botanical literature', was mistaken in tracing the excellent name, agaricus gambosus, to the Hungarian *gambaia,* which he had never thought nor even heard of. Instead, the nature of the mushroom had inspired him to borrow from the Latin author Vegetius the word *gamba*!

This was a most unwise assertion for the great Fries to make. Despite his assertion to the contrary, he was, as his text had expressly said, familiar with Clusius. He had clearly misread Clusius, construing *gambaia* as a specific name rather than the Magyar word for 'mushroom'. When challenged, he took refuge in a late Latin writer's use *of gamba,* which in Vegetius, as we have seen, meant a swelling on the hock of a horse. Certainly no one, not even a Swedish mycologist, would associate by first intention the lovely *mousseron* with a swelling on the hock of a horse! Nor even with a hoof of a horse, which is an alternative meaning. By devising the name 'agaricus gambosus', Fries unwittingly was describing the *mousseron* as of the genus 'agaricus', species 'fungus'.

By reason of Fries's error, the mycologists have inherited, apparently in perpetuity, an absurd scientific name for the simple *mousseron,* a name that survives in the modern 'tricholoma gambosum'. If, as we argued on an earlier page, the word *gamba* in Vegetius was a borrowing from the barbarians of Central and Eastern Europe, then that was the same *gamba* that appears in Clusius, and Fries did not advance his cause in the slightest by digging up the writings of the Roman veterinary.

How refreshing it is to turn from the unhappy nomenclature of the mycologists to the genuine words devised over the ages by humble peoples! Some

of these hide their secret meanings successfully, such as *mizcalo* in Spanish, and the generic word for mushrooms in Romany, *x* or *xuxur*. To illustrate the complexity of the problems presented by popular mushroom names, we shall cite the case of the delectable mushroom known to science as the tricho-loma equestre, which in the mushroom world holds the rare distinction of growing in sand. It enjoys great renown along the coast of the Landes, in Gascony, under the name *bidaou.* Some miles to the east, in the sauterne country around Podensac, this same mushroom, highly esteemed, is the *pied d'ane,* or ass's hoof. In the neighboring region of Entre-deux-mers, famous among wine-lovers, it is the *Catalan,* a name used elsewhere in the Gironde for the lactarius deliciosus. Beyond the Dordogne around St. Andre de Cubzac, it becomes the *jaunisson.* Nearby, in the canton of Cavignac, where the *langue d'oil* is spoken, our tricho-loma equestre is known as the *bourseau,* from a local word meaning to swell or distend. Thus here in an area of France that could be covered by a pocket handkerchief, so to speak, a single species of mushroom, well known to everyone, bears five distinct names.

Wherever the latent metaphor in a popular name for a mushroom can be deciphered, it is invariably accurate in observation and true in feeling. In the course of these pages we have uncovered many of these inner meanings, but there has been no occasion to refer to some of the best. Take the curious case of the cantharellus cibarius. No one has discovered the name for it in ancient times, but since it carries today more names by far than any other wild mushroom of Europe, we must suppose that it was known to our remote ancestors also. In most of the Slavic countries its name is keyed to the fox, e. g., the Russian ***lisichki,*** 'little foxes', and the Hungarians translated this to arrive at their *roka-gomba.* The Lithuanian *lapelaizis* means the 'fox-licked one': foxes like squirrels are great mycophages. In Old Czech of the i4th century we find the term *lisa huba,* 'fox's mushroom'. The Bulgarians use an expression that is wholly their own, *pachi kraka,* the 'duck's foot', a happy figure of speech, as will be perceived by any mycophile who recalls the color and shape of the webbed foot of a duck, idly suspended in air or water.

The German *Pfifferling* or 'peppery one' is an inappropriate changeling. This name rightly belonged to the lactarius piperatus, as we can prove by the description of it given in the *Adnotationes* of Valerius Cordus in the I53o's:

> Sunt enim quidam Piperis sapore et lacteo liquore manant. Hos German! *Pfffferlinge* vocant.
>
> For there are some with the taste of pepper, and they flow with a milky fluid. These the Germans call *Pfifferlinge.*

Two centuries earlier Konrad von Megenberg in his *Das Buck der Natur* also speaks of the *Pfifferling,* which he says is of questionable edibility. It seems that when the Germans began to take to mycophagy, they appropriated an existing name of another mushroom to apply to the cantharellus cibarius, a small mushroom that all true mycophiles hold in modest esteem; wherefore in time the German name acquired a secondary meaning, to designate anything trivial, and in this sense the German word turns up in French in a single expression: cela ne vaut pas un fifrelin.[1] In Austria our little chanterelle is the *Eierschwamm,* suggestive of the scrambled eggs that these mushrooms resemble and with which in Austria they are often prepared.

Of the many names for the cantharellus cibarius in France, the *girolle* and the *chanterelle* are the most widely known. The French philologists Oscar Bloch and Albert Dauzat both assert that *chanterelle* entered the French language in the middle of the 18th century, and that it was taken from the scientific name bestowed on the mushroom by Linnaeus - 'cantharellus' - which in turn (according to the French philologists) he devised from a Latin word *cantharella,* a little cup. This etymology is *prima facie* suspect, for popular names bestowed on mushrooms by French peasants are not normally derived from learned terms of Linnaean inspiration. In fact, the philologists are mistaken. Jean Bauhin in his great *Historia Plantarum Universalis,* published in 1650-1 and written a half century earlier, reported that *chanterelle* was in his time the popular name of the mushroom around Montbeliard, in the east of France. Clearly the mycologists Latinized the word as they found it. *Chanterelle* is a name of popular inspiration descended from the Latin diminutive *cantharulus,* formed from *canthams,* which in turn was borrowed from the Greek κάνθάρος, drinking cup. Possibly there is collateral evidence of this origin in a word that survives in the archaic Spanish spoken in Jocotan, Guatemala -*canturula,* the name of an ear-shaped fungus that grows on old trees.[2] Words that circulate chiefly on the tongues of humble people undergo subtle pressures and transformations, being re-shaped to conform to punning suggestions and metaphorical associations. Perhaps there is evidence of this in *chanterelle.* This little mushroom in Italian is the *gallinaccio,* 'turkey-cock'. In Dutch it is the *hanekarn,* 'cock's comb', though Dutchmen, being mostly mycophobes, often know not the word in this sense. The Dutch and Italian words suggest the masculinity of the cock. In Catalan the chanterelle is the *rossinyol:*

1. The mushroom seems to have been widely used as a symbol of worthlessness. We have seen that the English 'trifle' was a truffle, the word having been borrowed long before the truffle rose to its present heights in social esteem and market value. Juan Corominas in his note on the Spanish *seta* points out that it has carried the same metaphoric meaning.
2. See Lisandro Sandoval's *Semdntica Guatemalense o Diaionario de Guatemalteqitismos,* Guatemala, April 1941.

this is said to be derived from *ros, rossa,* an adjective that describes to a nicety the red-gold color of the lovely mushroom. But *rossinyol* also means 'nightingale', and it happens that, just as the dove or *paloma* is the symbol of the beloved in French and Spanish popular tradition, the nightingale is the symbol of the lover.[1] In Bulgaria, as we have seen, the chanterelle is linked with the drake. These ornithological ties, always masculine, are curious. Does not *chanterelle* itself suggest singing and *chantecler?* Are we not in the presence of an eruption, subtle and unconscious, of the old erotic theme, by way of the cock's comb, the gobbler's wattles, the crowing chanticleer, the virile *rossinyol?* If our surmise be right, confirmation must be sought, not in the sophisticated ratiocinations of scholars, but rather in the emotional associations of the untutored folk when they use their homely words for the little yellow mushroom. If our surmise be right, the deep-seated eroticism of the fungal consciousness of Europe is erupting again, before our eyes, in the words born of popular fancy or reshaped by popular pressure to designate the cantharellus cibarius. Like murder, the shameless μύκης will out. Our straws of evidence permit us to discern the erotic theme as through a glass, darkly. How pleasing it is for us, then, our surmise having been formulated, to discover corroboration for it in eastern Europe. In the Latvian language the name of the cantharellus cibarius *isgailene,* derived immediately from ***gailis,*** 'cock', a word that is kin to the Latin *gallus.*

The alternative word in French for the chanterelle *isgirolle.* French philologists seem satisfied that this word shares the same root as 'gyrate', but there is no evidence for this. *Girolle* is a borrowing from Provencal, where the name is current in many variations extending over the langue d'oc area of France and throughout Catalonia and the Balearic Islands. *Jirgola* in Majorca corresponds to *girbola* in Catalan, and in Frederic Mistral's Proven9al dictionary we find the word in myriad forms. No other mushroom anywhere seems to possess so many names, of which here are the ones we have collected:

biroudelo	escrabilho	girbouleto	jargouleto
bouchinguello	gerilho	girello	jirboulelo
caramillo	ghidorelo	girgouleto	jotrel
crahilho	ghirolou	girgoulo	ziraoudela
escarabiho	giraudello	iredela	zitello

Here we leave an enigma for ethno-mycologists to apply themselves to - in an area unsurpassed for mycophagy, an important mushroom parades an unrivalled

i. See Wm. J. Entwistle's comments on *El Conde Olinos* in *Romance Philology,* vol. vil, No. I, Aug. 1953, p. 13.

diversity of interrelated popular names, all of unknown meaning and all reduced in French to the lovely but deceptively simple *girolle.*

So much for the chanterelles. In Swiss German the clavaria or coral mushroom is known as the *Ziegenbart,* or goat's beard, which is a good metaphor, but it is topped, we think, by the happiest name in all of Europe's mushroom vocabulary, the Catalan word for the same fungus, which is *pens de rata,* or rat's paws. The soft, marvelously fine articulation of the paws of a rat are the perfect analogy for the corresponding extremities of the coral mushroom, and in this mushroomic name we possess a supreme example of the perception of peasants.

Sometimes the mycologists have paid obeisance to popular terminology. For example, the name of the puffball, lycoperdon, is a learned back-formation to a non-existent Greek term that would mean 'wolf's flatus'. How much better it would have been to use the genuine Greek name for the same fungus, πέζις, which harbors the same indelicate idea!

It might be thought that the mycologists of the world, being a relatively small group, could agree together to wipe the slate clean and begin anew, giving no hostages to vested interests, and devise a system of solidly grounded mushroomic names. But such reforms seem beyond the capacity of men, even scientists, and perhaps this is just as well. A nomenclature that is encumbered with barbarisms, pedantic fallacies, and infelicities is a perpetual and humbling reminder that scientists themselves are ordinary clay, even when they are cultivating their own garden.

VALE

JNow our excursion among the mushrooms has ended. Free of professional inhibitions, we as amateurs have traveled far and wide, brazenly suggesting novel etymologies and theories of our own. Some of these, when put to further test, are sure to crumble. But our argument is a frontal one, and does not depend on single links. Beginning with an addiction to wild mushrooms and keeping our eye always on them, we have compared the words used for fungi by the various Indo-European peoples, concentrating on the metaphors that are latent in them. We have found a series of semantic themes recurring throughout these fungal vocabularies, and these themes have suggested origins for many words that have heretofore baffled the philologists. If this approach through semantic themes should prove to have been successful, it could be applied to other specialized vocabularies for elementary things and activities that our remotest ancestors must have talked about.

We began by asking what lay behind the English word 'toadstool'. In the course of our inquiry we discovered several attributes common to wild fungi and toads. The peoples of the North Sea basin think of both tribes - fungi and amphibia - as venomous. Over a broader area and running back deeper into the past, the peoples of northern Europe think of fungi and toads as organisms that swell up, and also as dunglike vermin. We find that both toads and fungi inspire revulsion and fear, and naturally our ancestors considered them instinct with evil spirits. Both are slimy and mucoid. Fungi are tumor-like, clodlike; and toads are misshapen growths, foul and ugly. Fungi are aphrodisiacs, and toads are lecherous. Both suggest the idea of procreation, in a variety of ways. On a larger stage, we have found that in the cultures of Europe, where deadly serpents are few, the toad is the indigenous equivalent of the serpent of the East. Eve's serpent, exercising its horrid and fearsome spell, was a creature of the East. In the eastern Mediterranean the two creatures competed for dominion over men's souls, but in the West the toad was supreme. The 'toadstool' of the West emerges as the mycological and cultural equivalent of the *ahi-chattra(ka)* or 'snake's parasol' of the Sanskrit writings. A common fund of words for all these ideas is drawn upon, in the various Indo-European languages, to refer to the fungi, and also to toads, and when in a given language the same or similar words are drawn down from the common fund for the two orders of creatures, the peoples speaking that language associate toads and fungi together, and by reason of the words that overlap, and the common attributes,

PLATE LXXX

Jean-Henri Fabre. Cantharellus cibarius Fr.
French: *chanterelle, girole;*
Russian: *lisichka*.

their feelings toward them take on the same tone. Similar metaphorical transfers appear to be indigenous also in human societies far removed from the Indo-European world.

But behind the interweaving of these innumerable words and ideas, there lies the Mystery of the divine mushrooms. We have now learned that many species of these strange growths possess a power such as early man could only have regarded as miraculous. Indeed they may have given to him the very idea of the miraculous, and inspired many of the themes that come down to us in our heritage of folklore. Mushrooms were doubly associated with fire. They were used as primary tinder in that miracle of divine copulation, the generation of fire by the fire-drill, and the divine mushrooms were the offspring of the union of the Lightning Bolt with the Mother Earth. We have suggested that the divine mushrooms played a vital part in shaking loose early man's imagination, in arousing his capacity for self-perception, for awe, wonder, and reverence. They certainly made it easier for him to entertain the idea of God. In Europe the secret of the mushrooms was lost long ago, but it lingers on, fossilized and misunderstood, in our vocabulary, as when the Greeks spoke of mushrooms as the 'gods' food', the Flemings of 'devils' bread', the demonic *crapaudin* of France, the demonic 'toad's stool' of the English, yes and the 'fly' of the German *Fliegenschwamm.* Our legacy of mycophobia, what is it but a simple tabu, the aftermath of the emotional hold of those mushrooms on our own ancestors? There were other hallucinogens in the vegetable world, but we think the mushrooms were primary.

Men ordinarily think of words as combinations of sounds that can be visualized with the aid of letters, and listed alpabetically in dictionaries, and there neatly defined and ticketed with their histories. But the words in dictionaries correspond only to 'stills' in photography: the dictionaries catch them in a given posture, at a particular moment in time and space. This is true even of the largest dictionaries, which try to cover meanings over centuries and which cite a few outcroppings of the same word in other languages; for the center of gravity even in these big dictionaries is still in a single language, and therefore their angle of vision is self-centered and Ptolemaic. Moreover, no dictionary can hope to deal with all of the subtle semantic associations, and all the gradations of feeling, that the sound (which is the word made manifest) evokes. But these associations and feelings are the life and soul of the word, of which current usage in a single community may be only a passing phase. A word is a thin thread of sound coming down to us from earliest human times, a sound passed on from mouth to mouth, slowly changing, assuming different contours in the mouths of different

communities, each of these variants remaining a strand of the original thread, these different strands plaited in and out among themselves, tangling with other threads of similar sounds but different meanings; impalpable, visible (through writing) only in recent millennia and until yesterday only to a few; thin as air; but solidly joined in the alembic of the human mind to particular perceptions of the senses and keyed to particular feelings; this link between sound on the one hand, and meaning and feeling on the other, displaying a tough continuity down the river of time and across vast stretches of diverse cultural expression, a continuity that stands in amazing contrast with the airy nothing of the words themselves. Words are a secretion peculiar to the human organism, and though uttered through a localized vocal mechanism, a secretion attuned to the whole organism.

A.E. Housman in his famous Leslie Stephen lecture on the nature of poetry startled his public by asserting that for him great poetry was measurable by physiological reflexes. The shiver down his spine, his beard that bristled at the thought of great lines while he was shaving, the catch in his throat, sudden activity in his lachrymal ducts - these were his poetical touchstones. Could he not have carried his idea further ? Was he not fixing his attention only on those rare conjunctures of grosser reflexes that are the fruit of the greatest utterances? In less degree does not every word possess its visceral counterpart, emanating from the pit of the stomach but registering itself in localized manifestations - in the stimulation or inhibition of glandular activity or incipient muscular twitches, in sights or sounds perceived only by the mind's eye or mind's ear, in imaginary tactile or olfactory or gustatory sensations ? Teeth are set on edge by sour grapes, and also by hearing sour grapes mentioned, and even by the silent passage of those two words through the attuned mind. Perhaps in the long run the stability that is the astonishing property of words is traceable to the solar plexus, to this conditioned reflex, which is the obverse side of the audible entity. The great speaker or writer - the composer or conductor - is the master who manipulates these responses with supreme artistry, playing on the human instruments that are his audience, the instruments knowing they are in ecstasy but blissfully unaware of the infinitely subtle physiological wherefore. Here is a sense in which the kingdom of heaven is within us; and the music of the spheres turns out to be a physiological symphony. Let not this reflection disturb the believer in a Supreme Architect, for the ultimate enigma always remains close by, and man's most searching inquiries are always confined within the bounds of the flexible but impenetrable envelope of the unknown, of that dark, distensible womb that is our prison and our Eden.

By assaying the words used among various peoples for the/fungi, we have perhaps suggested reasons for the mycophobia that afflicts most of the Western peoples. The semantic associations of these words, their emotional coloring, are rooted in the fears and beliefs of our ancestors in the earliest ages, perhaps when they were what we call Palaeolithic men. We study them objectively by digging up their artifacts and applying the highest order of intelligent curiosity to these old stones. But within ourselves, in our emotional responses, in our words that come down from long ago, we bear within us as part of us the evidence for a subjective understanding of those our forebears. Our elementary words with their emotional evocation are oral artifacts descended from those remote times, and like palimpsests occasionally permit themselves to be read layer beneath layer. Our words are a repertory of wood-notes wild, if only we attune ourselves to the faint descant that rises from them. How amusing it has been to discover in mycophobia the willing, nay determined, subservience of many Europeans to a simple tabu such as we like to associate with primitive peoples, a subservience to emotional responses that seem to stem back to the day when our ancestors found themselves face to face with the miraculous powers of the sacred mushroom! The secret lost, the tabu survives. Like the tribes that our anthropologists study, we cling to our own tabus and seek to justify them by rationalizing them. Few men want freedom, however they may talk. But then again perhaps man is free in his choice when he chooses to abide within the confines of his unreason.

BIBLIOGRAPHICAL NOTES
AND
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THE amateur of wild mushrooms is interested in everything written on the subject. Few scientific papers are too refined for his palate. The strange blunders often cropping out in popular writings delight him for their piquancy. In cut-and-dried mushroom manuals he always knows that at any moment he may come across wayward remarks of the compilers that show how even they are moved by the beauty or strangeness of the creatures they describe. An extraordinary example of this eruption of the poetic muse in the course of a pedestrian text about mushrooms is to be found in a certain Swiss manual published more than sixty years ago: it is so unusual that we offer it in full to our readers in Appendix III.

In general the mushroom amateur, when it comes to his library, must be content with fare served for others - texts written for beginners or treatises for scientists. The writings about mushrooms aimed at the informed amateur are few. As he embarks on the assembling of a collection, he will do well to begin by acquiring a complete set of the publications since 1936 of the Laboratoire de Cryptogamie, at the Museum National d'Histoire Naturelle in Paris. This is the period of Professor Roger Heim's editorship of the *Revue de Mycologie.* Professor Heim is a leading mycologist. What is more rare, he is a scientist steeped in the humanities who writes with style. He has the magnetism of the great teachers, and has drawn into the circle of subscribers to his *Revue* a group of enthusiasts who contribute delightful and sophisticated articles to various *Supplements* of the review, which are expressly directed to initiated amateurs. Two outstanding members of this select fraternity are Georges Becker and Camille Fauvel, whose essays on wild mushrooms, poles apart in style and mood, are destined to be regarded as classics by the devotees of our avocation. The *Revue de Mycologie* offers its readers a *Chronique de I'amateur, La Chronique anecdotique,* a practical course in mycology for amateurs, excellent color plates of mushrooms, scientific supplements shedding light on the fascinating jungle of tropical mushroom life, and finally occasional treatises on special topics. Who will ever match that Savoyard, the prodigious Dr. Paul Ramain, for example, who in his *Essai de Mycogastronomie* sets forth with delicate discrimination the merits (or shortcomings) for gastronomes of each of 245 species of edible mushrooms, all from his personal experience! He sets forth the astonishing facts about what we might call the 'vintage years' for mushrooms: it is clear that mushrooms taste better in some years than others, and in some regions than others. No mushroom fancier should rest content so long as he is unfamiliar with the breathtaking perfor-

mance of Dr. Ramain.[1] The presiding genius in this circle of mycophiles is of course the Maitre, Professor Heim, whose own contributions are always notable events. Especially among English readers, nature writing enjoys high status as a genre of belles lettres. Roger Heim is to be ranked with the aristocrats of this goodly company. His paper delivered in February 1946 on 'Les Rapports entre les Insectes et les Champignons' displayed a dual excellence, scientific and literary, of the highest order, all the more moving for the informed few who know that this essay, for all its air of serene detachment, was read in the wake of a terrible ordeal. Two years later Professor Heim published a book, *Les Champignons,* original in conception, of rare quality, which is a treasure for connoisseurs of nature writing and for all lovers of mushrooms.

Outside of the Heim circle there are other mushroomic publications for amateurs, but few in number and uneven in quality. One of the good books, in its way, is Jules Amann's *Mes Chasses aux Champignons,* published in Lausanne in 1925. In English there is *The Romance of the Fungus World,* by R. T. and F. W. Rolfe, published in London in 1925, written without literary distinction but containing an immense amount of information never theretofore assembled. We gladly acknowledge our debt to the Rolfes for various data and historical references; as we do also to John Ramsbottom, best known of contemporary English mycologists, for the wealth of information in his *Mushrooms & Toadstools,* London, 1953, which reached us just in time for us to make some use of it.

In America the amateur of mushrooms is hobbled by the lack of a first-class field manual, comparable in the mycological field to Roger Tory Peterson's manual for the birds. America's library of nature books is rich in quality and quantity, but a good mushroom manual is a prime desideratum. This deficiency is itself evidence of the wide-spread mycophobia in America, and serves to perpetuate it. There are excellent works by American mycologists that cover various parts of the vast terrain, but no all-embracing pocket guide in a class with *Les Champignons de France,* by A. Maublanc, or *A Handbook of the Larger British Fungi,* by John Ramsbottom, in England. In the absence of a manual for America, these two European works, which are complementary rather than overlapping, are in our opinion the most serviceable for the United States and Canada, in spite of the differences in the fungal population of the two continents.

The compilation of our book has proved an easier and pleasanter task than

I. In the spring of 1954 there appeared Paul Ramain's *Mycogastronomie,* published in Paris in a limited edition by Les Bibliophiles Gastronomes. Here we find scores of princely recipes for different species of mushrooms, including even two desserts: Salades d'Oronges a 1'Orange and Pezizes Orangees Ali-Bab.

the reader might suppose. Our secret lay in formulating the right questions, and then submitting them to the right specialists, in whom knowledge and graciousness were equally blended. Such learning as we may have appeared to possess in Chapters IV and V is thus no more than a synthesis of other people's; but the responsibility for the synthesis, for better or for worse, must rest with us. In our preface and in the course of our pages we have already recognized our obligations to many. We now give ourselves the pleasure of acknowledging our debts to some of the others.

We are grateful to Professor Georg Morgenstierne of Oslo not only for the rich budget of data concerning the Iranian and Indie peoples that he sent us over the course of many months, but even more for the constant interest that he displayed in our researches. We are grateful to Dr. Hans Mardersteig for his patience in handling our printing problems. We are especially grateful to Mr. Ronald H. Boothroyd of Verona, who not only nursed our proofs into final shape but by his perspicacious reading of our manuscript saved us from pitfalls and suggested to us new avenues of inquiry.

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In the introduction to our book we have spoken of our obligation to the staff of the New York Public Library. We have also been generously helped by Miss Elizabeth C. Hall, Librarian of the New York Botanical Garden; Miss Hazel Gay, Librarian of the American Museum of Natural History, New York; Miss Meta Harssen of the Pierpont Morgan Library; and the staff of the Frick Library, New York. Mr. Herman Sharon aided us with the text of Konrad von Megenberg's *Das Buck der Natur.*

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was the first to bring to our attention the tapestries at Reims depicting Clovis in his pagan days going forth to war under the standard of the toads or *hots.* In the realm of medieval science, Professor Lynn Thorndike put his great erudition at our service. Mrs. Michael Majolier ran down certain elusive facts for us in London, and Mr. and Mrs. Hugh Kelleher in Italy. Mr. Roger Tory Peterson has identified for us certain birds in the Old Masters. Mr. David McCurrach and Mr. Ronald G. Cant, both of St. Andrews, Fife, have done their best to trace for us the Scottish origins of the Hamilton dynasty of painters. Mr. & Mrs. Warren Delano Robbins kindly pursued certain inquiries for us in Paris.

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By their pressing encouragement and the stream of their fruitful suggestions for further inquiries on our part, made we hope without malice prepense, a

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APPENDICES I-IV

APPENDIX I

Mushrooms in Tolstoy's 'Anna Karenina'

THRICE in *Anna Karenina* Leo Tolstoy brings mushroom-gathering into his story, and on each occasion with a naturalness, a tenderness, that any perceptive reader will find memorable. We have summarized one of these citations in our text. Here are the other two.

In Chapter 8 of Part in we discover Darya Alexandrovna in the country with her brood of small children and the English Governess, Miss Hull. It is the month of May. The children have returned from Church, where, according to the Orthodox custom, they have taken Holy Communion. At first, under the influence of that solemn occasion, they were models of behavior. But at dinner Grisha whistled, and besides he was rude to Miss Hull. As a punishment, she deprived him of his tart. There were tears, and cries of injustice, and Grisha left the table, seeking the consolation of solitude by the window in the drawing room. His elder sister Tanya, under the pretext that she wished to share her tart with her dolls, also departed. Darya Alexandrovna felt that Miss Hull had been too severe, but of course supported her authority. Afterwards she was on her way to ask the governess to relent and forgive the culprit, when she discovered Tanya sharing her tart with Grisha in the drawing room, both of the children sobbing from shared emotion. She was overcome by the touching spectacle. On the spot she forgave Grisha, and then dispersed the clouds by laughing at the way their faces were smeared with tart and tears, and making them laugh too, and then, to cap it all, she gave orders for everyone to put on old clothes and go mushroom-gathering. At once the nursery was filled with shrieks of ecstasy. Soon they were all in the woods. They filled a basket with mushrooms. Even little Lily found a birch-mushroom. In the past Miss Hull had always found mushrooms for Lily to pick, but this time Lily really found a big one all by herself, and everyone screamed with delight: "Lily has found a mushroom!"

The second episode, in Chapter 5 of Part vi, is an exquisite vignette of distinctive Russian behavior. Sergej Ivanovich, a landowner, is in love with the governess Varvara Andreevna and wishes to propose to her, and with this intention goes out to find her in the woods where she is gathering mushrooms with the children. She senses his purpose and is receptive. As he starts out looking for her, he talks to himself, rehearsing the little speech that he wishes to make. And now we shall translate Tolstoy's words.

"Varvara Andreevna, when I was still young, I conceived the ideal woman whom I should love and be happy to call my wife. I have lived a long time and now at last in you I discover what I have always sought. I love you and offer you my hand."

This is what Sergej Ivanovich was saying to himself as he approached Varen'ka, who was shielding a mushroom from Grisha and calling to little Masha: "Look! Look! Lots of little mushrooms!" her voice warm and throaty.

When she saw Sergey Ivanovich coming up to her, she did not rise, nor even change her position, yet something told him she knew he was there and was glad.

"Have you found any?" she asked, turning up to him her beautiful, soft, smiling face, rimmed with a white kerchief.

"Not one," said he. "And you;"

She did not answer but busied herself with the children. "There is another, near the branch," and she pointed out to Masha a small *syroezhka,* whose stalwart pink cap had been bisected by a blade of grass. Varen'ka rose when Masha picked up the *syroezhka,* breaking it in two. "This brings back childhood days," she added, and walked away from the children by the side of Sergej Ivanovich.

They took a few steps in silence. Varen'ka saw that he wished to talk, and guessed about what. She was breathless with excitement, joy, and fear. They had gone far enough so that no one could hear them, yet he did not speak. It would have been best if Varen'ka had kept still. After a spell of silence, it would have been easier for them to say all they had to say. But against her will, as if by accident, Varen'ka spoke.

"So you found nothing? Of course, they are always scarcest in the middle of the woods."

Sergej Ivanovich sighed and said nothing. He was vexed: why had she brought back the subject of mushrooms? He would have liked her to return to what she had said about childhood. But then he also, after a pause, and as though against his will, went on where she left off:

"I had thought that only the cep was confined to the fringes of the woods, but then I can't recognize a cep."

More minutes passed. They were far from the children and quite alone. Varen'ka felt her heart beating. She felt that she was turning red, then white, and then red again.

To be the wife of a man like Koznyshev, after her situation in the household of Mrs. Stahl, seemed to her like the peak of happiness. Besides, she was almost sure that she was in love with him. And now all this was to be decided. She felt frightened, frightened at what he might or might not say.

His declaration had to be made now or never: so Sergej Ivanovich said to himself. Everything in her looks - her blush, her lowered eyelids - showed Varen'ka's painful expectation. Sergej Ivanovich noticed it and pitied her. He also realized that if he said nothing, his silence would hurt her. Again he repeated to himself all the reasons in favor of proposing, he repeated to himself the little speech that was to express his intentions. But instead, under some strange impulse,

he finally asked, "And what is then the difference between the cep and the birch-mushroom;"

Varen'ka's lips trembled as she replied: "There is almost no difference in the cap. The difference is in the stem."

And the instant she uttered those words, she knew and he knew that everything was over, and that what ought to have been said would never be said. Their tension, having reached its peak, began to subside.

"The birch-mushroom-its stem reminds one of a two-days' beard on a swarthy man," said Sergej Ivanovich, quite calmly.

"You are quite right!" said Varen'ka, and she smiled. Without thinking they turned their steps back to the children. Varen'ka felt hurt and ashamed, and at the same time a sense of relief came over her.

Translated by VPW *and* EGW

APPENDIX II

Aksakov's 'Remarks and Observations of a Mushroom Hunter'

THE following essay, by Sergej Timofeevich Aksakov, appeared in 1856in the *Vestnik Estestvennykh Nauk,* the publication of a group of nature students who constituted the Moscow Imperial Society. Aksakov was a Russian country squire whose *Memoirs* are classics of Russian literature, valued alike for their honest and detailed picture of daily life in a by-gone world and for the lovable self-portrait that their author unconsciously paints. His forgotten paper on mushrooms possesses in rich measure the virtues that made his major works famous, and in translating it we have tried our best to preserve the flavor of the original. On its first appearance nearly a century ago, the editor, K. F. Rouille, drew attention to what would be called today its ecological implications, which he referred to as nature's 'law of interrelations'. Specifically, Aksakov, though only an amateur, seems to have been precocious in insisting on a biological tie between certain fungi and the roots of some kinds of trees. The peasants in the Slavic lands from time immemorial and recently the mycologists of the West had observed that some mushroom species are always found close to certain kinds of trees, but not until 1885 did A. B. Frank publish in *Berichte der Deutschen Botanischen Gesellschaft* the notable paper on truffles that securely established the symbiotic kinship between trees and fungi - a relationship that came to be known as mycorrhiza. Apparently Aksakov's further observations concerning a difference in the growth of mushrooms on various sides of a given tree, according to the compass points, are unknown to mycologists. Was the behavior that he remarked peculiar to the trees in his grove, or was he calling attention to a significant phenomenon that others have overlooked to this day; . . . Here is Aksakov's essay.

Among the sorts of hunting in which men engage, place must be made for the peaceful quest of mushrooms, or 'mushroom-taking'. This cannot compare with other kinds of hunting that are more lively because they involve the animal world, but it can hold its own among many so-called secondary hunts, each of which offers its own interest. I give preference to mushroom-hunting because you must look for mushrooms and it follows that you may not find them. There is needed in addition a certain skill - knowledge about where mushrooms grow, familiarity with the terrain - and luck! No wonder that the proverb says, "With luck even mushroom-hunting is good."[1] In mushroom-hunting there are elements of the unknown, the unexpected; there is success and there is failure. These are the things that incite a man to the pursuit and give to it a special interest. The gathering of berries or nuts, also a hunt of the second class, at first glance might resemble mushroom-hunting, but on closer inspection we shall see that the latter possesses great advantages. Mushroom hunters will surely share my view, and with

i. I have heard this proverb in an inverted form: "Without luck it's no use to go mushroom-hunting". S. T. A.

them I wish to have a chat and tell them of my observations over many years.

Mushrooms are the most nourishing, tasty, and wholesome food, if they are not eaten to excess nor smothered in too much fat, but perfectly fried or boiled or thoroughly pickled in brine. Pickling in brine is employed with those mushrooms that are conserved in the raw state, such as those of the lactarius and russula families and others. For city folk mushrooms are a delicacy; to the country people they are food and in some regions a source of income. The mushroom is a child of the forest.[1] The steppe has no mushrooms except the common field mushrooms and the ***lugoviki*** [marasmius oreades], and even these are born only in the fertilized soil of cattle-pens, pastures, and roads, and always close to the dwellings of men and cattle. It is known to all that if you raise trees in a bare field, either from seed or by transplanting, mushrooms will surely start growing there, the kind depending on the kind of trees. But, contrary to the opinion of many, the mysterious power of trees to bring forth mushrooms around themselves does not he merely in the shade that is produced by the branches. Shade is the first requisite, it is true, but only the first. Shade protects the earth from the scorching rays of the sun, produces humidity and even wetness in the soil, and this is essential for both the woods and the mushrooms. But their real source, it seems to me, lies in the roots of the trees, which humidifying in their turn the surrounding earth, impart to it the arboreal sap; and it is in the roots that in my opinion lies the key to the mystery of the birth of mushrooms. This is most convincingly shown by the fact that around stumps of trees where a certain species formerly grew in the life-giving shade, the same kind will continue to grow for as long as ten years or more. Roots die slowly. Finally they rot and dry, and the mushrooms cease. Many a time I have observed tree stumps standing quite far apart in meadows where the influence of neighboring trees could not be suspected. As proof of the fact that shade and moisture are not sufficient for the growth of mushrooms, one could point to certain species of trees such as the alder, black poplar, poplar, and bird-cherry [padus avium], under and near which no genuine mushrooms spring up. The complete dependence of mushrooms on the particular sap of a tree firmly establishes the fact that certain trees produce only their own kind of mushroom. If only moisture, shade, and coolness were needed, all kinds of mushrooms would grow under all kinds of trees.

The country-folk recognize well the influence of trees over mushrooms and therefore have given to some of them names associated with trees, such as the birch-mushroom, the aspen-mushroom, the hazel-mushroom, the oak-mushroom.

Mushrooms are divided between the edible and the inedible. The latter are

I. In Japanese the generic word for mushrooms is *kino-ko,* 'forest's child". V. P. W.

generally called*poganki,* which includes poisonous mushrooms such as the *dubovik* ['oak-mushroom', boletus luridus], the *mukhomor* ['fly-killer', amanita muscaria], and others. Among the *poganki* are mushrooms that in some parts of Russia are considered poisonous, and elsewhere are considered good for food; for example, the ***svinukhi*** or 'cow's ears' [both names are Aksakov's; a paxillus sp.]; *valui* [russula foetens]; *mochjonki* ['the sopping ones';]; *chernukhi* [russula adusta]; etc. In order to be eaten without harm, these must be first parboiled or soaked and then salted. I even knew one man who, apart from the *mukhomor* and *dubovik,* considered all mushrooms edible, and as living evidence to support his faith in their innocence, he had himself and his family to show. He even asserted that the so-called *poganki* were as tasty as other mushrooms. This is hard to believe, because most *poganki* not only have an unpleasant color and appearance, but also smell bad.

It is worthy of note that many edible or so-called 'good' mushrooms have their counterpart in the *poganki,* somewhat resembling them in shape and color. Even more remarkable is the fact that when *poganki* make their appearance among good mushrooms, the latter begin to disappear. Finally the wave of good mushrooms passes, and the *poganki* complete the conquest of the site. This is especially true of mushrooms that grow up in large clusters, such as *masleniki* [various viscid boleti], *ryzhiki* [various lactarii], and *beljanki* [lactarius pubescens].

All hunters know that mushrooms have their 'favorite spots', where each year they grow in varying quantity. No doubt there must be natural causes for this, but to an uninformed mind this phenomenon is striking and inexplicable. In a thick forest where the branches and the roots of the trees meet, it is hard to determine the places favored by mushrooms even if such places exist, but in open forests or clearings they are obvious and beyond doubt. I have a wood with two thousand oaks, old and young. The old ones numbering about 200 stand far apart in a large hay-field. Under certain of them, few in number, there have grown from time immemorial an immense quantity of caps of a somewhat distinctive form and size, unusually firm and strong, with caps of rare bronze and steel-like color, and sometimes multi-colored and shiny like marble. Their size and vigor are probably traceable to the nature of the root sap, and their color to the effects of sunlight, because oaks set far apart give little shade. Around the other oaks in the same clearing there are very few mushrooms, and around some, none at all. I have in my garden and park more than 300 spruces, and only under four of them do *ryzhiki* spring up. The location, the soil, the species of trees - all these are the same, and nevertheless for twelve years now I observe and yearly confirm my observation that my mushrooms are born exclusively in the same favorite spots under the same oaks and spruces.

APPENDIX II

Different species of mushrooms coming up under different trees exhibit a remarkable trait in preferring to appear on the north side of the tree, much less often on the east and west sides, and on the south side, especially during a dry summer, they are almost totally absent. This influence of the four compass points and the position of the sun is best observed with the *ryzhiki.* The red *ryzhiki* [lactarius deliciosus;] around a given spruce always appear on the north side and halfway around to the east and west, whereupon, as if by a drawn line on approaching the south, their caps become greenish blue with a somewhat roughened surface, as though dried out; although the stem and the inside of the broken cap remain equally red and juicy. From this we see that the circumference of the tree is divided into equal sectors, the red *ryzhiki* being on the north side, the greenish on the south, while east and west are equally divided between both kinds, with the fewest specimens on the south side.

There is no doubt that, as people believe, in rainy, soggy years mushrooms spring up in greater numbers, especially if bad weather is accompanied by warmth. But here too there are exceptions, not understood by the ordinary observer and only to be explained by science. I have often noticed that in spite of very warm air, rains may be harmful to mushrooms. At times this harmful effect works slowly and imperceptibly, but at times it acts with amazing rapidity, before your very eyes, especially with young mushrooms just emerging from the earth. Four times during the last twelve years I have seen devastation wrought by rain that fell apparently in conditions of propitious warmth. Twice the rain was accompanied by a sort of dry fog with a nasty burning smell; and twice the rains were downpours which thoroughly soaked the earth, with sunshine following immediately afterwards. Visiting every day about noon all the mushroom-bearing spots of my garden and park, there where on the eve I had left a host of young ceps, I was struck by the sudden change in their appearance. More or less all the young baby-mushrooms had become wrinkled and dried out, and the smallest ones, the size of a pea, and even those the size of a hazel-nut, had disappeared, and only a half-rotted dust, which was hard to identify, lay where the mushroom buds had been. Some of the more adult mushrooms revived and reached their usual size, but in a somewhat deformed shape. Others rotted away and collapsed. Such harmful effects were observed and recorded by me each time. A similar influence but noticeably slower is at times brought about by an excessive dew at night, which produces yellowish spots on the grass. Furthermore, let it here be set down that the current popular belief according to which a mushroom duly noted and marked by man will not grow up but will shrivel up, is, according to my observations, wholly unjust. I have

always marked a goodly number of mushrooms, especially ceps, in order to gather them at the age which I consider most desirable, or else I leave them to reach their full development and beauty. I will not conceitedly assert that the gaze of man may not produce a magnetic influence in the vegetable world. All I can say is that my innumerable experiments led me to conclude that at least *my* glance never did any harm to mushrooms.[1] I have even tried to touch the mushrooms lightly and free them from the leaves and grass which at times hamper their growth. I have gone so far as to break off bits of their caps, and they continued to grow as before. One thing is true: if you shake the stem of the mushroom, it wilts and perishes.

In bad weather and toward fall the mushrooms give wider berth to the trees and more willingly grow along the edges of woods and on naked hills - they 'leap away', as the people express it; but in the dry and hot weather the mushrooms cling to the shade and even take shelter under the branches of the trees, especially the spruces that spread their branches like paws along the earth. That is why peasants call such branches ***lapniki*** [paws], and chop them off for various needs without mercy and without harm to the tree. They even assert that the spruce reaches its full size for lumber if you groom it by chopping down the lower branches.

Apart from harmful rains and dew, mushrooms are damaged in clearings by the hot rays of the midday sun. Such rays scorch their caps, and although the coolness of the night, the dew, and an occasional rain freshen them up, the daily sun-burn makes them shrivel before they reach their full maturity. Lengthy and frequent rains in their turn damage the growth of mushrooms, especially in the shade, in thick grass and overgrown spots. The mushrooms rot, .grow mouldy, and perish. They are also spoiled and destroyed by living enemies. Slugs and snails firmly attach themselves to mushrooms, eating and boring through the caps and stems. In years of poor mushroom harvests, it is rare to find one not harboring two or three slugs. Squirrels are also mushroom hunters, going out especially for ceps, and often you will find marks of sharp teeth on their chewed caps. But the worst pest of mushrooms is a small white worm. Some years there are so many that the stem of every cep, strong and healthy on the outside, is inevitably undermined inside, and falls to pieces if picked up carelessly or firmly. Fortunately the caps are the last to be attacked by worms, and often remain healthy and intact with the stem completely eaten away. It is surprising how mushrooms in such a condition continue to receive nourishment.

i. The Swiss mycologist F. Leuba, in discussing the morel, refers to the same popular belief, which he must have encountered in his native country. See *Les Champignons Comestibles et les Especes Veneneuses,* Neuchatel, 1890, footnote p. 87. V. P. W.

PLATE LXXXI

Jean-Henri Fabre. Boletus scaber Fr. ex Bull. (= B. leucophseus Pers.)
Russian: *berjozovik.*

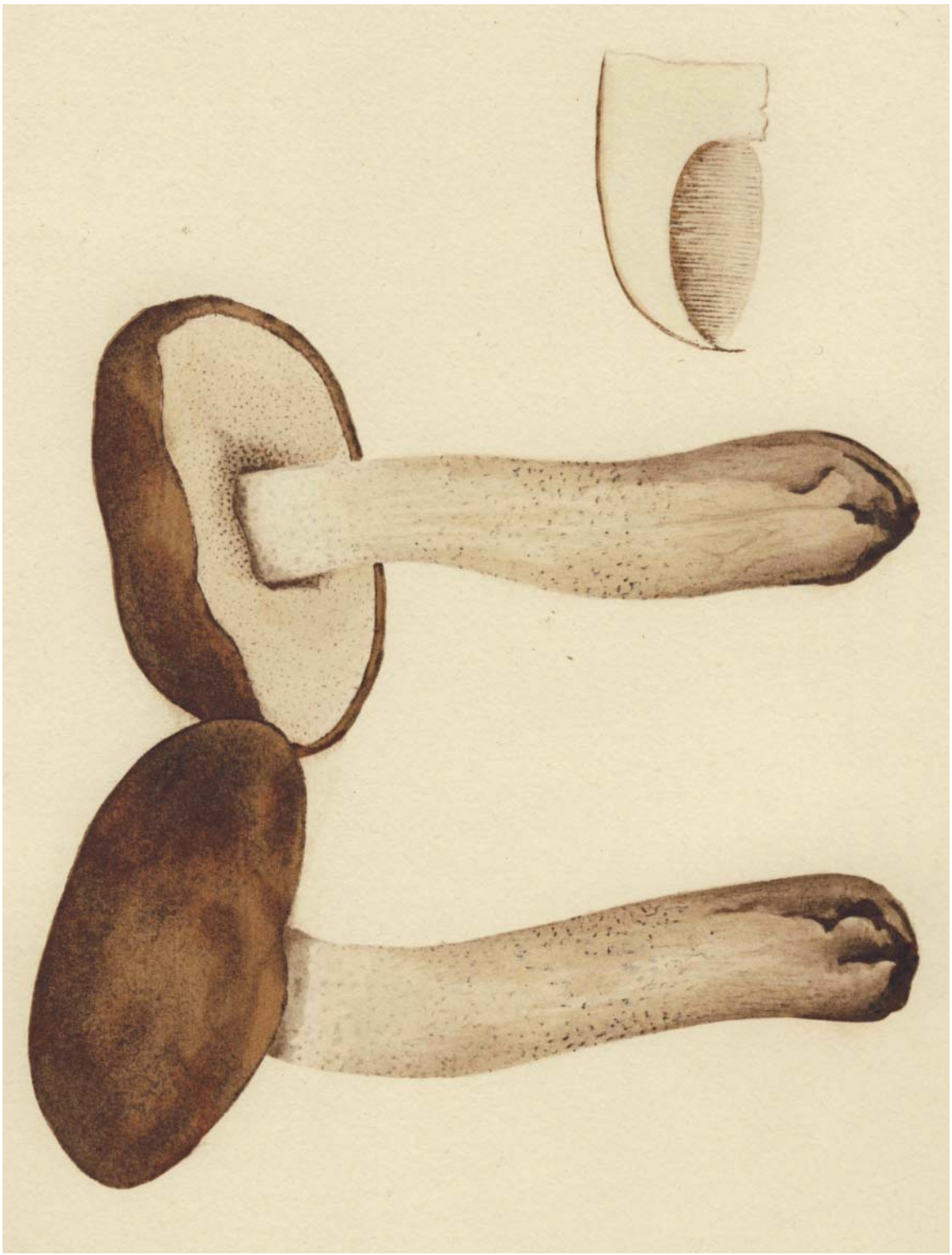

PLATE LXXXII

Jean-Henri Fabre. Coprinus atramentarius Fr. ex Bull.
French: ***pisse-chien;*** Russian: *opjonok.*

APPENDIX II

The current notion that, especially after a rain, mushrooms spring up overnight, is not true. Nevertheless, it is true that at times one finds young mushrooms where none were seen the night before. They were there, however, but remained unnoticed, because they were hardly above the ground, and covered with leaves and grass. Those quickest to mature or rather to grow up, such as the *berjozoviki* [boletus scaber] and *syroezhki* [various russulse], reach full development in three days, but the ceps take a week or more. The slowest to grow is the *dubovik,* a worthless mushroom and even poisonous, as I said before.

In good harvest years mushrooms may be seen in clusters and families. They even grow as twins or triplets or more. I speak of those mushrooms that usually grow single, such as the ceps, the birch-mushrooms, the aspen-mushrooms, etc. I once made a sketch of an aspen-mushroom that showed six stems covered by one cap. A superabundance of mycelium and of the earth's sap at times produces freakish and ugly forms. Once I found a russula with another russula growing out of its cap. I made a drawing of this curious monstrosity. More than once I have found in the earth large lumps of the mycelium of the cep, a mass much resembling a root and the size of a man's head.

This is the order of the appearance of mushrooms. As soon as it begins to thaw in the spring, the morels appear in the meadows and the open woods. At first *theglukhie* ['deaf ones', an helvella], then the *strojki* [morchella esculentaj. They grow even under a crust of snow with water rushing beneath. After the morels a month elapses, or more if there is drought, during which there are no mushrooms whatever. Then come the *masljaniki, berjozoviki, syroezhki, osinoviki* [boletus versipellis], then the first wave of *gruzdi, podgruzdki* [various kinds of lactarii], and ceps; then follow the *lisichki* [chanterelles], and field mushrooms; finally come the autumn mushrooms, viz., *volzhanki* [lactarius torminosus], *beljanki, ryzhiki,* and *opjonki.* This whole order is upset at times, and it always depends on the weather and the atmospheric influences. I must add that each species appears in two or three waves during summer and fall, and until frequent and strong frosts, especially during droughts, finally kill off the mushroom growth. Speaking of each species of mushroom separately, I shall tell in more detail of the occasional mutations in their growth.

Translated by VPW *and* KGW

Aksakov's essay ends here. Apparently he never returned to the subject, and his observations on growth 'mutations' are lost to us. He died in 1859, three years after the publication of the paper. VPW.

APPENDIX III

Leuba's 'Hymn to the Morel'

IN the realm of belles letters the writings about mushrooms are few. Only in French and only in recent decades do we find this theme chosen for deliberate literary effort; among the handful of writers on mushrooms are Georges Becker, Camille Fauvel, and J. Amann. To this group we should add Roger Heim, who, though primarily a professional mycologist of supreme attainments, possesses the humanist point of view and the literary graces to qualify him for highest honors in the genre we are discussing. Beyond the output of this small circle, the mushroomic bibliophile must content himself with incidental references down through the centuries, in verse and prose, by writers whose thoughts were primarily directed elsewhere.

There is, however, much enjoyment to be gleaned also from the older books about mushrooms, composed in times when the austerity of the utilitarian and scientific approach had not yet forbidden the writers to indulge in occasional digressions. Such incidental passages are all the more enjoyable for the way they sometimes interrupt and enliven a dreary and pedestrian text. Perhaps the supreme example of this intruding Muse is to be found in the work entitled *Les Champignons Comestibles et les Especes Veneneuses,* written by F. Leuba, a Swiss pharmacist, and published in Neuchatel in 1890. The author of this large work proceeds methodically to describe all kinds of wild fungi, faithfully organizing his labors according to the conventional break-down of family, genus, and species. He comes in due course to the various morels, and then, all of a sudden, he is off, as though kidnapped by Pegasus, in a flight of eloquence that has surely never been equalled on the theme of mushrooms. He apostrophizes the morel, and then subtly characterizes the various types of morel-hunters - the amateur, the professional, the *gastronome,* and finally the simple lover of nature who discovers in morel-hunting an excuse for indulging his passion. After his excursion into Parnassian realms, our staid Swiss pharmacist slowly recovers his native poise, subsiding into the humdrum pace of one who with minute accuracy and crushing drudgery describes the fruiting bodies of the fungal world - their respective habitats, and the distinctive features of stipe and pileus and spores.

We think that Leuba's prose *Hymn to the Morel* deserves to be rescued from the tomb in which it has been gathering dust these sixty years and more, and we offer it now to our readers. We are not undertaking to do it into English, for in that rarefied world of mycophiles to whom we offer our book, are we not safe in supposing that many read French? They would resent the impertinence of any translation. The additional readers to be gained by our supplying a text in English will surely concede with good grace that their loss is outweighed by the pain that a translation, no matter how skillful, would impose on the larger number. Here, then, is the discourse of F. Leuba, Swiss *pharmaden,* on morels and morel-hunters.

Voici la morille! En est-il un seul d'entre nous chez lequel ce nom n'evoque des souvenirs delicieux de cueillettes heureuses, de courses enchantees, d'odeurs

de sapins, de nuages roses d'aurore, de gentianes printanieres, d'appels de coucous, et de tout le cortege enivrant du printemps; Quel est celui dont le coeur ne tressaille d'aise au souvenir de la vue d'une de ces belles morilles que nous avons contemplee un instant avant d'oser y porter une main sacrilege? Quel est celui d'entre vous qui ne 1'ait attendue avec impatience dans ce dedale de classification froide que nous avons parcouru jusqu'ici? Qui ne connait la morille et qui la connait sans *Y aimer* > En effet, de tous les champignons, aucun ne passionne davantage 1'amateur, aucun n'est recherche avec autant de plaisir et d'acharnement, aucun n'interesse des categories de gens aussi diverses. Depuis le negociant affaire au rentier inactif, de 1'artiste amateur a 1'ouvrier sedentaire, tous aiment a la trouver. Je connais des individus qui, a la saison des morilles, se livrent dix a quinze jours consecutifs a leur chasse favorite, parcourant le Jura d'un bout a 1'autre et ne laissant pas quelquefois de faire des journees tres remuneratrices.

Le vrai morilleur est un type qui se recrute generalement parmi les horlogers montagnards; il se livre sans arriere-pensee a cette chasse tout le temps de la saison, fouillant les bois et les taillis et ne laissant aucune chance au hasard. Sa longue experience et son ceil scrutateur et infaillible en font un concurrent redoute des amateurs ordinaires qui ont bien des chances de rentrer bredouille s'ils ont eu le malheur de le rencontrer dans leur course. Quoique morilleur de quelque merite, j'ai toujours en vie le coup d'ceil de ce chasseur, et la rapidite avec laquelle il fait 1'inventaire de la place m'a toujours confondu.

En general, arrive devant une *tache* ou un *coin,* le morilleur s'arrete un moment et commence ses recherches; il decouvre une morille, puis plusieurs. . . Quand il s'est assure qu'il n'y en a pas d'autres, il les prend lentement et continue sa route comme un promeneur ordinaire. Habituellement, le morilleur cueille la morille en la prenant par dessus, de maniere a ce qu'une fois detachee de sa racine, il la tienne dans sa main; c'est le moment psychique, celui ou 1'attouchement de 1'extremite de la morille dans le creux de la main de celui qui la cueille, communique au corps Fetincelle qui fait battre son coeur et transmet a Tame 1'etat de jouissance qui fait le charme de cette trouvaille.

La passion que peut inspirer la chasse aux morilles est extraordinaire et se manifeste differemment selon le caractere des individus qui s'y adonnent. Outre le grand nombre de personnes qui vont aux morilles par delassement[1], on distingue le morilleur de profession, c'est-a-dire celui qui va aux morilles tantot pour en faire le commerce dont il vit tout le temps que dure cette vegetation, tantot

i. Dans les hautes vallees et les hameaux dissemines du Jura, tout le monde est un peu morilleur; c'est une jouissance que j'ai vu partager aussi bien par des enfants et des jeunes filles que par des personnes plus agees.

pour le plaisir pur et simple de les trouver, car il est rare que cet amateur-la aime a les manger.

Le moment le plus favorable de la journee pour trouver la morille, c'est le matin, alors que la lumiere n'inonde pas encore la foret; si 1'imagination du morilleur lui represente souvent le sol jonche de morilles, a cette saison de Fannee ou le ton gris domine encore, il faut un certain temps pour familiariser 1'oeil avec le terrain et les jeux de la lumiere et Ton eprouve toujours quelque difficulte a decouvrir la premiere morille. C'est la que 1'on reconnait le vrai morilleur. Sur de son appreciation, sur de son terrain, il est la, concentrant sa vue sur chaque point du terrain, suivant chaque fissure de rocher, ne laissant echapper aucun brin d'herbe naissante a ses investigations; bien peu de morilles echappent a cet oeil-la. Aussi le morilleur se leve-t-il de bonne heure afin d'arriver avec 1'aurore a 1'endroit qu'il a 1'intention d'exploiter plus particulierement ce jour-la et ou il trouve souvent deja nombre d'autres amateurs. C'est alors que commencent cette chasse effrenee, ces marches et contremarches, ces explorations minutieuses de tous les coins et recoins, de toutes les pierres, de tous les plis de terrain, en un mot, cette guerre d'extermination a ces pauvrettes qui n'ont commis d'autre crime que celui d'etre excellentes et de se laisser accommoder a toutes sauces.

Apres le morilleur de profession vient le morilleur gastronome. Bien que d'une certaine habilete, il n'est pas a redouter comme le precedent, et Ton a encore des chances de faire une cueillette raisonnable apres son passage. Celui-ci n'a pas manque, avant son depart, de se munir d'une *bonne bouteille* et de garnir son sac de diverses conserves alimentaires; il en est meme qui ont, dans la foret, des etapes regulieres approvisionnees de vins et de liqueurs. Constamment preoccupe de la maniere dont il appretera sa cueillette le soir, en rentrant au logis, il assiste deja a un festin imaginaire; ses oreilles entendent le crepitement du beurre frais dans la poele fumante, ses narines se dilatent au parfum de persil qui s'en exhale; les efnuves musquees de la morille qui fait des soubresauts sur ce lit d'herbettes 1'enivrent; les papilles de sa langue tressaillent et se rejouissent de percevoir cette sensation si douce, deja transmise au cerveau avant meme d'etre con9ue; le phenomene physiologique est accompli: le miserable 1'a mangee avant de 1'avoir trouvee.

Outre ces differentes classes de morilleurs, il existe encore celle des amis de la belle nature pour lesquels les morilles ne sont pas tant un sujet de recherche qu'un pretexte pour se vouer a leur culte favori et passer un instant dans le recueillement en communion intime avec leur Createur en admirant ses ceuvres. Le grand charme de la morille, c'est qu'elle vient au printemps et qu'elle croit dans les bois; or, si les bois ne sont plus le sejour des dieux, ils sont encore et

seront toujours le refuge ou I'homme, fatigue du train de ce monde, blesse dans les luttes de la vie sociale, est heureux de trouver la solitude et le silence, la possession de soi-meme, I'lntimite avec une nature inoffensive, discrete et charmante qui soulage son ame et enchante ses yeux. Les arbres ne sont pas seulement le decor necessaire de la foret; ce sont eux qui en font une retraite, un asile; il semble que, sans eux, les ames ne pourraient se promettre d'y rencontrer leur Dieu et dejouir d'elles-memes; ils sont la condition indispensable du recueillement et de la paix. Aussi, quand le soleil du printemps commence a fondre la neige sur le sommet de nos montagnes, quand la nature se reveille de son long sommeil et qu'une main magique seme dans les vallons la verdure et les fleurs, le morilleur amateur se leve de bon matin et prend doucement le chemin des paturages. C'est le moment ou les nuages roses de 1'Orient annoncent 1'approche du soleil... C'est la que le bonheur de vivre inspire au cceur de 1'liomme de ces elans passionnes de reconnaissance et d'amour et, qu'oubliant les miseres du monde, le morilleur, pousse par une force mysterieuse et puissante, joint sa voix a ce concert universel, a cet hymne eternel au Createur. Pour lui, le bien supreme en ce moment, c'est la jouissance sans arriere-pensee de cette poesie saine et reconfortante qui decoule de toutes les beautes de cette nature, et si, dans sa course, il s'est attarde a regarder une abeille brossant du pollen, a examiner une corolle de primevere qui s'epanouissait au soleil, si parfois meme, il lui est arrive de prendre de loin, pour une morille, un crapaud se rechauffant au soleil,[1] les bras croises sur sa poitrine; en un mot, si la recolte a ete presque nulle, il n'en rentre pas moins heureux a la maison: il a pris une lecon de plaisir, de sagesse et d'amour.

Independamment des qualites qui sont le privilege de la morille, ce qui fait son prestige, c'est la saison ou elle croit. Dans les hautes vallees du Jura, elle est pour ainsi dire considered comme la messagere des beaux jours. Il n'est pas rare de voir le morilleur se mettre en route apres quelques jours de chaud soleil de mars et visiter les gros sapins isoles et les lisieres des bois exposees au soleil; ces recherches sont generalement couronnees de succes. C'est alors un triomphe que la feuille locale annonce a ses lecteurs qui saluent avec plaisir cette promesse du prochain retour du printemps; mais helas! toutes n'arrivent pas al'honneur; a cette saison de 1'annee ou les nuits sont encore si froides, le plus grand nombre perissent, victimes de leur empressement a saluer ce soleil printanier si souvent trahi par ses forces, et quand plus tard, les beaux jours arrivent, plus d'une fois le morilleur, sensible au malheur de ces infortunees, soupire tristement en retrouvant leurs cadavres etendus sur le sol.

I. Let the reader note this observation, apposite for our theme: the *morilleur* mistakes a toad, sunning itself with arms crossed, for a morel. V. P. W.

APPENDIX IV

riere follow in the original tongues the various texts relating to the use of inebriating mushrooms by Indians in Mexico in the 16th and ijth centuries. Each passage is keyed to the corresponding translation on pp. 218-28. For the translations from the Spanish and French the authors are solely responsible.

[i]

. . . los estrangeros les dieron a coiner hongos montesinos que se embriagan con ello, y con esto entraron a la danca. [Folio 1251, H. P. Kraus ms.]

[2]

Acabado el sacrificio, y quedando las gradas del templo y patio banadas de sangre humana, de alii iban todos a comer hongos crudos, con la cual comida salian todos de juicio y quedaban peores que si hubieran bebido mucho vino; tan embriagados y fuera de sentido que muchos dellos se mataban con propria mano, y con la fuerza de aquellos hongos, vian visiones y tenian revelaciones de lo por venir, hablandolos el demonio en aquella embriaguez.

[3]

Tenian otra manera de embriaguez que los hacia mas crueles: era con unos hongos 6 setas pequenas, que en esta tierra los hay como en Castilla; mas los de esta tierra son de tal calidad, que comidos crudos y por ser amargos, beben tras ellos 6 comen con ellos un poco de miel de abejas; y de alii a poco rato veian mil visiones y en especial culebras; y como salian fuera de todo sentido, pareciales que las piernas y el cuerpo tenian llenos de gusanos que los comian vivos, y asi medio rabiando se salian fuera de casa, deseando que alguno los matase; y con esta bestial embriaguez y trabajo que sentfan, acontecia alguna vez ahorcarse, y tambien eran contra los otros mas crueles. A estos hongos llamanles en su lengua *teunamacatlh,*[1] que quiere decir carne de Dios, o del Dernonio que ellos adoraban y de la dicha manera con aquel amargo manjar su cruel Dios los comulgaba.

[4]

. . . y sabe e vio que habra 14 anos que en una fiesta vio beodos a los dichos Don Francisco e Don Juan e habian tornado *nanacates* para invocar al demonio como lo hacian los antepasados, e que es publico y notorio que siempre cuando no llueve o cuando se cogen los maices Hainan al diablo e que cuando cogen los maices hacen sus borracheras. . . [p. 38]

I. This reading of the name is found in the Rich ms. in the New York Public Library, which is a transcript of an early ms. in the Escorial. The scribe who penned the Rich ms. evidently had trouble in deciphering the original; he was certainly striving to arrive at the word that appears, as we shall see, in Sahagun as *teonandcatl.* See p. 24 of Rich ms.

APPENDIX IV

[5]

... Tributauanle [al Senor de Mexico] cada ues que se lo pedian dos o tres cargas de mantas de *nequen,* que se haze de un arbol que se llama maguei, y dauan ongos con que senborrachan y *ocote* . . .

[7]

. . . alii, qui mortem ingesti non inferant, sed amentiam aliquandiu permanentem, incondito quodam risu testatam, inducant, quos *Teyhuinti* vocare mos est, fulvi, acres, et non ingrati cujusdam viroris. Sunt et alii, qui citra risum nihil non versari sub oculos cogant, velut bella, et dsemonum simulacra, atque alii non minus a viris hisce principibus per sua prxcipue festa, et convivia exoptati, et pretio maximo, et pervigili cura conquisiti, quam immanes, atque horrendi: quod genus fuscum est, et quadam acrimonia prasditum.

[8A]

La primera cosa, que se comja en el combite: eran vnos hungujllos negros que ellos llaman nanacatl, emborrachan: y hazen ver visiones, y aun provocan a luxuria: esto comjan ante de amanecer y tambien beujan cacao, ante de amanecer: aquellos hungujllos comjan con mjel, y quando ya se comen9avan a escalentar con ellos, comecavan a baylar: y algunos cantauan, y algunos llorauan: porque ya estauan borrachos, con los hungujllos: y algunos no querian cantar, sino sentauanse, en sus aposentos: estauan alii como pensatiuos, y algunos vian en vision que se murian, y lloraron: otros vian en vision, que los comja alguna bestia fiera: otros vian en vision, que captiuavan en la guerra: otros vian en vision que avian de ser ricos: otros vian en vision que avian de tener muchos esclavos: otros vian en vision que a via de adulteral [adulterar]: y les avian de hazer tortilla la cabe^a por este caso: otros vian en vision, que avian de hurtal [hurtar] algo: por lo qual, lo aujan de hazer tortilla la cabeca: otros vian en vision, que avian de matar a alguno y por el caso, aujan de ser muertos: otros vian en vision, que se ahogauan en agua: otros vian en vision, que vivirian, y murieran en paz: otros vian en vision que cayan de alto, y murieran de la cayda: todos los acontecimjentos desastrados, que suelen auer los vian en vision: otros vian que se sumjan en el agua, en algun remolino. Desque auja passado la borrachera de los hungujllos hablauan los vnos, con los otros, cerca de las visiones que avian visto. [BOOK ix, Flor. Codex, fol. 3ir-3iv; Chap, xm]

[8a]

Vel iacattiiui in tequaltiloia nanacatl in qujquaia, icoac in quitoaia tlatlapitzalizpan aiamo tie tlaqualli qujquaia, can oc iio in cacahoatl conia ioaltica. Auh in nanacatl necuio in quiquaia: in icoac ie intech qui9a nanacatl, in oncan mitotia, oncan choca: Auh in cequintin in oc iniollo quimati, in oncan inieian motlalia caltech aocmo mitotia, ca oncan oaltolotimotlatia. In aca conmottilia ie miquiz oncan chocatica: in aca conmottilia iaumiquiz: in aca conmottilia tequanqualoz: in aca conmottilia tlamaz iauc: in aca conmottilia iehoatl in mocuilltonoz in motlacamatiz in aca conmotilia tecohoaz tlacooa iez, in aca conmottilia tetlaximaz, tetzotzonaloz tetepacholoz: in aca conmottilia ihichtequiz no tetepacholoz : in aca conmottilia tequatepachoz quitzacutiaz in aca conmottilia atlan miquiz: in aca conmottilia iehoatl in iuian iocosca monemitiz ipan miquiz: in aca conmottilia

tlapanco oaluetziz mictiuetziz. J 9390 quesquich tepan mochioaz: mochi oncan conittaia, in anoco ilaquiloz. Auh in oquincauh nanacatl: mononotza quimolhuia in tlein oconmottilique.

[9A]

Tabien tenjan gran conoscimjento de yeruas, y rayzes, y conoscian sus calidades, y virtudes; ellos mesmos descrubrieron, y vsaron primero la rayz que llaman peyotl: y los que la comjan, y tomauan: La tomauan en lugar de vino. Y lo mjsmo hazian de los que llaman nanacatl: que son los hongos malos, que emborracha, tambien como el vino: y se iuntaua en vn llano despues de lo auer comjdo, donde baylauan, y cantauan de noche, y de dia a su plazer: y esto el primero dia, y luego el dia sigujente llorauan todos mucho, y dezian: que se limpiauan, y lauauan los ojos, y caras con sus lagrimas. [BOOK x, Flor. Codex, fol. 122 v]

[IDA]

Ay otra yerva, como turmas de tierra, que se llama peyotl: es blanca, hazese hazia la parte del norte: los que la comen o beben ven visiones espantosas, o de rrisas, dura este emborrachamjento dos o tres dias, y despues se qujta . . . [Boos xi, Flor. Codex, fol. I29v-i30r]

[9B]

loan qujximati in xiujtl, in tlanelhoatl in quenamj, in quen ihiio, iehoantin in tlaiximach in mjtoa peiotl, vctli ipan in qujpoa, in anoco nanacatl, mocentlalia cana ixtlaoacan, monechicoa : vncan mjtotia, cujca ceioal, cemjlhujtl : auh in jmuztlaioc, oc ceppa mocentlalia choca, cenca choca, qujl mjxpaca, ic qujchipaoa in jmjxtelolo.

[IOB]

Peiotl: inin peiotl iztac: auh $an yio vmpa in mochioa in tlacochcalcopa, in teutlalpa in mjtoa mjctlanpa. In aqujn qujqua in, in anoco quj; itech qujca, iuhqujn nanacatl: no mjec tlamantli qujtta in temamauhti, anoco tevetzqujti: aco cemjlhujtl, anoco omjlhujtl in jtech qujca, ...

[HA]

Ay vnos hongujllos en esta tierra que se llama, teonanacatl : crianse debaxo del heno en los campos o paramos son redondos, y tiene el pie altillo y delgado, y redondo comjdos, son de mal sabor dana la garganta, y enborracha son medicinales contra las calenturas y la gota anse de comer, dos o tres no mas : los que los comen veen visiones, y sienten vascas del coracon, y veen visiones a las vezes espantables y a las vezes de rrisa, a los que come muchos dellos provocan a luxuria y aunque scan pocos. Y a los mocos locos o traviesos, dizenles que an comjdo nanacatl. [BooK xi, Flor. Codex, fol. I3ov-i3ir.]

[IIB]

Nanacatl: mjtoa teunanacatl, ixtlaoacan, 9acatzontitlan in mochioa, quamalacachton, xopiazton, chichicacococ, tozcacococ: teivinti teiollo malacacho, tetlapololti : atonaviztli. coaciviztli ipaio, can ontetl, etetl in qualonj, teiolpatzmjcti, tetequjpacho, teama, techololti, temamauhti, tetlatiti. In oqujn mjec qujqua mjec tlamatli qujtta temamauhti, ano9O

tevetzqujti: choloa, momecanja motepexivia, tzatzi, momauhtia. Injc qujqua necutli ipan: njnanacaqua, njnonanacavia. In mopoanj, in atlamatinj cuecuenotl: ipan mjtoa monanacavia.

[12]

Y el caso fue que a el habia venido un indio natural del pueblo de *Tenango,* gran maestro de supersticiones, y se llamaba Juan ***Chichiton,*** que quiere decir *perrillo,* el cual habia traido los hongos colorados que se cogen en el monte, y con ellos habia hecho una gran idolatria, y antes de decirla, quiero explicar la calidad de los dichos hongos, que se llaman en la. lengua mejicana *Quautlannamacatl,* y habiendo consultado al licenciado don Pedro Ponce de Leon, el gran Ministro y maestro de los maestros, que dije en el capitulo II, me dijo que estos hongos eran pequenos y dorados, y que para cogerlos iban al monte los sacerdotes y viejos deputados Ministros para estos embustes, y estaban casi toda la noche en oracion y deprecaciones supersticiosas, y al amanecer, cuando comenzaba cierto vientecillo que ellos conocen, entonces los cogian, atribuyendoles deidad, y teniendo el mismo efecto que el *ololiuqui 6* el *peyote,* porque comidos 6 bebidos, los embriaga y priva de sentido, y les hacen creer mil disparates. Este, pues, Juan *Chichiton,* habiendo cogido los hongos una noche, en la casa donde se juntaron con ocasion de la fiesta de un santo, el santo estaba en el altar, y los hongos con el pulque y con el fuego debajo del altar, anduvo toda la noche el *teponastli* y el canto, y habiendo pasado la mayor parte de ella el dicho Juan *Chichiton,* que era el sacerdote de aquella solemnidad, les dio a todos los circunstantes que se habian juntado a la fiesta a comer de los hongos como a modo de comunion, y a beber del pulque, y rematar la fiesta con abundante cantidad de pulque; que los hongos por su parte, y el pulque por la suya, los saco de juicio que fue lastima.

[I3l

. . . Ce diet seigneur de Tezcuq . . . Il pourtoyt gran reverence aux dieux et avoyt grand soing des temples et ceremonies; il ordona aussi que les jeunes homines ct filles dancessent aux temples ..... leur sement le temple de roses et de fleurs et dan^ant tousiours davant eux tant ceux de la vile que les prochains voisins, les quels le diable abeusoyt leur faisant manger quelque herbe quils noment *nauacatl* la quelle les faisoyt hors de sens et voyr beaucoup de visions.

INDICES

VOLUME I contains *Pages* i-xxi, 1-214, *Plates* I-XXXVII *and Figures 1-11.*

VOLUME II contains *Pages* 215-407, *Plates* XXXVIII-LXXXII *and Figures 12-28.*

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INDEX OF MUSHROOM NAMES

INDEX OF PERSONS AND PLACES

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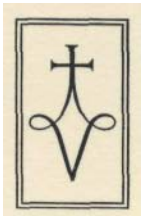

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"MUSHROOM STONES" OF MIDDLE AMERICA

Arranged by Stephan F. de Borhegyi
geographically and chronologically
by types

TYPOLOGY

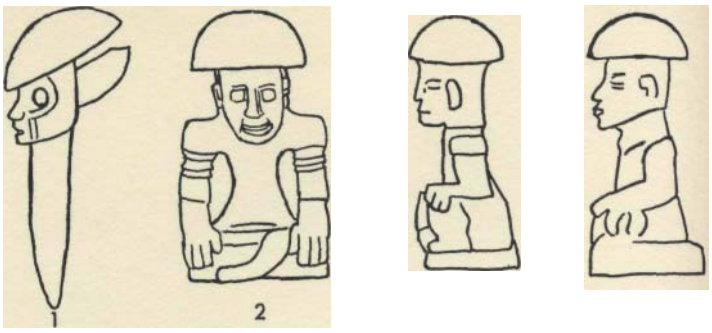
TENTATIVE CHRONOLOGY

TYPE A.

Anthropomorphic stone sculptures with plain (Nos. i to 5 and 7) or circularly grooved (No 6) mush-room hats.

Plain (Nos. 10, Ii) and circularly grooved (Nos. 8, 9) stone mush-room tops.

Chronological position uncertain.



TYPE B.

EfEgy mushroom-stones with circularly grooved top and square (Nos. 12 to 14) or tripod (Nos. 15 to 16) base.

Early and Late Pre-Classic (1000 B.C. - 200 A.D.)

TYPE C.

EfSgy (Nos. 17 to 31) or plain (Nos. 32 to 37) mushroom-stones with square or rounded base and without circularly grooved top.

Late Pre-Classic (500 B.C. - 200 A.D.) and probably Early Classic (200 - 500 A.D.)

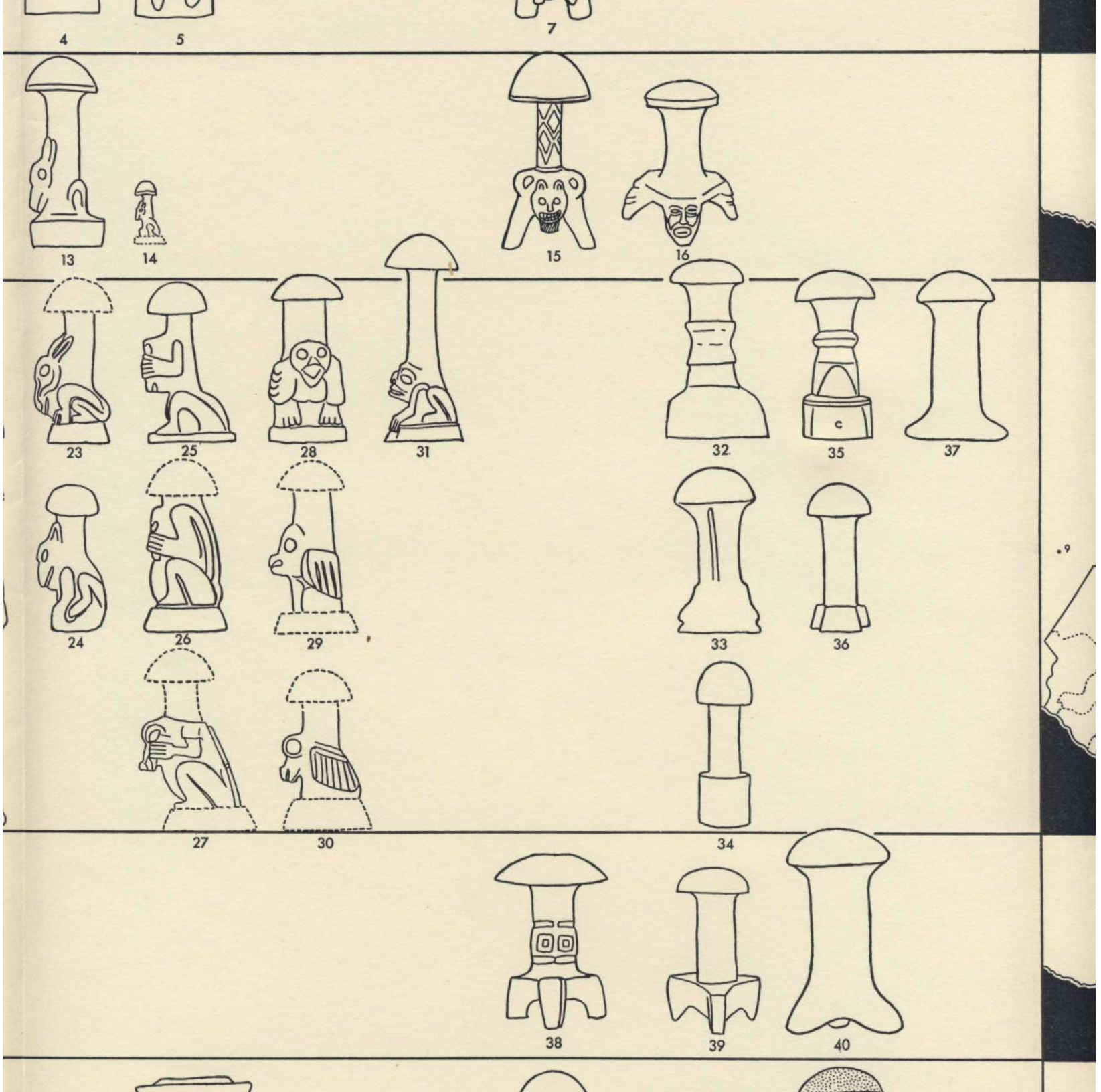
Square bases: Nos. 17, 18, 20, 21, 22, 23, 25, 26, 28, 31 and 35.

Rounded bases: Nos. 19,24, 32, 33, 34, 36 and 37-

TYPE D.

Tripod mushroom-stones with plain (Nos. 39, 40) or carved stem (No. 38) and with clubby (No 40) or sharp angled feet (Nos. 38, 39).

Late Classic (500 - 900 A.D.)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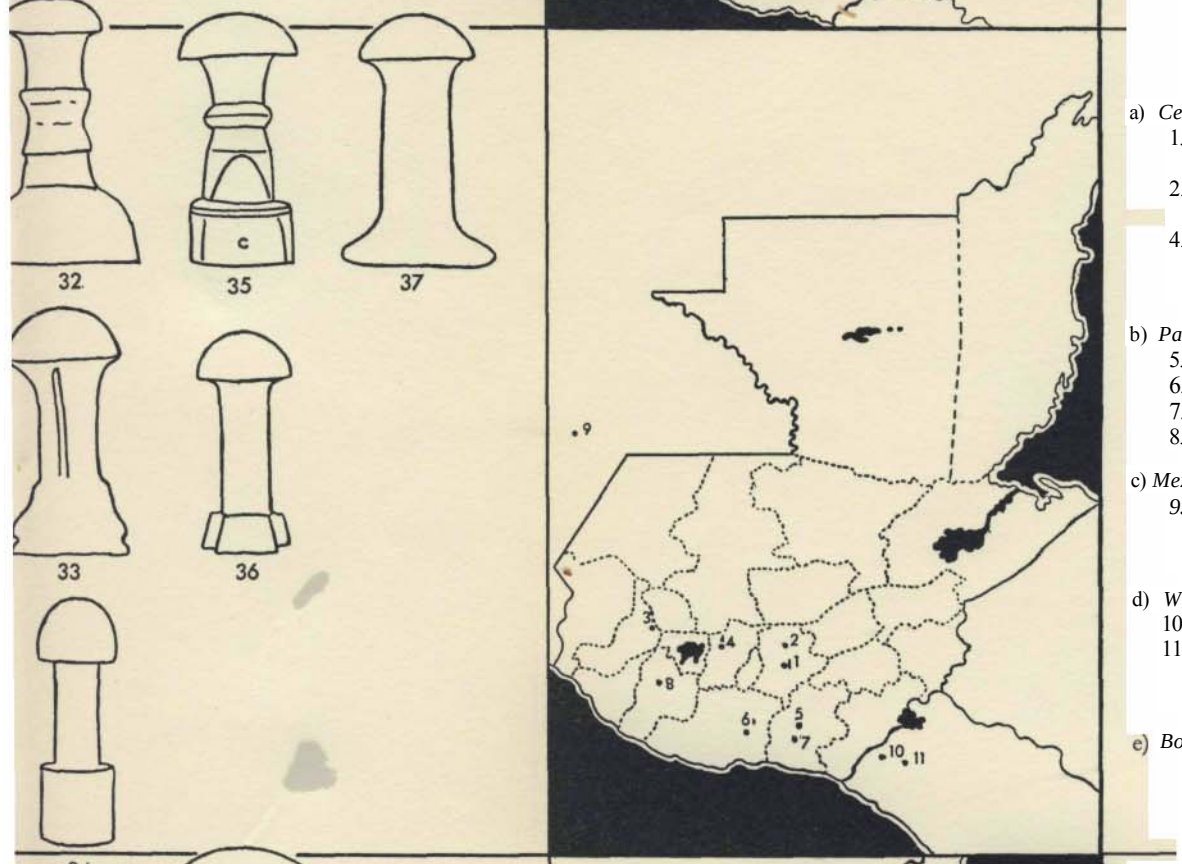
DISTRIBUTION

a) *Central Guatemalan Highlands:*
1. Kaminaljuyu (Nos. 2, 3, 4, 8, 10)
2. Salcaja (No. 6)
3. Chukumuk (No. 9)
4. Xikomuk (No. n)

Uncertain locality (Nos. i, 5, 7)

a) *Central Guatemalan Highlands:*
1. Kaminaljuyu (Nos. 12, 13, 15)
2. Quiche (No. 16)

Uncertain locality (No. 14)



a) *Central Guatemalan Highlands:*
1. Kaminaljuyu (Nos. 17, 18, 19, 20, 27, 28, 29)
2. Cerro Alux, Mixco (No. 31)

Salcaja (No. 25)
4. Tecpan-Iximche (not ill., cf. No. 36)

Uncertain locality (Nos. 21, 22, 23, 24, 26, 30)

b) *Pacific Coastal Plains, Guatemala:*
5. Lago Ixpaco (No. 36)
6. El Salto (not ill., cf. No. 21.)
7. Guazacapan (not ill., cf. No. 31.)
8. Retalhuleu (not ill., cf. No. 28)

c) *Mexico:*
9. Ocosingo, Chiapas (No. 32)

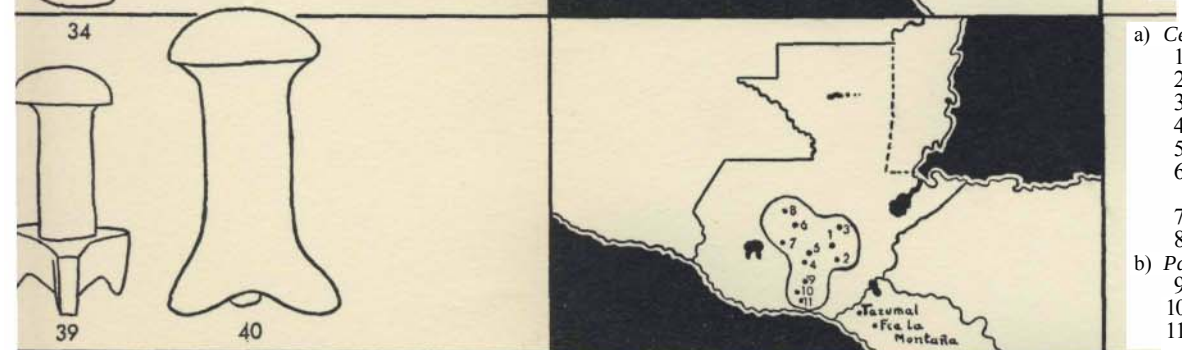
Oaxaca (not ill., cf. Nos. 32, 33, 36, 37)

d) *Western El Salvador:*
10. Tazumal (No. 33)
11. Las Victorias (No. 35)

Uncertain locality (No. 37)
(probably Chalchuapa area)

e) *Bolivia, South America:*

Inca-Uyu, Chucuito (No. 34)



a) *Central Guatemalan Highlands:*
1. Kaminaljuyu (Nos. 38, 39, 40)
2. Eucaliptus (not ill., cf. No. 39)
3. Agua Caliente (not ill., cf. No. 39)
4. Pompeya (not ill., cf. No. 39)
5. Antigua (not ill., cf. Nos. 38, 39, 40)
6. San Martin Jilotepeque (not ill., cf. No. 39)
7. Tecpan-Iximche (not ill., cf. No. 39)
8. Zacualpa (not ill., cf. Nos. 39, 40)

b) *Pacific Coastal Plains, Guatemala:*
9. El Baul (not ill., cf. No. 39)
10. Los Diamantes (not ill., cf. No. 39)
11. El Carmen (not ill., cf. No. 39)

a) *Central Guatemalan Highlands:*