THE DRAMA OF ALBERT EINSTEIN

By Antonina Vallentin

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H. G. WELLS

THIS I SAW: A LIFE OF GOYA

MIRABEAU

LEONARDO DA VINCI

FRUSTRATION: STRESEMANN'S RACE WITH DEATH

POET IN EXILE: THE LIFE OF HEINRICH HEINE

EINSTEIN AT THE WINDOW OF HIS STUDY, PRINCETON
"God does not play at dice."

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God does not play at dice.

—ALBERT EINSTEIN

Chapter I

ALBERT EINSTEIN has never quite accepted the fact that he is a celebrity. Few men have been quite so spectacularly and steadily successful, but fame is no more to Einstein than a traveling companion—he manages to forget it from time to time, but there it is, always beside him, irritating him by its very permanency. It is not part of his real nature and to understand him properly one has to forget about it.

Albert Einstein's life has been a constant struggle between his love of anonymity and the burdens of his fame, and at times only his sense of humor has saved him from complete exasperation. He has never let himself be carried away by the enthusiasm he provokes. He bows without embarrassment to the frenzied applause which greets him, but there is a conspiratorial twinkle in his eye for his relations and friends as if calling them to witness that these strange proceedings have nothing to do with him. His smile of amusement is always tinged with the same faint surprise, as though he recognizes that the crowd has to have an idol but still cannot

imagine why they should have picked on him to fill the role.

The British Ambassador to Berlin, Sir Horace Rumbold, once told him the story of how his son, arriving from school, had asked with one foot still on the train: "Daddy, have you met Einstein?" When the Ambassador had to admit that he had not yet had that honor, the boy shrugged his shoulders pityingly, implying that his father had wasted his time in Berlin. "I was quite withered by his contempt," said Sir Horace. Einstein shook his head, amused yet puzzled. "I really don't know why it is," he said, "that, having written a few papers that only a handful of people in the whole world are able to understand, I have apparently acquired such fame." He spoke with detachment, as though describing some peculiar phenomenon. He evidently considered the problem insoluble, but he spoke with astonishment as well as resignation.

The contrast between his almost legendary reputation and its esoteric origins is, in fact, striking. One of Einstein's assistants describes how, around 1917, a physicist talking to Sir Arthur Eddington, the famous English astronomer and one of the scientists most instrumental to Einstein's glory, said: "You, Sir Arthur, are one of the three men in the world who understand the theory of relativity." A slightly pained expression crossed Eddington's face and his questioner hastened to add: "There's no need to be embarrassed, Professor, you are much too modest."

"It's not a question of modesty," protested Sir Arthur, "I was only asking myself who the third could be."

But there must be some reason why admiration for Einstein has reached such a high spiritual level and has penetrated so deeply into the minds of the masses. He has caught

the imagination of the man in the street in Paris, London, Berlin, and Tokyo. When a film on Einstein was shown at the Museum of Natural History in New York the scene became a riot which necessitated police intervention. It would take a philosopher and a sociologist together to analyze the extent of Einstein's fame and the sensational forms it has taken. A study of this curious phenomenon, the homage of the humble to the great, would be a major contribution to our understanding of our times.

This fame, the like of which few living men have experienced, has remained unaffected by passing tastes, changes in values, and contemporary problems. Einstein is, as somebody remarked, the only immovable idol of our troubled age.

This celebrity has often been tested, and has sometimes been made the subject of jokes. Two American students once made a bet. They addressed an envelope to "Professor Albert Einstein, Europe." It arrived at its destination with the normal delay. "How excellent the postal service is!" was Einstein's only comment.

There is nothing more difficult than to escape from the sort of mesmerism which a great name seems to exercise: but to understand Einstein properly, it is essential to try to break free from it. It is equally important, too, to free oneself from the spell exercised by his appearance—the immense head made even larger by the huge shock of hair: a striking head too well known from photographs. With age Einstein has gained in intensity of expression: most certainly his peculiar fascination has increased. As a young man and even in middle age, Einstein had regular features, plump cheeks, a round chin—masculine good looks of the type that played havoc at the turn of the century. His short nose, with its

finely chiseled bridge, spread outward toward the nostrils, giving an impression of sensuality. His large, generous mouth looked red under his black mustache, and contrasted with his dull skin with its slightly sallow tinge. The lower half of his face might have belonged to a sensualist who found plenty of reasons to love life and enjoy it. His round head was finely set on his powerful neck with its pale, easily tanned skin. His large, square shoulders were those of a standard-bearer. His muscular body grew heavy in later life, not in the way that the bodies of inactive people do, carelessly and sluggishly, but haphazardly and reluctantly, like those who retire from a life in the open—explorers, sea captains. But when you came to the eyes this first impression vanished: they were dark, compelling, slightly protruding eyes. The picture of the fine physical specimen in love with life had to give way to a new concept of him.

He might have been a poet, or certainly a musician. These brilliant, sparkling eyes might have been lost in a dream of harmony, as if the dreamer were one with the sound. His hands also seemed made for a violin. Hands which were large and sensual, judging from the palms, narrowed toward the tapering fingers, with rounded nails—the hands and fingers of a musician. But above the striking eyes came the forehead. It was not particularly high in itself, or impressively wide. But the lobes were strong, stretching the polished skin, and almost forming a semicircle as they descended to the temples. This bone structure prepared one for the exceptional. Even if the head had been shaved, the space under it would have seemed vast, but it was overhung by his hair, which was black as the night when he was young. It formed a turbulent background for his face, as it stood

off from his forehead, rebellious and straight, full of an independent vitality. Today his hair is spectacularly white. The first silver streaks that appeared ran from both sides of his forehead, so that he looked like Michelangelo's Moses. As they increased, the silver and black locks, flowing in the wind, looked almost iridescent.

Today his appearance is unforgettable. It attracts immediate attention. One feels either immeasurably flattered or stupidly embarrassed whenever one is near Einstein. But he himself seems impervious to the sensation he creates. His self-assurance is not like that of the famous personalities who walk through a crowd with complete indifference. His unself-consciousness is so complete that one can hardly believe he is not putting it on. He actually does not realize that there is anything unusual going on around him. It is true that he can see the attention fixed on him; he is aware of an atmosphere of respect; he hears his name mentioned all around him; and he is even conscious, secretly, of the bores he wishes to avoid. But all this attention means no more to him than the noise of the windmill to the sleeping miller. It is not, and never has been, a source of amusement to him. On the other hand, it has ceased to annoy him.

Einstein has achieved a detachment which few other people have ever attained. He is equally disassociated from the impression he makes on the world and from the repercussions of his fame. He was incidentally responsible for one of the rare revealing sentences about himself when he thanked G. B. Shaw for the flattering words "addressed to my mythical namesake who makes my life a singular burden." This detachment is so complete that very often in his presence it is difficult to remember that one is indeed with

him. It would be so easy to think one was in the presence of his double—yet even the doubles of celebrities are conscious of having something exceptional about them. Einstein is unconscious of being exceptional to a degree that is difficult to imagine. I have even had the suspicion that he really believes himself to be exactly like everyone else.

One day at Princeton, in the small, quiet university town where he has lived for years, he wanted to see the film *The Life of Emile Zola.* He arrived at the movie theater with his assistant, bought tickets and went in, and then discovered that the performance would not start for another quarter of an hour. They decided to go for a walk.

"But we have given up our tickets," Einstein murmured anxiously to the ticket collector. "Will you recognize us?"

The man laughed, thinking Einstein must be joking. "I dare say we will, Professor Einstein," he grinned.

In any case, Einstein blames the unflagging zeal of photographers for the fact that people instantly recognize him, and he has a grievance against them for depriving him of his anonymity. He blames them for the daily nuisances he is subjected to. Even today he cherishes this grievance to such an extent that once, when he was being photographed recently, he stuck out his tongue at the cameraman. The result was an immense tongue in the middle of an immense face, with wisps of white hair standing on end round his head, like serpents! This terrible picture was widely reproduced in the press, a schoolboy's prank turned into a nightmare.

While one is trying to analyze the elements that are foreign to Einstein's character, one might as well include his past. Curiosity—spurred on by his fame—has done all it could to explore his origins and reconstruct the surroundings in which

he was born, and discern the subtle influences that he might have felt. People have tried to find out what sort of a child he was, what pangs of adolescence he suffered, in order to link the exceptional with the commonplace. But biographical data are an inadequate background to a portrait of Einstein. He might have come from anywhere or from nowhere. He has mentioned the "vague isolation" that penetrates his relationships, even with those closest to him. There is, indeed, something very like a void around him. He once wrote: "I have never belonged wholeheartedly to a country, a state, nor to a circle of friends, nor even to my own family." But the background to Einstein's portrait has a certain individuality, and some of the characteristics of his origin have left their traces on his life.

I once visited Hechingen in the Hohenzollern Sigmaringen region, a little town that was the home of Einstein's family and the birthplace of the cousin who became his second wife. The Swabian imprint remains even on those who desert it early for foreign lands. The thick accent of the district often remains in their speech, especially in a circle of intimates, and there is a special Swabian good-natured humor, curiously like English humor, and a taste for practical jokes. A friend of Einstein's family, also born in Hechingen, made the journey with me and tried to explain the peculiarities of the Einstein family. *Petit bourgeois,* they were not poor enough to have to struggle hard for their living, or rich enough to lead a life apart from their humbler neighbors, who still lived very close to the soil. They lived in a sheltered and peaceful atmosphere, reacting against speed, and reluctant to change either their habits or their friendships. Like all countries that enjoy life and good food, Swabia has its particular tradition

of cooking and in the uneventful life of the Einsteins local dishes played a part as dearly loved as nursery rhymes.

The problems that agitated the large towns of Germany like Munich and Berlin were not so serious in the gentler climate of Hechingen. The Jews lived in the same mellow atmosphere as everybody else, without much friction with their surroundings. The friend who came with me, whose father had also been born in Hechingen, came of an old though not orthodox Jewish family. He told me that when the time came for him to continue his studies in town his father had left him in the care of the parish priest. The priest, in his turn, had found nothing astonishing about bringing up a small, very gifted Jewish boy, with no thought of alienating him from his religion. Religious tolerance existed quite naturally in this atmosphere. Albert Einstein's parents were also freethinkers. But their attitude was by no means aggressive, as is sometimes the case when conversions and repudiations have been reached at the price of great inner struggles. The family's attitude was tolerant, slightly indifferent, as frequently happens when one emotion replaces another almost unnoticeably.

A period of industrial expansion emptied the small towns. The young Jews of modest circumstances, without inherited property, land, or money, without too vast ambitions or too striking qualifications, were the first to leave and seek their livelihood in the larger towns.

It was at Ulm, one of the stages of the Einstein family's pilgrimage and a town still under Swabian influence, that Albert Einstein was born, on March 14, 1879. The next year his parents settled in Munich, which was the background of his whole childhood. The general trend of the times rather than any aptitude for mechanics made Einstein's father set

up a small factory for electrical supplies in Munich. There was nothing in this middle-class milieu to explain an outstanding destiny and nothing in this commonplace childhood to point to an exceptional future. All the members of the family who knew Albert as a child or heard his elders speak of him described him as almost backward; he learned to talk so late that his parents were quite upset about it. In contrast to the childhood tales told about other precocious geniuses (to whom one attributes so many true or mythical stories of other exceptional childhoods), this family picture seemed to underline with a certain satisfaction all that was backward in Einstein. The other children in the family took comfort in this picture of the famous uncle who learned to talk very late, continued to say very little, took in the outside world with difficulty, and revealed a deliberate slowness in all that he did, which irritated his teachers. One trait seems still to link Albert Einstein and the child with the lazy mind: his horror of unnecessary words. There is sometimes a hesitation in his speech and a slight pause at the beginning of his sentences as though he were asking himself whether it is worth while uttering a word or even taking in what he has heard and replying to it.

"My personal external circumstances," he once wrote, "played only a minor role in my thoughts and my emotions." This meticulous statement is true only in so far as it concerns the positive factors of his life. It ignores the negative side of his external circumstances and the provocations that forced him out of his detachment. When he did take action, he acted with an impatience that arose out of the conflict with his otherwise controlled nature: the idea of being stirred by impulses which were imposed on him from outside angered him.

It seems particularly important for the future development

of Albert Einstein that his consciousness of being Jewish and of being German was in a way imposed on him from outside, rather than awakened spontaneously in him. At the age of ten, this reserved child found himself in the atmosphere of a German school. The god of discipline reigning there was an alien god to him. The teachers, with their military approach, belonged to the type of automaton which antagonized him immediately. He had to face the most contemptible of adversaries, which he came to classify later as the "educational machine." At first he certainly did not understand either the reasons for his contempt or the damage that education could do to young minds. He could not even say that he hated it. According to family legend, this taciturn child, who was not given to complaining, did not even seem very unhappy. Only long afterward did he identify the tone and atmosphere of his schooldays with that of a barracks, the negation, in his opinion, of the human being.

The horror of constraint did not come to Albert Einstein in maturity, in the process of establishing his convictions, but was from the beginning an elemental, natural reaction in him, like hunger or thirst. As a child he must have realized that an open revolt would have been inexpedient and absurd, that it would only lead to a useless waste of strength, and this sense of economy of effort seems to have come to him early. With characteristic logic, he simply ignored an authority which appeared incomprehensible, and it was an attitude he never abandoned. If at times he appeared easy to influence, because he bowed before an inescapable situation with good grace, his extraordinary powers of concentration enabled him to keep his mind altogether unaffected.

The little boy was faced with the problems of inexorable

German discipline and his Jewish origins at the same moment. Liberal-minded Jews of the time, like his parents, tried to solve the problem by assimilating themselves as completely as possible. A strong family tradition as well as their religious indifference prevented them from becoming converts, but they hoped to be able to merge with the others in much the same way as very white-skinned half-castes believe they can cross the color line. They had sent their boy to a Catholic primary school, where he was the only Jew in his class. The first religious education their son received was lessons in the catechism. But when faced with the more advanced educational machine of the grammar school, it was the boy himself who felt the need to escape from attempts to mold his mind, and find somewhere the comfort of solidarity. He deliberately assumed the position of a Jew, which isolated him from the others, as a starting point in this escape. To the astonishment of his parents, he underwent a period of religious fervor. When Albert Einstein, at the approach of his seventieth birthday, collected a few biographical notes which he called "Notes for an Obituary," he interpreted this religious fervor, this lost paradise of his childhood, as the "first attempt to liberate myself from purely personal links," to join something greater, something that was not within him. His mind was already ripe for great ambitions. "Perception of this world by thought, leaving out everything subjective," wrote Einstein, "became, partly consciously, partly unconsciously, my supreme aim."

The popularized scientific books which he devoured with the curiosity common to his age made him familiar with laws that were in striking discord with religious teachings. He became aware that in the Bible stories many things

"could not be true." With the consistency which he had shown in his convictions since childhood, he underwent a sudden and complete change of heart. The freethinking attitude which he adopted at the age of twelve was sternly belligerent; he himself described it as fanatical. But the conclusions he drew from this disastrous experience were not limited to revolt against transmitted beliefs. He felt that he had been duped, but not by those who succeeded in awakening in him the fervor for the faith of his ancestors, nor by the priest who taught him his catechism in the primary school. With this need, which already existed in him as a child, to find out where responsibility really rested, he recognized behind the rabbi, as well as behind the priest, a force which, disregarding liberty of thought, made religious education compulsory. "It was a shattering realization," Einstein recalled many years later. He was also aware that what happened to him did not happen to him alone. He saw in the whole system of education the deliberate intention of the state to mislead youth.

His suspicion of all authority, joined to the instinctive horror of constraint which obsessed him, grew into one of his rooted principles. He remained skeptical in regard to all convictions imposed by a social scale and "this attitude, like suspicion, never abandoned me," he wrote, "although some of its violence was removed when I understood better the relations of causality."

What remained of this first defiance of established concept? The child could have fallen back into the narrow circle of selfish preoccupations; he could have been content to relate everything to himself, but even in his childhood Albert Einstein did not allow disillusionment to lead him to

a denial of wider aspirations. A concept of the world removed from the myopia of personal interests, a concept within the limits of his intellectual comprehension, remained his ultimate aim at that time. "For a man like me," he recalls, "the change brought by development lies in the fact that the principal interest detaches itself, little by little, and more and more, from all that is transitory and personal, in order to devote itself to the task of comprehending life through thought."

This comprehension must have taken place slowly, penetrating the consciousness of the child during his dreary school studies, for which he revealed no special aptitude and no premature gift. Only one small fact emerges from his early childhood to foretell his future vocation. Albert Einstein remembers—or believes that he can remember, perhaps because it has often been repeated to him since—that one day when he was about five he received a compass from his father as a present. The parents were amazed when they saw the child, usually phlegmatic and absent-minded, show a passionate interest for the little finger that vibrated of its own accord as though propelled by a mysterious force. He had already realized the relation existing between an external cause and the effect; he knew that things moved because they were touched. But this finger of the compass behaved in a manner that never ceased to surprise him and for which he found no explanation. An infinitesimal seed must have been sown at that moment. "The evolution of our world of ideas," Einstein says, recalling this scene of his early childhood, "is in a certain sense a constant struggle against the 'miraculous.'"

A second "miracle" took place when he was twelve. Perhaps it made so definite an impression on him because his

paradise of faith had been shattered; perhaps the subconscious need of compensation that draws miracles to our path had left the child particularly receptive. The event that acquired such large and important proportions for him was nothing more than a small book which he received at the beginning of the school year, a popular textbook on Euclidean geometry. He never forgot the enormous impression this book left on him. Later on he wrote: "Anyone who was not transported by this book in youth was not born to be a theoretical searcher." Even when he himself reconsidered this "miracle" of his youth, he remembered how wonderful it was to realize for the first time that "man was capable, through the force of thought alone, of achieving the degree of stability and purity which the Greeks, before anybody else, demonstrated to us in geometry." He remained "fascinated" by mathematics.

With this revelation of stability and purity within the reach of human effort, the young man felt the ground firm under his feet. It was not yet a vocation, or even the beginning of a rapid, sensational blossoming, of an unleashing of spiritual forces in him. He made great progress in mathematics at school but was backward in most of the other subjects. There was nothing to draw attention to him. It was significant that even at the moment of his swift rise to glory, none of his school companions boasted of friendship with him; no teacher claimed to have molded the mind of a genius. His former teachers, in fact, did not even remember having had him in their classes.

Einstein believed himself to have profited most from a professor of literature who had awakened in him a taste for the German classics. He imagined that the interest provoked

by this professor had not remained unnoticed. One day—he had already begun his staggering career and had just been appointed a professor in Zurich—a sentimental impulse, or, more precisely, the sense of justice that registers spiritual debts, gave him the idea to call on his old professor as he was passing through Munich. He found a man who had no recollection of his pupil. Far from being flattered by the young man's gesture, the professor considered it unsolicited and suspicious. He glared distrustfully at his visitor. "He must have thought that I had come to borrow money," remarked Einstein later. He laughed, but there was a tinge of bitterness in his laughter, left by a painful interview. But the incident gave him a feeling of liberation. Einstein now knew that he owed nothing to anybody.

Although the pupil of the Munich school remained completely anonymous, lost in the crowd, eclipsed by studious mediocrities, though he was still groping for his own spiritual gifts—he was morally ripe for his destiny. At the age of fifteen he was already completely mature. He knew what he wanted. He hated all compromise and had freed himself from all ties. Everything within him seemed ready to make the best use of outside circumstances.

His father does not seem to have had sufficient business sense to make the Munich enterprise prosper. There was nothing to keep him there. He decided to seek his fortune elsewhere, and emigrated with his family, including Albert's younger sister Maya, to Milan. But the studies of a boy of fifteen could not be interrupted, so Albert Einstein remained in Munich, and the six months he spent alone there helped him to make his decision. It was a strange decision for a boy of his age: it was taken without consulting anybody and after

long periods of solitary meditation, in the same way in which he was to reach all later decisions which he declared with a calm smile to be irrevocable.

He left Munich. But he did not leave suddenly, in a moment of defiance, like a child deprived of affection and eager to return home. To avoid the appearance of running away, which might have embarrassed him in the future, he procured a medical certificate and departed on grounds of health. But he knew he would never return and that nothing would make him do so.

The boy was already experiencing the complete breaks and total loyalties of the man. Striking the balance of his childhood, he decided to ignore all that he considered wrong in it. He decided to leave the Jewish community, in order to mark a phase which was definitely over. He also severed another tie. When he got to Milan he told his father his decision—also made entirely on his own—to abandon his German citizenship. He had no definite plan in view and no security to exchange for that he was abandoning. He had no ties elsewhere. He was simply freeing himself from beliefs he had outgrown, as one throws off false loyalties. There was nothing to make one foresee that he would one day belong to the whole world. His native country had failed him and he no longer wished to recognize it as his fatherland. The only certainty he possessed was his independence. This moral independence showed itself even before he had acquired an independence of the mind. His confidence that he had acted on a moral imperative preceded his confidence in his own intellectual gifts. The boy already revealed himself as the man he wanted to be, deliberately uninhibited, obstinately firm, and self-sufficient.

Chapter II

"WHEN I was still a rather precocious young man, I already realized most vividly the futility of the hopes and aspirations that most men pursue throughout their lives," wrote Einstein in his biographical notes.

This precocious young man launched himself into what was, in fact, a mad adventure. Nothing that usually makes for success in an adventure spurred him on: neither ambition, nor taste for money, nor a desire to assert himself. The secret of his success lay elsewhere. It lay in something negative: not in what he did possess, but in what he did not possess and never would. It lay in his freedom from encumbrances: he traveled as light in the beginning as he was to travel all his life.

This conviction that most human effort is futile liberated Einstein not only from the atmosphere in which his young days had been spent but from everything that he had hitherto absorbed. He seemed to have forgotten, or not to have wished to remember, everything he had been taught in his child-

hood. One might have thought that he had never known any of the established conventions. All the children in his family were dressed in "Sunday clothes" and brought into the drawing room with reminders to "say how-do-you-do nicely to the lady." Albert Einstein retained nothing of the behavior and traditions of a well-to-do bourgeoisie. He confronted society as though he had been born on another planet.

If his parents' life had not been easy at times, he had never undergone privations. He freed himself from material bonds as he did from everything else, almost without noticing it, but he did not pride himself in the least on acquiring this liberty—because it was essential to him. He had no requirements, so that one might have suspected him of a longing for austerity. On the contrary, in middle life he was not at all insensible to beauty and the good things of life. There was vitality in every inch of his great body, but he despised with all the violence that contempt aroused in him the enjoyment of mere material satisfaction. "Well-being and happiness," he wrote one day, "never appeared to me as absolute aims. I am even inclined to compare such moral aims to the ambitions of a pig."

He has firmly refused to adapt himself in any way to the demands of his fame. He has maintained a personal, simple way of questioning the necessity of an action, or expected behavior, or an attitude. In vain one would explain to him the customary formalities, and those who had not known him long would explain patiently, as to a backward child. They would repeat: "This is done . . ." "Why is it done?" he would ask. Until you noticed his smile he seemed like a malicious child. "Tails? Why tails? I never had any and never missed them." Once his wife employed all her powers of

persuasion, her charm and humor, to make him order evening clothes, for one solemn occasion, and after violent resistance from him a compromise was eventually reached: a dinner jacket, instead of tails. Afterward he merely said, yes, he did have a dinner jacket in his cupboard which he was even ready to exhibit, until the day came when "the fine thing," as he called it, had grown too small and was no longer presentable.

He defended himself against submission to conventions with obstinacy and wit. He was only really at his ease in an open-necked shirt and sandals. He preferred old clothes—a mended sweater, an ancient waistcoat—to any material strange to the touch: a shabby dressing gown was always more comfortable than any grand new one given him as a present. Luxurious gifts had a way of disappearing from one day to the next: they were given away to some poor wretch whom Einstein would persuade to hurry off discreetly with his parcel before the family noticed it.

In his battle against material things Einstein showed his pity for those who complicate their lives with the trifles they carry around with them. When he was invited to a series of conferences at the Sorbonne, the German Ambassador to France, Von Hoesch, insisted that he should stay at the embassy. He could not refuse. But against the luxurious setting of the former home of Josephine Beauharnais Einstein appeared completely incongruous. "You know, Einstein has arrived with only one pair of shoes," the Ambassador confided to me. "My valet has to clean them several times a day." Einstein in his turn complained that his shoes were constantly disappearing. "I keep telling the good man that I'm going out, that it is still raining, that he shouldn't polish

them when they are going to get dirty right away, but he doesn't understand me."

One day when he had come to see us in Geneva, I noticed as he was leaving that it was raining in torrents. He had nothing on his head, so I offered him one of my husband's hats. "What for? I knew it would rain, that's why I didn't take my hat—it dries less quickly than my hair—surely that is obvious!" he said to me, laughing.

Once he left for London with a suitcase well packed by his wife. He returned to Berlin with all the clothes still folded and untouched. He had had no opportunity to wear them, he said. He was wearing shoes but no socks, and explained to me triumphantly: "I've discovered that one can easily wear shoes without socks—socks, you know, get holes in them —my wife does nothing but mend them. I'll never wear any again now that I can do without them." The argument seemed conclusive to him.

In all this quiet victory of Einstein's over material encumbrances was reflected the memory of what happened when life had been hard for him after he left his sheltered childhood. The privations of a penniless boy in a foreign country taught him a lesson he remembered all his life. The foundation of security on which the youth of sixteen had based his future life was flimsy. He had to get a job quickly, to earn his living. He had given up his matriculation when leaving Munich and now he had to make up for it, as no free career was open to him without it.

His father's business prospered no better in Italy than it had in Germany, and he was unable to help his son. Other members of the family had done better. Dispersed over all the world, they had maintained the solidarity, characteristic

of Jewish families, which does not imply affection so much as a tradition of mutual responsibility. Albert Einstein aimed at the Polytechnic in Zurich and hoped his mathematics would enable him to pass his entrance exams. Rich relations helped out by supplying a hundred Swiss francs a month, but they had no suspicion of the forces they were helping to unleash, and one of the most remarkable scientific careers in history was launched out of family charity, exercised more from a sense of duty than any confidence in the boy's gifts or any interest in science.

His career began with a failure. His knowledge of mathematics was not enough to make up for gaps in other fields. Although he was morally mature beyond his age, the young man had to return to the school desk like any dunce or time waster. It was the ordinary canton school in the small Swiss town of Aarau. One of his teachers took a particular interest in the strange youth, such a mixture of self-confidence and shyness, of indifference and curiosity. The fact that he was in a small town must have helped him overcome the dismay of his initial failure, for he had never liked the bustling life of big cities. Long solitary walks in fields or forests are still better for his work than hunching over a desk. Watching him kick the ground, on a walk, as though testing it with his toe before putting his boot down, one would suppose that some strange atavism remains in him, as if he had inherited a love of the soil from generations of peasants. In Aarau the hills were close by and Nature gave him self-confidence as no human being could have done.

After passing the examinations for the Zurich Polytechnic, he decided to devote himself to teaching instead of specializing as an engineer, his original intention.

"There is such a thing as a passionate desire to understand, just as there is a passionate love for music. This passion is common with children, but it usually vanishes as they grow up. Without it, there would be no natural science and no mathematics." Thus Einstein wrote in 1950, in connection with his scientific memoir on the theory of generalized gravitation. This passion has always remained with him. It has never been blunted and it still dominates the man of seventy-five, as it guided the young man on his chosen path with the sureness of a sleepwalker. The birth of a theory that was to shake the world originated with this passion, the violence of this curiosity. The question that fascinated the youth of sixteen was: What would happen if a man should try to imprison a ray of light? The question was naturally more complex, but as scientific formulae were beyond me, it was with these simple words that Einstein explained what he himself considered to be the starting point of his lifework.

Once he had asked himself the question, the problem haunted him. It was always present as he continued his studies at the Polytechnic and struggled with the material difficulties in his path. In spite of an intense interest in mathematics, he decided to study to be a teacher of physics. Mathematics, he said to himself, was divided into so many specialized fields that any one of them could absorb the short span of a man's life. "I was like Buridan's donkey, who could not decide which stack of hay to choose," he said later. His choice was dictated by his contempt for automatically acquired knowledge, which he would have had to absorb before reaching essential principles. It sums up his lasting sense of economy in all unnecessary intellectual effort. One could call it a reluctance to use a very fine instrument for coarse work.

During his first visit to America in 1921, he was given a questionnaire covering all the intellectual equipment a student was supposed to carry with him through life, once his university studies ended. To one question as to the speed of sound, Einstein replied: "I don't know. I don't crowd my memory with facts that I can easily find in an encyclopedia."

Looking back on his years of study, he must have said to himself, with regret, that his intuition in the mathematical field cannot have been sufficient to enable him to distinguish between things of fundamental importance and the heap of information with which he could have dispensed.

In contrast to this resistance to what he considered the dead weight of knowledge, the work in the laboratory fascinated him by its direct contact with experiment. But he was forced to proclaim later the absolute priority of pure speculation. Summing up this conviction in recently published notes, he writes: "A theory can be checked by experiment, but there is no path that leads from experiment to a theory that has not yet been established."

This fascination for laboratory work arose from a characteristic one would not have expected in him. One might have thought that, having worked with principles which the man in the street could not grasp, he had arrived at a divorce from reality. His aloofness from daily chores also might have created the impression that there was a screen between him and the material side of life. In fact there is nothing of the absent-minded scientist about him. The vagueness often observed in him is put on, a kind of protection against an intrusive presence. Though concentration on his work removes him from the outside world, when not so absorbed his attention is curiously alert, arrested often in the most unexpected way by an apparently uninteresting phenomenon.

He is intensely observant: his glance fixes on some detail and lingers over something which other people do not even notice. His interest will be aroused suddenly by statements made by specialists on questions which one would have thought alien to his world, secrets of craftsmanship and details of engineering. Everything ingenious in the material sphere engages his attention. If you watch him handle some object, he seems to take possession of it. He does not touch things as though he wanted to push them away as people do when their thoughts are elsewhere; he follows the outline and sounds the surface, seeming to penetrate into all its properties. He has a taste for solid things such as steel structures; he likes to watch a thing in the making. He feels at home in a world of stable laws, in a reality ruled by unalterable material facts.

I saw him one day talking with a building engineer. His fingers passed tenderly over the blueprint for a bridge spread on the table. He underlined certain details, and showed that labor and material could be saved by a better disposition of the arches. The engineer watched him with wide-eyed, naïve surprise. "People think that Albert is a dreamer," said Mrs. Einstein. "He really is a very practical man." She seemed proud that her husband had his feet on the ground. Had Einstein carried out his initial plan of study, he might have become a remarkable technician.

The experiments in the laboratory which so fascinated him were the most attractive part of the Polytechnic program. All his life he has retained a distaste for education when it stuffs young minds with facts, names, or formulae. He is apt to say that one need not go to a university to learn these—they can be found in books. Education should

EINSTEIN AND HIS SISTER MAYA AS CHILDREN
Photos on Einstein family cups.
"They lived in a sheltered and peaceful atmosphere . . ."

EINSTEIN AND HIS SISTER MAYA, ABOUT 1885

be devoted wholly to helping young people to *think*, to give them the training no textbook can provide. "It is truly a miracle that modern education hasn't completely stifled the sacred curiosity of research," he said. As a student, he felt deeply the horrible oppression and the constraint of examinations. He felt as if he were living under the guillotine, in imminent fear of a deadline being put to his time. Now, in his seventies, he remembers his years of study with a kind of resentment at the time it all took. "I believe that you could even ruin the appetite of a healthy animal if you forced it to eat under threat of a whip, even when it is not hungry, and especially if you made an appropriate choice of the food it must swallow."

Constraint has always been his personal enemy. His whole youth was a battle against it. When he uttered the German word for it, an abrupt word, with a peculiarly sinister sound, *Zwang*, everything tolerant, humorous, or resigned in his expression vanished. He spat out the word as one does a fishbone. While editing his biographical notes in the peace of his Princeton study, where no power on earth would seem any longer to threaten his absolute liberty, Einstein remembered the havoc it played with his life. "The constraint was so terrifying that after I had passed the final examination, I found myself unable to think of any scientific problem for almost a year." That year must have been a painful one. He had made sacrifices himself in order to secure a livelihood independent of family charity. He had often gone hungry. He had few needs and was careless in appearance. A miserable room and an old suit did not upset him, but insufficient food was another matter. He never spoke of his privations, but his health suffered from it and when he showed signs

of exhaustion later on, Mrs. Einstein would explain that "it was the effect of what he had endured when he was so poor." She could not spoil him enough; a picture of the "poor boy" haunted her. The serious illness which recently made it necessary for him to undergo a grave operation was the price paid for the poverty of his youth.

No matter how hungry he was, Einstein meticulously put aside twenty francs from the hundred francs his family gave him each month to pay for his naturalization. By the time he passed his examination he was a Swiss subject. His papers were in order. He asked for what seemed to him the most obvious post—that of an assistant, which professors usually granted to gifted pupils. But no professor had marked his exceptional faculties, none had enough interest in him to forward his career. In vain he tried to join the university through this little door. What disconcerted him most was that the refusals were not even backed by some forceful, weighty argument. They left him with a sense of bitterness that was rare with him. It was not because of the humiliation of pleading, or that the refusals undermined his self-confidence, but because of the hypocrisy he sensed behind the conspiracy of silence that confronted him. Once, years after, he wrote to an American student who had sent him a passionate indictment on the injustice of professors, of which she felt herself a victim: "I, too, once was treated so by my professors, who did not like my spirit of independence, and though they needed an assistant, refused to appoint me as one." But he wrote to the American further that one only made oneself ridiculous by fostering personal resentments. He advised her to put her temper in her pocket and her manuscript in her desk.

Einstein never harbors grudges. He always hastens to forget any wrong done to him personally. He deliberately sweeps away from his memory all painful incidents, all his most humiliating encounters with stupidity or malice. Once, after he had received honorary degrees from many universities, he was awarded one by Zurich. He burst into laughter, honest laughter with no irony in it, but he read out to us, his eyes glittering with amusement, the answer he composed to thank the Alma Mater that had shown so little initial interest in him for bestowing the honor. He looked like an urchin with his tongue in his cheek as he watched our reactions.

The young man had been forced, owing to this failure, to look for a job. He tried for a professorship in physics at a *lycée*, but was unsuccessful, both in Zurich and in smaller Swiss towns. Did he really seem so little qualified for the post he sought or was it perhaps some apprehension of genius which put off the administrators who might otherwise have hired him? Einstein still wonders and does not know whether he was just too insignificant or whether there was already an odor of sulphur about him. He began to answer newspaper advertisements, rushing hither and thither when he read of a vacancy, any vacancy. He found a post as temporary assistant in a technical school in Winterthur which kept him going for several months. With gratitude he took on a modest post as tutor at a boarding school in Schaffhausen, looking after two backward boys. He liked the job, but he had his own ideas about teaching physics. He lost the job because he wanted to teach freely, in his own way. He could find no other place in secondary education.

All his life Einstein has regretted not having been a schoolteacher. It may be just a sentimental reflex; as a toy coveted

in a poor childhood might haunt a man grown rich. The regret is sincere, though it puzzles those who know his lack of enthusiasm for regular instruction, and his choice later on of positions not entailing the obligations of following a scheduled course. His own work and ideas absorbed him to such an extent that he tended to propound them before an audience ill equipped to understand him. He had no desire to impose any moral laws, and even less to exercise authority. What he did regret, as a great pleasure that he never experienced, was the task of awakening curiosity in minds which had not yet been blunted by conventional education. Put more simply, it is contact with childhood which he feels he has always missed.

Whenever Einstein speaks to a child one realizes what barriers exist in his relationship with adults. He is quick to reach an understanding with children and they have only to look at each other to become accomplices. It is not the reemergence of the backward child or boy in Einstein. Children's minds have for him the same fascination as the authentic material of inanimate objects: he loves their naïveté, still unaffected by conventional restraints, their impetuous questions, and their lack of embarrassment about the gaps they reveal in their knowledge. Above all Einstein shares their laughter and that mysterious sense of humor that makes grownups exclaim: "What on earth are they laughing about?" (The humorous verses Einstein composed for my daughter when she was small were never beyond her comprehension. And so Einstein goes on regretting never having been a schoolteacher. He thinks of children as lost in a universe of physical phenomena. He knows that he can make the great laws of nature accessible to them. He loves an explanation to

be both exact and clear. He once interrupted a grandiloquent statement on a scientific discovery by a visitor with: "If it is something that one can understand, one can also explain it clearly." It annoys him that the automatic way in which physics is so often taught to children is responsible for the number of adults excluded forever from awareness of that miraculous universe. I talked to him about my own ignorance of the most elementary facts, as I had a blind spot for even the basic principles of mathematics and physics. "What nonsense!" he said aggressively. "It is merely that you haven't been taught properly." The telephone interrupted us. "You see," I said, "I have been told how a telephone works, but I still don't grasp it." "Why, it's very simple," and he explained it so clearly that it became quite obvious and also wonderful. "You see what a good teacher of elementary physics I might have been," he said, laughing at my sense of achievement. Afterward he made a point of explaining discoveries which, without him, would still be enigmas to me. He has a tireless patience in answering the most ignorant questions. He takes joy in pointing out the action of the great laws of the universe in prosaic, everyday happenings.

Once I saw him stir the tea in his cup with concentrated attention, playing with his spoon as if wrapped in a dream. The whirlpool he had produced in the cup so completely absorbed him that he did not even hear his wife speaking to him. The rest of us lowered our voices, aware that his thoughts were far away. Suddenly he glanced at us with mischievous defiance. "Who can explain why a tea leaf in a cup that you stir remains on the top and in the middle?" Obviously, none of us knew, and even had we thought we did we would not have risked an explanation in his presence.

For a moment he was silent, then said triumphantly: "You see, there were several tea leaves that fell to the bottom of the cup because they were heavier. When I began to stir, they gathered in the middle, owing to the centrifugal force. But the whirlpool that I produced is not uniform—it is arrested at the edges by friction and its force of rotation there is weaker than in the middle. It is also weaker at the bottom of the cup and that is why the leaves are carried toward the middle and to the top, until the rotating movement is stabilized by the influence of the friction exercised from the depth."

Einstein spoke simply, making us participants in his own discovery; and we felt we could have discovered it without him. He went on: "The same thing happens at the river bends. It explains the erosion that goes on at the shore and the formation of windings. Can't you see how simple it is?" It was, in fact, very simple—everything is very simple when he explains it with ordinary words. But when he stops speaking the heavy door of the lost universe shuts behind him again.

This taste for playing with problems like so many billiard balls is so strong that Heinrich Simon, the editor of the *Frankfurter Zeitung*, once let him, at his own request, write scientific riddles. The condition was that they should be published anonymously. Heinrich Simon was amazed. An American paper had offered Einstein a fabulous sum for an article and failed to get a statement of a few lines. The same man was willing to sit down and in his fine, clear writing formulate "posers" which he might have tried on the students in his class and now was giving away. The readers of the *Frankfurter Zeitung* never suspected the authorship of the

scientific problems over which they racked their brains. Heinrich Simon, who found it difficult to keep the secret, told me that readers did not always find them easy, but they were always highly instructive. "It is, after all, so simple," said Einstein. That conviction is the key to his work, which he affirmed in 1936 in a paper on "Physics and Reality": "The most incomprehensible thing about the world is that it is comprehensible."

Chapter III

"EVERY scientist ought to have a shoemaker's job," Einstein once said. He found one of the sort in 1902, after a long and anxious search, thanks to a schoolfellow who was touched by his obvious poverty and who asked his father to intervene for Einstein with the director of the Federal Office of Patents in Bern. Here again he almost met with failure. The director was looking for someone capable of judging whether a request for a patent had any justification. "What do you know about patents?" he asked. "Nothing," replied Einstein. The interview might have ended there and then, but the frankness of this brief admission intrigued the man, who had been informed of the financial straits of the candidate. A long conversation proved that the applicant did know enough to recognize the value of an invention.

With this well-paid job, a small fortune in Einstein's eyes, his struggle for existence came to an end. He could now consider getting married. He had met at the university a Serbian student, Mileva Maric, who also intended to be-

come a teacher of physics. Perhaps the difference in their origins, the contrast in their characters, attracted him. His youth may have been drawn subconsciously toward the support of a woman slightly older than himself, or perhaps he simply felt the need of an understanding response. Albert Einstein is not the sort of man who ever fully communicates his thoughts to other people: but he likes to use them as the sounding board of his own ideas. He needs appropriate answers in a conversation that is chiefly a monologue.

His purely personal feelings have been consciously relegated more and more to the background of his existence. He spoke once of the "puritanical reserve" necessary to the scientist who, seeking truth, must remain removed from all disturbing emotions. With him this puritanical reserve is not the natural reserve of a man whose private life has been invaded by fame, nor merely a refractory instinct rejecting all display of sentiment, but rather a conscious distribution of values according to their true worth.

Summing up his life on the eve of his seventieth birthday, Einstein confined himself to an account of what had been for him a great spiritual adventure. He realized how inadequate his story was to dispel curiosity about him as a human being, and added mischievously: "Is this what is called an obituary? The surprised reader may well wonder. I am almost ready to reply: essentially, yes, it is—for the essential in the destiny of a man of my sort is what and how he thinks and not what he does or what he goes through." The true story of Albert Einstein unfolds on two planes, that of his private life and that of his thought. What happens to him in his private life has always been on a lower level for him, only externally affecting his real destiny. His real world has been the world of thought and science.

On this lower level Albert Einstein, when twenty-three years old, settled down in Bern, married, and founded a family. Two sons were born in succession. The younger looked like him—he had his father's large, bulging, and sparkling eyes and shape of face. He inherited some part of his gifts and his taste for music, but he suffered from his mother's heredity, for she came of a mentally unbalanced family.

Albert Einstein loved his sons as much as he could love anyone. They caused him the joys and torments all children cause their parents, but parental joy and torment were subordinated to his work. On the lower worldly level also he was engrossed with the work in the Patent Office, judging the quality of applications and often editing imprecise and loosely worded formulations. His "job as a shoemaker" interested him. His gifts as a jack-of-all-trades revealed themselves, and he even invented an apparatus for measuring short electric voltages.

But his thoughts were elsewhere. To understand what happened in the years following his new-found security, one must consider not only the creative miracle of genius but also the curious capacity he had for absenting himself from his immediate worldly surroundings. A separation seemed to take place between his mind and his body—not unlike the ecstasy of a saint. The word "transfiguration" acquired an almost literal sense. But Einstein's "absences" were, in their external aspect, as alien as possible to ecstatic conditions; they were so realistic and commonplace that a superficial observer might never have noticed them.

Albert Einstein would be there, his senses radiantly alive to the simple and sensual pleasures of life. You might be sitting

alone with him, or with two or three others, or the room might even be full of people. He had just finished a sentence. You would think he was following the conversation intently. Suddenly he would fall silent and stop listening to you. He would rise to his feet without a word, or remain sitting motionless. The effect would be the same. He would be unreachable. You could start talking noisily, or lapse into an even more embarrassing silence, with everybody staring at him, but he would neither see nor hear. This had nothing in common with the absent-mindedness of a man wrapped up in his own thoughts, who continues to circulate in a world of reality, causing absurd misunderstandings. With Einstein, the eclipse was and is total. Nothing, as far as one could see, changed in his expression. The shadow of a smile might still linger around his lips, he might still frown if some painful matter had been the subject of discussion, but the thoughts of the moment before had vanished. The eyelids might droop, heavy, slightly purple in color, or the eyes be wide open, but they would be dark and lusterless as the eyes of a blind man. He might appear lost to us for a long time, and then return to us as if he had never realized his absence; he might remain without movement for a time that to us appeared an eternity, or return so rapidly that we thought we had been dreaming. His returns were as abrupt as his departures. But one never quite lost the feeling that his presence among us was only a temporary loan.

At the Federal Patent Office during the three years that he conscientously performed his duties there, the same thing must often have happened. As soon as he got back his interest in scientific research, and recovered from the saturation of knowledge he needed for his examination, he attacked

the problem of light rays which had haunted him ever since he was sixteen. He spoke once of the "desperate efforts" pursued by him over many years to find a solution. His future collaborator, Professor Infeld, pointed out that these characteristic efforts illustrated first and foremost what he called Einstein's capacity for wonder. Perhaps that capacity —which appears not only in the field of pure speculation—is one of his chief characteristics: he faces every phenomenon as though it were quite new, as though it had not yet found its stable place in the universe, and asks Why?—as though nothing had ever before been said on the subject. He accepts no solution on trust. Infeld points out another ability of Einstein's: to ponder for years over the same problem "until darkness is transformed into the light of understanding," and his gift of finding formulae for simple, imaginary experiments, "experiments that could never be performed in practice, but which, when properly analyzed, strangely clarify our understanding of the world around us."

During this time of extraordinary creative richness Einstein attended to many other problems that came his way, edited papers on various subjects, and treated them all as of equal importance. The theory that scientists the world over agreed had caused a break with the experience of many centuries, and the creation of a new universe, first saw the light in a specialized German publication, the *Year Book of Physics*, a bulky volume filled with the most diverse contributions. Einstein published one article in it each year after 1901, when he completed his studies. The 1905 volume contained five contributions from him. They were all on different subjects. Perhaps the author did not wish to emphasize one subject more than another. But the one entitled

"A New Definition of Molecular Dimensions" was to give him his chance at a university career. Another dealt with the quantum law of the emission and absorption of light and explained the phenomenon known in physics as "photo-electrical effect." The principle formulated by Einstein has influenced research in the physics of the quantum and spectroscopy everywhere. His formulation of this law gave birth to television and other applications of the photoelectric cell. This was the contribution that won for him the Nobel Prize. A third article took as its starting point the experiment made by the botanist Robert Brown on the movement of minute particles suspended in liquid. The fourth paper was the longest of all. Its title in no way augured the revolution that it was to create: "On the Electrodynamics of Bodies in Movement." But men with a knowledge of scientific publications note a purely superficial difference: this particular article contains no references, quotes no authority, and has few footnotes and those few serve only to explain the text. Eventually, the experts were unanimous in declaring that what might have been but an outline of the theory of relativity was in fact a complete paper on the subject. Einstein himself must have been conscious of the importance of the solution he had arrived at. It was learned much later that he had a total collapse after it, exhausted by his superhuman effort. He was ill for a fortnight. The shock was very violent.

Einstein never forgot the moment when the ultimate light was revealed to him. He was conscious of living through a supreme experience. He knew no greater human emotion: no violent passion or deep distress could compare in intensity with the transformation of the universe which had taken place before his eyes. In an essay written in January 1940 on

the foundation of theoretical physics, after speaking of the new concepts of fields discovered by Faraday, Einstein wrote: "The precise enunciation of the laws of these fields in space-time was the work of Maxwell. Can we visualize what he must have gone through when the differential equations that he had formulated proved that the electromagnetic fields are propagated in the shape of polarized waves and with the speed of light? . . . To few people in this world has it been given to witness such an experiment," he added with one of his rare glimpses of emotion, reminded no doubt of his own happiness.

Perhaps it was struggle required to reach his final convictions, perhaps it was the very intensity of his creative powers, but he seemed (was it from birth or from that moment?) unconscious of everything life could offer him and impervious to emotion. In his affections as well as in his thoughts, he seemed to be only lending a presence which he might withdraw at any time.

Spurred on by this supreme effort, Albert Einstein not only reconsidered theories of physics and questioned mechanical laws that had seemed safe against attack, but in his outline of the theory of relativity, as well as in a short article—the fifth—which appeared in the *Year Book of Physics* under the title "Does the Inertia of a Body Depend on Its Energy Content?" he gave warning of a power that was to shake the world. For the first time the formula rendering the use of atomic energy theoretically possible appeared in print, and the possibility of annihilating humanity became a subject of speculation. The old concept of our universe had been upset by one man. Writing about the consideration of all values that began to take place, Bachelard raised the question: "Is so little

required to shake a spatial universe? Can a single experiment of the twentieth century annihilate (a follower of Sartre would plunge into nothingness) more than two or three centuries of rational thought? Yes, a single decimal sufficed."

The date 1905 in the science books is often given as the decisive date in the new physics. One cannot, however, "date" great matters so clearly. Though the formula of the theory had appeared in print, and was safely stowed in the *Year Book of Physics*, there was no immediate revolution as the result of these new, still unassimilated ideas. Once again, as at the beginning of his career, Einstein's work was met with curious indifference. Nothing happened, absolutely nothing. Those who were later on to grasp the immense importance of these theories seem not to have noticed the article in which he developed them for the first time. His future collaborator, Professor Infeld, describes the years of silence that followed the publication of the first paper on relativity. Here and there an isolated scientist bent over the article and had some glimmering of the changing universe. But with whom could he share the deep impression it produced? Where were the scientists qualified to discuss this genius, this stranger with no university credits, no university chair, no claim to justify such audacity of thought?

A long way from Zurich, in the University of Cracow, a Polish professor, Witkowski, exclaimed on reading the article: "A new Copernicus has been born." He roused enthusiasm in one of his pupils who later became a remarkable physicist. This young professor, Loria by name, spoke of Einstein's article to other colleagues, repeating the words of his teacher: "A new Copernicus has been born." Einstein? —the name meant nothing to his colleagues. The professor

talked with such fervor to the German physicist Max Born that they went to the library to look for the 1905 *Year Book of Physics,* and Max Born wrote: "One of the most remarkable volumes in all scientific literature is Volume 17, Series 4, of the *Year Book of Physics,* 1905." Max Born himself became one of the first contributors to research in this field of relativity. "But it was not before 1908 or 1909 that the attention of a great number of scientists was drawn towards Einstein's results," wrote Infeld. Three or four years more went by. Is Einstein's later spectacular success to be explained by some mysterious law governing fame, working now to compensate for all the early indifference? Fully conscious of his personal contribution, did Einstein expect immediate response, and was he eaten up with bitterness, with impatience? If so, he never expressed it. Little things he said such as: "The scientific mills are the slowest to grind their corn," may easily have referred to someone else. When he talks of the beginning of his career, he speaks of it as of something happening to another man. There was certainly no sense of frustration in him, and the patience he had then to exercise perhaps helped to render him immune to his later glory.

Though the importance of his work was not at once recognized, its scope was noticed sufficiently to produce the impression that his modest position was somehow inadequate. But one could not, after all, offer a Chair to a civil servant of the Federal Patent Office! In all the Germanic countries the line of demarcation between the secondary school and the university is strictly defined. A future university professor must justify himself by some work of distinction to reach the first stage, the grade of lecturer. One of the articles published in the *Year Book of Physics*—not the one

on the theory of relativity—was considered sufficient to "qualify" Einstein. But since a lectureship does not bring with it any remuneration other than the scanty contributions of the students, Einstein could not think of abandoning his "livelihood." A compromise was finally found: while he was waiting for a professorship at Zurich to come through, the University of Bern let him keep the patent job and combine it with addresses to students as a university lecturer.

One of his colleagues reports that Einstein, pursuing his own work in his mind, showed little interest in university matters and did not take enough trouble in preparing his lectures. The physicist who had proposed him for the Chair in Zurich, himself a professor there, came to Bern to get a report on his protégé. Disappointed, he told Einstein that the lectures he addressed to his students would not be appropriate for the position he had planned for him. "I do not especially wish to transfer to Zurich," said Einstein quickly, like a man who wants above all to be left in peace. Still, he knew that he could not keep on working in Bern forever. He had to think of his career and it was inconceivable to refuse a Chair. There was, however, a rival on his path who was already established in the University of Zurich and who had been a former colleague in the Polytechnic. Friedrich Adler's father, Victor Adler, was leader of the Austrian Social Democrat Party; he was well known and had a large following abroad. Socialist circles in Zurich were very much on his son's side. A famous name might easily have eclipsed a stranger. Once more Einstein's career was in jeopardy. But integrity was a god to Friedrich Adler. It was he who intervened with the university authorities and stood aside. One of Einstein's biographers, Professor Frank, describes Adler's impatient

tone in promoting his rival: "If we can win a man like Einstein for our university, it would be ridiculous to nominate me; my faculties as a man of research in the field of physics are not in the same class as Einstein's." He insisted that political sympathies should not be allowed to interfere with the nomination.

Einstein's university career began with this disinterested pleading by a man whose political convictions were well known. He was later to give spectacular proof of them in his own hour of fame. For one day, at a particularly critical moment in the First World War, Friedrich Adler walked into a Vienna restaurant and shot the Prime Minister, Count Stürgkh, because he held him responsible for the disastrous and long-drawn-out war.

Among the strange twists of fate that link the career of Einstein with great international events is the fact that Friedrich Adler, in prison on the eve of his death sentence, was correcting a paper of his own, refuting the theory of relativity. This theory, however, was by now so well established in the scientific world that it was on the strength of the arguments he expressed against it that an attempt was made to save Adler's life on the grounds that he was out of his mind at the moment of the murder.

From 1909, the year of Einstein's appointment as professor extraordinary at Zurich (he was not yet holder of a Chair), though his remuneration was no higher than it had been as an official in Bern, his obligations increased. The family budget was balanced only by taking in students as lodgers.

The appreciation of the scientific world came to Einstein gradually and this fact, curiously enough, permitted him to advance rapidly in his university career. Only a year had

passed and he was just over thirty when he was granted a Chair. In 1910 he was called to the German University at Prague. This nomination was merely an incident in his career, but it brought him to two important turning points in his personal life. The regulations concerning government employment in Austria forced him to declare his religion. He had had no ties with the Jewish community since he left Munich, and no more links with Jewish tradition. His wife was Greek Orthodox. But he had not lost his youthful intransigence. In university circles a more or less disguised anti-Semitism existed, particularly in Austria though the Austrian who was later to preach racial discrimination had not yet made his appearance. At that time it was sufficient to state one's religion on paper, in this way severing all connection with Jewry, to overcome many obstacles. Einstein's friends insisted that he should make what could be called a concession to prejudice. They quoted to him many "conversions" for the sake of a career, but it was precisely these opportunist arguments and these laws enforced by the Emperor Francis Joseph that brought Einstein to the reaffirmation of one of the principles of his life. The young professor filled in his questionnaire in his clear and regular handwriting: "Religion—Israelite." The decision was forced on him from outside. It became more and more deeply rooted in him.

A further change took place in his private life. The move, with all that it involved in the way of adaptation to the new milieu, to changed conditions in everyday life, served to accentuate the friction that existed between him and his wife. The special political circumstances that reigned in Prague must have weighed hard on Mileva Einstein, who was particularly sensitive to the Slav problem. The Czech masses

were restless and angry at unfair discrimination against them. The dual monarchy maintained the fiction of equal civil rights. But the German-speaking Austrians considered themselves the elite in a city which had been the first in Central Europe to found a university; they treated the Slav elements with a contempt that was fed on old jokes from imperial Vienna. For them Czech was an inferior language used for addressing servants.

In university life burning problems are reflected in small vexations and deep susceptibilities, and Albert Einstein did not "play the game"; he seemed not to notice that he was expected to identify himself with his surroundings. He remained aloof, unable to share petty resentments and vanities. His colleagues' narrow view of the world had little attraction for him. Now and then it aroused his sense of humor, but his amusement found little echo either at home or among his colleagues. In university circles he was like a visitor with strange manners. His successor in Prague, Professor Frank, was received on his arrival by the dean with: "In your specialty, we ask only for one thing: to be a more or less normal man."

The new professor was surprised. "Is that so rare a quality among physicists?"

"You are not going to make me believe that your predecessor was a normal man?" replied the dean.

Einstein stayed only two years in Prague. He did not know how people felt about him. He was absorbed in his work, isolated as though on a desert island, and hardly noticed other people. He was documenting and widening the theory of relativity as he had expounded it in 1905 and it was later, because of its restricted nature, characterized as "specific." "I

only became fully conscious of the fact," he said, "that the specific theory of relativity was only a first step towards a necessary evolution when I tried to integrate gravitation into the framework of that theory." In 1912 six articles which he published in the *Year Book of Physics* were devoted for the most part to the problem of gravitation. The integration he attempted proved difficult. "The path was more arduous than had been expected," he wrote later, "because it was in contradiction to Euclid's Geometry."

At one time Einstein tried to describe the processes of scientific work and in doing so he exposed the workshop of his mind. Starting with primary concepts directly linked to sense experiences and with theorems which are interdependent, the scientist tries to discover the logical unity in the image of the universe. He goes beyond what Einstein calls the "secondary layer" to arrive at a system of the greatest conceivable unity. He considered it an error to designate these superimposed layers of thought as "degrees of abstraction." "I do not consider it right to conceal the logical independence of a fundamental concept from the sense experiment." And he adds, in that picturesque language which he frequently uses: "The connection is not comparable to that of soup to beef, but more to that of the cloakroom ticket to the overcoat."

In his attempt to throw light on how scientific thought functions, Einstein emphasizes that "the fundamental concepts and theorems and the relations between them should be as narrow as possible but freely selected." But the freedom given to the scientist in his choice of axioms is different from that of any other form of creative effort. "It is not like the freedom of a novelist, but rather like that of a man try-

ing to solve a cleverly designed crossword puzzle. He may suggest any word as a solution, but there is only one word that can really solve the puzzle in all its parts." Einstein at that time was only halfway on the path to his unique solution of the mystery. Following this path with characteristic tenacity, he challenged almost casually those whom he had not yet convinced, and the challenge had consequences whose spectacular repercussions even he could not foresee.

In examining the influences of gravitation on light, he declared, making another breach in Newtonian physics, that a light ray undergoes a deviation in proportion to the gravitation, so that it acquires the shape of a parabola. He wrote this from his desk—perhaps he looked up at an exceptionally bright night sky as he did so, perhaps his eyes remained fixed on his paper, but it wouldn't have mattered: there was a picture of the star-studded sky in his mind's eye. By thought alone, and by application of the logic that leads to the unity of the world, he established the laws that govern this inaccessible world. In the paper he went on to prepare for the *Year Book of Physics*, he stressed that this deviation of light rays of stationary stars must be visible during an eclipse of the sun and that it would therefore be possible to verify his theory by experiment. He concluded his article: "It would be urgently desirable for astronomers to become interested in this question, even if the considerations given here appear insufficiently founded or even adventurous."

Thus the suggestion was launched. A test of the immense design Einstein had sketched and now was filling in was called for and said to be in the realm of the possible. In that world of thought where nothing is lost, the idea went on its way.

From this point on, Einstein was no longer a solitary searcher, a mere man of promise, with brilliant gifts and bold ideas which frightened his conservative colleagues. In 1910 Professor Planck, originator of the quantum theory, most eminent among the theoreticians of physics in Germany, was asked to give an opinion on Einstein's scientific contribution, and declared: "If Einstein's theory is proven to be correct, as I expect it will be, he will be considered as the Copernicus of the twentieth century." This was a happy comparison—it had already been made once before. But there was still an "if" in Planck's statement. In the meantime Einstein's contribution to science continued, quite apart from his revolutionary theory. Max Born wrote later: "In my opinion, he would have been one of the greatest theoreticians of physics even if he had never written a line on relativity."

The Zurich Polytechnic realized belatedly its mistake in not clinging to the former student who was one day to be its chief pride. It now offered a Chair to the candidate who had been rejected so coldly only a few years before. And in 1912 Einstein returned to lecture to the selfsame benches where once he had sat and listened. He returned to the town, whose streets he had once tramped in hunger, as a man who had "arrived," no longer the professor extraordinary who could not balance his family budget without the humiliation of lodgers in his own home. At first, back in the familiar atmosphere in which he had first met his wife, their relations may have improved. But their differences were too deep-rooted for the breach to be altogether healed. And their stay in Zurich was not long enough to bring together two people who were by now virtually estranged.

The year after his nomination to Zurich, Albert Einstein

received the most flattering invitation that could have been given to a man of thirty-four. Germany's two most eminent physicists, Planck and Nernst, proposed him as a member of the scientific institute founded by the Emperor, the Kaiser Wilhelm Institute. The two scientists went to Zurich to persuade Einstein of the enormous advantages offered to him. He would have a Chair at the university, without the obligation of regular lectures, and apart from this he would have more time to devote to his scientific work, with a high salary and membership in the Prussian Academy of Science—the equivalent of a marshal's baton offered to a young lieutenant. The proposal was enough to dazzle even a man as insensitive to material advantages and honors as Einstein. The Berlin of 1913 vibrated with an intense intellectual life and was the cradle of great spiritual movements as well as of new scientific ideas. This city to which Einstein was summoned was a place of unlimited possibilities, thanks to the extraordinary prosperity of its economic system. Berlin prided itself on being in the forefront of civilization, appreciating everything that was new, whether laborious research, audacious thought, or artistic inspiration. The University of Berlin counted among its professors the greatest names in almost every sphere. If neither honors nor position could impress Einstein, he had the feeling of the humble for the influence exercised by personality and a deep respect for spiritual values and scientific achievement.

But, flattered as he must have been, nevertheless Einstein was cautious. The professor of a university was a government servant. As a civil servant he acquired with his post German nationality. Einstein had not lost the convictions of his youth which had once made him break with the country

of his birth. His Swiss nationality had given him the feeling of being international rather than national, "a citizen of the world." The obstinacy with which he defended his point of view was so instinctive that it might have sprung from some presentiment of the future.

The problem he had raised was a hard one for the German scientists to swallow, but they were eager to benefit from his growing fame. Besides, there was a precedent. The faculty of letters had among its prominent personalities a Frenchman, Professor Haguenin, who before accepting his nomination had stipulated that he wished to keep his nationality. Einstein and Haguenin were the only ones in this large university body to remain foreigners while becoming Prussian civil servants.

In the autumn of 1913 Einstein left Zurich and went to Berlin alone. His separation from his wife, at first temporary, soon became final. He knew that it was inevitable when he went and was deeply distressed when he left his sons: it was probably the only time in his life when anyone saw him cry.

Chapter IV

AT FIRST it seemed no more than the ordinary newspaper headline to those who were engrossed in their own work and did not follow political events very closely: the murder of the Archduke occurred in the middle of a peaceful summer, whose brilliant sunshine made man-made disasters seem curiously unreal. A few more weeks of waiting, with the weather still wonderful, raised everyone's hopes.

The declaration of war hit Berlin as if the sky had fallen. War was still an unknown factor, for no one had seen it at close quarters. But the instinct of the masses revolted—perhaps not so much against this still unknown war as against the end of peace and against a break in the solidarity of the working classes everywhere.

On the afternoon of August 1, 1914, when it still seemed possible that the disaster could be averted, the crowd marched through the streets of Berlin crying, "Down with the war!" The workmen who walked in close ranks, and the public orators who climbed upon improvised platforms, an-

grily addressing the crowd, seemed like a tidal wave which might really sweep away the arrogant military caste with their sham Lohengrin at their head. Next day the crowd, even denser and more excited, stampeded in the square in front of the palace. The Kaiser appeared. The crowd was delirious with enthusiasm. This war which Wilhelm II had declared suddenly appeared to them as a long-awaited release, a holy war: but had they any idea what it was to be a release from? These thousands of voices rising from the square sounded like a single angry outcry, an ancient elemental force that had existed long before these men, women, and children who acclaimed the Emperor as their military idol were born. There were no more protests, no more looks of anguish or caution on the radiant faces to whom war had been promised. The brothers and sisters of the same men who only yesterday had cried, "Down with the war," perhaps even those men themselves, now created out of the Schlossplatz a volcano of popular feeling, a tumult of warlike ardor.

Einstein, like all those who lived through these hours in Berlin and saw this delirium, was never to forget how a crowd could be completely won over to a destructive impulse. "My pacifism is instinctive," he said later. He was always afraid of the chaos created in man by incitement to war, by the call to hatred, and by the deformation of truth. He saw the intellectual elite, as well as the crowd deluded into believing in a conspiracy of the powers of evil directed against a peaceful Germany, and that the war was a necessary struggle if the threatened homes, moral values, and driving power of Germany were to survive. Einstein recognized in this explosion of enthusiasm and wrath, of self-confidence and contempt for all that is different or foreign,

the reaction that arises from fear of solitude, from need of solidarity, from a love of sacrifice and self-effacement so strong that it destroys all critical sense—and having recognized it as such, he was never able to forget it. He remained as impervious to the intoxication of the crowd as he did to the patriotic anger that blinded the German elite. "This blindness, incomprehensible to me, has struck like an epidemic many who have always seemed to think and feel clearly up till now," he wrote to Romain Rolland.

His status as a neutral protected him from the necessity of making a stand. On the strength of it he was able to refuse to sign the manifesto of the ninety-three intellectuals, the capitulation of German spiritual independence. But he did not retreat altogether into the protective shelter of neutrality. In the same month of October when this manifesto appeared, he signed a countermanifesto, written by that indomitable German pacifist Professor G. Nicolai, who later achieved fame with his spectacular escape by airplane from wartime Germany. This Appeal to Europeans had, if I am not mistaken, only three signatures: the third one was that of Wilhelm Foerster, president of the International Office of Weights and Measures, father of another great German pacifist, F. W. Foerster. There were not many indeed who dared to dissent from the concert of hatred. "Will future centuries," Einstein wrote to Romain Rolland, "really be justified in glorifying our Europe in which three centuries of intense cultural work have only brought about the transition from religious mania to nationalist mania?" His sense of humor came to the rescue. In this letter, dated March 1915, he added: "Even the scientists of various countries behave as

though eight months ago they had had their brains amputated."

His reputation as an eccentric saved him from the most savage attacks of his indignant colleagues. Nevertheless in their eyes he was a moral leper. He was to remember that when he came for the first time to Paris. He had been invited by Madame Curie and when he sat down in the salon he glanced at the row of chairs beside him which no one dared to occupy and smiled across at young Frédéric Joliot. "Come and sit next to me, for I feel exactly as if I were at a meeting of the Prussian Academy where two chairs are always left empty beside mine," he explained, laughing.

As a reaction against the general neurosis, the Union of the New Fatherland was founded in Berlin at the beginning of the war, to "fight chauvinism and prepare public opinion for a peace that would respect the honor of all the belligerent parties." They were merely a handful of men and women who had not allowed—to quote Einstein's words—their brains to be amputated. They felt very isolated amid the angry outcries which followed. It was through the papers and through the Bund, whose activities he highly approved, that Einstein learned of the position taken up by Romain Rolland. He wrote to him at once to express his admiration for his courage and to put at his disposal "my feeble forces in case you might want to use me as an instrument, either owing to my position or my relations with the foreign and German members of the Academy of Science." In fact he knew that his influence was limited. When Romain Rolland asked him one day if he was able to express his ideas to his German friends, if he was able to discuss politics with them, he shook his head. Nothing could break through the barriers of mis-

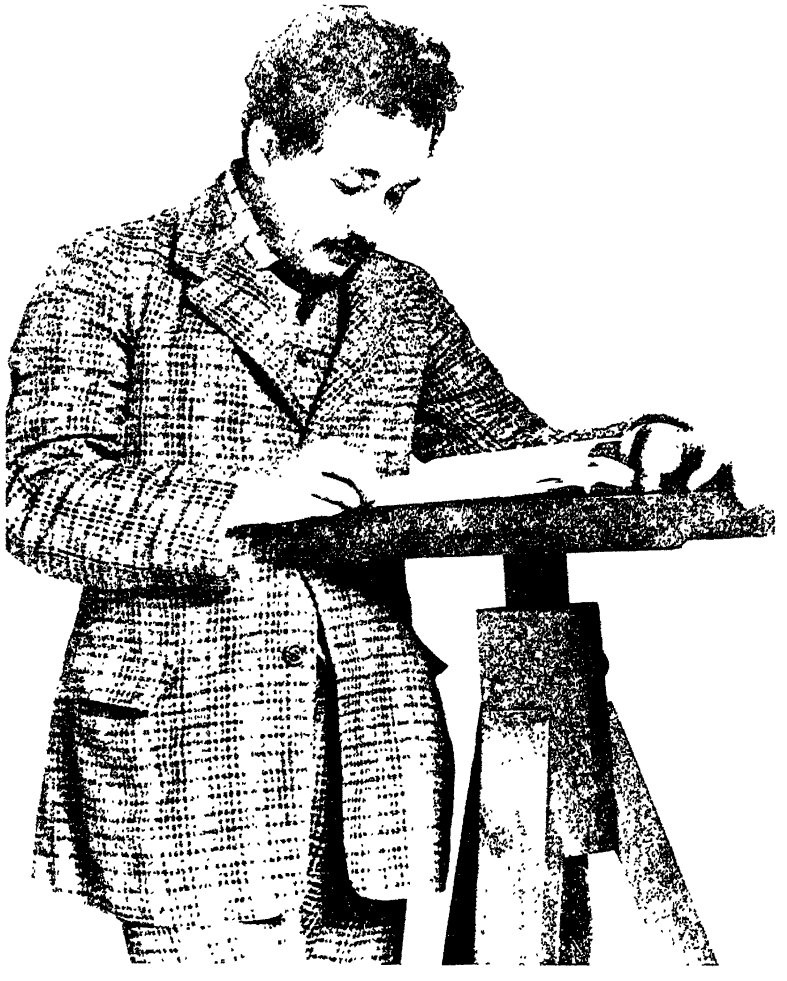
understanding. All Einstein could do was shower questions upon them to shake them from their complacency, and "they don't like that very much," he added with a laugh. The scientists, mathematicians, and the physicists were the most accessible of the Germans, while the humanists of the university proved to be the most affected by the frenzy of nationalism. At the root of this mania for war Einstein found once again his ceaseless enemy, the system of education, which, by being blindly submissive to the state, exalted national pride and reduced a nation that boasted of itself as the nation of "thinkers and poets" to a nation of slaves. This submission was not so much a national characteristic as a result of that discipline of thought that had dominated his own frustrated youth.

By the time the war began Einstein had no illusions left as to its outcome. Although he took part in all the scattered protests and clandestine activities like those of the Bund Neues Vaterland, which was suppressed in 1915, he knew them to be wholly inadequate. But his doubts about the effectiveness of any action had never stopped him. It was this that showed the fundamental difference between the state of mind of the average German and the strength of the feelings which moved Einstein himself. He was aware of the difference in these grave moments, when even men of good will refused to take responsibilities for fear of finding themselves isolated. Einstein recognized that Germany herself was incapable of revolt or of any sort of daring initiative that would lead to a spiritual rebirth. Respect for power was too deeply rooted in the German mind; it corresponded too well to their desire to dominate others. Talking once to Romain Rolland, Einstein used the word *affamé* to describe

the Germans. He was aware that this desire for power, this thirst for conquest and respect for success, was a compensation for a feeling very close to an inferiority complex. Brutality, even at its lowest, concealed something like a desire to be not only respected but loved, in the words of the ironical ditty well known in Germany: "If you don't want to be my brother, I'll bash your skull in." The Germany which violated Belgian neutrality, the Germany of the crimes of Louvain and the attack on the *Lusitania,* was still naïve enough to be surprised at the hatred these crimes aroused in the civilized world. When the Council of the Berlin University met and the professors got together in a beer cellar after the session, their conversations invariably began with one question: "Why does the whole world hate us?" (Einstein told this to Romain Rolland with a laugh, but in his laughter there was perplexity at the German capacity for self-deception.)

Einstein understood on the one hand that it was their lack of self-criticism that gave rise to this spirit of submission among Germans and to their resentment of isolation: on the other hand he was conscious of their great capacity for organization, their gift for adaptation, and their ingeniousness. He knew from the first year of the war that nothing but total defeat would put an end to German militarism and to the oppressive social framework. Himself a native of peaceful Swabia, he saw in Prussia the incarnation of all the German virtues—but also all the German vices. The kingdoms and principalities of the south had still preserved a certain spirit of tolerance and humanity. When at a meeting of all German universities the question was put whether all links with the other universities of the world should be severed, the Univer-

EINSTEIN AS A STUDENT—AARAU, SWITZERLAND, 1896
". . . the young man had to return to the school desk like any dunce."



EINSTEIN IN 1905
"A new Copernicus has been born."

sity of Berlin alone approved the motion against the opposition of all the universities of southern Germany. Einstein knew, nevertheless, that differences of opinion and resentments, like the hatred between Bavaria and Prussia, were forgotten in time of danger and that the common ordeal of the war reinforced the unity of the empire, so that it would be difficult to return to the federal system. Nevertheless he still cherished a dream, knowing it was no more than this, of a disunited Germany, where the southern provinces would join with Austria.

He spoke of this to Romain Rolland when they met at Vevey in September 1915. He had come to Zurich with a Swiss friend on purpose to see the man who in the eyes of the pacifists of the world was the incarnation of a free conscience. They met on the veranda of the hotel where Rolland was living, on a soft autumn afternoon, "among swarms of bees, who came to rob the flowers and the ivy." Einstein was thirty-six at that time, but his black curly hair was already streaked with gray. Rolland found him "very alive and gay; he cannot help giving an amusing twist to the most serious thoughts." He discovered the absolute independence and serenity of his mind: none of his previous visitors had produced the same impression. He noted in his diary: "Einstein is incredibly detached in his judgments on his native country. No other German has such detachment." But the meeting saddened Rolland. "All that he has told me points to the impossibility of concluding a lasting peace with Germany without defeating her first." Einstein told him, too, that "whatever the result of the war, the chief victim will be France." Rolland thought the severity with which Einstein judged the Germans was excessive; his criticism he thought

too sarcastic and his prophecies too gloomy. In the end the meeting left him perplexed: Einstein's personality somehow eluded him. "Another man would suffer if he felt himself so isolated in thought in this dreadful year. But not Einstein: he just laughs." He was surprised that Einstein should have been able, under such conditions, to work on his theory about which the Swiss friend had whispered to him: "It is the greatest revolution in thought since Newton."

It would have been more difficult for Einstein to preserve the calm necessary for his work, and stand the increasing privations that the war effort imposed upon Germany, had he been wholly alone in the foreign Prussian capital. But on arriving in Berlin he found support, and soon after shelter, with one of his uncles and the latter's daughter. The meeting between Einstein and his cousin Elsa was the beginning of the only permanent personal relationship in his life: thenceforward their relationship dominated his private life. He had known her as a child, when she used to visit his younger sister, but having as a boy no interest in little girls, he had completely forgotten her existence. Now he met a woman who was already mature, who had been divorced after an unhappy marriage, and who was the doting mother of two wistful and frail little girls. She must have been very charming; people who met her later in life disregarded the total lack of coquetry in her manner to admire her regular features and remarkably fair complexion. Her lively expression saved her from being merely pretty. She had bright blue, extremely myopic eyes, and a humorous mouth. Einstein, distrustful of all intrusions into his private life, must have been on the defensive against every stranger, but with Elsa it was as if he rediscovered something with which he had

been familiar all his life and his defenses disappeared. They had many memories in common, both their own and their elders'; they recalled old times, in a language spiced with dialect, inherited proverbs and sayings; they put forward mysterious interpretations of events long past: tiny incidents that were both tragic and grotesque. They would exchange understanding glances, like those of old friends, and smiles that were much older than their relationship as man and wife. They met on a common ground of friendship and self-confidence which remained with them always. The quiet care with which Elsa looked after her cousin was sometimes concealed by an air of vagueness: perhaps deliberately, for too great an appearance of efficiency might have repelled a man who was so indifferent to worldly things. Elsa protected him against the hostile world as she was to protect him later on against the assaults of admiration or curiosity. Their marriage, when it took place, seemed the most obvious thing in the world to both of them. She was not the sharer in his scientific work that he had once thought he had found in Mileva. Elsa's quick intelligence would have certainly let her glimpse the world in which her husband lived, but she abstained, deliberately, and Einstein has always been grateful to her for having left this line of demarcation between them.

Whenever he was working particularly hard, Elsa saw that he had silence around him and made his everyday life as easy as possible, so that the transition from the intellectual effort should be smooth and unobtrusive. When he emerged from his study where he had been closeted for many hours with his assistant, followed by clouds of smoke and pulling at his pipe, with his eyes shining, Elsa would slowly bring him back to reality as though awakening a sleepwalker; she

would gradually bring to his attention the people around him and the food on his plate, which he was chopping with his knife like a blind man. One day, in a moment of relaxation, she asked him: "People talk a lot about your work at the moment. Everybody keeps asking me for news. I appear so stupid when I have to say that I know nothing. Couldn't you just tell me a little about it?"

"Yes," said Einstein, "it must be irritating for you." He thought for a moment. He smiled; it was a tender smile. Elsa gazed at him with her vague, serene, shortsighted glance. "Well," he began with a visible effort. He stopped, then suddenly his face lit up happily. "Well, if people ask you, you can tell them that you know all about it, but can't tell them as it is a great secret." He was delighted to have discovered this solution. Horrified as he was by a groping approach to scientific facts and the commonplace transformation to which his ideas were subjected, he was deeply grateful to Elsa when she burst out laughing at his suggestion.

Apart from the mutual confidence in which they reveled, and the similarity of their simple tastes, they had another trait in common: a very special and personal sense of proportion. One never knew how or against what background they would look at either men or things. One could only be certain that their way of looking at them would have little in common with anyone else's. Elsa had the greater merit in acquiring such independence of judgment: she lived on the same level as other human beings, while with Einstein it was as if he moved from one planet to another.

Elsa had an acute gift of observation, which was softened by the natural tolerance of her nature. She would analyze a human being with her shortsighted eyes—and she would

discover at once the secret of his personality. Very often she knew more about people she met for the first time than their closest friends would ever know; she was a merciless judge, but pity overcame her as soon as she pronounced her verdict.

Above all she had a sense of humor that triumphed over all the great and small difficulties of life. An incident that might have caused anybody else to have a nervous breakdown made her shriek with laughter, gay laughter that swept away all irritations like so many cobwebs. She made any daily tragedy the subject for a comedy which she would reenact like a trained actress. In fact she had been on the stage and had given lessons in elocution to pay for her children's education. She could mimic to perfection the important personalities that later filled the house, as well as romantic vagabonds; she gave imitations of herself, usually in not too favorable a light, and imitated her husband in his battle with the petty side of life. Albert Einstein was the first to laugh at his wife's illustrations of incidents, in which his halo of celebrity was often ridiculed.

Destiny, when it united Albert Einstein and Elsa at this moment of their lives, before the sudden blaze of his glory, must have foreseen the disaster that an ambitious woman might have made of his life.

In the peace of his new home it was much easier for Einstein to devote himself more and more to the increasingly engrossing adventure of his work. He was nearing the goal he had pursued for ten long years. On November 28, 1915, at the height of the war, Einstein wrote to a physicist friend, Arnold Sommerfeld, who had written him several unanswered letters: "This last month I have lived through the most exciting and the most exacting period of my life: and

it would be true to say that it has also been the most fruitful. Writing letters has been out of the question. I realized that up till now my field equations of gravitation had been entirely devoid of foundation. When all my confidence in the old theory vanished, I saw clearly that a satisfactory solution could only be reached by linking it with the theory of the Riemann variations. The wonderful thing that happened then was that not only did the theory of Newton result from it, as a first approximation, but also the perihelian motion of Mercury (43″ per century) as a second approximation. For the deviation of light by the sun, I obtained twice this figure."

To Sommerfeld's slightly skeptical reaction, Einstein replied on a postcard dated February 8, 1916, with the brevity and assurance of a man who has acquired a final certainty: "You will be convinced of the general theory of relativity as soon as you have studied it. Therefore I will not utter a word in its defense."

Referring to Planck in a speech a little later, Einstein actually described his own state of mind at the time. He borrowed a sentence from Leibnitz to explain the love of research that stimulates every scientist, the "desire for a pre-established harmony." It was, according to him, mistaken to attribute (as is generally done) Planck's indefatigable tenacity and patience to his unusual strength of will and rigorous discipline, for the "emotional condition that allows similar achievements to be accomplished is more like that of a deeply religious man or of a man in love; the daily effort is not dictated by either a purpose or a program, but by an immediate need."

In 1916 there appeared in the *Year Book of Physics*, as

well as in a separate publication, the work he had mentioned to Sommerfeld: "The Foundations of the Theory of General Relativity." This, Einstein's main work, took up sixty-four pages. Rarely, perhaps never before in the history of human thought, has so small a publication had such a tremendous effect on the world. Einstein himself was aware that a great victory had been won and he was fully conscious of his own contribution. One day, much later, his collaborator, Infeld, said to him:

"I believe that the special theory of relativity would have been formulated with but little delay whether or not you had done it."

"Yes, that is true," said Einstein. He thought, indeed, that a scientist like Langevin, for instance, might have developed it; for according to Einstein, Langevin had clearly realized its essential features. However, he added immediately: "But this is not true of the general theory of relativity. I doubt whether it would have been known yet."

This awareness of his achievement and his feeling of a spiritual triumph had nothing to do with self-satisfaction. It was more like the joy of a believer in seeing a miracle accomplished in front of him, an almost humble joy. Einstein described later this faith that possessed him: "In a certain sense I hold it to be true that pure thought can grasp reality as the ancients dreamed it."

But the moment when this work of Einstein's first saw the light could not have been more ill chosen or more unpropitious for the diffusion of his ideas. The war in Germany was at its height and the atmosphere was tense. It was a year of crimes against humanity—the horrors of gas warfare and the submarine war; it was the year that nearly destroyed a

whole generation. Atrocities were rife in a country that did not yet realize that it was being deceived, and still believed in a near victory, where medals were coined in advance for the entry of German troops into Paris, and the sinister attack on the *Lusitania* was commemorated by a medal depicting a skeleton welcoming passengers in a ticket office. Throughout the whole of Germany resounded the war cry of hatred against "perfidious Albion," the words of a peace-loving poet twisted by blind German anger.

In this increasingly restrictive atmosphere Albert Einstein suffered both from the constraint of silence and from the complete isolation into which he was forced. Priding himself as he did on his independence of exterior circumstances, he was nonetheless more deeply affected than he would have liked to admit by the horrors of this seemingly endless war. "I know men in Germany," he wrote to Romain Rolland, "who, in their private lives, are guided by an almost complete altruism, but who have awaited with great impatience the declaration of unrestricted submarine warfare." Morally shaken, he was physically even more vulnerable. The privations suffered by the inhabitants of large cities were a severe strain on his health, but he refused to take the slightest advantage of his position to secure extra privileges. Bread was inedible, rations were insufficient, lard, meat, and sugar were all non-existent, and bitter cabbages served as a base for everything. Despite Elsa's ingenuity there was never enough to eat and in the three years of war he lost sixty pounds. When he went to Switzerland to see his children in July 1917 his host was terrified at how thin and tired he seemed.

He went to rest in Arosa with his sons, and his friends began a campaign to keep him in Switzerland and prevent

his return to Germany, where he would be running the risk of permanently ruining his health. Even a month's rest did not suffice to improve his condition noticeably. The least exertion was still difficult for him, and he wrote to Romain Rolland, "Even the smallest effort takes its toll." Rolland, moved by the accounts he heard from friends of Einstein's physical and moral condition, joined in the efforts being made to dissuade him from returning to Germany. "I know that you will not be careful of your health as you should, which is both a crime against science and a source of pain to your friends," he wrote, and added, "It is hard for me to believe that you have lost that optimism which struck me so much in you. I still have a bright and cheerful memory of it." Einstein was very touched "by your friendly interest in a man you have only seen once," he wrote, with that naïve surprise which he so frequently expressed when he realized that others were worried about him.

He was still too weak to make the trip to Villeneuve, but he wrote to Rolland at length about conditions in Germany. "As a result of the military victories of 1870 and of those in the fields of commerce and industry, the country has arrived at a sort of religion of power. It dominates almost all of the intellectuals and has almost completely dispossessed the ideals of the times of Goethe and Schiller. I am firmly convinced that this aberration can only be driven back or repressed by the duress of facts." He returned to this theme several times in his letter, as if he were trying to dissipate illusions which he knew to be tenacious. "Only facts can turn the deluded masses away from their false belief that we live for the state and that the proper goal of the state is power, at any price. As long as German statesmen go on hoping that

a change in the present balance of power will occur sooner or later one cannot hope for any important changes in the situation."

Einstein was by no means alone in thinking that a German victory or even a semidefeat would be the end of all liberty of spirit in Germany. At the time of the great German offensive, the director of a liberal newspaper said to the writer Bernhard Kellermann, who was going to the front, "If it succeeds there will be nothing left for us but to become expatriates."

Because of the state of his health Einstein had seen almost no one during his stay in Switzerland. But he had warned his friends in letters, as he had warned Romain Rolland, and in these letters, which were circulated from hand to hand, the man who was returning to Germany, where any indiscretions could have grave consequences, in effect urged the Allies to carry the war to the end, to the complete surrender of Germany. "Without this," he wrote, "we ourselves will never be able to rid ourselves of the yoke." Only one human voice managed to penetrate the noise of war; and it was the voice of a scientist who spoke the language of the enemy.

The English scientists listened and what they heard deeply disturbed them. They pored with passionate interest over the article Einstein published in the reports of the Prussian Academy of Science: "Cosmological Notes on the Theory of General Relativity."

"Modern cosmology was born in that year of 1917," Einstein's collaborator, Professor Infeld, wrote later. And he added: "Though it would be difficult to exaggerate the importance of this paper, Einstein's original ideas as viewed from the perspective of the present day are antiquated, if not

wrong." Since Einstein had worked out his cosmology through the effort of pure thought, and had been able to materialize, as he said, the dreams of the ancients, the methods of observation of the universe had been multiplied and had acquired a power that he himself did not suspect at the time. The human eye penetrated beyond the nebulae into this universe, which Einstein pictured as a finite universe, with curved space populated with matter, and not as an infinite universe, a void around an island of matter.

Certain phenomena observed by these powerful means, such as the tendency of the spectrum of the nebulae to displace itself toward the red—the red shift of the nebulae, as it was called—seemed to other scientists, like Infeld, a breach in Einstein's theory. It never ceased, however, to occupy the minds of astronomers, physicists, and mathematicians. A new spatial notion was born. Ideas about the structure of the universe, more or less modified, will never be what they were before him.

The effect was immediate. Einstein's suggestion to the astronomers that they direct their attention to the theory of relativity was accepted. In March 1917 the official organ of the Royal Astronomical Society, the Astronomer Royal, announced that on May 29, 1919, a total eclipse of the sun would take place and that therefore there would be particularly favorable conditions at that time for submitting Einstein's theory to a decisive experiment.

The mind of one man had spanned the abyss of hatred and sorrow that existed between nation and nation: it was a span, however, invisible to those who fought and died in the vain hope that there would be no more wars.

At that dark moment in the world conflict the words which Prince Louis de Broglie was later to utter acquired their fullest significance: "The theories of Einstein can be compared to burning flares, throwing a brief but powerful light on an immense and unknown region."

Chapter V

IT WAS like a great epic or adventure into the unknown—an escape beyond the barriers of human misery which war had erected. Two great expeditions were organized in February 1919. One was to Sobral, in the north of Brazil; the other to the island of Principe, in the Gulf of Guinea. But neither of these expeditions, organized at great expense, was aiming to explore hitherto unknown regions or study unusual ways of life. They were organized to surprise the sky at a moment when the total eclipse of the sun allows men to penetrate further into its mysteries. In the old days treasure hunters would sometimes set out with nothing to guide them but their faith in an old map, found by accident. These two modern expeditions left because of their faith in one man, who had elaborated a bold theory, guided only by his scientific logic. Never before was there an adventure of such daring, so totally confined to the domains of pure thought.

Sir Arthur Eddington, the great British astronomer, has described the expedition to Principe, which he insisted on

joining himself. Nothing was left to the last minute. The expedition arrived a month before the eclipse. On the day itself dawn broke in a clouded, misty sky. When the eclipse became total, the dark disk of the moon, surrounded with its halo, appeared among the clouds as one often sees it at night when the stars are invisible. "There was nothing to do but carry out the arranged program and hope for the best." A strange, ghostly half-light covered the earth, accompanied by deep silence, broken only by whispered conversations, the click of the observers changing their plates, and the inexorable ticking of the metronome squandering the precious seconds. Suddenly a flame shone out above the invisible sun and remained floating in space hundreds of millions of miles above the surface of the sun. The team at Principe had no time to take in this strange sight: they were too anxious about the success of the experiment.

The sky clouded over more and more: it seemed determined to thwart the efforts of man and baffle his curiosity. On the first photograph there was no sign of a star. About sixteen photographs were taken, however, with exposures varying from two to twenty seconds. Toward the end of the eclipse, the clouds vanished and the last photographs were clear. In many of them one or other of the essential stars was missing. But one plate eventually succeeded in capturing the light of five stars, and this was good enough to be used for an examination of the Einstein theory.

Months passed by, devoted to the careful examination of the results obtained, and to a comparison of the photographs brought from Sobral with those taken at the Greenwich Observatory. After repeatedly verified calculations, the deviation of light of 1.64 seconds was established: the deviation

that Einstein, from his writing desk, had fixed at 1.75 seconds.

In February 1952 a new expedition was organized by the University of Chicago to verify an already ancient experiment. The stars visible only during a total eclipse of the sun were photographed in Khartoum. The expedition had at its disposal every new apparatus; it was far better equipped than the English astronomers had been in 1919. Owing to this progress and the perfected methods of American research, the Khartoum experiment proved to be even more conclusive than that of Sobral and Principe. The deviation of light established came closer to the figure arrived at by Einstein—1.70 seconds. But the success of the earlier experiment had by now been generally recognized.

It was at the beginning of November 1919, at a solemn joint meeting of the Royal Society and the Royal Astronomical Society in London, that the results achieved were made public, amid considerable tension. A philosopher who was present compared it later to a Greek drama in which the chorus awaits the verdict of destiny. The president of the Royal Society opened the meeting by describing Einstein's theory as one of the greatest achievements in the history of human thought. "It is not the discovery of an outlying island, but of a whole continent of new scientific ideas. It is the greatest discovery in connection with gravitation that has been made since Newton first enunciated its principles."

The hall in which the meeting took place was dominated by a large portrait of Newton. The shadows of a great man of the past and of the absent stranger loomed over the audience. A stranger, under suspicion because of the very language in which he had enunciated his theory, had dared to

challenge one of the most glorious names in English history.

Looking back on this hour of triumph which he was not there to share, Einstein wrote in his notes for his autobiography: "Forgive me, Newton: you had discovered the only path possible in your time, even to a man of the greatest ability and creative power. The concepts which you established still determine our efforts in the domain of physics, though we know now that if we aspire to a deeper understanding of relations in general, they have to be replaced by others more distant from the sphere of immediate experience."

At the moment when the meeting of the physicists and astronomers took place, Einstein's conceptions still seemed completely inaccessible to the man in the street. The great physicist who presided at the meeting said himself: "I have to admit that until now no one has been able to state to me in simple words what Einstein's theory actually represents." But there was something in the event itself that impressed everyone with its elemental importance.

The whole world seemed to be waiting with baited breath: everything conspired to capture the imagination of the crowd. Endless spectacular rumors were being circulated. Suddenly this theory which depended on the testimony of the sky and the disappearing sun acquired, as you might say, a market price. A prize of five thousand dollars was offered in America for a précis of the theory of relativity not exceeding 3000 words. The man in the street, the man who stumbled over the word "relativity," which had not yet become of common usage, suddenly learned that it could bring fortune to the initiated: five dollars for three words. For some time this was all Einstein's work meant to the man in the street.

At the time a young Polish student was just arriving in Berlin to finish his studies. He had no idea that he would one day be chosen as one of Einstein's collaborators. All he knew was that in his own country the value of money was rapidly depreciating, melting away from day to day. The sum fixed for the prize, converted into marks, reached astronomical figures. Leopold Infeld described later how he set to work with a friend, and as they sat in his dingy student's room polishing and pruning the text, counting the words, they dreamed of the rain of gold that was going to be showered upon them. But, according to Professor Frank, it was a man of over sixty and, strangely enough, like Einstein a former employee of the Office of Patents, though in Dublin, who pocketed the fabulous prize.

There was a mysterious factor in the blaze of Einstein's glory that was not explained purely by scientific achievement. It was as though a troubled age was looking for some firm article of faith to support it. Did the pride which was taken in the peaceful exploit of one man mean the world regretted the waste of human genius in the bloodshed of the war? Did they want to replace in the future their soldier heroes with heroes in the world of thought?

Einstein himself recognized that a generous impulse had played a part in the spreading of his fame. He said, at a moment when his notoriety began to irritate him: "The cult of a human being has always seemed to me unjustified. It has nevertheless become my destiny and there exists a grotesque discord between the capacities and the powers which people attribute to me and what I really am and am capable of. To be conscious of this strange discord would be unbearable without one great consolation: it is a reassuring sign for our

times, which are described as materialistic, to know that they transform into a hero a simple mortal whose objectives are inspired by moral and spiritual issues."

In fact, at the time when the meeting in London placed him in the limelight, the most diverse elements and currents united to transform the unknown man of yesterday into a legendary figure. One can never say exactly how legends grow.

Albert Einstein, with his incomprehensible theories and his genius which the ignorant could not even check up on, became the prey of a legend that ignored the true reasons for his greatness. Yet mere chance, and the lucky coincidence of a widespread desire to believe in the miraculous, cannot explain why the choice fell on him. It is easier to believe in the instinct of the masses for appreciating anything that is authentic. Who knows what would have happened to this same desire to admire, believe, and love if it had fastened with the same eagerness on another man—one who was capable of being taken in by his own myth? The fates are apparently careful not to betray humanity through one of its most disinterested impulses.

Elsa Einstein told a story about the day her husband received the first photographs of the English expedition. He looked at them with astonishment that soon changed to joy. "It is marvelous, it is truly marvelous!" Everybody believed him to be rejoicing at his triumph.

When the importance of this confirmation of his theory was explained to Mrs. Einstein, she murmured timidly: "How pleased you must be, Albert!"

And Einstein, his eyes still riveted on the photographs, exclaimed: "This really makes me happy!" But it was the qual-

ity of the photographs that made him happy, for he added at once: "I never thought that photography could reach such perfection today."

The first contact between the enthusiastic public and Einstein occurred the day after the memorable meeting. *The Times* had sent a correspondent to Berlin to ask him for a few words of explanation of his theory. Einstein was not at all reluctant—it was the first time he had been approached. He even expressed his gratification at being able to say a few words about "relativity" (he still put the word in quotation marks) and made use of the occasion, after the lamentable collapse of international relations among scientists, to express his gratitude to the English physicists and astronomers. "It is quite in keeping with the great and proud traditions of scientific work in your country that eminent men of research should devote a lot of time and a lot of effort, and your scientific institutions a lot of money, to examine the results of a theory that was elaborated and published during the war in the country of your enemies."

Effacing himself behind the scientific importance of the event, Einstein stressed—almost apologetically—his personal gratitude, for "without this enterprise of my English colleagues, I would have never received in my lifetime the proof of the most important developments of my theory." Suddenly the earnestness with which he was composing his reply for the English paper came up against his very specialized sense of humor. The correspondent who came to see him had given a description of his personality and private life which showed an appreciable amount of imagination. Suddenly Einstein saw himself as he saw others, over the top of a lorgnette, a hero in spite of himself. And he added in a post-

script for the benefit of the average reader this example to illustrate the principle of the theory of relativity: "Today, I am considered in Germany as a German scientist and in England as a Swiss Jew, but if one day I become *persona non grata* I would be a Swiss Jew for the Germans and a German scientist for the English."

The readers of *The Times* did not seem to appreciate this joke. Einstein's sally, however, concealed the bitter aftermath of a conviction that was to remain with him always. But at the moment he was overwhelmed by the fame which he had won almost overnight. After the first encounter with it, and all the disruption it brought into his life, he said to his wife, to console her: "After all, it can't last long." But "it" still lasts.

The word itself, "relativity," seemed to lend itself to the most arbitrary interpretations, to become a parlor game. One day, when someone began to propound in front of him some flagrant nonsense, Einstein growled impatiently, barely lowering his voice: "You're mixing me up with Steinach" (a Viennese professor who had invented a rejuvenation cure which was the rage of the moment). This parlor curiosity had always been his enemy. He never could reconcile himself to it and from the start he refused to make any concession to it.

Postwar Berlin, as though it were trying to catch up after all the years of isolation, was increasingly avid for all novelty, and open to all new ideas. Intellectuals wanted to make up for all the books they had not been able to read in those years. New values were accepted simply because they offered a change from the old ones: and in the general readiness to welcome anything new, in the general desire to forget

the past, the relief of survival was mixed with a more or less conscious need to rebuild life on a broader basis. But Germany had not experienced a revolution that swept away the ancient structure and made way for new foundations: she had only undergone the exhaustion of economic distress, so that her conversion to democracy sprang from too sudden a change of heart for it to last. The new society was built up out of fragments still in love with the past: impoverished aristocrats, industrialists with their fortunes intact, financiers who had made money out of the defeat, high-ranking officers of humanist culture, members of the foreign embassies, directors and journalists of the great daily newspapers which considered themselves the leaders of public opinion. This society was probably not so large as people thought. Kurt Tucholski, a German pamphleteer who was also a fine poet (unfortunately too little known abroad and driven to suicide by Nazism), took as a refrain to one of his poems at that time: "We live, after all, among two hundred people."

But the whirlwind created by this elite was so breathtaking and its activity so feverish that it deceived many as to the profundity of its influence and the abyss that separated it from the rest of the country. It devoted itself to the creation of new gods, by magnifying small celebrities and by entering the famous people of the day in a steeplechase of vanity.

Einstein found himself all at once the center of attraction. Rarely have fanatics chosen an idol who reacted worse to their devotion. "Albert is a shy man," Mrs. Einstein wrote to me one day. "Yes, it is difficult to believe it, but it is so. When you say to people that he is humble, timid, and deprived of even the 'normal dose' of self-confidence, people begin to

smile." Perhaps the word "shy" is not the right one. Elsa Einstein, though she knew her husband better than anyone else did, attributed her own shyness to him. She experienced real terror when forced to face a chattering crowd in a room with a slippery parquet floor that seemed to recede under her feet, glances that intercrossed like a canopy of swords, the expectant silence that stifled the words in her throat. But Albert Einstein knew nothing of these inner hesitations, of these nightmares that overcome the shy. He did not hover between self-doubt and unjustifiable self-satisfaction. He did not feel one moment pushed into the shade and the next moment pushed into the foreground. He never asked himself what impression he was making. But he never failed to keep the external world in perspective. People and events neither shrank to enlarge him nor cast a spell to diminish him. He had a perfectly steady sense of proportion which never altered: and nothing was more disconcerting than this stability in his relations with the rest of the world. He applied his own standards in all places and on all occasions: He was guided by an inner law so peculiar to himself that it was difficult for others to define it.

His kindness was legendary. His good nature emanated from him like a light, indifferent to what it illuminated. But it was not the good nature of the great seducers who *must* please as they *must* breathe. It was the expression of his fundamental equilibrium, just as his gaiety was that of a man who was fundamentally sane. His kindness was born of a sense of social justice which he himself considered should be boundless. His compassion for victims of persecution, for people in need, did not arise from great sensitivity or a delicate shudder in front of suffering. He did not experience the

embarrassment of a healthy man in front of a sick one, or the vague uneasiness that prosperous people sometimes feel in front of undeserved misery. It was more a sense of responsibility which at once overcame him. It was also a sense of justice, accompanied by a healthy anger with all those who did not have it. When one realized this fundamental intransigence in him, one sensed the rocklike nature which was concealed by his smiling good humor.

The ridge of the rock was there to rebuff the intrusions of worldly vanity and the lures of ambition. One of the most popular hostesses in Berlin one day tried to tempt him by listing the distinguished guests she had invited to dinner.

"So you would like me to serve as a centerpiece?" Einstein demanded sternly.

"Albert is impossible," groaned Elsa, but she was secretly amused.

Einstein's inner law was a law of economy. He hated numerous parties where men of intelligence paralyzed one another. With rare exceptions he accepted only invitations to meals with five or six other people. He showed himself merciless when he detected a subterfuge. One winter day, coming to see me, he found the entrance filled with overcoats. "She told me it would be an intimate luncheon," he muttered, and quietly turned back. Elsa had great trouble in catching him on the stairs, shouting that in fact there were only four or five overcoats there.

Usually his wife's diplomacy met with obstinate refusals: "Why do you want me to go there? These people don't interest me." No reasons of opportunism or considerations of social position and offended susceptibility could shake him. His celebrity allowed him a great margin of indulgence, and

his reputation as a crank protected him to a certain degree, but he would never have been able to reconcile this refusal of all concessions with unavoidable social demands without Elsa's help. She placed herself like a screen between him and the all too pressing requests; she became his interpreter, translated his abruptness into diplomatic language, and tried at the same time to make him see the humanity hidden under the conventions. Elsa's efforts to shield him were all the more admirable because she herself suffered all the agonies of shyness, aggravated by her shortsightedness, and had no compensatory feeling of personal self-satisfaction. These contacts with the world, the necessity of which Einstein denied, seemed to her, threatening as they were, an ordeal to be overcome with courage. When she resigned herself to accept an invitation several times refused by her husband, she dreaded disappointing her hosts by arriving alone. She effaced herself, as if trying to apologize. She, who had a great gift for conversation, for prompt repartee, for a picturesque play on words, would remain in a room, smiling a secret smile that was like part of some unspoken dialogue. What she had to say seemed to her of no importance. When a story of hers—which she kept only for her friends, by the way—produced bursts of laughter, she would stop, surprised, as though saying to herself: "I didn't know this was funny!" She was convinced that she was invited only because of her husband, that people listened to her simply out of politeness, and that the only interest she offered was that of the name she bore. When I said to her for the first time: "I would so much like to see you," asking her to come and have tea with me, she replied that Albert was not free that day. When I made it clear that it was she I wanted to see, she

exclaimed in a suddenly shrill voice: "Me?" and stared at me incredulously.

Among many other things, Elsa Einstein gave to her friends, as she did to her family, a sense of security. One always felt she was there, in spite of her busy life, smiling even if she was upset, serene even if deeply disturbed. One felt sheltered by an unshakable, impregnable confidence in her affection. She, on the other hand, was uncertain, barely conscious of what she represented to all who knew her, even to those who loved her. After many years, after various ordeals undergone together which had consolidated our friendship, she once wrote to me this astonishing sentence: "I am telling you the truth when I say that it is often impossible for me to understand why you are fond of me."

It is rare that the wife of a great man should have kept so little of the aura for herself. She retired into his immense shadow, perfectly at ease in this shelter. Pursued on account of his celebrity, she wanted to be forgotten, and she partly succeeded. It needed a nature as strongly tempered as hers and an unshakable common sense, as well as a sense of humor equal to Einstein's own, to remain immune to the insidious traps of vanity.

She had, owing to her powers of intuition, more sympathy for human weaknesses than her husband; she knew, though she had never experienced it herself, that hurt vanity can make people suffer, and false pride prey upon the mind as badly as an imaginary illness. Her sympathy tried to soften the effects of Einstein's intransigence, although she was not always successful. A busybody who did many kind works in a restless way and embraced all good causes had pursued Albert and Elsa for a long time with her advances. She was

so insistent, and her disappointment as a collector of celebrities caused her so much distress, that Elsa was touched. "Couldn't we invite her to a musical evening?" she ventured one day.

Einstein shrugged his shoulders. It was immaterial to him whether he played to a large or to a small audience. Music was a curtain behind which he hid. He played for his own pleasure. When people were asked to hear him play, it was always to help some unknown musician whose talent he appreciated. He laughed at this publicity gained at his expense. "He plays well, I play badly, and he believes he is getting publicity by playing with me." He was amused by the illogicality of it.

On that occasion he had enjoyed the hours of music so much that he forgot the crowd that had invaded his house. He was looking absent-mindedly at the flow of visitors passing. The melody was still alive in him, triumphing over the voices that murmured compliments. Suddenly I saw his attention aroused. The persistent lady stood in front of him, an ecstatic expression on her face.

"You'll let me come again, I hope, Professor?"

"No," Einstein said calmly. There was no harshness in his voice, only a statement of fact. He gazed with astonishment at the woman's confusion as she left the room.

"How could you, Albert?" exclaimed Elsa.

"But why should she come back?" There was sincere astonishment on his face. He could not understand the consternation he had provoked. "I don't see the necessity." He shook his head with the air of a man conscious of having allowed reason to triumph.

To shake him, one had to use his own argument of "neces-

sity" against him. Those who did not know him well were surprised to see how few arguments had any effect on him. He was all the more impervious to them because he was totally deaf to all worldly considerations; one often saw him, too often sometimes, give in to requests that appeared to be totally undeserving of his attention. One would see him show the door to an important visitor—"He is of no interest," Einstein would declare—and spend hours closeted with a poor wretch who had asked to see him. He was often reproached for the naïveté with which he replied to anonymous requests and, indeed, no appeal of moral or material suffering failed to move him. He dealt with them almost before they came to his ears, as though in memory of the privations he had himself endured.

Fame brought material comforts. It might have brought a fortune, but Einstein refused all fabulous offers—astronomical fees, for example, to appear for ten minutes on the screen. There would be nothing for him to do, they insisted, but stand in front of a blackboard with a piece of chalk in his hand. Einstein laughed. "What next? You really believe that I'll behave like a performing monkey?"

One got the impression that Albert and Elsa were eager to get rid of all the surplus money left over from their modest way of life. They were besieged by beggars as well as by celebrity hunters. They found they had hordes of relations who confidently expected to be helped, and complete strangers asked for their help wih the same confidence. A queue gathered around their door, as though waiting for miracles to be performed, and Elsa had to sort out the crowds of applicants by examining each individual case. Sometimes the clever ones escaped her eagle eye.

"But, Albert, you've again given some money to that crook who has fooled you several times already," she would say indignantly.

"I know," he replied calmly, "but he must be in need of money all the same. One does not beg for pleasure." He gazed at us as if defying us to deny the truth of this.

The rare occasions when Einstein agreed to appear in public were always in aid of charitable institutions or in defense of a cause. Sometimes Elsa made arrangements without his knowledge. He performed his duty, at first with a grumble, but later he would ask laughingly: "How much did you sell me for this time?" And turning to me, he would add approvingly: "She knows how to go about it and gets considerable sums for me at times."

There was, in fact, deep down, a fundamental contradiction in Albert Einstein, a contradiction between his total detachment and his sense of duty toward humanity. Spiritually he was free from all chains, but morally he was bound by them. He was isolated and inaccessible but at the same time he was full of brotherly sympathy for his fellow men. He was very conscious of this double aspect of his nature, which was the real explanation of his secluded life, interrupted only by violent interventions on behalf of the causes that were close to his heart. The passing of the years accentuated his love of solitude—"painful when one is young but delightful when one is more mature"—but they also increased his sense of responsibility. He never ceased to stress this duty of a scientist toward humanity. "The concern for man and his destiny must always be the chief interest of all technical effort. Never forget it among your diagrams and equations." The scientist in his ivory tower has always seemed a ridiculous and despi-

cable figure to Einstein, and has even taken on in his eyes the character of a criminal, or at least an accomplice in crime. He summed up the motives of his own behavior in a sentence: "Only a life lived for others is a life worth while."

Disconcerted by the sudden growth of his fame, he began to use it as a loudspeaker for the ideas he wanted spread and as a means of action. He seemed to consider himself increasingly in debt toward humanity as his fame increased; as though his reputation was a loan that had to be paid back. He seemed to be waiting for an opportunity to put himself at the service of a cause. He explained one day why he became such a passionate champion of Zionism. He had abandoned the Jewish community, and had remained a practicing Jew only on paper. But on his nomination to the University of Berlin, the matter faced him in all its acuteness. He wrote later on: "It was when I came to Germany, fifteen years ago, that I discovered I was a Jew and I owe this discovery more to non-Jews than to Jews." He discovered in Germany a latent anti-Semitism, especially in the universities, which were and remained, in contrast to educational institutions in other countries, the principal fortresses of reaction, the hotbeds of prejudice. In this atmosphere of contempt and hostility was born, to quote Einstein, "the pathetic, converted *Geheimrat*," a man too uncertain of himself to resist the suggestive powers of his environment. "I saw the shameful pretences of Jews of high standing and my heart bled," he recalled one day.

He saw, too, the mistrust of these turncoats for the Eastern Jews who were searching for true human values in their own way: and he perceived their fear of being identified with this as yet uncultured mass—their desperate efforts to deny all connection with these poor wretches who were knocking at

their back gate. The attitude of German Jews led Einstein to ask himself what being a Jew meant to him, personally. Was it a source of strength or a wound that weakened him? In fact, what was there in common between Jews dispersed throughout the world, the cultured and the backward, the intellectual elite and the masses still repressed by ancient prejudices, the owners of fabulous fortunes and the professional beggars? It was among the Eastern Jews, the poorest and the most faithful to tradition, that he found the most passionate desire for knowledge, an almost superstitious cult of "education," a respect for the man of letters. Among the starving students who came to him, barely able to express themselves, the study of science had replaced that of the Torah, but the passion had remained the same. The desire for knowledge for its own sake seemed to him the most striking feature of the Jewish masses and the link that bound them to himself. He wanted to find out if there were any other links among the widely differing Jewish elements.

One day he talked about it at length to Walther Rathenau, the son of a man who had founded the most powerful electrical firm in Germany, a sociologist, a philosopher, a man of rare culture and one with a great knowledge of political economy. Rathenau hardly thought of himself as a Jew. He had none of the traits that are usually attributed to Jews; even his appearance was more like that of a distinguished descendant of a long line of overbred aristocrats. In the course of conversation Rathenau told Einstein: "If a Jew told me that he went hunting for pleasure, I would know that he was a liar." Einstein burst out laughing, but after a moment's thought, he was struck by the truth of this remark. He wondered where this reluctance to shed blood and this unwilling-

ness to inflict suffering originated: and he realized that he had another trait in common with other Jews—respect for the life of every living creature. This evaluation of life as a sacrosanct quality seemed to him intimately related to his own reverence for the spiritual.

Einstein feels close to everything that heightens or exalts life, for despite his taste for austerity he himself has an intense *joie de vivre.* He feels that he is descended not from the gloomy prophets of the Bible who prophesied that the hand of God would fall on the Jewish people, but from the psalmist who expressed "a sort of intoxicated joy and wonder at the beauty and sublime grandeur of the world"—the same elated feeling that is to be found in the song of a bird, that stimulates the desire for knowledge and is the source of creative effort.

Among his links with Judaism, Einstein discovered also his longing for independence and almost fanatical love of justice, so that he concluded: "These traditional principles of the Jewish people prove to me that it is my destiny to belong to them." Einstein never lost that conviction even during his worst ordeals; he knew that the problem had been settled for him. But others had still to face it. How were the refugees from persecution, leading a precarious existence as unwanted guests of other nations and making frantic efforts to identify themselves with them, to be given back their sense of human dignity? "I realized," Einstein wrote later to a German professor, "that only a common cause that would touch the hearts of all Jews could restore the Jewish people to health." He knew that the current reproach of Zionism was that it created, in a world already torn by many exaggerated nationalisms, yet another one, and he admitted that this re-

proach was not without foundation. The word was an ugly one, even if it was, in fact, a "nationalism that does not aspire to power, but to dignity and recovery," as he consoled himself.

This early illusion, combined with his hatred of nationalism and his horror of all violence and militarism, was to throw a passing shadow on his future relations with Zionist leaders, and later on with the young Israelite state, which he had not foreseen, or even wished for, in the form which it took. "Laying aside practical considerations," he wrote during the fierce battles in Palestine, "the true conception of the nature of Judaism is essentially opposed to the idea of a Jewish state, with frontiers, an army, and a measure of temporal power, modest as it may be."

Einstein was taken aback to see the reality exceed his dreams—but in a different form than he had imagined. He was a little awed to see the storm break out, when he had thought this work would lead to peace and fine weather. His dreams often came up against, not so much circumstances, of which he was a reasonable judge, as against the nature of men, whose reactions and possibilities of development he did not always foresee. When he was offered the presidency of Israel after Weizmann's death, he showed his awareness of this in the way he framed his refusal. "Scientific problems are familiar to me," he wrote in reply to the spontaneous offer, "but I have neither the natural capacity nor the necessary experience to handle human beings."

At the beginning of the conflicts in Palestine, he had hoped that a reasonable agreement might be reached with the Arabs, "on the basis of living together in peace." He did not envisage the possibility of the conflict turning into a war and

ending with a victory. "We are no longer the Jews of Maccabean times," he declared, ignoring the passionate fervor of those youths who had nothing in common with the Jews he knew. When he spoke later of the exploits of the young heroes of Israel, of their stubborn work, of their implacable courage, of their surrender of themselves in a gesture of almost insane self-confidence, he spoke with great surprise and a disconcerted admiration.

However, won over after the First World War to Zionist ideas, he looked upon Palestine as a refuge for all oppressed Jews, all the Jews in an uncertain world. He used the common term of "national home" reluctantly, preferring that of "cultural home." He was particularly tempted by the idea of founding a university in Jerusalem; he thought of those unfortunate students who came to tell him of their difficulties as though defeated from the start by adversity. On the insistence of Weizmann, who was also a scientist, a chemist, though now chiefly interested in practical matters, and a great leader of men, Einstein decided to accompany him on his trip to America to collect the necessary funds for Zionist organizations and for the foundation of a university.

Einstein's adherence to Zionism and the news of his journey with Weizmann created great perturbation in Germany. This conquered nation, which had, in a sense, felt rehabilitated by his glory, this democracy that had established itself with difficulty amidst the resentment of defeat, feared that Einstein's conversion to Zionism might be considered as a repudiation. Most outraged by his decision were the university circles. This consciousness of being a Jew which they had rediscovered in him seemed to them a desertion of Germany. Einstein was not impressed by his colleagues' disapproval; he

knew that some of them were violently antagonistic to him, knew about their more or less repressed hostility. Reaction was still in arms and the conspiracy of envy and mediocrity was always ready to attack him. He smiled, amused by the pseudo-scientific arguments with which the unconvinced contested his theories. During a concerted attack at a congress of natural sciences in 1920, however, he emerged from the silence that he had kept so long to reveal the real motives of this attack. They did not deserve in his eyes a scientific refutation; he contented himself with publishing an article in the *Berliner Tageblatt* under the title: "My Reply to the Anti-Relativist Society." His theory had the misfortune, he wrote, to have been worked out not by a reactionary, *deutsch-national* German but by a Jew with progressive ideas.

Einstein was impressed more by the embarrassment that some of the German political leaders, mostly Social Democrats, showed at the announcement of his departure than by the arguments of his colleagues who tried to dissuade him from the journey to America as an emissary of Zionism. The Weimar Republic was fragile. It was vulnerable to any attack and the Kapp Putsch had almost dealt it a death blow. It owed its survival to a unanimous reaction of all men of good will. Like all those who had witnessed this episode, Einstein was very much impressed by the quality of the resistance that had arrested the reactionary attempt, the spectacular effect produced by a general strike. The challenge thrown by the working class in their song, "All the wheels stop as soon as your strong arm desires it," became reality. The streets with their empty shopwindows were deserted and in the dead of night, interrupted by sounds of shots, a rain of pink pamphlets was showered upon the town, the ridiculous manifesto

of a pseudo dictator, announcing that all employees and workmen who were not at their posts on the morrow would be shot. By remaining absent, the workers carried off a great pacific victory over an armed conspiracy.

Einstein drew an important lesson from those dangerous days. He believed that a mobilization of good will would be enough to combat a mobilization of arms. A unique experience deceived him about the possibilities of a spiritual victory. In the excitement of the moment, he felt himself closer than ever before to these German masses that had saved democracy. But he knew at the same time that the danger was not averted. Tomorrow, or the next day, the Jewish shelter of Palestine might, perhaps, become more necessary than ever. Nothing could dissuade him from his scheme. But he had always been the champion of the weak. So it was to this weak German Republic that he sacrificed the independence that Swiss nationality had secured for him and that he had so jealously safeguarded. He gave to this Germany what he had refused to the imperial one, in the way that one offers a loan to some young undertaking that needs the money to survive. He became a German citizen, but without any illusions about the expediency of his action. For the moment he had linked his fate with that of Germany. Nevertheless he sailed to America as an emissary of all those without a fatherland, both in the past and in the future. He sailed on this quest for funds as though he wished to silence the lament of the prophet: "Thou hast made us as outcasts and refuse in the midst of the people."

Chapter VI

EINSTEIN'S first encounter with the New World was a sensation. Many American Jews felt personally honored by the arrival of their illustrious coreligionist and left their work or closed their shops to welcome the visitor: but it was not only the Jews who acclaimed him. On the deck of the ship Albert and Elsa underwent the first mass attack of journalists and the running fire of photographers. They thought they were steeled against it, but it was only in that spring of 1921 that they encountered the stormy side of celebrity, the aspect of success which is particularly prominent in America.

I believe that it was during this first visit to New York that Einstein was driven down the main streets in a car preceded by a gigantic poster: "This is the famous Professor Einstein." Presumably his face was not yet familiar enough to make this unnecessary. Airplanes droned in the sky and flowers and multicolored paper streamers were dropped on the procession. It was frightening and spectacular at the same time. Elsa was bewildered; she pressed to her heart the immense bouquet presented to her.

"What do you think of it all, Albert?" she asked faintly.

"It is like the Barnum circus!" he said, laughing, and added, glancing at the crowds gathered on their way: "After all, it must surely be more amusing to see an elephant or a giraffe than an elderly scientist."

The financial success of his journey was just as great as the sensation he created. He spoke with Weizmann to Jewish organizations or, more precisely, he let Weizmann speak; he addressed students and appeared at enormous banquets arranged by powerful financiers—"like a centerpiece," to use his own expression. He gazed at the people around him with bright, watchful eyes, as if they were a human species hitherto unknown to him. He did not altogether reassure the orthodox American Jews, who had taken refuge from social anti-Semitism and general discrimination against Jews in the strict practice of their religion. The practicing Jews wanted to know whether he was really one of them, and, as this was America, where matters of conscience are made public, a New York rabbi cabled to him in advance as though examining his credentials: "Do you believe in God?" Einstein cabled back this truthful and brief reply: "I believe in Spinoza's God, who reveals himself in a harmony among all people, not in a God who worries about the destiny and actions of man."

Einstein was not very reassuring to the conservative Jews, who found his jokes about money in bad taste. He repeated all too readily the statement that all the great figures in history were completely disinterested men, and added: "Can one imagine Moses, Jesus Christ, or Gandhi with Carnegie's money?" Yes, the man was obviously disturbing, but one allowed him to talk in his irresponsible way and one "coughed up," with an oblique glance at the sum given by a rival.

Hebrew University was born in the spring of 1921. The national fund was raised. But Einstein had not only "come to beg," as he called it, and to be welcomed as a sovereign. He also received an honorary doctorate from Princeton University. On his arrival he was greeted by President Hibben as "a new Columbus who sails alone across the uncharted seas of thought."

He delayed his return to give four lectures on relativity in that university. It was his first contact with Princeton and he found it free from all outside disturbances, an island of scholarly seclusion amid the bustle of American life.

Einstein had no idea that the calm scene which confronted him was to be the final setting of his life: that he would one day tread heavily over the very grass on which he now stepped so lightly.

If he had no suspicion as yet of what the future had in store for him—and he was not very curious about it—he was intensely interested in America and the Americans, as though he knew that he would in time be living among them. He was won over by America's spontaneous welcome, which was simple and unambiguous in spite of its enthusiasm. He found his contacts with people pleasant and inoffensive because of this absence of complexity. But he also noticed that, while the average American was more sympathetic, good-natured, and optimistic than the European, he had less critical sense and was less conscious of his own individuality. "His life is always something he is going to become, not what he is."

Einstein had now entered that phase in his life when curiosity was to drive him on endless journeys across the whole world. He had entered a phase of travels and numerous contacts. He had emerged from the seclusion of his studious

youth, the limited circle of interests, and solitary work, to enjoy everything that the world and man offered. Did he remain so impervious to external influences, so free from the clutches of his fellow men, because he had emerged so late —or perhaps because his character was so fully formed from the beginning?

At the end of his travels he was like a man who has been to a movie and seen the most extraordinary landscapes and varied characters flit across the scene—a fascinating film but unconnected with his own life. Einstein's meetings with the most prominent personalities of his time seem to have been divided into those which took place on a personal level and those which were purely formal.

On his return from America, Einstein landed in England. It was his first contact with the world of British scientists, who had been in a way the midwives of his glory. He spoke at King's College. Through Lord Haldane, the instigator of his visit, he saw a cross section of English society—the nobility, the distinguished dilettanti, the world of science and politics; the conservatives with their mild curiosity about everything and everyone strange and foreign; the liberals who had often studied in German universities and retained a sort of nostalgia for an idyllic Germany which they had doubly lost with their youth and with the war. Einstein also met George Bernard Shaw, who amused him with the running fire of his paradoxes, his manner of playing with words and ideas as though with little overturned pyramids which he tried to balance on their points. The characters created by Shaw were not people of flesh and blood for Einstein but elfin creatures of wit, humor, and grace. Speaking of Shaw's social satire, Einstein said to him: "You have succeeded in

winning the love and joyful admiration of men on a path that for anyone except you would have become the way of the cross."

Not all sides of English life happened to amuse Albert and Elsa Einstein. Having just left Princeton, America's corrected edition of Old England, they were confronted with the real thing when they were asked to Lord Haldane's Scottish castle. This imposing castle had stood the assaults of time and it continued to brave the present with its feudal bearing. On their arrival Einstein and his wife were taken to their room by a solemn butler who carried a heavy silver candlestick majestically in front of them. They marched in a procession along the interminable passages that separated them from the rest of the world. Their large room was filled with deep shadows as though it concealed ghosts. They awoke in the morning in this immense bedroom, buried in darkness, like two people shipwrecked on a desert island.

"Could we ask them to open the shutters . . . ?" murmured Elsa.

"Ask whom? That man who brought us here?" Einstein exclaimed in terror. A long pause ensued.

"All the same, I would love to have a cup of tea," Elsa ventured timidly.

"Sh . . . sh . . . perhaps they have forgotten about us. . . ." A faint hope sounded in Einstein's voice.

This journey was the first international contact he established after the war. So far there had been no clashes. The reestablishment of a contact with France was more delicate. When, in March 1922, Einstein received an invitation from the Collège de France, he immediately envisaged all the pitfalls the journey might mean for him and his French friends.

He wrote to Langevin, giving the reasons for his refusal. But the next day Langevin received a second letter from Einstein in which he told with his usual simplicity why he had changed his mind. "Rathenau has told me that it is my duty to accept and so I accept." German university circles were indignant. The universities, with rare exceptions, had never in spirit subscribed to the *Diktat* of Versailles, refusing to honor the signatures of "traitors." Great Britain, against whom all the hatred in Germany had been mobilized during the war, was already the "victorious gentleman," on the way to becoming a potential ally. France, on the other hand, had become once again the hereditary archenemy.

Einstein shrugged his shoulders. He knew that his French colleagues were encountering even greater difficulties and that they had shown great courage in inviting him to Paris. He knew that the resentment against the enemy lasted longer in a country that had suffered in its devastated land than in those that had been spared the physical presence of the war. He realized how much accumulated bitterness there was in the contemptuous word "Boche," and it was as a German scientist, as the leading German of his day, that he was to face Paris. But the promoters of his journey, people on the left, as many of the French university men were, were keen on this gesture, not only in order to show their respect to a great scientist, whom they knew was one of themselves, as far as opinions were concerned, but also to underline the brotherhood of the human race which could triumph over barbed wire.

Paul Painlevé, who had organized this first meeting with his usual efficiency—an efficiency which he concealed under a vague exterior—came to power two years later, owing to the

victory of the parties of the left. This great mathematician, recently converted to Einstein's theories, now followed them with passionate interest. He was one of the rare people whom Einstein considered capable of understanding them. One day, about 1929, I believe, Paul Painlevé came up to me looking absorbed and highly excited. "Remarkable, you know, this theory of Einstein's—yes, the one on synthetic fields." He pulled out of the inner pocket of his waistcoat a carefully folded booklet of a few pages. He went on speaking about it, stammering a little as he always did when he was moved, using superlatives that seemed disconcerting in view of the few pages that he brandished. I had heard nothing about it, but I had received several months before a letter from Elsa announcing that Albert was "concocting something big." So this, then, was the concoction.

"Is it long since it has been published?" I asked Painlevé.

"I received it this morning, but I had a cabinet meeting." (He was then Minister of War.) "I had to take it away with me and read it under the table at a suitable moment." Then he added sharply, staring at me with his round eyes, which had suddenly grown suspicious: "Promise you won't tell anyone about it. I assure you that no one noticed it."

I could not help laughing at this idea of the great scientist at a cabinet meeting stealthily reading these pages, so difficult to understand, like a schoolboy poring over a detective story under his desk.

Painlevé seemed a little dismayed by my laughter. "No, I really mean it—it would make me look so silly," he said.

When Albert Einstein left for Paris in March 1922, he knew that he would be skating on thin ice. He would have to watch carefully every word and deed and not allow himself

to be rebuffed by possible affronts. He went, confident in his common sense and his instinct, and not even very anxious. When he arrived, he was faced with the alarming news that hostile demonstrations were in preparation. He was ready to turn back, without any resentment, but Paul Langevin had come to meet him. This meeting led to a lifelong friendship.

Seeing them together, one was struck by the contrast in their appearances. On the irregular features of Paul Langevin passions and spiritual torments had left deep wrinkles and indelible traces. Einstein's regular features—he was about six years younger—were still young and firm, his face serene.

Langevin spoke with his usual passion, his feline mustache bristling with emotion even when describing abstract ideas: even figures seemed to come to life when he spoke about them. His voice had a peculiar quality, as though it were yielding everything and he was making an unconditional gift of himself, when he was speaking to someone he loved. Einstein replied slowly, in halting French with a strong accent; to his great regret, he could not introduce into his speech the puns and the picturesque images that he favored so much. He contented himself with smiling now and then, an almost tender smile, or bursting out in his rich, rumbling, guttural laughter. But there was a complete understanding between them, an understanding on every plane, almost without the aid of words. When one saw them together, one was struck by the strange intimacy between them. When they greeted each other in the morning, it was as if they had emerged from the same room in which they had been closeted together in long, secret conversation. Their thoughts, indeed, so often took the same direction and remained for so long in harmony that their relationship seemed to exist outside of time. Ein-

stein shared with Langevin the same lucidity and the same creative instinct that knew how to extract the essentials. With that generosity of mind which reflected the generosity of the man, Langevin welcomed all the ideas of his colleagues, foresaw their importance, and stimulated them with his own enthusiasm. Einstein had a far greater dose of skepticism—in all spheres—than Langevin, a greater reserve than his more fervent elder colleague. But in spite of that skepticism and that reserve, he was always as ready as Langevin to fling himself into a cause, and to throw all his weight into a struggle against injustice. Their intimate companionship was based on their totally disinterested attitude and on their acute sense of responsibilities. Einstein once said of Langevin: "His heart was so pure that he was convinced that all men should be ready for a complete personal renunciation as soon as they had seen the light of reason and justice."

Einstein had a much more moderate belief in man and much more doubt of the power of reason. If he did not follow Langevin on the path of his political commitments, he was as ready as he to let himself be carried away by indignation, to act under the impulse of the moment, and to be led astray from time to time; their occasional mistakes were only attempts at the impossible dictated by their generosity. Entirely obsessed with his own research, Einstein regretted that Langevin was not obsessed so completely, and that he gave too many constructive suggestions to his pupils and left too much to others the privilege of exploiting the scientific results which he himself had reached.

It was in Marie Curie that Einstein found a reflection of his own single-mindedness. He met her during his stay in Paris. She had grown old prematurely, burned up by conflicting

and devastating passions. Her drawn face seemed like a mask of death molded over the features of a live woman, her eyes, with their dark shadows, were deep hollows in that gray mask, like open windows in a house destroyed by fire. With a feminine impulse rare in her, Marie Curie always avoided the camera; if pursued by photographers she would protest in anger and cover the all too revealing face with her hands, hands that also bore the scars of scientific research.

From her native land Marie Curie-Sklodowska brought that special fervor, that slightly insane courage, that pride in self-immolation, which is characteristic of the heroines of all the great struggles in history. She upheld this courage and pride with a deliberate sternness, with a passionate austerity —the two words were not a contradiction with her—and with a stubbornness that was like a constant victory, a victory won each day anew over a natural Slavic taste for fantasy and idleness.

Einstein very soon penetrated Marie Sklodowska's external defenses. He knew the price she had paid for this dryness, this uprightness that was not softened by any artistic impulse. He admired her strength of character, her will power, unbending and sharp as steel, not unlike his own rocklike character. He wrote in 1935, on the death of Marie Curie: "The greatest scientific achievement of her life—the demonstration of the existence of radioactive elements and isolation of these, owes its realization not only to a bold intuition but also to a devotion and tenacity, through the greatest imaginable difficulties, that have not often been seen in the history of science." And since he was writing in times of distress and disturbed consciences, he added: "If only a small part of the force of character and devotion of Marie Curie existed among

the intellectuals of Europe, there would be a more brilliant future before us."

Einstein returned to Berlin to relax at home and to enjoy a few peaceful moments before a long and trying ordeal. It was a beautiful summer day, that twenty-fourth of June 1922, a Saturday. Berliners had left the town and invaded the forests of pine trees that grow on the sandy soil of the march of Brandenburg, their lacy branches high up on the tall, slender pillars. Excursionists, rowing on the calm, silvery mirror of the Wannsee or letting themselves be carried along by slack sails, knew nothing of the drama that took place quite close by, in the upper-class quarter of the Grunewald.

An open car was driving through the park: Walther Rathenau, who was sitting in it, did not notice the other car, which had been on the lookout for him for some time. It drove straight toward him: a few revolver shots and the cushions of Rathenau's car were stained with blood. The efficient way in which the murder was carried out was typically German—this crime, committed in a few seconds, had been the subject of exhaustive preparations. This was not the first murder to be committed with such precision, by murderers from the same group acting from the same motives. The German revolution could hardly be described as a bloody one, but the blood that did flow was always that of the democrats, and the best among them. The revolt came from the left, but the assassinations came from the right. Even during the short period of the "red reign" in Munich, the victims were the revolutionaries themselves. Perhaps Walther Rathenau would never have been killed had a storm of indignation broken out in Germany after the first crimes. Perhaps he would have been spared if his Socialist colleagues in the government had

reacted with greater severity in punishing not only those who executed the crimes but also the instigators. On the contrary, however, a murder like that of Karl Liebknecht and Rosa Luxemburg had secretly relieved them, as it definitely interrupted the impact of the second revolutionary wave, and consequently they acquiesced to the story of the two prisoners being shot while attempting to escape, instead of admitting the truth about the cowardly execution in the dead of night.

Behind the murderers of Walther Rathenau lurked the real vice of the German revolution—its fear of being a revolution or becoming one. But this time there were powerful repercussions; apprehension was on a scale with the crime. Possibly people were beginning to realize that his death marked the beginning of something more formidable than a series of isolated murders—the murder of humanity itself. The murderers had chosen a particularly striking victim in Walther Rathenau. It was he who had demanded a mass levy when Germany was on the brink of disaster toward the end of the war, and in certain ways he had more in common with his murderers, who had been rendered crazy by defeat, than with those who had reason to mourn his death. He was a social conservative, not out of any personal interest, but out of respect for authority and for established institutions. This man of great integrity, who had never gone back on his word or avoided a commitment, had introduced the seesaw policy between the East and the West, with its vague taint of bribery, which paved the way for all the turncoats and all the disloyalties of the future. Had the tragedy not been so great, the loss of such a man so irreparable, the crime would have seemed a grotesque case of mistaken identity.

This time Germany reacted to the situation. Berlin reacted in the same way as it had reacted against the Kapp adventure. An impressive demonstration showed the fierce determination of the working class to defend democracy. The Berlin workmen marched along, past the limits of the working-class quarters which were the usual sphere of their demonstrations, and invaded in dark waves the principal arteries of West Berlin. As they marched, only their steps grating on the asphalt broke the heavy silence; they mourned one who, through his death, had become one of them. Their faces, old or young, male or female, acquired a curious similarity, the tensity and concentration of a crowd that is silent and buried in thought. This somber, interminable parade through districts unaccustomed to such manifestations gave tremendous weight to the warning. But the terror of death persisted. Every man on the left felt himself hunted and saw himself as the next victim. The trial of the assassins was to reveal all that was festering in the wound of the German defeat in the way of stupidity, unrest, irresponsibility, and incurable brutality. It was to prove that the murderers knew nothing about their victim, except that he was a Jew.

Later on there was talk of the lists of St. Vehme,[1] in which Einstein's name appeared at the top of the list of men who were to be exterminated; but it was obvious from the very beginning that he would be the first target.

Einstein was deeply upset by the death of a man he respected, and by the abyss that had opened at his feet, revealing unsuspected horrors. He had no thought for his own safety. But Elsa Einstein was overcome with terror. With all the vividness of her imagination she saw death

[1]The Vehmic Court was an illegal criminal tribunal.

lying in wait for him, her beloved falling under a rain of bullets, bathed in his own blood. She was like a wild lioness, scenting danger. But she employed the ruses of a serpent. Albert was to go to Holland in the course of the summer. Implored by his wife, who now lived in anguish, he agreed, in a moment of pity and tenderness, to hasten his departure. But he refused to take any precautions or to sneak away. Was that recklessness, fatalism, or mere irritation?

He never knew, probably does not know even now, that Elsa had persuaded the chief of police to keep close watch over the approaches to the station, that the row of men on the platform were plain-clothes policemen, and that the two young men who got into the compartment with him, their hands pushed into their pockets, had undertaken to deliver him safe and sound to his destination. Buried in his thoughts, he did not even notice them and wrote happily back to friends that his wife's fears had been exaggerated. He agreed, however, to remain absent for more than three months, as he liked Holland and found the atmosphere of Leiden University conducive to his work.

"We left like sovereigns surrounded by a court," Elsa used to say about their journey to the Far East—she was exaggerating slightly. At the last moment Albert Einstein had fiercely refused to have a personal valet. "I have never had one and have no need for one." The luxury that surrounded them amused Elsa. She explored the comforts of their apartments in the ship as though she were unwrapping a parcel containing a present which was almost too beautiful. She had never before had a lady's maid—the idea intimidated

her from the start—but she said, half resigned: "One of us had to live up to the grandeur of the situation."

During this triumphant tour of China, Japan, and Palestine, ending on the way back with a visit to Spain, they both had a strangely transient feeling. They enjoyed the spectacles that spread before them with the freshness of people who see things for the first time. The same incidents, the same surprises amused them; they let themselves be carried away by the wave that would bring them back on the morrow to their normal lives. Albert Einstein always thought that "it could not go on." Sometimes, when they were embarrassed by an overcomplicated ceremony or a novel social occasion, an oversumptuous reception or the insistence of the curious, they repeated to themselves, by way of consolation, that all this was only a dream from which they would awaken in the morning.

The Nobel Prize, which Einstein was awarded while he was still in Japan, consolidated what he considered to be his "frail celebrity." From then on he had to reconcile himself to it. In fact, when the problem was set before him, the adjustment had already been made. It had been managed through a refusal. He refused to change anything in his behavior or his habits. Refusal is, perhaps, too strong a word for it. It implies a more definite attitude than Einstein's, a possible choice between accepting or refusing. But he never envisaged this possibility: he was simply following his incredible destiny. He did not see, according to his favorite expression, the *necessity* of changing himself. He had been received by sovereigns in the course of his travels; he had spoken to the Empress of Japan and the King of Spain, and to the King of Sweden when he received the Nobel Prize; he had met,

at the Brussels Congress, the Belgian King and Queen; he had even assisted at the ceremonial of a proconsul, more regal than that of a sovereign, when he was the guest of Sir Herbert Samuel, the British High Commissioner in Palestine. He played, in a way, on the threshold of thrones, the part of Benjamin Franklin arriving at Versailles. His eccentricity of dress was less spectacular but his behavior just as rigorously nonconformist; his eyes sparkled with amusement, he was like an adult trying to understand the absurd rules of a child's game.

Mirabeau had deduced from his encounter with Benjamin Franklin that one could remain a child of nature even in the midst of society. Einstein could give the same impression. But Franklin was consciously the prophet of a new religion of equality, while Einstein did not realize that his attitude had anything singular in it. He never searched for disciples to whom he might preach a doctrine of independence. His law was a solitary one.

Einstein's frequent visits to Brussels and a common taste for the same music and the same German poetry gradually turned his relationship with the Belgian royal family, particularly Queen Elizabeth, into a friendship based on mutual confidence. This friendship had no special emphasis for Einstein. He said "the Queen" as he might have said any ordinary Christian name.

One day, in his country house, I was beside him while he was going through the pockets of an old pair of white trousers, searching for a piece of paper he could not find. With impatient gestures he was emptying the contents of the pockets on the table. They were the pockets of a schoolboy: penknife, pieces of string, bits of biscuits, bus tickets,

change, tobacco dropped out of his pipe. At last, with a rustle of parchment, a large sheet of paper fell out. It was a poem that the Queen of the Belgians had dedicated to him. At the bottom of the large ivory-colored page there were a few words and a few figures in Einstein's small, regular handwriting. I bent over the table. Immortal calculations side by side with the royal signature that slanted across the page? I read: Autobus 50 pfennigs, newspaper, stationery, etc. Daily expenses, noted with care, entangled with the loop of the regal "E." Elsa brought the sheet of paper nearer to her shortsighted eyes. Her husband gazed at her, with his eyes wide open, incapable of understanding why she was laughing.

The Queen of the Belgians once asked him to play a musical piece with her which they both particularly liked and they acquired a habit of playing together every time Einstein passed through Brussels. Their common love of music probably made an understanding easier between two such dissimilar human beings. To the Queen, Einstein must have been rather like a wanderer from the world at large who came to tell her his adventures. She showed an interest in his political views in the same way as one plunges into some dangerous exploration. He did not try to soften them for her benefit. He thought aloud when he spoke. Sometimes the King would arrive at teatime and they would talk about these matters with Einstein telling his royal hosts that the world was crumbling around them. Then, after the King had left, the Queen and Einstein would return to their music.

When the Queen asked him for the first time to come to Laken, her summer residence, she had to wait a long time for him. The chauffeur who had been sent to the station came

back saying that he had not seen anyone. Since Einstein was always punctual, the Queen began to be alarmed. A lady in waiting was asked to look out for him in the park. It was a hot summer afternoon, and the roads were dusty. After a long time she saw a man appear at the crossroad. He was covered with dust and his hair flowed in the breeze as he walked. He was balancing a violin in his hand and whistling gaily. "How could I guess that you would send a car to the station?" Einstein replied to the Queen's questions. Later the chauffeur explained: "No one came out of the first-class carriage and it never occurred to me that Her Majesty's visitors would travel third."

Sometimes—though rarely—Einstein noticed the difference between his way of thinking and that of others, between his behavior and that expected of him. He would then tell stories of his misadventures with obvious pleasure, not only because his sense of humor was tickled by ridicule even if he was the object of it, but also because he saw all the absurdity of the conventional world which he shocked.

To protect him from unpleasant incidents, Elsa Einstein had acquired the habit of providing her husband at every journey with a first-class round-trip ticket and, if necessary, a sleeping-car accommodation. She knew that otherwise any money he might have carried with him would go to help some poor wretch. But one day Einstein, who was in London, decided suddenly to go to Brussels. He had had quite a lot of money with him but had probably met many people who, in his expression, "needed it." When he came to buy his ticket for Brussels, he had just enough to pay for a third-class one, and this left him with only a few francs in his pocket. He wandered about for a time in the streets of Brussels, looking

for a cheap lodging. He ended up in a slum, covered with dust and disheveled, with his clothes rumpled and nothing but a small suitcase in his hand. "Have you got a telephone?" he asked the proprietor. The telephone was in the bar. "Do you know how to ask for Laken? Yes, the Castle of Laken, the royal residence." The proprietor and the early customers sitting in the bar exchanged astonished glances. They heard, through the open door of the telephone booth, the hirsute traveler who looked like a vagabond ask for Her Majesty the Queen. Was he a madman? Or an anarchist? Most likely a madman, but perhaps he was a dangerous one. When Einstein left the booth he found a crowd assembled at the door. While he had been battling with the telephone, the news had spread round the district. Two policemen were at the door. They were waiting for an ambulance. "I really must have looked suspicious"—and Einstein shook with laughter, recalling this grotesque scene. Perhaps he was secretly satisfied at having for once escaped recognition.

Einstein's fundamental indifference to titles, positions, and money is so complete that it seems exaggerated. One might almost believe him to be an inverted snob, to profess the bravado of a rebel. But he has no personal resentment against society. It is not even an angry reaction or any deep pity that causes him to identify himself with the poor. It is more like a reasoned attitude, a conviction accepted once and for all. "The differences between social classes do not seem to me justified. I believe them to have been in fact established by force," he once wrote. He neither hates his neighbor nor is filled with an overwhelming love for him. His social conscience seems almost detached from its object: man. His sense of responsibility is, in fact, only the final expression of

his rigorous fidelity toward himself. The years have only helped to accentuate this detachment. His curiosity about human beings, which might have been taken to be an interest in them, became blunted in the course of his travels; he had seen too many and his love of the exceptional was exhausted; besides, the diversity in men appeared to him increasingly superficial.

He has never really needed human contacts, but has deliberately freed himself more and more from all emotional dependence in order to become entirely self-sufficient. Real intimacy and the unconditional sharing of thoughts and feelings with another person, so that one becomes almost another self, is an experience he has scarcely ever had: he fears it because it threatens the complete inner freedom that is essential to him.

Einstein is fully conscious of his own duality—his keen sense of social duty, and his desire to escape from all companionship. "I am the sort of horse that cannot be harnessed in a team," he once said. He knew what advantages he could draw from this independence and indifference, but he also knew what he was missing. He explained the whole problem at length in one of his rare examinations of conscience which he called *The World as I See It:* "I feel deeply conscious, but without regret, of the barriers to my understanding with other human beings. A man of my type will no doubt lose some of his carefree spontaneity, but he will gain on his fellows in independence of opinions, habits, and judgments, and he will not be tempted to establish his peace of mind on such fragile foundations."

Chapter VII

THE real German defeat came with a sort of delayed action, and with disastrous repercussions throughout the country, in the years that followed the signing of the peace treaty. It bore no direct relation to the military defeat. Pre-1914 Germany did not die on the battlefields, or in that revolution that never really took place; it was swept away by the tide of inflation. Conquered Germany had not, however, encroached upon its resources to the point of being unable to recover; she was to prove, after a second, far greater defeat and a more spectacular destruction with a far greater drain of her resources, her almost miraculous capacity for recuperation. But after the Versailles Treaty the true rulers of Germany's economy, the chiefs of heavy industry, the Ruhr magnates, had no intention of allowing German recovery to be rapid, or total.

One of the most serious consequences for Germany—and therefore for the whole world—was caused by a conflict of interests. It resulted from the fact that the Allies and their

economic advisers were unable to agree on the final sum of German reparations. Their ignorance of the machinery of economics and their even more serious ignorance of psychological laws warped the international situation from the start. Only a part of the German reparations was agreed upon, but no measures had been taken for even that part to be absorbed by the world economy without unsettling it or for Germany to pay without injuring her neighbors by her exports. More disastrous still was the floating limit to the other part of the reparations, which was dependent on Germany's ability to pay, a sort of bonus granted to insolvency.

The profiteers of German defeat seized upon this bonus with glee. Germany never knew, and the German masses never knew, that their hardest trials, their profound misery, were due to the egotism of private enterprise, to a deliberate act of national sabotage. The first collapse of the mark was the work of the magnates of German industry. They were not interested in an increase of production or in national enrichment, as long as the sum of reparations was not fixed, just as there is no interest in accumulating great profits before knowing how heavily they will be taxed. They were not interested, either, in maintaining a healthy rate of exchange. Owing to devaluation, they could scrap their debts and cancel mortgages, they could acquire deficient enterprises, build up the most powerful trusts in the world, and prepare for international dumping. One of the most spectacular swindles of history was carried out under the cloak of patriotic duty. With the cynicism of the all-powerful, Ruhr magnate Hugo Stinnes admitted the deliberate nature of the devaluation of the mark, brandished it as a scarecrow at the meetings of interallied experts; he even boasted of it in front of French

representatives. But these "apprentice sorcerers" had not foreseen the power of the movement they had unleashed. Moreover, it did not personally affect them. They continued to buy factories for a loaf of bread; they scrapped debts and mortgages, and acquired property for a sum which the next day represented the price of a pair of gloves.

Inflation submerged Germany, like the rising water in a stream, or more accurately like the lava of a volcano. It swallowed up fortunes, swept away incomes and pensions, and destroyed the means of existence, first in the course of a month, then in a week, finally in a day.

On his return from one of his journeys, Einstein found Germany like a quicksand. His own family had been drawn into the whirlpool of disaster. His colleagues continued to live in luxurious apartments on the scale of their previous salaries. But they had to let rooms, accept as boarders the adventurers that came swarming to Berlin from all the countries of the world; they wore their frock coats to threads and snipped off the fringes of their starched cuffs with scissors. Somewhere in corners of these too vast apartments old men died deaths of which they were ashamed. The pensioned and the retired disappeared, too horrified by what was happening to them to complain. The middle classes, the *Mittelstand,* who had been the very backbone of Germany, were losing ground and were never to recover their old stability.

The young rebelled against destiny in their own way. The older ones tried to continue their studies in the university, driving taxis by night and still wearing the dyed uniforms that smelled of misery; but others carried their resentments into extreme organizations and joined clandestine

military groups and skirmished in Silesia or in the Baltic provinces; still others adjusted themselves to the times, sold commodities that they did not own, offered for sale houses and castles that they had never seen, and built up in one day fortunes that they lost the next day.

With the devalued mark went everything—traditions, morals, the desire for a stable and simple life, the respect for spiritual values—and from this catastrophe were to emerge one day those unfortunate misfits whom the inflation had deprived at the same time of the future and of the past.

Einstein was alarmed by the state of mind of the youth of the country, by the falling standard of education, by the material pitfalls that accompanied all disinterested work, all work without immediate practical application. "When scientific research begins to lag," he wrote, "the spiritual life of a nation also fails and with it dies the possibility of future development."

In these alarming years Einstein was invited to join the International Committee of Intellectual Co-operation. The idea of a body for the international exchange of knowledge originated with the future director of the Institute of Intellectual Co-operation, Julien Luchaire. Léon Bourgeois supported it eloquently at the League of Nations and it was accepted by the Assembly at the autumn session in 1921. It was at the start a technical body, on the lines of the International Labor Organization, with a modest sphere of action, aiming at the re-establishment of contacts interrupted by the war and the facilitation of intellectual activities. In contrast to the body born after the Second World War, UNESCO, or to that "Dictatorship of Reason," which was Einstein's dream at the moment when the atom scourge was

released on the world, the Committee of Intellectual Co-operation was not meant to launch an inquiry into the reasons why international hatreds led to war, nor did it have to prepare a program for peace; it was limited in its scope by national susceptibilities to a task still to be defined, which was merely "to submit to the Assembly a report on the measures to be taken by the League to facilitate intellectual exchange between nations, particularly as regards the communication of scientific information."

But, limited as the aims of the Committee were, they represented a fundamental need of the time. Einstein himself in 1922, when the Committee met for the first time, made a vehement speech for an "Internationale of Science." He said that true scientists had always known and believed that science was necessarily international, but in troubled times they felt isolated among their more mediocre colleagues. Einstein attacked violently this indifference of the scientific world, the *trahison des clercs* occurring at the moment when their loyalty was most needed. "During the war and in all the camps," he wrote, "the majority of the men who enjoyed great credit betrayed the sacred mission conferred on them." He wondered what the men of good will, free from the emotional impacts of the moment, were doing now to recover what had been lost. He foresaw that a lot of work, many isolated efforts, and much patience would be needed in the future: they would have to ignore difficulties and rebuffs, particularly from official declarations, which were always more intransigent than individual opinions, for, he said: *"Senatores boni viri, senatus autem bestia."*

When Einstein was appointed to the Committee of Intellectual Co-operation, Germany was still beyond the pale of

civilized nations, and even scientific congresses excluded representatives of ex-enemy countries from their organizations. It was indeed impossible, as the Belgian Jules Destrée remarked at the first session of the Committee, in spite of all the good reasons one might have, to re-establish relations with the enemies of yesterday, "to make light of feelings which were still very painful." But it was in an individual capacity that the appeal was made, according to the official declaration, "to eminent personalities in the different branches of human knowledge," and the members of the Committee remained "completely independent as regards their governments, which they in no way represent."

Personal repute was indeed the principal criterion in the choice of Henri Bergson, who was chairman of the Committee, and of Madame Curie, and it was in the same spirit that Einstein was appointed, although he was a German, as was the director of the Mount Wilson Observatory, who was an American, although the United States was not a member of the League.

Einstein was absent from the first session. He apologized on the grounds of having a scientific work to finish. Besides, he was on the eve of his journey to Japan. But neither was he present at the second session in Geneva in July 1923. He handed in his resignation. It was done on impulse, for he was influenced by the state of mind that reigned in Germany after the occupation of the Ruhr. "I have formed the conviction that the League has neither enough power nor enough good will for its task. As a convinced pacifist, I do not think I can continue to have any relations with the League," he wrote.

Einstein, who had never submitted to the neurosis of the war, allowed himself to be shaken by the wave of indignation

that had spread in Germany. In occupying the Ruhr, France had acted as a Shylock; the sinister character of its behavior was accentuated by the abstention of England, an eloquent enough condemnation of an ally. The angry reaction was authentic, but its exploitation was part of the fraudulent game played by the magnates of the Ruhr. The passive resistance of the occupied region was also a spontaneous movement born among the workers, a class struggle against foreign imperialism, but it was exploited not only by an incompetent government, endowed for a brief moment with a false heroic glory, but also by the supporters of militarism and revenge who were concealed in the darkness of the German situation. The mark was reduced to nothing. Millions and milliards turned into billions. The collapse was breathtakingly rapid. Prices rose not only from day to day but from hour to hour. Resistance became active. Saboteurs were substituted for workmen and charges of dynamite were officially supplied by the Wehrmacht. Young people, unbalanced by the postwar atmosphere, found a field for their exploits in the Ruhr. Blood flowed. A saboteur called Schlageter was executed by the French. His name became identified with resistance. He was to be the martyr of tomorrow—the first hero to whom Nazism in power hastened to erect a monument. Albert Einstein understood that his own sincere reaction of indignation had been used for ends the importance of which he had not foreseen. Had he had the smallest vestige of personal vanity, he might have considered himself as the prisoner of his gesture. But he remained detached toward himself as he was toward others. He knew when he was in the wrong and when others had led him astray. He knew that he could not identify himself with the profiteers of the Ruhr.

The same impulsiveness that led him to make mistakes made him admit them. The idea that such an admission might diminish his reputation never occurred to him. To go back on a decision when he realized he was in the wrong had never embarrassed him. He wrote to the Committee of Intellectual Co-operation that he had been badly advised, that the League remained one of the hopes of peace, that, having resigned, he obviously could not return to the Committee, but that he held himself at its disposal for any useful end.

Henri Bergson, after reading this frank letter, so humble and so straightforward, shook his head and murmured: "I am surprised that a man like Einstein could have written such a letter." He seemed almost irritated with him for being so human. The secretariat of the League hastened to appoint him once more a member of the Committee. At the fourth plenary session, which took place in Geneva in 1924, Bergson, in his capacity as chairman, introduced two new members. He praised, in his flowery language, the encyclopedic knowledge of an Argentine professor and journalist, whom he also extolled as a great poet of Latin America; then he "welcomed Monsieur Einstein, both as a new and as an old member." His voice became slightly acid as he went on: "He was appointed a member of the Committee, like all the others, without having solicited it. He was reappointed at his *own* request, therefore he belongs to it doubly." The audience exchanged embarrassed glances. Bergson acclaimed Einstein's work as one of the most powerful efforts made by man to liberate himself from the limitations of human knowledge, but he also added: "You have had the remarkable luck that, with theories so difficult that there are not more than a dozen men in the world capable of understanding them,

PROFESSOR AND MRS. EINSTEIN IN THEIR BERLIN APARTMENT ON THE HABERLANDSTRASSE, 1927
". . . like all the neighboring houses, uniformly ugly and unpretentiously comfortable."

MARGOT EINSTEIN
"Early in life she had discovered she had a talent for sculpture."

you have acquired universal fame." The tinge of malice brought a smile to all lips, but it was repressed, for Einstein was there, pulling at his pipe. He appeared so serene that, were it not for a spark of amusement in his eyes, one might have believed that the meaning of the words addressed to him had not reached him. Faced by such massive and natural calm, the audience seemed to become suddenly aware of the true nature of the greatness of Albert Einstein.

That same session saw the foundation of the Institute of Intellectual Co-operation in Paris. The offer of the French government was met with mixed feelings, which Einstein expressed with an almost brutal frankness, softened only by his usual good nature. He stressed how arduous the task of the Committee was, how difficult the resumption of relations, particularly since "unfortunately scientists and artists allow themselves to be guided by narrow nationalistic tendencies far more easily than men in practical life." The greatest obstacle the Committee had encountered in its work was the lack of confidence in its political objectivity. There was a certain danger in the fact that if the Institute was established in Paris, with a French director and a French chairman of the Committee, the impression might be given of a preponderantly French influence. Personally Einstein had no fears in that direction, but he wanted the Committee to bear in mind these circumstances and the existing psychological situation. "*Dixi et salvavi animam meam,*" he concluded with the smile that took away any sting from the things he had said.

Einstein began to follow with great interest the work of the Committee. He intervened in the course of successive sessions in favor of proposals, some of which were technical and belonged to his own domain, such as, for instance, the

project for a universal synchronization of comparative astronomic measures, as well as proposals for the needs of telegraphy, etc.; or the proposal for the creation of an international meteorological office, which he undertook to examine with Professor Lorentz and Madame Curie. He also supported the suggestion of an international university, because he thought the teaching of history was not inspired by a sufficient broadmindedness. Historians were not yet rid of their prejudices and it was necessary to create an institution which would be free to recruit men on their merits and regardless of their political opinions. On another occasion he demanded facilities for scientists and students traveling abroad, who often had difficulty in obtaining the necessary visas. But he did not often intervene in debates. He was content to follow them with rapt attention. There was nothing about him of the scientist lost in his thoughts. Among famous men, none knew better how to listen. His prominent eyes burned with intensity; there was a smile of anticipation on his lips, as though he was preparing to enjoy a particularly apt expression. This man, so sober in his words, had an artist's taste for the *mot juste,* the correct formula.

He was listening one day at an intimate dinner party to Albert Thomas, telling about his recent experiences. His beard bristling, his hair seeming to stand on end, the director of the ILO let the torrents of his eloquence loose upon the League's inertia. Einstein leaned across the table, listening to him, admiration written on his face, clear as a mirror. I was certain that he approved of what was being said, but what he enjoyed most was the dynamic delivery. In an interval of silence, his voice was heard to exclaim in wonder: "How lucky you are, you Frenchmen. You come to interna-

tional assemblies so magnificently armed. You maneuver with guns, while we play with bows and arrows."

In spite of the difficulty he found in expressing himself, he was by no means so helpless when faced with political intrigues as one might have expected him to be. He was strangely versed in the ruses of underground warfare, in the pulling of strings from afar. He answered back astutely and on occasion he threw himself into battle with unsuspected resources.

Such an occasion occurred when the secretariat of the League replaced in 1925 an Italian member of the Committee, an enemy of Mussolini, with the Fascist Minister of Justice, Rocco. The members of the Committee were powerless as regarded these nominations, which were made independently of them and which were increasingly dominated by politics. Some of them, indeed, shared more or less concealed Fascist sympathies. They gave some proof of this when it was suggested that Rocco should replace his anti-Fascist compatriot on the board of the Institute, which had sprung from the bosom of the Committee. The moment for an open battle had come. Madame Curie opposed the nomination on the ground that a minister in exercise of his functions could not sit side by side with independent scientists. Einstein was even more explicit and protested against inclusion on the board of the minister of a country where liberty of opinion was strangled and intellectuals were persecuted. To defeat the nomination he proposed himself as a member of the board. His smiling determination threw into confusion a meeting at which the diplomacy of compromise was gaining more and more ground. The usual threat was used to curb the rebels: Italy, in her resentment, might retire from

the League. After the customary pressure the matter was settled by nominating a supplementary member. To Einstein, the Institute and the Committee seemed more and more paralyzed by political pressure, hampered by the influence of various parties in power, torn by mean personal rivalries. He was painfully aware of the impotence of good will in face of these obscure forces, the Great Bogy of Peer Gynt, as he called it. He then sought refuge among friends and the comfort of being among people with identical interests.

One night, after a particularly trying session, he and Madame Curie happened to sit together on a bench by Lake Geneva. Dusk was slowly drawing in. A street lamp shone by the shore, its silvery reflection dancing on the surface of the mauve, rippling water. They watched idly, in silence, the ripples of the light on the water. Suddenly they started to talk, but their voices were now calm and unruffled. "Why does the reflection break on the water at this spot and not at another one?" asked Einstein. He was once more gripped by his curiosity in daily phenomena. Marie Curie's dry voice acquired some of the warmth that rang in the meditative tones of Einstein. They exchanged formulae, figures, quoted laws of physics. They were both—so it seemed to me—proceeding across the silvery bridge toward a better world of immovable laws, removed from the confused restlessness of man.

Music was another method of escape for Einstein, and always an infallible one. His contempt for social conventions, and his total indifference to the impression he created, made him indulgent toward his own attempts at escapism.

One evening the Committee went to dine in a restaurant at Les Eaux Vives. The conversation ran on the events of the

day, avoiding the dissensions that had made themselves apparent. A band played a soft accompaniment to the noise of voices and the clatter of plates. Einstein was listening. He was oblivious to what was being said. Music was his supreme refuge. Suddenly he got up, spoke for a moment to the violinist. He took the violin from him and started to play. A smile reappeared on his face, his features relaxed as though he were abandoning himself to a dream. He gave no thought to the spectacle he made on the platform of a fashionable restaurant, with all eyes riveted on him. He was alone and he was playing, as though cleansing himself from all the accumulated bitterness. The waiters went around in circles, trying not to make too much noise with their plates. The band rested, and the musicians lolled about with the vacant, weary air of men suddenly interrupted in their work. Conversations were resumed once the first moment of curiosity was over. It was late. A dance band had come to replace the more serious music. Young couples arrived, hurriedly taking their seats; they had come to dance and they stared impatiently at the violinist with his air of an old virtuoso who lingered alone on the platform. They began to indicate that he was no more than a nuisance. Einstein went on playing, impervious to his surroundings. When somebody finally ventured to tell him that it was late and time to go, he returned the violin to the musician with a smile of apology, and walked away, still with the air of a sleepwalker.

The Committee of Intellectual Co-operation was a mirror that reflected in its restricted sphere all the fundamental vices of the League. Einstein was put off from the very start by the spirit of compromise that warped all relations, the hypocrisy that maintained a fiction of justice and equity.

But Geneva still enjoyed at the time the prestige of being the theater of the world. Its fundamental vices could still pass as growing pains.

It was as yet an incomplete body. Germany was still a beggar at the gate and the U.S.S.R. was absent. There was reason to believe that the U.S., which had entrenched itself behind a policy of abstention, was having a change of heart. The League offered the only field propitious to great international gatherings. The general climate was one of obstinate hopes, of long-lived illusions. It was a time of optimism, especially in Germany. The new stability of economic and social conditions seemed to justify the birth of great and daring dreams. Germany had experienced almost overnight the miracle of the stabilization of its currency. Nothing exceptional had taken place, there was no special reason why the mark should have received the touch of the magic wand at just that moment and been transformed from worthless paper to real money. It might just as well have happened the day before or the day after. . . .

The instigators of the collapse simply realized that things had gone too far. They also became aware that the resistance of the Ruhr was a blind alley into which the country had strayed. Germany had found in Stresemann a politician who had enough courage, the rare courage of unpopularity, to undertake the liquidation of the defeat. It had also survived an attack that might have caused the collapse of the Weimar Republic, still weakened by the economic crisis. The *putsch* that had broken out in Munich had failed, revealing the weakness of an absurd leader who had abandoned his troops. This leader, covered with ridicule, a colorless and grotesque individual, was serving his punishment in a fortress and pre-

paring a large, vulgar, and pretentious book—*Mein Kampf*.

The trial of Adolf Hitler revealed a classic case of mythomania. An American student of psychiatry in Munich, H. R. Knickerbocker, happened to be present. Fascinated by this pathological case, he found that politics offered a larger field of observation than any clinic for mental disease, and it was as a newspaperman that he made a brilliant career in the American press. Rid of a maniac and of his crazy following of sexual perverts and drug fiends, rid of them forever, so one hoped, Germany was to live through several years of startling prosperity.

Einstein followed all that was happening with immense interest. He had always been intensely curious about day-to-day events. His escapism had nothing in common with being *au-dessus de la mêlée*. He was, as we said before, strangely in his element in matters of economy and finance. He liked to meet experts and put pertinent questions to them. This acute interest in the mechanism of economics was the interest of a technician in complicated machinery, in short, in all machinery. He also followed political developments closely. He knew, of course, the majority of the men in power, some of the political leaders had become his friends, and when he discussed topical events with them it was more from a feeling of personal responsibility than from mere interest. But the game between the parties and the maneuvers of the politicians only aroused his amusement.

One day during a government crisis the composition of a parliamentary majority was being discussed. Stresemann explained the changing relations of political forces and their influence on the formation of a new cabinet. The British Ambassador, Lord D'Abernon, spoke with the weight of his

long experience on the importance of economic factors. Einstein was silent, his well-shaped fingers clasping the arms of the chair, his sparkling eyes moving from one person to another—they had completely forgotten him in the animation of their discussion. Suddenly he burst out laughing. "Now I know what happens in Cabinet crises," he said. "I remember a game I played as a child. The chairs stood in a row, one chair less than the number of children. The children hustled around, each trying to get a seat." He laughed, pleased at his discovery. The lorgnette view of the world had served its purpose once more. After a pause, the politicians could not help joining in his laughter.

Einstein's interest in the social plans of the times, as well as economic conditions and political incidents, increased with the years. "The individual is becoming more and more conscious of his dependence on society," he wrote, analyzing the difference between man the solitary human being and man the social human being, who tries to establish an equilibrium between the desire to leave a lasting memory of himself and the desire to ameliorate the life of his fellow beings. "It is quite possible," said Einstein, "that the relative force of these two tendencies is, fundamentally, determined by heredity." But this relation between man and society was changing all the time. This evolution—this transference of stress—constituted, according to Einstein, "the very essence of the crisis of our times." The individual no longer looked on his dependence on society as a positive factor, an organic link or a protection, but more as a menace to his natural rights or even to his economic existence. Moreover, his social position was such that the egotistic tendencies of his being were constantly pushed forward, while his social tendencies,

originally weaker, progressively deteriorated. Einstein outlined this dark picture in 1949. But the disappearance of the social conscience, which he then observed with such regret, had been clear to him even in the years when nothing seemed to endanger man's security or conspire against his dignity.

A time of prosperity always accentuates innate selfishness and the desire for immediate enjoyment. Berlin had become an opulent city, in which poverty no longer disturbed the conscience of the wealthy; it was a city proud of its spiritual progress. But amid this intense intellectual activity moral principles weakened. As if by reaction, however, to this indifference born of well-being, this blunted social sense, the sense of individual responsibility became stronger still in Einstein. This man, isolated in thought, this man, free from personal emotion, experienced with the passage of years a growing feeling of fellowship with other human beings. "Man can only find a meaning in a life which is so brief and perilous by devoting himself to society."

Chapter VIII

IT WAS a new quarter of Berlin, even more lacking in personality than the other parts of this town which, except for the center, was stamped with an impersonal ugliness. It was inhabited by civil servants and prosperous tradesmen, but its anonymous character also attracted quite a number of "kept women," mistresses of high officials or big businessmen. This aura of illicitness removed some of the respectability from the otherwise solidly bourgeois atmosphere and lent to the very name of the quarter—Bayrisches Viertel—a faint flavor of sin.

The Haberlandstrasse, quiet and lined with trees, looked so much like all the other parallel streets that it was always necessary to read the signs to be sure one was in the right place. No. 5 was like all the neighboring houses, uniformly ugly and unpretentiously comfortable. Einstein's flat cannot have been very different from the one on the top, or the one at the bottom, the one opposite or the one next door. The large front rooms were full of sun; the old solid family furni-

ture so popular in Germany contrasted with the pale walls. The reception rooms, the large sitting room, dominated by a grand piano, reflected the taste of an epoch rather than the aesthetic standards of the occupants; the need for comfort was stronger than the desire for personal touches. Perhaps it seemed all the more colorless because it served as a background to the impressive figure of Einstein. The undistinguished proportions of the rooms accentuated the picturesque effect of his person, and the light-colored walls magnified his broad, easy gestures in the same way that they echoed his loud laughter.

The dining room, dark like most Berlin rooms, had the warmth that intimate rooms usually have; it resounded with the good-natured gaiety of family meals. Elsa's two daughters lived with them. Nobody really knew that they were not Einstein's daughters. They called him Albert, but in the way one would address a young father, with the indulgent, slightly condescending tenderness of the new generation. Einstein treated them with the affection of a father who was also a friend. They both looked very frail, with excessively slim and supple waists, narrow shoulders, necks that were too slender. The elder, Ilsa, reminded one of a plant reared with too much care and easily affected by a change of temperature. She looked, even after her marriage, like an anxious young girl; her face, with its delicate features, was revealing in its extreme mobility and at the same time mysterious. She asked for tenderness and protection, but there was a reserve in her that created a barrier, as though everything, even love, might offend her. She was the idol of her mother and sister, who showed their affection in the endless care with which they surrounded her.

The younger, Margot, smaller and even more frail, was at that time completely overcome with shyness which the anxious expression on her face betrayed. Early in life she had discovered she had a talent for sculpture. One would have thought that in the comfortable circumstances in which she lived she would have found no difficulty in developing her gift. But it was precisely this that hindered her. She was reluctant to show her work. If her mother forced her to do so, she watched the reactions of the spectators suspiciously. She kept asking herself if she was being praised for being the daughter of Einstein or for the merits of her work. If she had been poor and unknown she would have been quicker to reveal her gifts. Her sense of humor, inherited from her mother, was a strange contrast to her extreme sensitivity. She had also inherited the dominating feature of the family, the almost passionate desire for self-effacement. She needed the shock of a great joy or great grief to fulfill her promise. Margot could easily have passed as Einstein's daughter, for in spite of their very different physique there was a family likeness between them, a similarity in their attitude toward human beings and things; they both felt out of their element in this world. Einstein had always had a special affection for the silent child, and liked to have her near him, ethereal as a floating shadow; he kept on his writing desk one of her strangely expressive, austerely molded statuettes.

Of all the things Einstein had ever done for her, Elsa was most moved by the affection he showed her daughters. She was, perhaps, a mother before everything else, a passionate, intense, anxious mother, who tried with great effort to control this passion, as she controlled her natural exuberance. She had allowed herself to age prematurely, either through

laziness or resignation, as though she had deliberately wanted to put an end to her life as a woman. Her face had grown heavy, her hair gray before its time. She who reproached her husband for the carelessness of his appearance was equally open to reproach herself. Tousled gray wisps of hair hung over her face; she pushed them back as one chases away a fly, and casually flung on a hat, flattening it with a friendly tap of her hand. "Nobody pays any attention to me," she would say, with satisfaction in her voice.

Only her eyes, slightly lost against the background of her fair skin, had kept their vivid blue, a very young blue that was surprising in the prematurely old face. But her expression was vague and uncertain because of her extreme shortsightedness. Her glance groped around people and things, remembering more than it actually took in. Her disability created imaginary terrors around her. She advanced with bent head toward people she did not recognize, stumbling against furniture; at meals she peered at her plate with a lorgnette. An American humorist has told the story that one day at a banquet she started to cut up the orchids lying on her plate. Einstein, in spite of his excellent eyesight, knew the depths of fear that his wife had to go through. He was always beside her when she came down the stairs. He did not say, as many people do to the shortsighted: "Just put your foot there, it will be all right, one step is exactly like the other." He would slip his arm gently under hers, reassure her with a slight pressure when she stumbled, and when the stairs came to an end, smile down at her as though realizing her relief and complimenting her upon her exploit.

The haze in which she lived added to her shyness, and possibly her isolation was deliberate. It seemed that she

found shelter in her weakness, that she liked this blurred world that concealed from her some of the ugliness and greed of the real world. She confirmed this suspicion by refusing to wear spectacles and using an old-fashioned lorgnette, though she had abandoned all coquetry. Her kindness was also deliberately shortsighted. A merciless observer, she really knew all that was being hidden from her: often a gleam of malice would appear in her blue eyes, only to be dispelled by her natural indulgence.

She was fully conscious of having been favored by destiny in being allowed to share Albert Einstein's life; but she did not draw any personal pride from the fact, or attribute any merit to herself. She had surrendered herself to him completely, and had no other care but her children and his well-being. But her love was in no way an unconditional, devout admiration. She knew better than anyone else some of the great man's weaknesses, and certain dark sides of his great qualities. Perhaps she admired more than anything else his faithfulness to himself, a faithfulness that very often alarmed her. The stories she most liked to tell about him were those that illustrated his disregard of convention and his refusal to compromise. Einstein deliberately gave himself a lot of trouble to make his family as happy as possible. In *The World as I see It,* in which he questions the reason for our brief passage on this earth, he says: "From the point of view of daily life and without going deeper, we exist for our fellow men, and particularly for those on whose smiles and well-being all our happiness depends."

But Elsa knew that Einstein could belong to no one completely. She knew his subconscious fear of all that might interfere with his need of absolute independence. She knew

that he did not want to get excessively attached to any human being. If he did become so, it was almost against his will. He was vulnerable, and sensitive, but his sensitivity was in bondage to his thought. Elsa knew that even in his deep attachment to her he gave her only a share of his presence, that he was never completely hers. Einstein found in his private life the happiness which, according to his own definition, depended on the happiness of those around him. The light that emanated from him was the light of their lives. He liked to see his wife and his stepdaughters laugh. I have rarely seen so relaxed an atmosphere as the one in their home, an atmosphere protected from the outside world by a secret conspiracy of gaiety. They were never solemn. A charming foreign artist who had come to sculpt Einstein was so moved by being in his presence that she spoke of him all the time as *der Genie* (the Genius), instead of *das Genie,* using the wrong article in German. They found this very funny. Not only because she pronounced the word with an accent, but because of the idea that their darling Albertle—as Elsa called him in the Swabian way—could be burdened with such a grandiloquent name in ordinary life. For a long time the family went on asking whether The Genius was back home, what The Genius would have for dinner . . . A visitor might have heard himself announced as someone who had come to see The Genius and would wonder why everybody laughed, Einstein himself louder than all the others.

In those peaceful years Einstein worked a lot at scientific research. He worked in his own way, pursuing an idea with the tenacity of a man endowed with a rare, a terrible power of concentration.

One day Paul Valéry, with the acute curiosity he had

about people, asked Einstein to describe how he worked. Einstein looked at him with open surprise. Valéry repeated his question. He wanted to know whether Einstein used a writing pad or little bits of paper to put down his ideas. "I don't use anything," said Einstein. "Ideas are rare things, you know."

In 1924 Langevin sent him a manuscript, a doctoral thesis in which Prince Louis de Broglie had set down the ideas that were to form the basis of the new wave mechanics. "I remember so vividly," wrote Einstein years after, "the pleasure and excitement with which he talked to me about it and I also remember following his explanations with hesitation and doubt." But having read the thesis, he realized at once how important it was. He published a memorandum in January 1925 in the report on the sessions of the Prussian Academy of Science in which, quoting at the same time the recent work of an Indian scientist, Bose, he formulated statistics applicable to a group of particles which are impossible to distinguish one from the other. "In drawing attention to this new idea of wave mechanics," Prince de Broglie wrote later, "Einstein's article undoubtedly helped enormously to hasten its development."

Einstein himself was now setting out on a new path, whose branches might lead to spectacular discoveries, but which itself led only toward the unknown. It was to separate him later from most of those who until now had followed him in all his discoveries. It was the beginning of the drama that was to make of him an increasingly solitary figure, challenging alone even the intellectual universe he had himself created. It was perhaps one of the greatest dramas ever experienced in the realm of human inspiration, a drama of which

we have not yet seen the end and which, tomorrow, like every inaccessible pinnacle, may suddenly be illuminated by the sun or wrapped in darkness.

Professor Infeld was able to extricate the main features of Einstein's work and make it understandable to the lay mind. He stresses the point that the theory of relativity was the creation of one man. Its principles have remained unchanged until this day. But it is by comparison only a small part of the common effort of all physicists who are trying to work out a consistent theory of nature's phenomena. The revolution that has changed the physics of our era is not that of relativity but that of the quantum theory. Though at the start the quantum theory was independent of the theory of relativity, though the work of Planck preceded the first publications of Einstein, one cannot, according to Infeld, conceive of it without the part that relativity played in its development. De Broglie's work was influenced by relativity as much as by Einstein's corpuscular theory of light. A whole generation of physicists has been inspired not only by Einstein's main work but also by his subsidiary research. This is what Infeld had to say about it: "There is a certain irony in the fact that Einstein assumed the part of champion of the great revolution because later he turned his back on this revolution, which he had helped to create. As time went on he withdrew more and more from the young generation of scientists, most of whom pursued their research chiefly in the domain of the quantum theory."

Infeld recalls a conversation that lends a particular poignancy to this discord. "I once asked Einstein: 'Why do you regard the quantum theory and its development with such disapproval when it was after all your own work that brought

it to life?' Einstein replied: 'I may have given it its impetus, but I always considered these ideas transitory. I never believed that others would treat them more seriously than I did myself.'"

In examining all the objections to the attitude that he had adopted, all the criticisms coming even from his most devoted collaborators, Einstein explained that he fully appreciated what the statistical theory of the quantum had done for the development of theoretical physics. He did not disapprove of the theory but—to put it more subtly—it no longer satisfied him completely. The reasons for this were deeper than those he mentioned in his conversation with Infeld. They were not only the reasons of a theoretical physicist but also those of a man whose persistent object was to reach a concept of the whole of the universe—reasons closely linked with his way of thinking, his tendency to synthesis, reasons buried in his very nature, deriving from his particular type of sensitivity. Probably the sweeping range of his mind is conditioned as much by his scientific logic as by the moral standards which govern him, and which nothing but absolute perfection can satisfy. Speaking one day of the Danish physicist Niels Bohr, Einstein said that the unique instinct and the sensibility that enabled Bohr to discover the essential laws for spectral lines and the electronic states of atoms, as well as their importance in chemistry, always seemed a miracle to him. And he ended his appreciation with this revealing sentence: "This is sublime harmony in the realms of thought." Einstein has, all his life, searched for this "sublime harmony," and he is still searching for it now.

In the years when he became more and more conscious of this fact, his scientific efforts acquired both greater scope

and depth. One of the results of this was that mathematics began to play a larger part in his work. A colleague quoted one of his characteristically caustic remarks: "Since mathematicians have invaded the theory of relativity, I myself have ceased to understand it." He knew, however, that this "invasion" was necessary, that his ideas had to be developed along mathematical lines. During his studies he had in a way neglected mathematics in favor of physics. In what he called his "obituary" notes, he wrote: "When I was a student, I did not realize that access to the principal concepts of physics is linked with the subtlest mathematical methods."

More and more frequently he chose his assistants from mathematicians. One of the chief of them at that time was Professor Walter Mayer, a small, round individual who, at first sight, seemed crushed beneath the personality of Einstein. Einstein's family called him Mayerle and this Swabian diminutive suited him to perfection. But in Mayer's self-effacement there was more affection than respect. He gently contradicted Einstein, interrupted him when necessary, followed up an argument and smiled a little mysteriously, his head on one side, as he watched the figures drawn up in front of him. "It is he who produced all my calculations; his skill is fantastic, you know," Einstein used to say.

Einstein's confidence in mathematics increased all the time. At one moment he considered it the "true creative principle." He was convinced that with purely mathematical constructions one could discover the ideas and the laws that govern them which would give us the key to all natural phenomena. This knowledge of natural phenomena would not, however, open up a complete, a final vision of the world. Only pure speculation could help to co-ordinate it. As years

went by, Einstein reached the following conclusion, which he has recently made public: "A theory can be proved by experiment, but no path leads from experiment to the birth of a theory." It was this conviction that turned his mind toward philosophical speculation. One of Einstein's colleagues heard Professor Harnack declare in a lecture at Berlin University: "We complain quite wrongly that our generation has produced no philosophers. The fact is that today's philosophers sit in another department—their names are Planck and Einstein." Einstein himself has not always been conscious of the philosophical importance of his scientific research. He had a mistrust of metaphysics, he often spoke of the risk that "thought should degenerate into metaphysics or 'empty verbiage.'" At Princeton in 1921, he said: "I am convinced that philosophers have impeded the progress of scientific thought by removing certain fundamental concepts from the empirical domain where they were controlled and carrying them toward the intangible heights of the *a priori*."

This almost instinctive rejection of a philosophical interpretation of his ideas was, in the years when he was first subjected to public curiosity, more a defense against the invasion of amateurs and facile interpretation than an established attitude. His actual starting point was as much that of a thinker as of a physicist. Hans Reichenbach, now professor of philosophy at the University of California, repeated a particularly revealing conversation he had with Einstein: "Once when I asked Professor Einstein how he had arrived at his theory of relativity, he replied that he had discovered it because he was so firmly convinced of the harmony of the universe." This faith was and still is the very foundation of his scientific effort. But a creed is not a philosophy. "Ein-

stein's work contains," added Reichenbach, however, "more implicit philosophy than do many philosophic systems."

Gradually Einstein came to realize this himself. Now he is certain of it. He has often repeated to Infeld: "I am more of a philosopher than a physicist." Philosophers have examined his work in order to define the system projected in it, which he himself has not constructed, leaving to others—apart from certain indications, like road signs—the task of interpreting it. On the occasion of his seventieth birthday, the Library of Living Philosophers, an American series of publications supported by the Rockefeller Foundation and the Council of Scientific Societies in Washington, devoted its seventh volume to Einstein, with contributions by all the greatest philosophers and physicists. The physicist Philip Frank defined Einstein's philosophy as "logical positivism." Reichenbach, trying to qualify the "philosophical significance of relativity," found that Einstein's was more a philosophical attitude than a philosophical system, characterized chiefly by the departure from Kant's *a priori* method of argument. "Let us hope that this evolution of thought will continue," he wrote, "and that even those philosophers who today still defend the aprioristic philosophy against the attacks of the mathematical physicist will adhere to it." This interpretation did not meet with Einstein's approval. When he was asked to give his opinion on the articles in the symposium, on the statements, objections, and criticisms that it contained, he explained his position in an article called "Answer to Critics." This reply is preceded by a remark which betrays a bad humor that is rare with him. "After a few vain efforts I discovered that the mentality behind some of the essays was so radically opposed to mine that I find it impossible to say

anything adequate on the subject." This bad humor is chiefly directed against those who maintained the finality of the quantum theory. To the question as to whether he considered that Reichenbach's statements were close to the truth, he replied with a sort of mental pirouette: "I can only reply like Pontius Pilate: what is truth?"

Although he refused to discuss his own attitude, Einstein nevertheless refuted Reichenbach's criticism of Poincaré's conventionalism and the confusion that the latter was supposed to have created. He refuted it in a dialogue in which he made Poincaré discuss the matter with his opponent. The dialogue ended with a statement by an anonymous nonpositivist. Einstein also gave a lot of his attention to another article in the symposium, written by Henry Margenau, a physicist at Yale University, under the title "Einstein's Conception of Reality." Margenau affirmed that there was an apparent contradiction in Einstein's thought, an underlying current of empiricism on one side and on the other the assertion that fundamental principles are "free inventions of human intellect." This remark, said Einstein in his "Answer," was perfectly justified and he would like to analyze this obvious fluctuation. A logical conceptual system becomes physics when its concepts and assertions are brought into relationship with a world of experience. In this case the attitude of the scientist is empirical. But in fact there is no logical path from the empirically given to that conceptual world, and recognizing the logical independence of a system, the scientist turns toward rationalism. "The danger of such an attitude," wrote Einstein, "lies in the fact that in searching for a system one can lose all contact with the world of experience. It seems impossible to me not to waver between the two extremes."

In this explanation Einstein gave as precise a definition of his own position as possible. He replied at the same time to the oft-debated question of his dependence on Kant, which Margenau had greatly emphasized. "I did not grow up in the Kant tradition. It was only much later that I understood how valuable his doctrine was, apart from the errors obvious today. It can be summarized in the sentence: Reality is not given to us, but put to us."

With this answer Einstein clarified the affiliation of his ideas. He also opened up the possibility of establishing the time when he became conscious of them himself—which was rather late in his development. He was no longer afraid of being reproached with what he called "the metaphysical original sin." His mind was now firm, sure of itself, and nothing could affect it any more.

There was another occasion when Einstein allowed the functioning of his mind to be seen in action, as though displaying his spiritual tools to the world. Professor Hadamard, in his *Essay on the Psychology of Invention in the Mathematical Field,* written in 1945, asked several scientists to explain the mechanics, the process, of their mathematical research. Einstein gave him the following answer: "The words or the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The physical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be 'voluntarily' reproduced and combined. There is, of course, a certain connection between those elements and the relevant logical concepts. It is also clear that the desire to reach finally logically connected concepts is the emotional basis of this rather vague play with the elements I have mentioned

above. But taken from the psychological viewpoint, this combinatory play is the essential feature in productive thought."

The words "emotional basis" are the most revealing in describing Einstein's work. He never ceased to underline the emotional stress that enters into scientific research. In a speech he made on Planck's sixtieth birthday, he analyzed its stimulating effects. He believed with Schopenhauer that one of the strongest motives leading toward Art and Science was escape from everyday life, with its painful crudity and its hopeless dreariness, and escape also from the fetters of our ever shifting desires. But there was another, more powerful motive beside this negative one. The same motive too—and this is characteristic of Einstein's thought—as the one that animates the painter, the poet, the philosopher, and the scientist who try to form a comprehensive and simplified image of the world in order to rise above the world of physical experience: to create a substitute for it with this spiritual construction. Into this image and the formation of this image, Einstein then said, "man moves the center of gravity of his sentimental life and looks for the calm and balance that he cannot find in the too narrow circle of his personal life."

He himself moved all his human happiness toward this center, broke all his ties with human matters, in order to belong completely to this image of the world. This voluntary immolation, this total transference have, with Einstein, the same quality as religious fervor. They are, in fact, his religion. "It would be difficult to find," he once wrote, "a scientific mind which penetrated into the depths of all things and did not have its own religion."

Like so many men of his generation, whether Catholic,

Protestant, or Jew, Einstein had freed himself from his faith quite naturally, without friction or conflict, as if overcoming growing pains. But in contrast with many freethinkers of his time, he did not become either frantically atheist or anticlerical. In this, as in so many other things, his clear-mindedness enabled him to keep a sense of proportion. He denied that science and religion need necessarily be irreconcilable enemies. This conflict belonged, according to him, to a stage in science which had long been surpassed—namely, when reason rebelled against religious terror. Science, embracing larger and vaster horizons, had now left flat rationalism behind. The real conflict between faith and science revolved around the concept of a personal god. Einstein refused to admit a God who would reward or punish the beings that he himself created, a God who could be reached by prayer or angered by the neglect of some secular rite. But he recognized the existence of a force superior to our petty lives, which follow their course between the limits of what is possible, illuminated only by the light of knowledge. "The knowledge of what *exists*," wrote Einstein, "does not automatically teach us anything about what *should* exist. The knowledge of truth as such is a wonderful thing, but it is so little capable of serving as a guide that it cannot even prove the justification and the value of the aspiration to know the truth."

Einstein calls this superior force that orientates our life and gives it its superpersonal content cosmic religion. It is this religion that has taken the place of the ethics of a religion of fear, that has based morality on man's consciousness of the nobility of his aims and on his sense of dignity. This faith became firmer and deeper with Einstein as the years

went by. It was this faith that caused him to say in 1940: "Science without religion is lame; religion without science is blind." Religion as he understands it reveals on the one hand the immovable laws of the universe and on the other the precariousness of all mortal things. But it also has for him, increasingly, a mysterious element. He said one day: "The man who is not familiar with this sense of the mysterious, and who has lost the faculty of wonder and veneration, is a dead man." It is as if his consciousness of the mysterious grew with the number of new laws of the universe that were revealed to him, the laws that direct the nebulae and the atoms.

One might have expected to find in a man who had reached so far beyond the limits of knowledge the pride in speculative power and the superiority of an experienced traveler who returns from a difficult expedition smiling at our hesitations when faced with a hitherto unknown path. But what happened was the opposite. At every stage in his life Einstein experienced a secret wonder and the feeling that he was facing a remarkable adventure. He seems to have only just started the exploration of man and of the universe. One day I spoke to him about something I had seen in a paper on the existence of a human fluid, the possibilities of which were now under examination. I did not know whether the matter should be treated seriously; it seemed to be linked with the obsolete theories of human magnetism and spiritualistic research. To my surprise Einstein did not shrug his shoulders. "It is possible that there are human emanations of which we are ignorant. You remember how skeptical everyone was about electric currents and invisible waves? Science is still in its infancy." He refused to consider everything

mysterious as alien to exact science. In his "Answer," written on the eve of his seventieth birthday, he illustrates this conviction with a brief conversation he had one day with a theoretical physicist: "He: I am inclined to believe in telepathy. I: This has probably more relation to physics than to psychology. He: Yes."

In his voluntary solitude, new horizons opened up in front of him, beyond the things that our obtuse senses can take in today. His great dream was to discover a physical science, a new science, capable of penetrating the mystery to which our brief passage on this earth is subordinated.

One of his colleagues, Sommerfeld, asked him one day: "Is there a reality outside us?"

Einstein replied: "Yes, I believe there is."

He believes also that with the exploration of this reality outside us a new era would begin for humanity.

Chapter IX

"THE moral urge," Einstein said one day, "is the most valuable traditional endowment of humanity." He makes it clear that this imperative is not necessarily connected with austerity, with privations, or with accepted sacrifices: "Moral behavior does not simply consist in giving up certain pleasures in life, but rather in taking an interest in a happier fate for all men."

It is in keeping with this feeling of moral imperative that Einstein lent the prestige of his name and association to an enterprise which he warmly acclaimed—the foundation of university courses in Davos. Though he had always been in perfect health himself, he was particularly sensitive to the misery of young people removed from the circle of the living for any length of time through disease. In the fresh air and brilliant sunshine of high altitudes, they recovered—or at least they had a hope of recovering—their health. But the magic mountain meant to them a break with their former environment, months or years lost as far as their studies were

concerned. With an understanding rare among the healthy, Einstein realized how much a young human being, preoccupied with his physical condition, loses his vitality, and how much the necessity for a total effort in the struggle for life becomes blunted, making the return to normal life difficult. He believed that to continue their studies, so far as their physical condition allowed them to do so, would be a strong stimulant to the young invalids. In his enthusiasm for the scheme, Einstein agreed, at the beginning of the year 1928, to deliver some lectures at Davos himself.

His generous gesture, however, had almost fatal consequences. The high altitude proved dangerous to him: his heart was unable to stand it. He was taken down from the mountains a very sick man. Einstein looked upon his condition with the same detachment as he did upon all that happened to him. The proximity of death had no more meaning to him than that of life. For Elsa, however, the shock was terrible. Even when perfectly fit, her husband always seemed fragile to her, a precious being, constantly surrounded with multiple dangers. She never forgot the months she spent then, trembling for his life. Later her happy moments were always haunted by those months of anxiety. She watched him, furtively, because he did not like to be the object of attention. She looked for the signs of fatigue on his face, the dark patches under the eyes; she trembled whenever he was late for an appointment, but dared not tremble in front of him. When the waiting had been too long, she would say, with her face lined with anguish but forcing a smile to her lips: "You are a little late, Albert. . . ." From then on the tragedy of Elsa Einstein was continuous, torn as she was between her feelings as a mother and her excessive concentra-

tion on the man she loved, with her constant fear for his life.

Albert Einstein was condemned to absolute immobility. He spent several months in bed and was convalescent for a long time. He was an impossible invalid. As soon as his strength returned he refused to be careful. He avoided the vigilance of the doctors; and also, though with greater difficulty, the vigilance of Elsa. Very soon he demanded his pipe, which had been strictly forbidden. As though to show his powers of self-control, he would pull at his extinguished pipe before lighting it. Every pipe he lit was like a dagger thrust into Elsa's heart.

"How many have you smoked already?" she asked timidly.

"This is the first," he invariably replied.

"But I saw you just now . . ."

"Well, it might have been the second."

"The fourth at least," continued Elsa.

"You're not going to tell me you're better at mathematics than I am," said Einstein, laughing.

The moment came when he refused to consider himself an invalid any longer. "It's all over," he said. "We won't talk any more about it." Once more he radiated health. His air of vibrating vitality, his sense of fulfillment, made everyone around him appear almost corpselike. Only pretty women, with their make-up, the sparkle of their eyes, and their easy laughter, managed to make themselves felt in his presence.

The illness served almost as a youth cure. He returned to work, in his quiet way, as though he had been storing away in peace the harvest of long solitary thoughts. He spoke about it as little as he had always done and only his intimate associates were allowed into the secret. But suddenly everybody learned that he was very soon to publish an important

work. The news crossed the ocean. Journalists and American publishers showered cables upon him and offered astronomical sums for a short précis, or at least an indication as to its contents. In the quiet Haberlandstrasse cars waited from morning till night. Journalists from all countries crowded around the house. Photographers directed their cameras upon the front door. Einstein retreated in horror in face of the first journalists who assaulted him. "I don't understand! What is all this fuss about?" He really seemed not to see the least relation between the work he was producing and the curious crowd that knocked at his door.

His thesis, published in the reports of sessions of the Prussian Academy, covered no more than five pages. When it was transmitted to an American newspaper it proved to be quite incomprehensible to the ordinary mortal. But the public did not dare show its disappointment. It found, on the contrary, a magic quality in this series of equations and geometrical formulae, as it might have done in the abracadabra signs on amulets. Einstein's celebrity was now such that everything that concerned him acquired "news value." The little manuscript was instantly bought by the administrators of Wesleyan University and deposited, as a treasure, in the Olin Library.

As for the scientific world, Einstein's thesis appeared to it as a revolution. His "Theory of the Unified Field" summarized in a series of equations the laws that govern the two fundamental forces of the universe, gravitation and electromagnetism. Einstein tried to identify the attraction of gravitation and to reduce it to an electromagnetic phenomena. His attempt was a logical consequence of his preceding work, the search for a synthesis that would embrace the universe.

THE EINSTEIN HOUSE IN CAPUTH, NEAR BERLIN
"The house rose in front of us, incongruously modern ..."

MRS. ELSA EINSTEIN IN THE HOUSE AT CAPUTH
". . . she had provided Swabian dishes, fried liver pasties with small egg noodles."

He said later on: "The idea that there should exist two structures in space, independent of one another—the gravitating space and the electromagnetic one—is intolerable." His thesis, the first insurrection against this duality, has been qualified by certain physicists like Professor Frank as a "work of great logical and aesthetic perfection for the initiated." But his theory could also, according to Planck's terminology, be considered as a deviation toward metaphysics. In fact Einstein later rejected as unsatisfactory the results at which he arrived in 1929. He realized that he had been wrong. But this rejection did not affect the direction he had followed. In the eyes of young physicists, however, the road to which he was now obstinately to adhere seemed to lead toward a nebulous unknown, certainly a problematic one. It was at the moment when his success was most startling, most spectacular, that Einstein began to branch away from contemporary physics.

The sensation produced by his first attempt at a synthesis was due to elements some of which have little relation to scientific criticism. From the moment he emerged from obscurity a subtle combination of events took place around him, which created a special emotional tension. There was a tendency, so to speak, to push him onto a platform and make him the target for attack. He was always the center of attention, and usually reluctantly so. The publication of his theory on the unified field coincided with his fiftieth birthday. It seemed a providential coincidence. Everybody was filled with admiration, whether it was because he was only fifty and had been famous for so long, or because, his youth left behind, he was still brimming over with activity, as though all the promises of life were still in the future. In the

eagerness to celebrate his birthday, there was a desire to identify oneself with him, the pride of living in the same era with him, of having known him or of being in the position to know him.

The Weimar Republic, preparing to celebrate this day with all the pomp it deserved, seemed to be celebrating its own success at the same time. Germany was still on the crest of the wave—little did she know how short a time it was to last. A feeling of well-being is particularly conducive to celebrations and these had an especially unanimous flavor. Germany seemed to share with the whole world in exalting its national hero, who symbolized bloodless victories in the realms of thought. The rich Jews felt they were the richer because he was one of them: to every persecuted Jew he stood for the possibility of a revenge on destiny. He was at the same time far above people and very near them: he was a familiar figure both to the privileged who had had him as their guest at one time or another and to the little shopgirl who had seen his picture in the paper and was proud of remembering what he looked like. Without knowing much about him, the man in the street knew that he was human because of a few anecdotes that illustrated his sense of humor and his kindness. In the whirlpool created around his birthday the conviction that he belonged to everyone, beyond classes and frontiers, was the chief impulse. And this was perhaps the key to his celebrity: this capacity for obliterating social barriers, for breaking down man's solitude by making him join in the same faith, the same spiritual exaltation.

Greetings arrived from all parts of the world; telegrams came in such numbers that they were delivered in laundry

baskets. Masses of presents arrived together with the baskets of telegrams. There were luxurious presents, exotic ones, and eccentric ones—gifts from millionaires and offerings from the humble. Friends were asked to help unwrap the parcels. No sooner had one present emerged from its case than Elsa rushed to inspect another one. "After all, I must tell him what he has received," she kept repeating. For Albert Einstein took no part in the chaos that had invaded his flat. He had escaped a few days before and found refuge in the country. Only his wife, who was to join him later, knew where he was. On the great day she was wakened early by the telephone.

"How nice of you to call me, Albert."

There was no telephone in the house where he was living. "It's important," said Einstein; "there is a mistake in the calculations I gave to my assistant." And he begged her to see that they were corrected at once.

"But I wanted to tell you, Albert . . ." Elsa interrupted him. One could feel him growing impatient on the other side of the line. "Don't you know what day it is today?" his wife asked him at last.

He did not know, he had forgotten what he had run away from. When his wife reminded him, he burst out laughing. "Such a lot of fuss about a birthday. But don't forget what I told you." And he put down the receiver.

When his wife arrived in the afternoon, her arms filled with gifts, he looked at her with astonishment. He had again forgotten the morning's conversation. He was wearing his oldest suit. "How did you manage to find it?" groaned Elsa. "I had hidden it so well to prevent you from putting it on again!"

"Ah, I know all about these hiding places!" Einstein re-

plied triumphantly. Elsa pointed accusingly at a tear in the side. "The people who come to see me don't come to look at my suit," Einstein declared peremptorily.

He was very much amused when his wife told him, with her gift for description, of the excitement she had had to face alone. He was enjoying the cakes. Early spring was in the air. He listened as if the story concerned someone else. He was pleased, but not because his vanity was satisfied. He seemed surprised by the incongruity of the interest manifested in him and the futility of the occasion, as if he were listening to a jester's bells in the fragrant sunny air. It was in the same gay spirit that he composed the verses on the following page for those who had congratulated him.

The climax prepared for the anniversary ended, however, in a pathetic comedy. The municipality of Berlin wanted to show itself as generous as the atmosphere of the celebration demanded. It was known that one of Einstein's passions was sailing and that he escaped from town at every opportunity. It was also known that his favorite lakes were the Havelsees, which stretch sinuously between flat shores and sparse pine forests rising from a sandy soil, like a softly dimmed silver mirror under a milky sky. Berlin thought it could not do better than give him a villa situated in a park by the lake. But they had forgotten—which was strange for so conscientious a bureaucracy as the German one—that the inhabitants of the villa, which belonged to the city of Berlin, had been promised it for life. Slightly disconcerted, the municipal councilors offered Einstein a site in the same park. Under these circumstances, he would have to build a house himself. He discussed the matter with Elsa. She knew how much he wanted to live in the country. A part of their savings could

Heute zeigt sich mir heute
Von der allerbesten Seite
Und von nah und fern die Lieben
Haben während mir geschrieben
Und mit vielem mich beschenkt
Was sich so ein Schlemmer denkt –
Was für den bejahrten Mann
Noch in Frage kommen kann
Alles naht mit süssen Tönen
Um den Tag mir zu verschönen.
Selbst die Schwarzen ohne Zahl
Widmen mir ihr Madrigal.
Drum gehoben fühl' ich mich
Wie der stolze Adlerich.
Nun der Tag sich naht dem End'
Mach ich euch mein Kompliment
Alles habt ihr gut gemacht
Und die liebe Sonne lacht.

A. Einstein
geschrieben 14 III 29.*

* Today it seems that all have tried
To show me their most pleasant side;
Friends from far and near have sent,
In touching words, their compliment.
On my undeserving head
Gifts they pour, unwarranted –
Every single thing they can
Think of for an aging man.
With joyful note they make their way
To greet me on this festive day.
Would-be spongers one can see
Singing songs of praise to me;
Lauded, esteemed as ne'er before,
On eagle's wings my spirits soar.
Now as the day draws to an end,
I send my thanks to every friend;
The sun sets on a perfect day
Remarkable in every way.

be spent on that: they would build an unpretentious house. They consulted an architect. They stressed the fact that they wanted it unpretentious. The estimate seemed satisfactory, the plans appealed to their simple tastes. They were already imagining themselves living in the house. But the municipality had promised more than it could do. Sabotage on the part of the small officials continued. The park had also been reserved for the exclusive use of the inhabitants of the villa. A third site was offered to Einstein. But at the moment when the agreement was going to be signed, it transpired that the deeds to the Berlin municipal property were not at all secure. News of the ridiculous situation spread outside Germany. The foreign newspapers commented on the vicissitudes of the gift. The municipality now offered to buy any site that might strike Einstein's fancy. Elsa undertook to look for it. She had such a deep knowledge of her husband that she would know exactly what degree of solitude, what combination of water and forest would be to his taste. On returning from one of her explorations she had fallen in love with a site in the village of Caputh. There was a mail bus that ran from the village to Potsdam, from which there was good train service to Berlin. Einstein never contemplated, of course, having a car. Elsa's description was so enthusiastic and vivid that the forest already rose behind the plans on paper and they both could see themselves breathing air in which the scent of pine trees mixed with that of the water.

But they were to face another disappointment. At a meeting of the municipal council, a future Nazi questioned whether it was opportune to make this offer to Einstein. The debate was threatening to become stormy. Einstein's patience had come to an end. He had no suspicion yet that just

as he was planning to grow deeper roots in the German soil the ground was opening under his feet. He who had for so long had a sense of the precariousness of life ought to have drawn the appropriate conclusions from the warning he had received. But all he felt was anger. He wrote a letter to the mayor, one of those brief and incisive letters dictated by temper, refusing all gifts. Albert and Elsa had decided, moved by the same indignant impulse and already absorbed in their dream, to buy the site themselves. They discussed the matter at length with the architect, in the hope of bringing down his estimate to the strict minimum. All their savings would be swallowed by it, but they believed they had reached the very heart of paradise.

You had only to see Einstein in a small sailboat to realize the strength of the roots that bound him to a simple open-air life. Wearing sandals and an old sweater, his hair ruffling in the breeze, he would stand upright rocking gently with the motion of the boat, completely at one with the sail he was maneuvering. The sun in his eyes and the wind on his cheeks made him screw up his face, and as he tugged at the sail, with his muscles protruding like cables, he shouted something at us which the wind carried away. He looked the complete pagan—he might have belonged to the age of the sea gods or pirates. At such moments he looked like anything in the world but a scientist. He was absurdly happy as soon as he reached the water.

Caputh was not easy to reach. The train journey was quick, but the mail bus was infrequent. It left the passengers at the beginning of the village, and the village was so sleepy, deserted by day, dark at night, that it didn't seem to have ever heard of any methods of travel. There was quite a dis-

tance to be covered on foot. The road was bad, stony, and full of ruts, like the bed of a stream. Even on dry days one could not help stumbling. The villa was called Landhaus Einstein. It was not truly a villa, but a bungalow of the most modest sort, a plain cube attached to another, lower one, with a terrace on the top. The whole thing was as simple as a mathematical formula. It was just the sort of house you would have expected them to have.

In October 1929 the building was not quite finished. Einstein had sent me very precise instructions for a visit which were, in fact, rather complicated. "You must get up very early," he underlined. Having read this letter, I decided with the friend who was to accompany me to take a car. The house rose in front of us, incongruously modern at the edge of this Brandenburg village, in which the other villas bore the usual signs of resort architecture. A bare interior harmonized with the exterior cube, plain but for the faintly protruding white window frames. The large living room was lined with the cheap, smooth wood that is used for blinds, and the house smelled of fresh wood, like a sawmill. The large room had the temporary feeling of a mountain chalet where one camps for a night. But in the middle of the room arose an incongruous Japanese wooden sculpture, an exquisite piece of work, minutely detailed as an ivory sculpture, a bibelot for giants. The naked walls enhanced its richness: it looked like a Gothic portico attached to a steel construction. This work of art had been given to Einstein by an eccentric admirer who probably imagined that the scientist lived in a castle. There was no room for it in his bourgeois apartment. At Caputh it seemed even more out of place. It clashed with the dry landscape around, the rickety trees of the garden, the sparse group of pine trees, the poor light. But the surprise soon wore off.

Elsa was gaily fussing around us as though this solitude in which she lived with her husband had given her a second youth. The friend who accompanied me came from the same town as she did, Hechingen in Swabia. In honor of the "home town," she had provided Swabian dishes, fried liver pasties with small egg noodles, called in the broad dialect of the country "little sparrows." She was an excellent cook and Albert particularly appreciated this heavy bourgeois cuisine of South Germany that produces fat and placid people.

I remember this first day spent at Caputh like a ray of light in a sky in which clouds were gathering. The friend who had come with me, a Socialist deputy of the Reichstag, was aware of the threatening storm. He ought to have been reassured by the recent German elections that had brought his own party to power, but in the course of the summer, in answer to a letter in which I urged him to come to see me in Paris, he replied: "It is quite possible that I will come to France. I can even foresee that I may settle down there permanently when a menagerie for wild animals is firmly established on the other side of the Rhine." The humor of this remark struck me at the time even more than the startling prophecy. We spoke of it during that visit to Caputh. We discussed at length the causes of the uneasiness that had spread over Germany, the phenomenon of the evil that was to corrode it, the failure of international efforts to establish peace. But we were rather like children who tell each other ghost stories, without succeeding in frightening anyone because nobody really believed in them. Perhaps we were simply too happy to be all together there. In the presence of her "compatriot" Elsa recovered the thick Swabian accent and all her talents as a comedian. Einstein, shaking with laughter, bent

forward, his hands resting on his knees; his obvious *joie de vivre* went to our heads like wine. When we left the house, still visible for a long time at the turning of the road, appeared to us like a lighted haven against the dark Brandenburg night, a harbor of peace. But beside me, our friend was murmuring, as though speaking to himself: "It has been written: 'Neither shall ye build house, nor sow seed . . . but all your days ye shall dwell in tents; that ye may live many days in the land where ye be strangers.'"

Albert Einstein himself was more and more disturbed about the international situation, and particularly concerned by the failure of all efforts at disarmament. "The technical development of our times," he wrote, "has created a problem of life or death for civilized humanity; to participate actively in the safeguarding of peace has become a question of conscience that a man of integrity cannot elude." Like all those who believed in a mobilization of mere good will in the postwar years, he believed in the possibility of regulating the differences of the future by a tribunal of international arbitration. He was clearheaded enough to know that this would mean a great change in the life of humanity, a considerable moral effort, and a conscious departure from deeply rooted traditions. "In days gone by a man became a social asset when he managed to liberate himself even partially from his personal egotism; today, he is required to overcome both a class egotism and a national egotism," he wrote. He was not a dreamer talking about the possibility of disarmament. He knew that it was tied to the problem of security—a problem particularly acute for France—but he also knew (as he wrote to a French friend) that if disarmament did not materialize, nothing would prevent Germany from rearming, and then

"each French military slave would be faced with two German military slaves, which would certainly not be in France's interest."

He foresaw this eventuality all the more clearly because Stresemann's death left the path free for the ambitions of a revengeful Germany. He had often met Stresemann and, as he wrote later on, "no one could escape the fascination of his conversation, which was inspired by the consciousness of his high mission and by a healthy optimism." He had seen at close quarters Stresemann's bitter struggle to bring about the Treaty of Locarno and to calm the resentment of people who had been defeated in the war, hurt in their pride, deprived of their usual prerogatives. He had also watched in Stresemann the gradual discarding of the narrow-minded environment in which this bourgeois Berliner was born, of the intellectual bourgeois atmosphere in which he had grown up, of the national prejudices which had been his for such a long time—all in order to devote himself to the struggle for an idea. "In my opinion," wrote Einstein, "his greatest achievement is to have won over to a grandiose plan of European reconciliation large political circles whose instinct led them in the opposite direction."

When he gave this brief portrait of Stresemann the day after the latter's death, Einstein asked himself if these same circles, deprived of this great leader of men, would not now follow their natural instincts. On the very eve of Stresemann's death, Einstein had had an unpleasant personal experience. He could not go to Geneva for a session of the Committee of Intellectual Co-operation. He had suggested in his place a man of great culture, a convinced cosmopolitan and good democrat, Count Kessler. But the year before, when he was

ill, he had been replaced by the director of the Prussian State Library, Dr. K——, who from then on acquired a reputation as an expert on international affairs. At first sight, K—— had nothing of the high Prussian official about him: he was jovial, even obsequious on occasion, and as his wife was English, he often spoke of his close ties with foreign lands. His ambition was to play an important part on the Geneva scene; it was an ambition he cherished both for himself and for Germany, to the detriment of the Institute established in Paris. One of his first interventions, though politely made, showed his mistrust of French influence. Contact between the Institute and the Committee would be difficult to establish, he said, the distance being too great between Geneva and Paris. There was also a general feeling, he added, that it would be difficult to maintain the international character of the Institute, since the intellectual atmosphere of the country where the Institute was located had an extremely pronounced personal character.

Several years before this, Einstein himself had expressed the fear that French preponderance might arouse suspicion as to the absolute objectivity of an international organization. But times had changed—there had been Locarno and Thoiry and Einstein had seen the Institute at work. He had never doubted the perfect good will of his French friends, like Painlevé and Madame Curie. Moreover, the intellectual atmosphere of Paris had never seemed to him to introduce any special danger through a too pronounced national character. The maneuver of his successor sounded like a disfigured echo of his own words, a caricature of his ideas. It irritated him profoundly, though he did not yet see what it was aiming at. The plausibility of the man was disturbing. "I

have no confidence in him," he kept repeating. He intervened in order to prevent his nomination for the 1929 session, but came up against the opposition of the bureaucrats of the Wilhelmstrasse, who, knowing that Stresemann was dying, were already following the new trend of affairs. Einstein was terribly upset. He feared that Dr. K—— might be taken as the mouthpiece of his ideas. He went so far as to write a confidential letter to Painlevé to warn him about his "stand-in." But when Dr. K—— came to Geneva, this letter, which was to have remained very secret, was, either out of carelessness or malice, passed on to him by one of the French members of the Committee. The fifth column was already at work.

Eleven years later, Dr. K—— appeared in Paris as a representative of a victorious Germany. He laid claim to the Library of Strasbourg. Vichy immediately agreed to his demand. But the professors of the University of Strasbourg, now moved to Clermont-Ferrand, which was to become a center of the Resistance, objected, saying that such a measure was more a matter for a peace treaty than for an armistice. Dr. K—— insisted. He had a great knowledge of French treasures. He threatened in the event that his demand was not met to help himself to the Bibliothèque Nationale. It was said later that he also sent a few trucks one day to the Library of Sainte Geneviève to remove books and treasures. He finally took possession of the Strasbourg Library, whose librarian, Serge Fischer, tried to save the most valuable volumes by taking them away himself in suitcases and sacks across the snowbound countryside. But Privy Councilor K—— had a full inventory of it and he had the Gestapo at his disposal. He had risen very high under the Nazi rule. He claimed all that was due him. His sinister shadow haunted

the world he knew so well. Julien Cain, director of the Bibliothèque Nationale, a wounded veteran, was arrested in Paris and later on deported to Buchenwald, where he met Serge Fischer.

K—— was received in Berlin with great honor.

As international problems became more acute, the impotence of the League became more apparent. The international organization continued to exist as though by the force of inertia of the enormous bureaucratic apparatus that it had set in movement. The escape from reality, the cautiousness of the speeches, the halfway resolutions, the reams of paper that this gigantic machine continued to emit, created an opaque, artificial fog around it. The air became insufferable. "Geneva, what a remarkable extinguisher," Briand sighed, spreading his arms in a helpless gesture. One of the most intelligent officials of the League told an incorrigible idealist: "In order even to get as far as the committees, problems have to be smooth and round as billiard balls." And Einstein himself remarked: "There is a type of conciliatory attitude that is a crime against humanity and they are trying to pretend that it is political wisdom."

Political wisdom was indeed made the god of the day by the conciliators of Geneva. They were easily satisfied with themselves. They calmed down impatience as best they could. "Ten years have passed since the armistice, without a war—is that not already a great change?" Gilbert Murray, the chairman of the Committee of Intellectual Co-operation, declared contentedly, with that British frankness which, according to a prominent English journalist, had taken as a motto: "Give the wolf a chance and play fair with the rattlesnake."

In this year, 1929, the cornerstone was laid for the Palace of the League, which was, in fact, to be its mausoleum. Einstein suggested that the following words should be engraved at the entrance: "I support the strong and reduce the weak to silence, without bloodshed."

At the plenary session which took place in August 1930, Einstein attended in person to support a proposal that was close to his heart. Painlevé had broached the subject of primary education, though he knew better than anyone how much it irritated both national and party susceptibilities. He knew that this question dominated everything else. "The Committee will not fulfill the hopes of public opinion unless it takes an interest in this problem," he said. Madame Curie supported him with her usual vigor. The reason why this problem did not figure in the program of the Institute was because it had been formally banned at the start: the Committee was not allowed to interfere in matters which, in certain countries, depended on government decisions.

Einstein knew that the Committee was being put to the decisive test in this battle which he had launched with his French friends. A new program of action had just been planned, but when he examined it, Einstein exclaimed in his usual vivid language: "I feel as if I were looking at a house on fire where people were trying to save the furniture but weren't taking the trouble to choose the most valuable pieces." He was also aware that in fact the "problem in question, put simply, means that education should be, generally speaking, considered as a method of keeping the peace." Before coming to Geneva he had taken care to study the question, to sound out opinion in different countries, and he believed that the Committee could go ahead, "without fear and

without waiting to be stopped, if stopped it should be. In any case it should not stop at the very start." He concluded by saying that the problem was the most important of all those to be examined and if success could be obtained on this point a task of great importance would already have been achieved.

In fact this problem became the stumbling block of two worlds. The Italian member of the Committee, Rocco, who was at the same time the Fascist minister of the meager and expeditious justice of his country, harshly opposed the proposal in the name of all totalitarian states, present and future. He thought the eventual establishment of an international authority was inconceivable. The question, he said, had nothing to do with intellectual or international co-operation—it belonged to the individual competence of each country. "Universities, perhaps," he added, ready to make concessions on this point, since it would affect men in whom, he thought, one could by then have confidence, men already ensnared by the regime. Youth, on the other hand, was the valuable malleable material which allowed nations to be led astray, and Rocco defended it against this pacifism which was to be inculcated into it with all the energy and indignation expected from him by his government. "The danger in broaching such a subject is explained by the fact that the education of a child is considered as one of the fundamental attributes of state sovereignty." The Committee, according to him, ought to busy itself with problems that presented less difficulty at the moment and abstain from touching upon religious, moral, and political questions. As this was Geneva and he wished to appease the unrest he felt to be spreading, he added, by way of consolation, that the time for those latter

problems would come in fifteen, twenty, or fifty years. "The League has all the future it wants in front of it"—and the gravedigger of the League smiled amiably around him. Einstein, red with anger, pulled fiercely at his extinguished pipe. Painlevé returned to the attack. Intellectual co-operation had been defined from the beginning as one of the most efficient methods of bringing about the mutual understanding of peoples. Primary education, he said, was at the moment of the greatest importance. "Universities," he replied to Rocco, "already had at their disposal a considerable number of international organizations. But in France at least primary education was the only education received by a great majority of children. Therefore the character given to this education would have the greatest influence on the pacific or aggressive development of modern civilization." The warning was clear. However, this assembly in Geneva did not consist only of an impetuous Fascist without any international prestige on one side and three of the greatest scientists of the world on the other. If it had, the battle would have been unequal and might have been won without more ado. But pressure was exercised upon the majority of the Committee, pressure from men with more or less suppressed Fascist sympathies, from politicians used to the Geneva scene and wanting to avoid a break at any price, from disappointed liberals to whom institutions meant more than a cause. The great tragedy of the League unrolled itself, in smaller doses, at the meetings of the Committee.

Another question was raised at this session, "full of the approaching storm," as Painlevé called it, that of "coexistence on the same territory of populations belonging to different civilizations." The agenda submitted to the session defined it

as: "Intellectual problems outside of Europe." It was in particular the future Asiatic caldron that was in question and there was still a tendency to deny its state of fermentation. But the same problem of coexistence, remarked Einstein, affected the ethnic minorities of European peoples and constituted "one of the most serious aspects of the state of affairs which is currently poisoning European relations." Like the problem of primary education, this one of the cultural independence of ethnic minorities was to be swallowed up by subcommittees "for more careful examination"; they were both to be milled so fine in passing through the various machines designed for this purpose that there would be nothing left of them but dust.

Though the permanent members of the Committee were elected on their personal merits and independently of their governments, topical matters reached the Committee only after having been filtered through national committees which, in many countries, represented only an official attitude. Einstein left Geneva in disgust. He decided to hand in his resignation. He wrote a letter to an Undersecretary of the League, director of the section of Intellectual Co-operation. This post had, by process of rotation, fallen to a German diplomat. This diplomat, descendant of Huguenot refugees, bore a French name. But, like so many people who are troubled by their own origin, he was a nationalist, ill at ease in an international atmosphere. He had taken care not to interfere in the debate, in his determination to be discreet, but he was definitely on the side of the "extinguishers."

Albert Einstein wished to give a precise, detailed explanation of the reasons for his withdrawal. "Experience has unfortunately revealed to me that the Committee has no serious

desire to bring about any tangible improvement in international relations. It seems to me rather an incarnation of the principle of *ut aliquid fieri videatur*. From this point of view the Committee appears to be on the whole even worse than the League." He numbered his grievances: "The Committee has given its blessing to the suppression of cultural minorities in some countries by creating one 'national committee,' one official link between the intellectuals of that country and the Committee. It has also of its own accord renounced the duty of serving as support to national minorities against all cultural oppression." Recalling the recent debate, Einstein expressed his indignation that "in the struggle against chauvinistic and militaristic tendencies manifested in some countries, the Committee has taken so lukewarm an attitude that one cannot expect any serious effort from it in this most important of all spheres." He also reproached the Committee for never having supported the individuals or associations who had undertaken independently the task of working for a legal international order and against the military system. The indignation arising from his encounters with Rocco was still alive in him when he stated that the Committee had not refused to admit among its members men whom it knew to represent other tendencies than those it was its duty to represent. He concluded: "If I had any hope left, I can assure you that I would not have taken this step." With these sad and disappointed words, Einstein's participation in the work of the Committee of Intellectual Co-operation came to an end. The failure of a hope was for him only the beginning of the failures which human aspirations toward a cultural unity were to undergo. He wrote later: "As far back as the seventeenth century, the scientists and artists of the whole of

Europe were so closely united by a common ideal that their co-operation was scarcely influenced by political events . . . today we look back upon such a situation as upon a lost paradise. Nationalist passions have destroyed the community of spirit and Latin, the language that formerly served to unite all, is dead. Scientists, having become the strongest representatives of national tradition, have lost their solidarity."

Chapter X

THREE great powers reign over the world: stupidity, fear, and greed. This was the conviction Einstein had reached after repeated disappointments. But he also wrote: "We cannot despair of humanity, since we are only human ourselves." And as he expected nothing more from the wisdom of the governing classes, from the courage of international assemblies, he addressed himself to men directly: to the pacifists of all the world, to the students, and to the masses. The years to come were to be chiefly occupied by his struggle for peace, a struggle to which he surrendered himself entirely. His pacifism was deep-rooted; it was the first conscious reaction of an adolescent abandoning his nationality. His invectives against the militarism he loathed rang with passion—"the worst monster born of the gregarious instinct." In one of his "confessions," to which he gave, in 1930, the title of *The World as I See It,* Albert Einstein wrote: "Anyone who can take pleasure in marching in formation to the strains of a band is once and for all an object of contempt to me; his great brain has

been given to him by mistake, a backbone was all he needed. This shame on civilization should be obliterated as soon as possible. Heroism by order, insane violence, vainglorious patriotism; how intensely I hate them, how despicable and mean war is to me! I would rather be hacked to pieces than take part in such a revolting business."

Einstein did not arrive at this belief in pacifism through any process of reasoning, perhaps not even through compassion for human suffering. The horror of war lived in him and burned in his blood with the force of an elemental emotion. In the ordered universe of thought that he had built, there was no room for war. In his private religious world it was an offense to his deep faith in man, the archenemy of everything immortal in creation.

The struggle against war is the main principle of Einstein's life. The struggle for peace has the same importance for him as his scientific achievements. Much of what he does is only understandable in the harsh light of his hatred for war and his love of peace. He now reached what he called active pacifism: "A pacifism that does not actively oppose the rearmament of nations is and will remain impotent." He threw himself into a crusade in favor of conscientious objectors. He believed that if in every country only a small part of those who were called to fight refused to be conscripted, an irresistible movement would spring up throughout the world. He threw himself into the battle with all the prestige of his name, addressed numerous appeals to friends in all countries, mounted the platforms which he had always avoided, spoke to students, took part in large demonstrations, launched articles in newspapers, and wrote letters on the eve of disarmament conferences.

His efforts were based on the calculation that if only two per cent of the men called up would refuse to join the ranks there would never be a war. In fact a movement in that direction began to spread and this figure of two per cent became something of an insigne. Einstein himself led this "Internationale of objectors to war." He launched a personal appeal to all potential soldiers, asking them to declare that they would refuse to serve the cause of war or preparations for war. "I asked them to notify their governments in writing, and put this decision on record by informing me that they have taken it. I have authorized the inauguration of an international fund for those opposed to war, the Einstein Fund." He himself supplied this Fund with considerable sums which he obtained by accepting for this cause the personal offers he had always hitherto refused. This active campaign threatened the leisure he needed for his work. His personal life, so fiercely protected against all intrusion from outside, was now invaded by an unusual animation. He received emissaries from all countries, militant pacifists from all parties, idealists ready to sacrifice everything for a cause, men of experience and unrepentant dreamers.

In the place of inventors suffering from mythomania, in place of the misunderstood geniuses who used to storm his door, it was now cranks who besieged him with their panaceas for universal peace. He was not even beyond the reach of madmen and maniacs, for, spurred on by the sense of an impending menace, he was ready to use everything and everyone. "One never knows from where the spark might come," he replied to those who reproached him for wasting his time. But he had not many illusions about the efficacy of the forces he had thrown into battle. He replied one day to a

letter suggesting nationalization of the armament industry and expressing the hope that Einstein's intervention would result in its success. "The armament industry is, indeed, one of the great threats to humanity." Nationalization might avert the danger. But Einstein foresaw the innumerable obstacles and did not share his correspondent's optimism about his own intervention. "You believe that a word from me would help to achieve something in this direction? What an illusion! People flatter me as long as I do not embarrass them. If I make suggestions that embarrass them they immediately resort to insults and calumny in order to defend their interests. And those who have no interests side with those who have out of sheer cowardice."

Einstein's lack of illusions about the weight of his name must never be underestimated: his perseverance in his struggle in spite of this revealed the powerful impulse that forced him to action in spite of everything and everybody, and with only a faint hope of success.

The need for action, however, seemed to him more and more obvious. It became increasingly important to proceed, for he saw the restlessness that was rapidly spreading in Germany and intensifying the threat to peace.

The world economic crisis had sensational repercussions in Germany. The transition from prosperity to a critical economic situation was abrupt. It came almost overnight; but its repercussions were visible only gradually, as though ways of thought were slower to establish themselves than economic realities. The report of the American expert on the Reparation Commission, Parker Gilbert (published, if I am not mistaken, toward the end of 1928), still drew extremely optimistic conclusions on Germany's economic and financial capacity,

surprised admiration in the face of the German miracle. This miracle was, in fact, imaginary. Germany, thrown into a dizzy whirlwind, into an economic expansion that made one gasp for breath, was building tremendous highways, renovating all its industrial equipment, increasing its means of production. Every German town was erecting luxurious town halls, all too vast sports grounds, all too sumptuous hotels for the modest visitors in transit. This revival was conditioned by American loans; loans to the state, to the municipalities, to industrialists, to any bold enterprise. America had discovered in Germany a most profitable ground for investment. American money seemed to be chasing after every German, an irresistible temptation to even the most cautious and conservative. At the moment when this flow began to ebb, when the loans were reclaimed after the American slump, this artificial prosperity crumbled like a house of cards. Suddenly everything seemed to have gone wrong. Germany was suffering from the counterblow of the world crisis so acutely because she had ventured further than the others in her faith in an unlimited progress. But the dismay was general. Everything that seemed to promise a better future, all the great conquests of the inventive spirit and the solid virtues of labor, had succeeded only in leading humanity to disaster. "Today, everything that has been acquired with such effort seems in the hands of our generation like a razor in the hands of a child of three," wrote Einstein.

With the sharp and rather unexpected interest he showed in economic matters, he examined the problems of the world crisis. He not only discussed it with economists, financiers, politicians, but also wrote articles and addressed public meetings. He found in the chaos that reigns among experts

the justification for his interference in an unfamiliar domain. He discerned in the present crisis an element that lent it a new character and made it differ from other cyclic crises: the rapid progress in methods of production which allowed the indispensable needs of consumers to be satisfied, while engaging only an infinitesimal fraction of the available labor. It soon became a vicious circle. Unemployment lowered the buying capacity, the impossibility of absorbing the commodities led to a stoppage of production, increased unemployment, and restricted production even more. Einstein examined one by one the principal arguments raised by experts to explain the crisis. "Overproduction?" he wrote. "This can, I suppose, be applied to motorcars and American corn; as for the rest, overproduction is only an apparent cause, for it is not the need that is lacking among the consumers but the buying capacity. Reparations? They obviously weigh on the debtor countries and force them to dump their exports, which also affects the creditor countries. But the fact that the same crisis is taking place in the U.S. weakens this argument." After going into all the other alleged reasons and demonstrating their futile nature, Einstein reached the conclusion that a directed economy was logically the simplest method of remedying the evil that scourges the world. Being in advance of his time, he did not conceal the risks of the measure he proposed, or the resistance that it was sure to encounter. He asked at the least for the control of free economy by three methods: through the reduction of working hours, to alleviate the scourge of unemployment; through the establishment of minimum salaries to prevent the fall in buying capacity; and through state control of prices.

The egotism of private interests appeared to Einstein more

and more clearly as one of the principal factors responsible for the present ills and the future disasters. Like many others who foresaw the worst with a secret hope that it would not materialize, he was deeply shattered by the first sign of the defiance of international ethics—the Japanese occupation of Manchukuo. He knew the League to be impotent but did not believe it so ready to capitulate. Could not the United States, which had remained outside the League, and was so powerful economically, play a pacifying role? He asked an American diplomat why an economic boycott was not applied to Japan to prevent that country from continuing its policy of aggression. The American shrugged his shoulders resignedly and replied frankly: "Our commercial interests are too strong."

"What can one do with people who agree with such statements?" Einstein added when repeating this conversation.

Now the road was wide open to arbitrary violence. At the end of this road, which began at the moment when civilized humanity was still in full possession of its means of defense, came Pearl Harbor.

In Germany itself, Einstein saw looming ahead a danger to which most observers were still blind. The sudden halt in production and the eclipse of prosperity hit the young most of all. Einstein saw the havoc this wrought in universities. Students proceeded with their studies without any hope of being able in future to apply their knowledge in any way or to find even the most modest means of making a living. Many of them had severed all links with their original, often humble, environments and had gained their independence at the price of personal and family sacrifices. Now they found themselves with their pride in possible success and their am-

bitions frustrated. They had become outcasts of society, without roots, and they were searching for a scapegoat.

A macabre joke circulated in Berlin at the time to illustrate the distress that reigned in university circles. Four hungry students drew lots to decide which of them was to sacrifice himself and commit suicide to allow his friends to survive. Two of them took the corpse to the morgue with the idea of selling it to the medical faculty. After a time the friend who had remained on the watch saw them return, dumfounded, carrying the corpse on their backs. "They had no use for it. Now they only take full-fledged doctors with diplomas."

Anxiety about their survival weakened the moral fiber of the young and made them ready for any adventure so long as it gave them hope. Einstein said later on: "Nazism was born on an empty stomach." Industry and commerce, which were as overcrowded as the liberal professions, were also closed to the young. "Hopeless!" This word was itself the negation of everything that was young: it was a challenge to the right to live. The title of a book in which Hans Fallada described vividly this daily distress became the cry of alarm on every lip: *Little Man, What Now?*

A journey to the United States allowed Einstein to intensify his struggle for peace as well as his campaign for conscientious objectors. It was ten years since he had been there. This time he did not go to ask material help for a cause, as on his preceding journey. The mission he had undertaken was to stir slumbering consciences. But in fact it was as a scientist that he was invited by the California Institute of Technology and Mount Wilson Observatory, where his theory of fields was to be experimentally checked.

His departure was fixed for the end of the year. Einstein

lingered on in Caputh, his favorite refuge, his safest escape when distress followed him too closely. He refused to go to Berlin, even when the autumn brought its rains and winter approached. He had, however, much to do in town, and when the Einsteins both spent the day there they used to return to the country in the dead of night, always without a car. "It looks so unpleasant and inhospitable in the dark," complained Elsa. But she consented to these late returns (although even when helped along by the strong hand of her husband the uneven road seemed to her haunted with terrors) because she saw Einstein throw off all his worries and troubles as soon as the acrid smell of the wet soil reached him. He returned to this brand-new house like a traveler rediscovering his old home.

Their absence was to last the whole winter. Each departure was a wrench for Elsa, because of the separation from her daughters. Her thoughts kept returning to them for a long time; she worried about every detail of their personal lives, about Ilsa's precarious health and Margot's acutely sensitive nature. Generally so communicative, she concealed her troubles when she saw her husband enjoying every moment of the relaxation provided by the crossing. They went to California by way of New York and Havana.

The calm that lulled him during the long voyage did not, however, soften his pugnacious spirit. From the boat he sent a message of greeting to the United States which was, in fact, a challenge to the intellectual forces of the country. "On the eve of landing," he cabled, "one idea only occupies my mind, or rather only one hope: that the forces that work under the surface in the country should come out into the open in order more effectively to fight against professional militarism, dan-

gerous and strong as it is." He knew where the principal enemies of the great desire for peace were to be found. He did not hesitate to chastise them in one of his addresses: "I have still enough faith in humanity to believe that these ghosts would have disappeared long ago had the common sense of nations not been systematically corrupted by commercial and political interests through education and the press."

He pursued his activities against the idyllic Californian background, and though the young responded to it, some of his colleagues were still so far away from everything that disturbed Europe that his propoganda seemed like the *idée fixe* of an idealist—just slightly less harmless than his bohemian love of music.

However, his fame was so great that any eccentricity was forgiven him. Examples of his widespread fame ranged from the ridiculous to the touching. In gratitude for "a life devoted to the service of humanity," an Einstein medal for humanitarianism was struck off, which was to be bestowed every year upon an American who, like Einstein, had devoted himself to the good of humanity. But he was also asked to give his old shoes to be exhibited together with those worn by Hollywood stars and candidates for the presidency of the United States. . . .

The most striking proof of his prestige was given when he went to New York. That city, though swarming with various nationalities and religions, had remained, in spite of its adoration of success and material values, rigorously loyal to religious rites. At the time when the Riverside Church was being built, its learned pastor decided to have the façade decorated so that it should be a lesson to the faithful, a lesson

in facts. In imitation of the churches of the Middle Ages, it was decorated with several hundred figures, but instead of the exuberance of Roman and Gothic façades, the statues followed one another and the bas-relief ran like the stills of a film. Saints, kings, philosophers, precursors of Christ, and others were lined up in order. In this abridged encyclopedia in stone, the pastor, born in a country where the cult of the inventive spirit stood very high, wanted to include fourteen of the greatest scientists of the world. In order to choose the immortals wisely he turned to the most eminent scientists of America. In the lists that they compiled, certain names like Archimedes, Euclid, Galileo, and Newton figured invariably. But on every list was also found the name of Einstein. On the bas-relief of the scientists he is the only one still living. He must be the first living man since the end of the Middle Ages to be able to gaze at himself on the front of a church.

The minister himself wished to show Einstein his effigy in stone. Einstein searched for it with an air of surprise and finally discovered the very conventional image. The moment would have been a solemn one even for the most illustrious of beings. But his sense of humor had the upper hand. He burst into laughter and, winking at himself over the portico, turned to the pastor, who was slightly disconcerted by this unexpected gaiety: "I might have imagined that they could make a Jewish saint out of me, but I never thought I'd become a Protestant one!"

On his return to Berlin Einstein found that the economic crisis had increased, with all its political repercussions. He was personally affected by the distress that reigned in the country. Their family, especially Elsa's close relations, had fallen into almost complete penury. "They had, most of them,

been immensely rich," wrote Elsa, "but at the moment they are almost incapable of resuming the struggle for a living; the older ones in any case."

These people whose lives had been warped, these old women who were unable to understand what had happened to them, came to pour out their sorrows in the Haberlandstrasse. The younger people, with the defenselessness of charming and spoiled children, besieged their famous uncle and expected some impossible miracle from him. Einstein made great financial sacrifices to relieve their immediate distress. All the personal help given by Einstein and Elsa, sometimes without each other's knowledge, the pensions they secured, the education they paid for, the so-called loans they made that would never be paid back, amounted to a large sum. "Where will all this lead to?" Elsa asked anxiously. The poverty of her family was only a reflection of the general confusion, spectacular and incomprehensible. The constructive mind of Einstein could not adjust itself to such impotence of thought before so catastrophic a situation. His innate sense of order revolted against the muddled interpretations, the half measures, the provisional compromises, the selfish defense of private interests that only served to aggravate the economic sores. The human intelligence that had solved so many universal enigmas ought to have been able to understand where the wheels of the economic machinery had gone wrong and restore them to movement. "My Albert spends much time in thinking what could be done to improve the state economy," Elsa wrote, and added with the sense of humor she kept even at the most difficult moments: "He explains to me, poor me, the solution that he has found for each problem. I am convinced each time that it is the only path to

take and try to persuade him to go and explain it to Luther or Brüning. 'What good would it do?' he replies, and sinks back once more into his equations."

More and more he needed to take refuge in his work to regain his balance. National Socialism began to win its first victories: and the scapegoat for the general resentment was found. Groups of young men rushed about the streets with a song of hatred on their lips: "Awaken, Germany! Death to the Jews!"

The Nazis only ventured stealthily by night into the working quarters, where gunshots were met by gunshots, and knives by knives: but by day, with their swastika flags flying in the wind, they marched through quarters well-known to these sons of good families; it was in the Bayrisches Viertel and the peaceful Haberlandstrasse that this angry clamor for Jewish blood "which has to spurt from under the knife" resounded.

In these troubled times Albert Einstein also had to undergo a painful personal ordeal. He had always remained in close touch with his sons. The elder seems to have inherited from his father his robust common sense and his love of practical things. The Swiss environment in which he grew up, his profession, which brought him closer to the soil (he studied agriculture and is now professor of engineering in a university in California), his position as the father of a family, had all contributed to make him a thoroughly balanced person.

The younger son, with his sallow skin, his fine eyes, and the sensual lips of his father, inherited from him his interest in science and his passion for music. He came from time to time to Berlin and when Einstein allowed his glance to linger upon him one could read in it a great tenderness

and pride, which was rare in him. He was amused to find himself so vulnerable. During one of young Einstein's visits to the Haberlandstrasse, I once heard him play the piano in the next room. He had an absorbed look on his face, as though, like his father, he was divorced from his surroundings while playing. But I also caught a glimpse in it of a far-away expression, irreparably sad. In the boy's relationship with his father there was passionate admiration mingled with unexpected rebellion, which was like a secret resentment. Perhaps it was an impotent gesture of revolt in reaction to an exaggerated idealization. His precarious state of health made his adolescence painful. This frail body and this untrained brain were full of great ambitions. Suddenly letters began to arrive from Switzerland, incoherent letters in which the desire to affirm a weak personality through grand language alternated with outbursts of despair; they were pathetic, unhinged letters. Einstein was deeply upset by them. He could not understand these figments of an overexcited imagination. Suddenly young Einstein's passion for his father turned to hatred, expressed itself in bitter recriminations and vehement accusations—the feverish confessions of a sick mind.

Albert Einstein loved his younger son as much as he was able to love any human being. The boy's lack of mental balance was a cruel blow for him. He suffered from it as he perhaps had never suffered before in his life. For a certain time he was, as every father would be, deeply overcome with grief, a grief which he tried to control. "This sorrow is eating up Albert. He finds it difficult to cope with it, more difficult than he would care to admit," wrote Elsa. "He has always aimed at being invulnerable to everything that con-

cerned him personally. He really is so, much more than any other man I know. But this has hit him very hard."

Einstein emerged from this solitary battle with his grief with hardened features and eyes often obscured by shadows. He had remained astonishingly youthful for a long time. On his return from Zurich, where he went to visit his sick son, he seemed changed. It was not that he had grown older, but he had lost his broad sense of humor. He was more detached than ever and his serenity seemed more absolute with the years. The way he rose above this trial showed that the invulnerability of which Elsa spoke demanded the renunciation of happiness as well as suffering.

Chapter XI

"THE winter here can bring us nothing but sadness," wrote Elsa. "Anyway, we intend to go away for a long time (though we don't want to)." Long journeys still meant a temporary respite for them, a screen protecting them from the stress of the time. At the beginning of December they sailed again for California. They spent the winter in Pasadena. Their return to Berlin coincided with what was considered to be a lull in Germany's race toward suicide. The hope of German democracy was incarnate—and what an incarnation!—in Hindenburg, the winner in the election for the presidency of the Republic. The old marshal refused to see Captain von Roehm, one of Hitler's most active propagandists, and commented on his peculiar habits with a soldier's strong language. He refused to have anything to do with Hitler—"this Czech sergeant," he said contemptuously. Chancellor Brüning believed he could proceed on his tortuous route, reassuring liberals on the one hand and on the other yielding now and then to what was called an irresistible national

movement. All measures of force were repellent to this secular monk who had strayed into politics.

In fact the German situation could still have been saved. One of the high officials at the Ministry of the Interior, Dr. Carl Spiecker, in charge of the repression of Nazism, proposed a measure of great cunning to the Chancellor. Hitler was not yet a German citizen. Spiecker made out an order for the expulsion of the undesirable foreigner. At the same time he informed the Brown House of this measure through a counterspy. Hitler, with the spasmodic courage of a neurotic, started packing at once. Carl Spiecker, who not only knew his history but was also a courageous and clear-minded democrat, foresaw a repetition of Boulanger's flight. National Socialism and the Fuehrer would have been covered with ridicule in the same way; but Chancellor Brüning, after hesitating for a time, refused to approve the order of expulsion. Germany remained scrupulously legal. The counterspy, by name George Bell, was one of the first to be shot by the Nazis when they came into power. Carl Spiecker, who had attempted in vain to fight the disaster, took the road to exile.

At the very hour when Germany's destiny was being played out, sordid private interests helped to end any chance of saving the situation. National Socialism was rapidly losing ground. At the elections in November 1932, it was to lose two million votes. It had never really gained more than thirty-seven per cent of the votes. But a shady maneuver called *Osthilfe* was intended, in spite of the growing poverty of the country, to restore the riches of the big landowners in Pomerania. If Hindenburg failed to understand anything about this new world that offered itself to his fading glance, he understood very well the interests of his class, particularly

the interests of his son, who was a Pomeranian landowner. And the only loyalty this old man had ever known was to his past. Chancellor Brüning, who was opposed to the *Osthilfe,* was dismissed like an indiscreet valet who had dared to interfere with his master's affairs. One of the authors of that maneuver was about to succeed him. So unexpected was this succession that when in the middle of the ministerial crisis General von Seeckt telephoned to a friend to ask him about the choice of the new Chancellor, he thought he was being made the victim of a joke: "Are you pulling my leg? Papen? It is not even funny." The effects of the bad joke, however, were only to be felt much later. Germany had a few months of respite. The menace had still taken no definite shape.

Albert Einstein was spending time in a sort of monastic retreat at Christ Church, Oxford. Elsa was preparing for the summer move to Caputh. She knew that her husband was in a hurry to return to the "little house," as he called it, and to his sailboat. She too always looked forward to these months when she had her husband more to herself than anywhere else. "But this time, I feel uneasy about it," she wrote. "Is it wise to stay here in these troubled times—who can tell? I feel very anxious at heart."

She consoled herself with the thought that the people in the village were fond of them. Einstein was still a great center of attraction in their sleepy lives. Elsa recalled that in the autumn of the preceding year, on his way to Berlin, her husband had boarded one day, as he usually did, a third-class carriage on the small train. Two young men sitting opposite had swastikas in their buttonholes. They had recognized him, nudged each other, and started to whisper. Then,

stealthily, they had tried to remove the insignia. Elsa was clear-minded enough, however, to admit to herself that they probably would not have done so at this time. But she also knew that nothing would prevent Albert Einstein from going home.

I went for the last time to Caputh in May 1932. I had seen General von Seeckt the day before. He had insisted: "Warn all your Jewish friends that they would be well advised to leave Germany. Warn Einstein particularly. His life is not safe here any longer."

On this bright May day these sinister forebodings seemed like phantoms of the night that vanish in broad daylight. The sky was veiled, as if the water rising off the lakes had clouded it, the invisible sun gleamed, and in this unreal light the tops of the apple trees had the transparency of white glass. The rare passers-by walked leisurely along the sandy road. The village seemed sunk in lethargy.

I found Elsa Einstein alone in the large living room, leaning against the window sill. She had a preoccupied expression and lackluster eyes. She was deeply upset. They had been visited by an American, Abraham Flexner, who, thanks to a large donation, had founded in Princeton the Institute for Advanced Study, a center for research and experimental study. In a book published in 1930, *Universities: American, English, and German*, Flexner had given startling examples of the decline in standards of university education, quoting for instance the thesis submitted to the University of Chicago on "The Comparison in Time and Movement of Four Methods of Washing Dishes." Flexner's idea was that the Institute in Princeton should link up with the traditions of the Continent and create a real scientific community. Scien-

tists, badly paid in most American universities, were to pursue their studies there, unhampered by material need and without being interrupted by the preparation of lectures. At the same time they could form a new team of research workers among the students. "It would just suit Albert," Elsa said to me. "No obligation to teach and at the same time the possibility of remaining in contact with the young people who interest him. It is up to him to make his conditions. Albert mentioned a sum which he thought would be too high, but Flexner only smiled, it was so very modest."

"Does that mean that he has accepted?" I was immensely relieved.

"No. He cannot resign himself to a final departure."

"But this is madness. You can't allow him to refuse." I almost shouted in my anxiety, as though she had been deaf.

"I did what I could, but you know . . ." Everything in Elsa seemed shattered and bruised, her glance, her voice, the broken gestures of her wrists. I was frightened, very frightened, as though danger were already around the corner. I spoke very fast. I told her all I knew about the unavoidable horrors in preparation, of the dangers that threatened Einstein. My fear rose in a rush of anger, my words came quicker than my thoughts. I went so far as to say to Elsa that to leave him in Germany was to perpetrate a murder. This word stung her to the quick. She sank in her chair. "Murder," she repeated. "But all this is not definite. Flexner is staying another day or two in Berlin." The white, stiff lips hardly moved. Her eyes seemed colorless, as if glazed. Their blind glance traveled around the large room, as though clinging to the pale walls, to the table laid for a meal, to the strange Japanese sculpture, in order not to abandon them forever.

Elsa was parting with this refuge she had loved so much. I was miserable in the knowledge that I had hurt her. But across my misery a voice kept hammering in me: He must go away. . . .

Einstein's large form filled the doorway. He wore a shirt open at his sunburned neck, an old sweater under the baggy white suit, and his bare feet were in espadrilles. He radiated health and well-being. Elsa hastened to tell him about my warnings. But faced with his peaceful strength, I did not feel so convinced any more. "Murder," she kept repeating. Her lips rounded in horror, as she uttered the word in German: *Mord*—a round and swift word like a ball flung with great force. It affected even Einstein's detached attitude. When he glanced at me, his eyes suddenly grown dark, I knew that the same thought had occurred to him as well.

The maid came in. She stopped as though wanting to say something. She had been in their service a long time.

"What is it?" Elsa encouraged her.

"I won't go to our baker any more. He's saying nasty things . . ." She hesitated. ". . . He's been saying he can't make out how it is I can live in a Jewish house—the horrid creature. . . . " She was trembling with rage. "No, no, nothing can happen to the professor," she replied to Elsa's question. "They all love him here. It's only this scoundrel." She looked thoroughly ashamed.

"There may be others like him," I said. She glanced at me anxiously, suspiciously, and walked out of the room in silence.

The evening dragged on, heavily. The miracle of a familiar environment, the great silence of the country around us,

worked on us after a while. The horror of the morrow became blurred.

"All the same, you will go and see Flexner," said Elsa.

"Yes, it is perhaps better to take some precautions"—Einstein had already accepted the situation; one might almost say that he was already pulling up his roots. A line of Goethe flashed through my mind: "to build on a hard rock or to live in a tent." Einstein was one of those who carry a tent with them. Nothing could overcome his serenity and his ability to adapt himself to a situation. Gradually Elsa recovered her cheerful self. Later, our conversation reminded me of one of those old-fashioned quilts made up of odd bits of material—squares of black set among light blue patches.

Einstein accompanied me along the dark and slippery path. It was a thick, black night. The house with its lighted windows looked like a brave little ship launched into darkness. From the road I could watch it float for a long time in its short luminous wake. I suddenly gripped Einstein's arm. I knew that I would never see this bright hull of peace again. The last bus appeared on the road. I walked faster, relieved by the abruptness of this parting. Einstein had turned back, walking in his quiet and peaceful way. His white coat stood out like a milky target in the night.

At the Potsdam station where I was tramping up and down the platform waiting for the train, everything seemed to me absurd and unreal. I had behaved like a madwoman. A few passengers, peaceful and drowsy, passed by me. Red and green lights flickered in a purple sky. The night was closing in around the silence of slumbering towns. "Absurd," I believe I said to myself aloud. These mad words I had uttered

. . . *Mord* . . . It was hard to believe that their echo was true in this peaceful night.

Suddenly a group of young men emerged noisily onto the platform. They all wore swastikas in their buttonholes. They called each other by their Christian names, shouted gaily, swore abundantly. Their voices were slightly high-pitched, they were all a little drunk. I decided suddenly to make my way behind them into a first-class carriage—one of those German carriages without compartments, the seats separated by a passage in the middle. The young men still lingered at the windows, exchanging, amid loud bursts of laughter, epithets like "dirty swine" and "drunk." The train moved out in the din of their young voices. I was alone, about 1 A.M., with about a dozen young Nazis. "A German woman does not use any make-up," said the *Völkischer Beobachter*. I had just put on a little lipstick. A German woman doesn't smoke. I had lit a cigarette. I had an hour to experiment in. I was not too sure what was going to happen.

From my corner in the carriage I observed the young Nazis. Most of them had bright, open, smiling faces. Sons of solid bourgeois families, well turned out, some of them with clean starched collars, even on this summer night. Well-kept hands, unspoiled by manual labor. Healthy, pampered children, the pride of their families. The first thing that struck me coming from those innocent pink lips was their language, a language I had never heard before, that I had known only as the language of the trenches from Remarque's book. Sordid swear words thrown out with an open smile, ugly words uttered with a touch of tenderness. Well-modulated voices that tried to sound tough. These mothers' sons spoke like slum children. They played havoc with grammar, accent, and

meaning. If a proper word slipped out by mistake they corrected themselves and instantly replaced it with a vulgar bit of slang.

"Why didn't that slut of a sister of yours turn up yesterday?" a fair-haired boy was asking.

"Dunno. I beat it early this morning," a dark, dreamy boy replied.

"That little f—— bitch of a Marie didn't come either," someone said.

"Females 's the only thing you bastards can think of!" exclaimed a redhead sitting in a corner, in the abrupt tone of a leader.

"That's a lie," the blond one retorted. "We —— on these females." He threw a coy glance at me from under his long lashes.

They talked about their families; one young cherub raged about his bitch of an inquisitive mother; a pimply youth fumed about his unaccommodating bastard of a father. But they did not add any stress to these words. They smiled at each other with friendliness, and as I have said, they had all had a little too much to drink. They were sleepy, like children are when they have been in the fresh air too long. They tried to keep awake to show that they were grown up. From the far corner of the carriage resounded the words: "Swine of a Jew," followed by the name of the police superintendent of Berlin.

The fair-haired boy opposite me gave a wry smile. "He won't last long, we'll take care of him, we'll see that he gets what he deserves soon." The police superintendent was turned into their whipping boy. The conversation became general and concerned the treatment which ought to be in-

flicted upon that swine of a Jew who imagined he could curb them. The boys with the bright faces were outbidding one another in cruelty. The superintendent was not the only one for whom they reserved unimaginable tortures. His wife was not going to be spared. They enumerated the parts of a woman's body with gross detail. They exchanged lewd remarks at the tops of their voices, used words of which I could only guess the meaning. They promised themselves to promenade her naked and set fire to her. They laughed uproariously. They created an unreal atmosphere, with this mixture of subtle sadism and innocent childish malice. One would have said that the images they invoked did not penetrate their minds. At the same time, hell seemed to have opened up at their feet to vomit fire, blood, and sulphur.

Suddenly the redhead got up and crossed to the other side of the carriage, making his way toward me. His mouth was slightly contorted as though he was still masticating the horrors he had uttered. He stopped in front of me. I must admit that my heart stood still. "May I ask you for a light?" His voice suddenly became cultured. He was staring at me with curiosity and thanked me with exaggerated politeness.

I knew the superintendent and his wife. She was a handsome, dark woman with large, questioning eyes. I was able to attach a body, features, a glance to the unleashed imaginations of my traveling companions. Other names of high officials or prominent Jews rolled in the mud of their conversation. The verb "to kill" had become its thread. The slang word for it, *killen,* cracked like a whip. *Wird gekillt* resounded like the theme of a song. *Gekillt, Gekillt.* The young voices choked with sensual delight. The wheels themselves were hammering the word. The Berlin station, wel-

coming the train with its lights, seemed to me a true release.

I pounced on the telephone early next morning to tell Elsa Einstein of my experience. The phantom had become a reality. A clear and smiling face beaming around an infamous word. I continued my arguments in an urgent letter. I begged Einstein to accept the American proposal.

A few days after my departure to Paris, Elsa replied to me: "Your letter caused me a lot of sorrow, though it was also a joy to me. Joy because you love us—it showed so strongly in your letter. Sorrow because it means we have to leave this place. It isn't so simple for Albert. He is so attached to his Caputh. Nowhere is he so divinely happy as here. He declares that for the moment nothing will make him budge. He does not know the meaning of fear."

In fact, she herself was hesitant and uneasy. Usually the lightning conductor of every alarm, her senses had become blunted by security. "Today I do not know whether I am right in chasing him by force from this solid ground. The villagers are devoted to him. Even the local Nazis greet him with respect." She knew that I no longer had any faith in the good intentions of the Germans. She hastened to reassure me: "He does not go walking alone any more. If there is no one else, his secretary goes with him."

The whole letter showed her uneasiness. "I would like him to keep silent for the moment, not sign any manifestoes, and devote himself solely to his own problems." From afar, the echo of Elsa's insistent voice bouncing against her husband's impenetrable obstinacy reached me. She went on: "Yesterday he said to me: 'If I was what you want me to be I would not be Albert Einstein.'"

Her pride in her husband overcame her anxiety. She also

told me that she was constantly worried about him when he was in America. His pacifist speeches had upset American public opinion. And over there, wrote Elsa, "everything is more violent, frenzied, ferocious."

Einstein had, in principle, accepted the American offer, but in the way that one takes out a life insurance policy without expecting an imminent death. In any case in July he went to Brussels to take part in a congress. He remained several weeks in Belgium and Holland, longing to be back in Caputh. He missed the simple, untroubled life. He was particularly nostalgic about his little boat, the boat that was so much a part of him. There seemed to be a lull in the German situation. The upsurge of Nazism appeared to have been arrested. Again the little village breathed perfect peace. "Was it really so necessary that I should go?" he teased his wife. He must have also made fun of me, but Elsa never spoke of it.

The house was full of visitors: his son, his daughter-in-law, his grandson. The autumn was a particularly flamboyant one. Elsa's letters brought vivid descriptions of these blurred autumn days, sad because of their mellowness, with that silvery background behind the pillars of the trees. Toward the end of September, Albert Einstein still went sailing daily. "He is obsessed with it," Elsa wrote. "It's as though he wanted to saturate himself with joy for the whole year." Did he already realize that he was never again to see this liquid mirror of water, the sails filled with the lazy autumn wind and the pale sun behind the light screen of mist? Was he consciously tearing himself away from his most treasured belongings: solitude and peace?

Elsa's premonition as to the American attitude was con-

firmed. The Woman Patriot Corporation addressed a petition to the American government asking that Einstein be refused entry to the U.S., as "a Communist and a menace to American institutions." Einstein saw in that no indication of a change of attitude toward him; it only tickled his sense of humor. He burst out laughing. And he was still shaking with silent laughter when he wrote his "Reply to American Women": "Never yet have I experienced from the fair sex such an energetic rejection of all advances; or if I have, never from so many at once. But are they not quite right, these watchful citizenesses? Why should one's doors be opened to a person who devours hard-boiled capitalists with as much appetite and gusto as the Cretan Minotaur in days gone by devoured luscious Greek maidens and, on top of that, is low-down enough to reject every sort of war, except the inevitable one with one's own wife? Therefore give heed to your clever and patriotic women and remember that the capital of mighty Rome was once saved by the cackling of its loyal geese."

Einstein's departure for America was marked by this combative good humor. It was nothing like a final departure. In fact, they were going away, both of them, as they did every year, to spend a winter in California in the familiar surroundings of Pasadena. The ferocious growth of Nazism might wane—it seemed so absurd, so inconceivable in the long run. The little home in Caputh would be waiting for them. The permanence of inanimate objects seemed more real than the confusion of ideas. But cling though she did to the idea of a temporary measure, Elsa was upset. Their departure for America was complicated by the illness of her younger daughter, Margot. She had recovered, but the ill-

ness had accentuated even more her extremely fragile appearance, the transparency of her face. She was convalescing in a nursing home and Elsa was greatly worried at the idea of leaving her alone. She said to herself that her daughter needed her more than her husband. The tragic conflict of her life was approaching its climax. In normal conditions, on a shorter journey, she would have let Einstein go alone. In spite of all the arrangements she was making, she seemed to doubt whether this was one of the usual journeys in their wandering life. Yet everything remained as it was, both in Caputh and in the Haberlandstrasse. Everything was waiting for their return.

They left on December 12, 1932. Langevin journeyed from Paris to see Albert Einstein. There was a wonderful understanding between them, based on a concurrence of opinion as well as on their common scientific interests: "They had a lot to say to each other," Elsa wrote to me on the day they left. "You will soon hear what these two fellows have concocted." They were never to meet again.

Elsa Einstein, who had the gift of living in the present, already had her mind fixed completely on the journey. They sailed on a ship of the Hamburg-Amerika Line, the *Oakland.* The ship was going direct to the Panama Canal, then along Guatemala and the Mexican coast to California. They had a suite on the upper deck and had stocked themselves with numerous books for their long journey. "It will be like living in paradise," wrote Elsa; "everything would be perfect but for the pain of the long separation from my children."

She did not seem to realize that there would be no return from this journey.

Chapter XII

THE accession of the Nazis to power took Einstein by surprise in the sunny peace of his Californian refuge. Surprise is the right word to explain what happened. Like many German intellectuals, he must have, in spite of his usually clear judgment, underestimated the power of stupidity and bestiality. In any case, like Elsa, he was mistaken about the speed with which events were taking place. Elsa's daughters were in Germany with their husbands. Nothing had been planned in the way of immediate steps, except the return to Berlin. "The little home" was waiting for them, as well as the house in the Haberlandstrasse where everything was standing in the same place—the furniture, the silver, the bric-a-brac that had followed them all their lives and had a sentimental value. Even their money was all in their bank account in Berlin.

Einstein was returning home by sea when the first news reached him about the situation in Germany and the measures of "purification" that had already begun. He did not,

even for one moment, envisage the possibility of going there, or even of letting Elsa make a quick journey to Berlin to save some of their property if anything could still be saved at the time. When they landed in Antwerp, he had no roof over his head, almost no money; he had indeed been caught napping. Another man would have been dismayed, would have wanted to temporize before making a decision, as so many, in fact, did. But Einstein's reactions were swift and definite. He lived completely in the present. There is a trace of Hamlet in each of us, ready to emerge at critical moments, but in Einstein there was no hesitation. He did not wait to examine both sides of the question he was grappling with. There was no time lag between his thought and his actions. He had made his choice as he walked down the gangway and was consequently perfectly calm.

His first refuge was a students' hostel in Belgium. The first offer of hospitality came from the Belgian royal family. The King wrote him a long letter in his small, regular handwriting, saying what an honor it would be for Belgium if Einstein decided to settle down in that country. King Albert may not have been an intellectual, he may not always have been the brightest of conversationalists, but his offended sense of justice, his disgust at what was taking place in Germany, on this occasion enabled him to put his thoughts into words that were infinitely moving in their dignity. It was not in the least neutral, this letter written by the king of a small country; he did not spare his neighbors' feelings. Considerations of state did not make him less generous in his sympathy with the victims. Many great men might have been proud to have written such a letter at such a time. A pressing letter from the Queen came at the same time. Letters and tele-

grams arrived from all parts of the world offering asylum to Einstein or urging him to return to America. One or two ridiculous suggestions introduced a humorous element into the tragedy.

Einstein decided to stay in Belgium. He was naïve enough to believe that he could preserve his anonymity. He and Elsa avoided large towns and popular seaside resorts. They chose a picturesque summer residence on the coast which suited their modest tastes and which was still quite deserted, as it was not yet the season. The tiny house they found appeared by its very remoteness the ideal refuge in the storm that was breaking out around them. As soon as he arrived on European soil, Einstein made the following declaration:

"As long as I have any choice, I will only stay in a country where political liberty, tolerance, and equality of all citizens before the law are the rule. Political liberty implies liberty to express political opinions orally and in writing, and tolerance implies respect of individual opinions. At the present moment these conditions are non-existent in Germany. People who have worked for international understanding are persecuted there, and among them are many great artists. Social organisms, like individuals, can be stricken with psychological trauma, especially when times are difficult. Nations usually survive such afflictions. I hope that Germany will soon recover her sanity and that in future men like Kant and Goethe will not only be remembered from time to time, but that the principles they taught will prevail in public life and in the conscience of the people."

This declaration, although made in very restrained language, was especially well fitted to unleash the fury of the Nazis. The tone of calm superiority, with the tinge of sar-

casm concerning the transitory character of the German eclipse, exasperated the rulers of the Third Reich, who dreamed of a millennium of domination. Newspapers all over the world published Einstein's declaration.

At the same time he sent in his resignation to the Prussian Academy of Science. The Academy responded with all the zeal of neophytes of the official doctrine. It declared that it had learned with indignation through the newspapers of Albert Einstein's participation in the atrocity campaign launched in France and America and that it had immediately asked for an explanation. It added that its members were "bound by the closest of ties with the Prussian State and that, notwithstanding the discretion required of them in the political sphere, they have always served and safeguarded the national idea. The Academy therefore has no reason to regret Einstein's withdrawal." This was how the Prussian Academy parted with its most eminent member. Einstein replied at once, declaring that he had never participated in what they called "atrocity-mongering" and that he had not been aware that such a campaign existed anywhere. There had been reports and comments on the measures and official declarations of responsible members of the German government as well as on the program concerning the extermination of German Jews "by economic methods." He gave a detailed explanation of his first declaration to the press. "I explained the present state of Germany as a mental aberration of the masses and made a few remarks upon the causes of this condition." He mentioned another declaration made to the International League against Anti-Semitism, not intended for publication, an appeal "to all people of intelligence to remain loyal to the ideals of a threatened

civilization, to do everything in their power to see that the mass hysteria which was being displayed in so terrible a fashion in Germany did not spread further." He added that the German press had "distorted his remarks, as might have been expected from a muzzled press." He demanded that the Academy should bring his declaration to the knowledge of its members and concluded: "I am ready to stand by every word I have published."

The altercation between Einstein and the Prussian Academy caused a great stir and provoked much argument. The first hasty step of the Academy must have aroused opposition among its own members. One could not part with a man of Einstein's reputation so casually. The Academy was torn, like so many German intellectuals of that period, between the desire to fit in with the policy of the government at home and at the same time to reconcile public opinion abroad. It was typical of the neophytes of the new regime, who threw a cloak of tolerance over Nazi crimes in the name of national unity and at the same time tried to apologize for their cowardice abroad, by stressing the necessity of international co-operation. Violent, malicious declarations written in a bad new German appeared constantly in the servile press at home while pathetic reproaches were published abroad. In a direct answer to Einstein, made through the intermediary of its Dutch correspondent, the Academy completely changed its tone:

"If the Academy deeply deplores the turn events have taken [the same Academy that had declared that there was no reason to regret his departure!] it is chiefly because a man of such high scientific authority, after spending so many years of work in the midst of the Academy, among Germans,

years in which he must have become closely acquainted with the German character and habits of thought, should have now joined the party of those abroad who, partly out of ignorance of true conditions and facts, spread false and unfounded accusations against our German nation."

The Academy made another appeal to Einstein, not because it hoped to shake his decision, for it knew that it would have been forced to expel him even if he had remained silent (it hinted at that in the letter), but because it wished to deceive public opinion abroad as to the character of the regime to which it had so willingly submitted. "How great would have been the effect abroad if your voice, your voice in particular, had been raised in defense of the German people at a time when such monstrous and ridiculous calumnies were being spread against them. We have been cruelly disappointed that your testimony has been used by those who, not content with opposing and slandering the present German government, are also enemies of the German people."

Einstein thought this "academic" correspondence most significant and revealing. He knew that such declarations went far beyond his personal case, startling though it was. They contained all the elements of the tragedy that was to disrupt the world and ruin Germany. In April 1933 Nazi barbarism was already all-powerful. To do it justice, it never tried to pass for what it was not. It left this contemptible task to the more respectable Germans, to high officials who had good reputations abroad, and to famous scientists. In this April 1933 the concentration camps, which afterward appeared to the civilized world like visions from the Apocalypse, were already at work. Jews, Communists, Socialists,

and pacifists underwent tortures that were performed with a refinement in the art of human degradation hitherto unknown. A fugitive from Dachau brought to Paris 180 names of victims written on the lining of his coat.

The Prussian Academy of Science counted among its members the greatest brains of Germany, including several winners of the Nobel Prize, and this same Academy branded the warnings of the civilized world as "monstrous, and often ridiculous, calumnies." The great names of its members were to help deceive the world, which one day paid heavily for having believed German lies.

"You have declared," Einstein replied to the Academy, "that my voice raised on behalf of the German people would have had a great effect abroad. I have to reply that such an act would have been equivalent to a denial of all the ideas of justice and equality for which I have struggled all my life. In fact, far from being a voice raised on behalf of the German people, it would have been on behalf of those who are destroying the ideas and principles that have given the German people a place of honor in world civilization. In doing this, I would have contributed, though indirectly, to the destruction of all our cultural values."

At the same time the Bavarian Academy intervened to declare its support of the Prussian Academy and wished to know Einstein's attitude toward the Bavarian Academy, in the light of the events that had taken place. Einstein replied that he wished to have his name struck off its list of members. "It is the chief task of academies to protect the scientific life of a country. German scientific societies have, as far as I know, allowed without protest a considerable number of German scientists and students, as well as members of other

professions with academic degrees, to be deprived of the opportunity to work and live in Germany. I could not belong to a community which adopted such an attitude, even if it did so under external pressure."

There was something magnificent about the calm of Einstein's declarations. He wrote them in the heat of the moment, but every word was carefully weighed. He had his anger under control and he was using his favorite weapon —irony. His thunder seemed to descend from behind the clouds. But he was living in an atmosphere of great anxiety: Elsa's daughters were still in Germany. They could not help reading daily the abuse showered upon Albert Einstein, the incitements to assassination. The house in the Haberlandstrasse was searched. Ilsa happened to be there when the state police came. Her nervous system never recovered from the shock. The "little house" in Caputh was also searched. The garden was dug up in a methodical way, in search of arms. An obliging neighbor supplied Hitler's stooges with spades. The Nazi machinery had not yet reached the stage of perfection for the weapons in question to have materialized. Einstein's accusations against the servility of the German spirit were met with the absurd accusation of an armed plot, with police measures. Even a sense of humor had died under the terror.

Einstein's bank account, the only source of income for Elsa's two sisters and her younger daughter and her son-in-law, had been confiscated. The family spent every night waiting for the sinister knocks at the door which had become so familiar. Elsa was almost suffocated with anxiety. When I saw her a few months later she was still a nervous wreck, as a result of these months spent in mortal terror for her chil-

dren. A long letter in April, which it took her days to write, described her tragic life. "My husband has not allowed himself to be silenced. Nothing could stop him from speaking out his mind. He has remained faithful to himself. And my children were over there, almost distraught with anxiety." At the time she was writing, Ilsa was already with them and Margot was expected momentarily. Ilsa's journey had been kept very secret, for she intended to go back to Berlin, to dismantle the flat in the Haberlandstrasse and the little house in Caputh. Above all she did not want to abandon her husband, a former director of a German monthly. Jewish journalists were being "liquidated" rapidly, but he hesitated about leaving because of his father who, with the obstinacy of old age, refused to leave Germany.

Many future tragedies could have been avoided but for the numerous halfway decisions and divided loyalties. The German Jews imagined that they could still build for themselves peaceful little lives, remote from the storm, though the Nazis had already made their program public with merciless clarity, and the Nuremberg laws were beginning to operate.

Ilsa, still deeply upset by her recent experiences, was caught between her loyalty to her husband and her respect for Albert's convictions. One of them must surely be wrong. Her husband's cautious arguments were so plausible, and Albert's opinions might be merely the extravagances of a genius. She never recovered from the strain of that conflict. There she was, trembling and fragile, her narrow face wearing an expression of painful surprise that never left it; deep shadows lay under her eyes, she jumped at every bang on the door. "Tears rush to my eyes when I look at her," wrote Elsa. "God grant that she decides not to go back. But she is

adamant at the moment." Ilsa very soon went back, secretly, terrified that a chance indiscretion might reveal that she had been visiting a man who was considered a traitor in the whole of Germany—a traitor even in the eyes of the German Jews.

One of the darkest spots of this first period of confusion was the reaction of many German Jews. Thousands of them paid with their blood for the kind of attitude they showed toward Einstein. They blamed him for the blows that fell on them. They explained as reprisals the scrupulously executed clauses in the Nazi program. I have never seen a bird fascinated by a serpent, but that image corresponds exactly to the paralysis of the German Jews faced by Nazism. Had they become so totally absorbed in the German nation? Were they Germans more than they were Jews, in spite of being rejected by the new Germany? "Anti-Semites often talk of the malice and cunning of the Jews," Einstein wrote later on, "but has there ever been in history a more striking example of collective stupidity than the blindness of the German Jews?"

Only the smallest fraction of them escaped in time and they were mostly intellectuals, aware not only of the danger that threatened them personally but also of the danger to their liberty of thought. They were, with few exceptions, poor Jews who withdrew, like dust on the road, leaving nothing behind them, searching for a better fate for their children and a more dignified life.

"Jewish solidarity," Einstein said, "is another invention of their enemies." His mouth dropped faintly at the corners in what in anyone else would have been a smile of bitterness. "At its best it can be compared to the generosity of a man

throwing alms from the top of the stairs to a beggar—to the spongers crowding at the back door." Then he laughed outright, without malice. A German Jew was present at that conversation. "We, the German Jews," he said, "were frightened by the influx of Polish and Russian Jews during the pogroms and prided ourselves on being different. Now, for the French Jews we are the Jews from the East. . . ." And he shrugged his shoulders in resignation.

A Committee of Aid to German Jews was formed in Paris in May 1933. This first wave of emigration, composed of poor intellectuals and small tradesmen, disturbed the French Jews considerably. I had just published several articles in the *Excelsior* on German terror and its victims, on the exodus of writers and scientists, who were the first to bring the fruit of their research abroad. I was invited to a meeting where the problems of this growing emigration were to be discussed, in the house of a rich French industrialist. "We are ready to welcome this Jewish elite," our host said, and I interrupted him:

"It is not only a Jewish elite, there are also non-Jews, clear-thinking Germans among them, who are leaving a country where there is no longer any liberty of thought. Besides, the struggle against Nazism is not a Jewish question. The Jews are only the Nazis' first objective."

"But it is the Jews who are occupying our minds. What are the elements that form the present Jewish emigration? What can we do for them?" I was asked. "We should avoid admitting those who can create competition for the French," our host went on. "Immigration of this sort might provoke anti-Semitism in France, though of course this could not mean anything like persecution on the German scale. . . ."

"It couldn't happen here"—words repeated everywhere at that time—"national interests"; "non-interference with the internal politics of a country"; "France mustn't provoke Germany"; "justified as our humanitarianism may be, it should not make us blind to our true interests."

The conscience of the world lay spread out before us on the oriental carpet of this luxurious house. How terribly familiar it all was!

When I told the story to Einstein, he said: "It is not a purely Jewish conflict, it is part of a social conflict of far greater importance. The haves are getting together to defend themselves against the have-nots."

Slavery to comfort accentuated the tragic drama that was beginning. Against all evidence, the rich Jewish bourgeoisie was clinging to its fortunes, to its houses, to its furniture. I called it the complex of the cupboard which was too heavy to transport abroad. Thousands of them were to die horrible deaths because they had been unable to part with their now meaningless property. In their servility to material things, they had lost all clarity of judgment and all human dignity.

"The greatest tragedy in my husband's life," Elsa wrote in April, "is that the German Jews make him responsible for all the horrors that happen to them over there. They believe he has provoked it all and in their resentment have announced their total dissociation from him. We get as many angry letters from the Jews as we do from the Nazis. And that when he sacrificed everything for them, he who has always been fearless, who has never failed them! How tragic that the same people who idolized him are now flinging mud at him! They are so cowed and frightened that they publish one declaration after another that they are treated well and have

nothing and will have nothing in common with Einstein. Read the contemptible pronouncements of the Central Committee of German Jews, the Jewish Consistory, and other institutions, dictated to them by despair and fear. They are all in the same condition; they misinterpret their situation so thoroughly that one can do nothing for them. Not one of them realizes what is really happening. They have burned every single photograph of my husband. But he never noticed these photographs at the time when he was acclaimed and that is why he is invulnerable today."

Albert and Elsa Einstein were installed at Le Coq in Belgium. I went there on an almost official mission. De Monzie, then the French Minister of National Education, had asked me to offer Einstein a Chair at the Collège de France, vacant after the death of Charles Andler. I knew that Einstein was submerged with offers from all countries, but I also knew that he would have liked above everything to teach at the Collège de France. Suddenly a doubt flashed across my mind. It was a German Chair. The Collège de France alone could alter that, not the Minister. "I've talked to Joseph Bédier. He came today to confirm the resolution of the Collège," De Monzie reassured me, and urged me to secure Einstein's consent. At the first mention of it, Elsa replied that her husband had already accepted the offer of the Institute at Princeton, that he had had commitments in Oxford and Leiden for years, and that he had agreed to lecture for a month every year in Madrid, as well as in Brussels in gratitude for Belgian hospitality. "He *must* accept the Chair at the Collège de France," De Monzie insisted impatiently.

The spring was slow in coming that year. A gray, wintry sun hung over the coast. The silvery dunes were swept by a

sharp wind. Leaden waves beat against the shore; there was something desolate in the salt air that irritated the lungs. Le Coq gave one that impression of transition and solitude that most seaside resorts give when they are deserted and do not live a borrowed life.

The Einsteins lived in a small house in the center of the village. There was a living room and a kitchen on the ground floor, and three little rooms on the second floor. Margot lived with them, as did Mademoiselle Dukas, Einstein's loyal secretary. In his bedroom a plain table by the window served Einstein as a desk. The little house echoed with the sound of voices and the creaking of the boards on the stairs, the noise of the dishes in the kitchen and the hammering of the typewriter. It was one of those temporary houses that brings sadly to mind the space and comfort of homes one will never see again. But Einstein stood at the door with a broad, welcoming smile. As usual, everything around him was reduced to a mere background.

"Of course I accept. I'll have to run through the course very rapidly. I don't know how I'll manage about the rest. I feel like a peddler: 'Would you like some nice new socks? Would you like a bit of obscure science?' " He was laughing with his usual boisterous laughter. I often said to myself: if a great tree could have laughed, shaking its powerful branches, this is how it would laugh.

The French press had already released the news of the offer made to Einstein. It was accompanied with flattering comments and warm words of welcome. Einstein gave me a special statement for *Excelsior*. He spoke of the French people's strong sense of responsibility, of the moral principles in politics and culture which Europe owed to France. He

said: "I know that these moral forces are still alive in France and that today on the Continent of Europe they form the stronghold of traditions of spiritual and political liberty, so imminently threatened. The idea of serving science together with my French friends fills me with great joy, no less than the cordiality with which French authorities and the French people have welcomed my nomination."

De Monzie, who had just gone to Belgium to inaugurate an exhibition of James Ensor's works, was delighted at Einstein's acceptance, and went to Le Coq to express his gratitude to him.

Einstein left for America in the autumn, planning to return to Paris in April 1934. In January he asked me to let him know whether the term started in April, as he wanted to arrive at the last moment; he was reluctant to part too soon from his collaborator, for whom he had obtained a lifelong position at Princeton. Elsa and he had planned not to settle down in Paris, where they had too many friends and acquaintances. Einstein had a fancy for the mellow background of the Ile de France; he needed peace and the large horizons of the country.

The Chair at the Collège de France never materialized. De Monzie had been too impetuous. Joseph Bédier, too, had been too hasty in committing himself without first ensuring the consent of the Collège de France. The latter refused to transform Andler's German chair into a scientific one. De Monzie asked the Financial Committee of the Chamber of Deputies to create a new one, but the demand was refused. For a long time I could not get over this ridiculous situation. I believe Einstein learned of it through the newspapers. Elsa tried to console me: "He has forgotten all about it. Bear the

French a grudge? What an idea! It is all to the good. He will be less rushed in his work."

The fury of the Nazi pack against him became more and more violent. Among the propaganda literature I received from Germany (I had asked for it to be sent to me, though it was nauseating) was an illustrated brochure, by an author whose name I have forgotten, with the title: "The Jews Are Watching You." It was a collection of most unflattering photographs of Nazi enemies, baptized in the Jewish faith for the occasion, such as the Communists Thaelmann and Munzenberg and the Catholic Erzberger, who was killed by the precursors of the Nazis. This booklet was simply an incitement to murder. Einstein's photograph headed the list. All the malice of the photographer had not succeeded in altering the distinction of his features and the confidence of his glance. There was a caption underneath: "Not yet hanged." The sinister words contrasted startlingly with the calm expression of superiority on his face.

I had the photograph and the caption reproduced in *Excelsior*. It was published on the front page. I saw people in the bus start when their eyes fell on it. With the help of this document I was able to impress the good French bourgeoisie with a type of barbarity inconceivable to the Latin mind. The brochure must have had great success in Germany. I received a second edition, but this time without Einstein's portrait. The young Third Reich was still self-conscious about the impression it created abroad.

I went back to Le Coq in August. The season was at its peak and the little village was full of people, like a fairground. Einstein's house was swallowed up by the perpetual coming and going of visitors, but he lived among all the

noise more inaccessibly than ever. One morning I found him in the room on the ground floor sitting at a large table with his assistant, Professor Mayer. They were both hard at work. I could hear the typewriter hammering above. "Elsa is dictating letters," said Einstein. "She hasn't many more to do. Sit down and wait a moment, you are not disturbing me in the least." I went over to a corner of the room by the window and took a sheet of paper, intending to write a letter. My pen remained in the air.

"No," Einstein was saying with determination, "*this* is the way to do it." Then came a series of formulae; his firm voice sounded like that of a man thinking aloud.

"Don't you think . . ." went on Mayer, and out came a row of figures which he put down on paper. The words I caught here and there had no meaning for me; they might have been talking Chinese. But I was embarrassed, as though I were committing a grave indiscretion: I had surprised Einstein at work. Mayer sat with his back to me, but I could see Einstein's face in the hard morning light. I hardly dared look at him, but I soon realized that he did not see me. His eyes did not have their usual brilliance; he seemed mentally a vacuum. But at the same time there was a fixity in his gaze as if he were deciphering a hieroglyph. He could *see* what he was saying. He was thinking with his eyes. It was a strange impression. These abstract formulae which he enounced with slow assurance were for him something visual, which I too might have seen if the language he spoke had not been unfamiliar to me. They were something tangible, too, for from time to time he spread his hands and made signs and curves in the air with them. Mayer followed him with bated breath. He spoke fast, as though trying to catch up with him. Not

blindly. He protested, listened greedily to the explanations, shook his head; then his face lit up. I could see the sweat stand out on his forehead though it was not hot in the room.

Einstein rose and walked around the table. His hand wrote something on an invisible blackboard. He stopped. He pulled at his pipe. A shadow flitted across his face, vanished in the smoke. His voice once again was raised as if for dictation. He stopped for a moment. "Yes, that's right," he said, and laughed happily. "I told you so!" His features grew human, lit up by an expression of boyish, slightly arrogant mischief. Then again his face withdrew as behind a transparent wall, so great was the concentration around him. His compact, solid form, leaning heavily against the table, made one think of a modern sculpture, of thought expressed in stone.

"Yes," he told me later, "I can work anywhere, in any surroundings." He carried his world with him. His faculty of concentration—or of abstraction, rather—isolated him completely. All his past seemed to have crumbled behind him, strewing its debris upon the present. Never had his strength been so remarkable as it was now; I am tempted to call it superhuman. I wonder whether he found it within himself, in some deep faith to which he subordinated all the petty troubles of this earth. His serenity was certainly the serenity of a believer. I suddenly realized that, after having known him so well, I really knew very little about him.

The first wave of German émigrés had fled their homeland in confusion. The house at Le Coq became a shelter for the wreckage. As soon as they began to arrive, Elsa wrote to me: "From morning till night our house is invaded by people who need help. We have here an asylum for the unfortunate." But it was not only for material aid or for advice in rebuilding

their lives that people came to him—they came searching for guidance in the general shipwreck of ideals, or simply to inhale a breath of faith.

Other visitors mingled with the crowd of émigrés. Belgium was dangerously near Germany. There was a rumor that Goering's brother had come to Le Coq. Men with foreign accents asked too many questions about Einstein. Suspicious individuals roamed around the house. The murder of Theodor Lessing showed how precarious could be the security of exile and how powerful St. Vehme.

Elsa went through terrible anxiety. "I can't sleep," she wrote. "I stretch myself out on the bed without undressing. I take every noise to be the approach of danger. It is said in Berlin that they have settled a price of twenty thousand marks on his head. Even if that isn't true, this rumor is bound to attract the attention of fanatical young men." She begged her husband to be careful, and not to take part in public demonstrations. "We have had violent arguments. He has reproached me for being a contemptible coward, for having no sense of dignity."

Danger lurked in the peaceful nights. Alarming warnings reached the Belgian royal family. They upset Queen Elizabeth deeply. She too vainly exhorted Einstein to be prudent. King Albert took more immediate measures. He had the little house surrounded with armed police. Two men shadowed Einstein and never left him for a moment. The two plain-clothes policemen made one think of characters out of a detective story. At the very moment of my arrival at Le Coq I saw one of them rush into the room. He was wiping his purple face and pulling at his long whiskers. His eyes were

popping out of his head and the heavy pocket of his coat was flapping.

"Where is the professor?" he shouted in despair.

"He is resting upstairs," Elsa replied calmly.

"He isn't there—my friend has just been to see—he's gone . . ." His despair was so comical that Elsa, in spite of her fears, could not help laughing. "We'll try to find him. . . . Never have I had so hard a task. He slips out of our fingers like an eel. . . . His Majesty's orders were so very strict," he grumbled. He crunched the gravel angrily under his feet.

"You shouldn't have behaved like that, Albert," Elsa said to him an hour later.

"Hm . . . didn't I give them the slip?" Einstein looked at us, shaking with laughter, his eyes shining with triumph.

One day Einstein received a letter asking for an interview on a very confidential and urgent matter. He was not at Le Coq at the time and Elsa received the man in Margot's presence. He asked to speak to her alone. I got a six-page letter describing this conversation; Elsa had been greatly upset by the revelations of the stranger. She did not know whether she was dealing with a counterspy or with a traitor who was ready to sell himself to the highest bidder; not knowing what else to do, she sent him to see me in Paris.

When he arrived I saw a man whose eyes were those of a fanatic, blazing with hatred. His hair was closely cropped in the Prussian manner. He was a member of a titled German family. He offered to sell for a high price information on the Nazis' preparations for a world war. I feigned a smiling disbelief. "They have nothing to gain from a war." I must have carried off my little act of indifference well, for he tried

vehemently to persuade me that he was right. He spoke of rearmament plans, of Nazi ambitions concerning North Africa, of a spy ring that was to spread over the world, and of the decision of the Nazis to exterminate everybody who stood in the way of their domination. "They want to assassinate King Albert, for they will never get him to agree with them." He spoke of experiments made with a particularly powerful explosive, at which he said he had been present with Goering. He was ready to hand over all the secrets and the formula of the explosive for a large sum of money, of which he claimed to be in need. I suspected some dark story of rivalry, some fear of reprisals behind the hatred in his eyes. "Is it possible that Jewish organizations lack the few hundred thousand francs that would enable them to learn things which might save thousands and thousands of Jews? What I bring to them is sufficient material to overthrow the Nazis." There was a strange note of contempt in his voice, as though he were really indignant and my indifference only helped to exasperate him. He pulled papers out of his suitcase, proving that he had been ordered by Goering to assist at experiments with explosives. "It is easy to fake such papers," I said to myself. But they seemed to me, I could not say why, convincing and authentic.

During this visit I remained torn between contradictory feelings. This was not the first undercover agent the Nazis had sent to me. I had seen many a spy, both pathetic and dangerous, and they usually betrayed themselves during conversation. But Herr von K. made me shudder with fear. (I admit that when he opened his briefcase I expected him to aim a revolver at me.) And at the same time he inspired a peculiar confidence. He left me disappointed when I said

that no Jewish organization would offer him the money he asked—two or three hundred thousand francs, if I am not mistaken. Elsa was right when she said that the man looked hunted. That was what I thought as I saw him walk, stooping, down the path in my little garden. I immediately informed the Sûreté.

A few days later he wrote me a letter, signed with his name, which I also passed to that organization. They promised to make inquiries, but I never heard the man's name again. Either the police had not taken my warning seriously, or he had escaped them. The high official whom I had informed had been intensely interested, but later on he became a prominent figure in the Vichy government—perhaps he already belonged to the fifth column. Einstein had, in his turn, warned King Albert. Though the death of the King of the Belgians—that great friend of France—was later considered to have been accidental, I could not help thinking of those fanatical eyes in the face of a man who spoke of the King's death as though he were seeing it happen.

Neither Einstein nor I have ever made up our minds whether we had had to do with a traitor or a lunatic, or whether we had missed the opportunity to learn a great deal about the Nazi menace from someone who knew.

In the autumn of 1933 the Einsteins left for America. "It was hard to part with the children," Elsa wrote from the boat. "This happens every year—I ought to be used to it, but every time the rift is the same." Ilsa Kayser had come to Antwerp with her husband; Margot alone had remained at Le Coq in the now silent little house, to finish a wooden Madonna she had started during this eventful summer.

The long journey on the ship was a miraculous relaxation and Einstein found ideal conditions for work at Princeton. "The whole of Princeton is one great park with wonderful trees," Elsa wrote to me. The autumn was revealing all its splendor, the trees were flaming with red and golden tints. They lived far from the turmoil of American life. "We might almost believe that we are in Oxford and when the bells ring —and they ring so often here—it makes us think of Westminster, of the heart of England. I have never seen a place in America that looks so un-American." She was also delighted with the house that had been reserved for them—an old patrician house at No. 2 Library Place—surrounded by a big garden and with large, airy rooms, furnished with taste and care. After the camping life at Le Coq, this beautiful house seemed like a palace in a fairy tale. Einstein's assistant joined them, as did his secretary, who was the first to adapt herself completely to American life. A new existence full of comfort began for them. New ties of friendship came to soothe the wounds of disloyalty. Elsa's letters began to sound optimistic again. She had even recovered some of her vitality. "We are very happy here," she repeated. But she could not bring herself to be egotistical enough to enjoy the present fully, for she added at once: "perhaps too happy." In her heart she was still tormented. "Sometimes one has a bad conscience. One thinks that everything has its compensation and that logically all this must end someday."

She rarely got news from her daughters, not often enough to allay her anxiety. The "compensation," as she called it, turned out to be terrible. She was summoned to Paris in May 1934. Ilsa was there, seriously ill. She had let her mother know only when she felt her condition to be critical. Margot

was with her. On the ship bringing her back to Europe, Elsa knew, in spite of all precautions that had been taken to conceal the truth from her, that she was arriving too late. In her despair she reproached herself for negligence. "Both children have undergone terrible trials and they must have needed me. Why, oh, why did I not go earlier?" she wrote during the crossing.

In a furnished apartment in the Rue du Docteur Blanche she found the emaciated body of a young woman: a face of which nothing remained but the eyes with a gray misty look of surrender in them. Margot, exhausted by anxiety and her vigil, looked strangely like her dying sister. Ilsa was taken to a nursing home in St. Cloud and Elsa summoned a Berlin doctor. French doctors came and went. It was tentatively diagnosed as an inoperable cancer, but in fact this was an incorrect diagnosis. But for her refusal to live she might possibly have been saved. All she asked was not to suffer. Only when she died did a smile appear on her face, giving it back suddenly all its youth and beauty. We brought her coffin from St. Cloud to Paris on a sultry summer day. Margot looked stunned: she was like those cripples who keep groping for the absent limb. As I drove in the car following the coffin on a road bathed in a dazzling sun, I felt that I was accompanying not only a girl who had died before her time but also a mortally stricken mother.

It was a long time before I had news from Elsa. "Since my child is no more, I no longer write," she said at last in a letter. She had had the courage to resume the thread of life, desolate as she was. "I did all I believed I ought to do to please Albert and Margot." She even spared them the spectacle of her suffering. But she was always aware of an irreparable

loss, that was like a wound that refused to heal. "I never stop longing for her." Her handwriting showed her deep distress. She drew some comfort from the fact that Margot had recovered a certain calm in her work and, having regained strength under her mother's care, seemed to have risen above her grief.

Elsa's principal source of strength came, as usual, from her husband. Albert Einstein had been greatly upset by Ilsa's death and his wife's grief. He reacted as believers do, with an increased ardor in his own religion, with a new creative effort of thought.

Elsa spoke to me about it in the same tender and joking tones which the unknown regions of the mind always inspired in her. "Albert has produced something outstanding. Nobody will recognize it, nobody believes in it, but perhaps one day when he is no more people will realize all that he has created. It appears that his new discovery is so bold that he will not see his idea realized during his lifetime."

They spent the summer in Connecticut, where they found a house that Elsa compared to Paradise. "We have allowed ourselves an incredible luxury this year. We have rented a real estate—twenty acres of land, groves and fields, with all the marvels of summer around us. There is even a tennis court and a swimming pool. We are so far from everything. There is such peace here. A silence such as I have experienced only once—in the mountains." There were a few touches of her old humor in the letter: "Everything is so luxurious here that the first ten days—I swear to you—we ate in the pantry; the dining room was too magnificent for us." Again she reproached herself: "One feels ashamed to live so happily. . . ." One idea predominated in her: that she had

been unable to give Ilsa all that she had reserved for her in compensation for her suffering. The shadow of her dead daughter threw a cloud over the splendor of the summer. "She has been sacrificed," Elsa wrote to me. She never failed to reproach herself.

Einstein loved the solitude that surrounded him. Visitors, however, found their way there in spite of the remoteness of the White House of Old Lyme. One day Pirandello came to see him. They sent me a letter, signed by all of them. They understood each other from the first. "When he winks at you so gently you feel how well he understands you," Elsa wrote. I could imagine Pirandello's eyes, both penetrating and weary, occasionally lit up by a sudden gleam. They were candid eyes, the eyes of a tired child through which another man sometimes looked with a wise and cruel gaze.

Elsa increased her efforts to surround her husband and daughter with every possible comfort and luxury. She was anxious about her nephew and about both her sons-in-law, who were waiting for their American visas and for whom a new life had to be built. The Einsteins bought a house in Princeton, on Mercer Street. Builders worked at it all the summer. Elsa worried as to how they would get on in their absence. She was obsessed by perfection, as though she would have liked to make up to the living for her concentration upon the dead.

They returned to Princeton and the move to their new house began. The moving vans still stood at the door when Elsa felt a swelling in her eye. It was an edema on the retina. She realized at once that it was serious, but she went on supervising the installation for several days. She believed that no

one but she could find his way in the labyrinth of dismantled furniture which they had been able to rescue from Berlin.

The New York oculist confirmed Elsa's presentiment. The accident to the eye was only a symptom of a serious disease of the kidneys and the heart. But she refused to go to the hospital in New York. She did not want to part with Albert, or with this home where she had at last been able to collect the scattered pieces of her life. She was surrounded with great care. Her family concealed from her the diagnosis of the doctor and she in her turn concealed from them the seriousness of her condition. Margot went to spend a few days in New York. Her mother telephoned her every day to reassure her and urge her to prolong her visit. When she returned home, Margot found her mother so changed that she almost fainted. "Yes, it looked grim," said Albert; "she almost let out the secret." He could still joke, but his eyes never lost their look of anxiety and he was very pale.

She underwent a drastic cure that demanded total immobility. After a few weeks she broke her doctor's regulations and dictated in a whisper a long letter to me. Though incapacitated by her illness, she never stopped worrying about her family. The lovely house that she wanted to set up for them was now living under the shadow of her illness. That was one of her principal regrets. She was also distressed to be unable to do anything for those members of the family who were coming to America. She could not bear to fail in the responsibilities she had assumed.

The doctors noticed an improvement in her condition. She was making plans, those tentative plans made by people seriously ill. But I do not think she had any illusions as to her condition. A sentence had slipped into the long letter, a sen-

tence that chilled my blood. "I so much want to speak to you. Do try to come. But don't delay your arrival for too long, so we may still be able to meet."

I wanted to go at once, but Margot wrote that her mother's condition was not hopeless. She also said that she feared that my arrival might upset Elsa too much. There was, in fact, a halt in the progress of the disease. I had a letter from her. It was the first that she was able to write herself, with one eye closed, and her hand trembling, as she outlined one letter after the other. "This trembling," she wrote, "is part of the 'general picture of the disease.' What a pompous phrase!"

But she spoke chiefly of her husband, of his concern about her, his preoccupation on her account. "He has been so upset by my illness. He wanders about like a lost soul. I never thought he loved me so much. And that comforts me." Not even her illness had given her that sense of importance that invalids often get, which makes them think they are the center of the universe. On the contrary, she showed more than ever that strange humility so characteristic of her.

Albert's fifty-seventh birthday was approaching. She spoke of the magnificent richness of his work. "He is in very good form. He has accomplished a lot lately. He himself believes his latest work to be the best he has ever done."

This was almost Elsa's last message. Her last days were brightened by a great hope. Albert Einstein had rented a lovely house for the summer, two hours from Montreal. Elsa felt better. Everybody said she would recover in this house at Saranac Lake, where Albert Einstein once more returned to his beloved sailboats. She was delighted at the idea of the journey, as though hoping that new horizons and surroundings would change the dismal trend of her thoughts. In her

last letter she told me: "I am certain to get better there. If my Ilsa walked into the room now, I would recover at once."

In fact she survived her daughter by only two years. I do not know what the doctor's diagnosis was, but I know that she died from the cruel conflict between her passionate motherhood and her love for her husband.

Chapter XIII

"IN THE flash of lightning that lights up our stormy sky, men and things appear in all their nakedness," Albert Einstein wrote in 1933. "Nations and human beings clearly reveal their designs, their strengths and weaknesses, and their passions too. Routine and conventions have become meaningless in these rapidly changing conditions."

Men and nations were, indeed, to show what they were worth in this hour of trial. Einstein knew—he had known it from the start—that the seizure of Germany by the Nazis was not merely a deplorable, ephemeral incident; nor was it a purely internal movement, as fascism pretended to be for a time. He knew that fundamental human values were in danger and he also knew that people were far from realizing this danger. Their blindness alarmed him. He was also alarmed by the absence of the most elementary reaction against injustice—the reaction that is man's only protection against a return to barbarism. This absence of reaction meant not only more or less deliberate, more or less selfish blind-

ness, but also sympathy with the methods employed, a nostalgia for order, even if based on violence. He knew how deceitful and how pernicious arguments based on the fatality of evolution could be, and he often quoted Lorentz' reply when he was told during the First World War that in history force had always triumphed over right. "I cannot refute the truth of your argument, but I know that I would not care to live in such a world."

In the decisive years when Nazism was still progressing slowly, when persecutions were executed by installments and seemed to affect only a small ethnic and political group, when the victims of tomorrow were still able to say: "This does not concern me, only my neighbor," the world also was becoming accustomed, by installments, to moral decadence.

For Einstein it was the beginning of a great problem of conscience that he shared with many others. How should he react against this decadence, and what would be the consequences of his reaction? His problem was different from that of many Jews, uneasy about their Jewishness, wondering whether their reactions were conditioned by resentment, emotion, or the fear of tomorrow. Some of them even thought it necessary to show sublime impartiality, which may have been only another symptom of their inner uncertainty. For Albert Einstein, though he knew that anything he said would appear suspect from the very fact that he was a Jew, that problem did not exist. He saw anti-Semitism in its historic role as a catalyst of rancors, and described it as a "process by which hatred of a given individual or group is diverted toward another individual or another group, who are incapable of adequately defending themselves."

Neither did the problem of identification exist for him,

as it was absolute and total. "It should be the concern of every Jew when another Jew is hated or treated unjustly anywhere." Einstein never accepted the idea that he should be treated differently, the attitude adopted by more or less secret anti-Semites in regard to Jews "of quality" or to those among their Jewish friends who were "different from the others." At the moment of crisis the most humble of the persecuted Jews was his brother. He realized the contagious character of a movement which, owing to the apathy of the world, was able to spread so widely and acquire such violence. In 1934 he recalled this fact to all the Jews who, deluded by the apparent stability of democratic institutions, believed themselves to be safe. "Such diseases and neurotic disorders in the minds of nations are not kept at bay by oceans or national frontiers, but develop in the same way as economic crises and epidemics."

But if anti-Semitism, even on a universal scale, was merely a diversion of hatred and rancor, it was also a means and not an end. The most burning problem for many Jews and non-Jews at that moment was the choice of the lesser evil. Even those who deplored the havoc caused by German anti-Semitism, who criticized the persecutions and sympathized with the victims, asked themselves whether the maintenance of peace in the world was not worth the sacrifice—however regrettable it might be—of an ethnic minority. Einstein never envisaged this aspect of the problem. Like some other clear-minded men in those early days, he knew that there was no question of choice, that every sacrifice and capitulation was only a prelude to heavier sacrifices and more shameful capitulations. From 1933 only one question haunted him: How can Europe be saved from disaster? He was involved in an

inner conflict when he replied to himself and to others: "We must even face battle when it becomes necessary to safeguard law and human dignity." In envisaging that possibility, Einstein denied all his past, the main principle of his life —the maintenance of peace.

But the situation changed. It became more acute year after year, month after month, and made this battle unavoidable. When National Socialism first made its appearance in Germany, the mobilization of liberal ideas could have stopped it. In the following years, when Germany was rearming or at the time of the reoccupation of the demilitarized zone, a mere menace of military mobilization—at worst an expedition on a small scale—could have arrested Hitler. Perhaps even at the moment of the Anschluss Germany might have withdrawn before a concerted action of the Great Powers. But every sign of weakness, every concession, served to increase not only Germany's power but also its certainty of victory. "The pseudo success of political adventurers dazzled the rest of the world," Einstein admitted bitterly.

He had gone to America in the hope of explaining to those who professed their attachment to democratic institutions what was taking place in Germany, but he came up against the shortsightedness that is born of prosperity, the lack of imagination that blinds men of good will to evil, and the confederation of egotisms that paved Hitler's way throughout the world. As soon as he arrived in the United States he became the loudspeaker of the victims of persecution, a sort of unofficial ambassador of all those who had escaped, or could still escape, from the German hell as long as another country agreed to give them asylum. He tried to find jobs for his scientist friends at the universities, approached poli-

ticians, and tackled industrialists and bankers for financial guarantees. Mademoiselle Dukas, his secretary, spent most of her time typing letters of recommendation to various authorities concerning prominent intellectuals, or poor wretches waiting to be liberated. "There would be room for innumerable refugees on this continent," wrote Elsa, "but the Jews here are opposed to it; it is the replica of what once happened in Germany when the Eastern Jews invaded it."

But the number of victims grew, the persecutions brought new floods of refugees—Jews as well as non-Jews, particularly in the countries adjacent to Germany. The problem became too vast for charity institutions, for national organizations. Einstein tried to solve it on a world scale. He discussed the matter at length with influential Americans, he pleaded for the victims with the emotional force characteristic of him and the competence of a man who had seen individual disasters with his own eyes and pondered over a solution. The response he got sounded promising. But the results were mediocre. The insidious influence of the Third Reich prevented any large-scale operations. "Nazi propaganda has gained a lot of ground here," wrote Elsa. "One must admit that those people are very clever." Einstein's hopes were now concentrated on President Roosevelt. The first interview with him left a deep impression because of the understanding he found, the direct and human approach with which Roosevelt always charmed anyone who came to see him. Einstein felt that this was the man capable of influencing the destiny of his country and thus causing America to influence the destiny of the world.

Convinced that the monstrous Nazi machine that had been set in movement would inevitably lead to war, Einstein was

alarmed to see the democracies so ill prepared for an armed conflict. Their reluctance to realize the importance of what was at stake was not simply a proof of selfishness or lazy conscience but an expression of the same horror of war that he had once tried to awaken in all hearts, the gospel of pacifism which he had preached. In adapting his ideas to a changed world, and so repudiating his own past, Einstein had to break with many of his pacifist friends, who did not realize that their enemy was now a different one, that their efforts were mistaken in their goal. Some of them who never noticed the turning of the road were to follow their mistake to the end and supply the Nazis in the future with unconscious accomplices and even collaborators. War had lost nothing of its horror in Einstein's eyes. The barbarism of the massacre revolted him just as it had at the beginning of his conscious life. But something different was now at stake, something even more precious than life, "that one wished to see defended at any price." Death was no worse than this life of humiliation that is granted to the victims.

If hatred of war was born in Einstein from his love of life, if destruction appeared in all its horror because the world was so beautiful, the urge to live takes a different form in a world destroyed, in which the sources of life are contaminated and the human being deprived of all that was divine in him. Conscious as he was of the change of values that had taken place, Einstein was reluctant to part with what had been, only a short time ago, the principal object of his life. He had to destroy what he had created and disappoint those who had followed him with such courage and at the price of such sacrifices in his battle against the idea of war.

In the declarations he published in 1934, he—whose frank-

ness was usually unequivocal, at times brutal—spoke in a curiously embarrassed tone. But his conclusions were clear and definite. In totalitarian states the refusal to fight would mean martyrdom and death and be only an ineffective individual revolt which could be quickly suppressed, while in democratic countries this refusal would mean "a weakening of the power of resistance of those parts of the civilized world that have remained sane." In taking this attitude, the only one he could take at this tragic hour for mankind, Einstein entered upon the principal tragedy of his life. He was still ignoring it when he wrote: "No reasonable being would today support a refusal of military service—anyway, not in Europe, surrounded as it is at this moment with danger." He also said: "Other times, other measures," and defined his new revised attitude as that of a "hardened pacifist." The destroyers of democracy, the future collaborators who navigated in troubled waters under the banner of pacifism, were to brand him, as they did other men of the same type, as a "warmonger."

When the Spanish war broke out he immediately understood its "dress rehearsal" character, that it was a trial of potential strengths. Einstein followed the vicissitudes of the struggle with passionate concentration. When Infeld announced to him one day a Republican victory, his eyes lit up. "This sounds to me like 'Hark, the Herald Angels Sing,'" he said, and Infeld was struck by the unaccustomed joy and emotion he showed. Einstein also realized that the policy of non-intervention, though compatible with democratic neutrality and capable of success if it were tried out in the void like an experiment in a laboratory, encouraged international fascism and secured its future victory. He was distressed by

the weakness France showed in regard to the "menace facing the Republic from the south," and tried to discover its reasons. "The cause of this weakness seems to be chiefly the fear of British disapproval," he wrote to me, "though everyone ought to know that England will without any doubt come to their aid under any circumstances and not only for the sake of Marianne."

The interest in international events shown by Einstein in these years put him in the limelight, often against his wish. His sense of responsibility, always acute, became even more so when so much individual distress surrounded him. He experienced the same guilt as does the sole survivor of a shipwreck—the feeling that tormented Elsa when she thought their life too easy and comfortable. He did not want to refuse any of the demands showered upon him, however absurd they often were. People came to him for help in the name of great causes as well as of shattered lives. He and Thomas Mann, who was then at Princeton, started a campaign in favor of awarding the Nobel Peace Prize to the German pacifist Carl von Ossietzky, who had been imprisoned and tortured by the Nazis. Einstein was prepared to do anything he considered useful, in ways he would not have tolerated before. He made an appearance at a concert and was rather proud to have collected six thousand dollars for Jewish refugees. He seemed not to mind wasting his time, as though recognizing that every man in need had a right to it. He agreed, for example, to let an émigré German painter paint his portrait when persuaded that this would add to the painter's prestige.

His letters of recommendation lost their impact because they were too numerous. On one occasion he recommended

four radiologists for the same position in a hospital. Later, he was unable to understand that anyone could reproach him for this abuse of generosity: "Yes, I did recommend four radiologists, all for different reasons, which I explained. All they had to do was to make their choice among them, which, in fact, they did." Sometimes mere poverty was sufficient to establish the claims of total strangers. He intervened for refugees not only in America but also with his friends in England and France. His disappointments were many, his mortifications often repeated. One day the French police found one of his letters of recommendation in the home of a quack doctor whom they had come to arrest. "His mother was in such despair when she came to see us," said Elsa. Sometimes Einstein, faced with a demand that was too brazen, exercised temporary caution, and people often remembered the exceptional occasions on which he refused help, rather than the innumerable ones on which he gave it.

In the turmoil that surrounded his name, recent resentments mingled with old jealousies, the voices of friends, or thwarted admirers, with those of his enemies. "Most of the time," said Einstein in a brief outline written in 1936 and called "My Portrait," "I act as my nature forces me to act." And he added: "It is embarrassing sometimes to be surrounded with so much respect and admiration, but there have been vicious darts flung at me too. They have never affected me, belonging as they did to a world with which I have nothing in common."

If Einstein, like so many others in those years, was forced to reshuffle his friends, he continued to be the target of attacks from the same side—only the motives had changed. It was again the nationalists, the American isolationists who

had once pursued him for his pacifism, who now reproached him for wanting to drag America into the war; it was the patriotic women who rose against him, because his appeals risked exposing their sons to death.

In these years, in which his lucid mind foresaw the nightmare of the future, he repeated his warnings, although he knew them to be futile; these years were poisoned by the realization of his impotence; he became more and more of a recluse. The death of Elsa severed the strongest tie he ever had with a human being. Nobody knew, for he never mentioned it, what this loss of the only companion of his life must have meant to him. It was as though a glass screen had suddenly isolated him from the rest of mankind. He became at the same time more tangible and yet more inaccessible. When Elsa died it became clear how great her part of intermediary and interpreter had been, as though she had had the secret power to reach him by translating human language to him. He continued to live in the beautiful house that was Elsa's last work, in a way her testament—the house she had dominated with her modest presence and in which she has remained alive until this day.

Death kept creating a void around him—the death of people close to him in thought, like Painlevé or Madame Curie. "It had been my good fortune," he wrote, "to be associated for more than twenty years with Madame Curie, associated in a cloudless friendship." Many of his friends, Austrian or German Jews, were dying self-inflicted deaths, victims of a barbarism which they had not the courage either to face or to flee. "It so often happens now that men of high quality depart from this life of their own accord that we no longer find such an end surprising," he wrote with bitterness on

hearing about the suicide of one of his oldest friends, the physicist Paul Ehrenfest. In the tragic end of Ehrenfest another factor besides the devastating times played a part—the inevitable conflict of two generations of thought, a conflict of conscience, as Einstein said, "which no university professor over fifty can escape in one way or another." He said this with resignation, for it was also his own conflict.

The drama that had colored his life very early, at the moment of his success and of his closest contact with contemporary science, became more accentuated in these years, taking on more and more of the accents of tragedy. It was not, however, the usual rift that takes place between a new generation conscious of the audacity of its thought and an old man who remains a survival of the past and an obstacle on a path that leads toward the future. It was the case of an older man who, in spite of his years, persisted in continuing on his own way, which was becoming more and more deserted; for most of his friends, and all the young men around him, declared that the way led nowhere, and that he had strayed into a blind alley. This tragedy became all the greater because the theories that were Einstein's starting point had ceased to be a little island accessible only to the initiated. Leopold Infeld, remarking that in 1955 the theory of relativity would be fifty years old, attacked the obsolete assumption that science was reserved for a few privileged minds, when he said that "Einstein would not have been one of the few who have influenced our century most strongly if his ideas on physics had been understood by only a few."

In 1950, when he wrote this, he declared that at least twenty-five of his students already had a considerable knowledge of the theory of relativity. Einstein's peculiar position

became more acutely controversial because in the process of his separation from the present generation of physicists the new generation caught up with what he had done up till then. Owing to this, Einstein's influence on the contemporary development of the quantum theory became almost negligible. This was how Infeld explained the contradiction between Einstein's past and present: "The static character of the quantum theory is regarded by many physicists as essential and it seems to them very unlikely that it will change in the future. Einstein is almost isolated in his belief that it will."

Prince Louis de Broglie, speaking of the innumerable attempts made in recent years to complete the general theory of relativity and transform it into a unified one, capable of explaining at the same time the existence of forces of gravitation and electromagnetic forces, noted that the efforts Einstein himself pursued for more than twenty years had not met with any decisive success, in spite of their incontrovertible importance, and that they were landmarks on a road that had not yet been cleared.

Max Born pointed to Einstein's aversion to modern physics; he recalled the objections he raised against wave mechanics, and added: "Remarkable investigations have paved the way toward a new micromechanics, which physics at large has accepted today, while Einstein himself stands aloof, critical, skeptical, and hoping that this episode may pass and physics return to classical principles."

Albert Einstein, on the occasion of his seventieth birthday, examined in detail the criticisms of his obstinate desire to pursue his own way, in disagreement with modern physics. He replied to Max Born and to Wolfgang Pauli, both of

whom had deplored his negative attitude to the quantum theory. He declared that he fully appreciated the contribution made by the statistical theory of the quantum to the progress of theoretical physics. "What does not satisfy me in this theory," he explained, "from the standpoint of principle, is its attitude toward what to me appears to be the program and the aim of all physics: the complete description of any real (individual) physical situation (as it supposedly exists, irrespective of any act of observation or substantiation)."

Einstein has a way of seeing both sides of every question and, when he is writing, appears to *hear* the objections his point of view is bound to raise, and to confront the opponents of his ideas. "Whenever a modern physicist, with positivist tendencies, hears a formula of this kind, his reaction is a pitying smile. He says to himself: Here is expressed quite plainly a metaphysical prejudice, void of all content, a prejudice indeed whose conquest has been the main epistemological achievement of physicists during the last quarter of a century. Has any man ever conceived a 'real physical' situation? Is it possible that any reasonable person should still believe today that he can refute our fundamental knowledge and understanding by conjuring up this bloodless ghost?" After this long imaginary conversation, Einstein came to the following conclusion: "Within the framework of the statistical theory of the quantum, there is no such thing as a description of an individual system . . . ; but if one accepts the interpretation that this description refers to a group of systems and not to individual ones, all the 'skating on thin ice' that is performed in order to avoid the 'physically real' becomes superfluous." In examining the differences of opinion that separated him from his colleagues and friends, he found that

most of the reasons were psychological. He declared that, according to his long-established conviction, theoretical physics would, after a lengthy and difficult path, develop in the sense that the statistical theory of the quantum would take, within the framework of future physics, position approximately analogous to that held by statistical mechanics within the framework of classical mechanics.

He then resumed his imaginary dialogue and made his opponent, the theoretician of the quantum, say: "True, I admit that the theoretical description of the quantum is an incomplete description of the individual system. I will even go so far as to admit that in principle a complete theoretical description is conceivable. But I consider as established that the search for such a complete description is unnecessary and pointless, because the order of nature is such that laws can be formulated within the framework of our incomplete description." Einstein, as opposed to this theoretician, was not satisfied with this incomplete description. He believed that the research that he was pursuing and for which he was being reproached might one day complete it. He stated, in his "Preliminary Notes on Fundamental Concepts," which he contributed to the publication in honor of Prince Louis de Broglie's seventieth birthday: "My efforts to complete the theory of general relativity by a generalization of the equations of gravitation have their origin partly in the hypothesis that a rational field theory in general relativity would perhaps one day provide the key to a complete quantum theory." But he added at once: "It is but a modest hope, in no way a conviction."

For many years Einstein, first alone, then with Infeld's collaboration, worked at a complement to the theory of rela-

EINSTEIN SAILING ON THE LAKE AT CAPUTH
". . . wearing sandals and an old sweater, his hair ruffling in the breeze."

EINSTEIN AND LEOPOLD INFELD IN THE STUDY AT PRINCETON
". . . one of the few who have influenced our century most strongly."

EINSTEIN IN HIS STUDY AT PRINCETON, 1938
"We are very happy here—perhaps too happy."

tivity, the movement of double stars. The aim of this work was to gain better understanding of the laws of movement and to formulate them more completely and logically than in Newtonian mechanics. The problem was purely abstract, without any practical importance. As Infeld pointed out: "For three years I concentrated on double stars without ever having seen one." More years of hard work were to go by before a theory was elaborated which seemed logically satisfactory to Einstein.

Such partial successes and confirmations of bold ideas formulated in the past as, for instance, the experiment of H. E. Ives in the Bell Telephone laboratory in 1936, which constituted, according to one of Einstein's biographers, "a startling proof" of the delay in intervals of time, may have encouraged Einstein, but the principal source from which he drew his obstinate determination was surely the magnitude of the goal he pursued. The theory of the unified field was the most ambitious his imagination had conceived. One of his biographers, Lincoln Barnett, described its immense importance in these words: ". . . it promulgates a set of universal laws designed to encompass not only the boundless gravitational and electromagnetic fields of interstellar space but also the tiny, terrible field inside the atom . . . In its vast cosmic picture . . . the abyss between macrocosmos and microcosmos—the very big and the very little—will be bridged. . . ." The complex totality of the universe would thus be resolved in one homogeneous movement in which matter and universe could not be distinguished the one from the other. All forms of movement, from the slow wheeling movements of the galaxy of stars to the rapid flight of electrons, would appear

simply as modifications of the structure and degree of concentration of the original field.

Albert Einstein has himself revealed the nature of the power that stimulated his efforts, his search for perfection and his longing for the absolute. In a long essay, "Foundations of Physics," written in 1940, he said: "Some physicists, of whom I am one, cannot believe that we should accept the idea that the rules of nature are like those of a game of chance. Every man is allowed to choose the direction of his effort and can draw consolation from the beautiful motto of Lessing that the search for truth is more valuable than its possession."

No disappointment could make him reconcile himself to an accessible imperfection. That does not mean that he was not often discouraged, or that he never knew the distress of those who have been disappointed in their own creative efforts, who have been led up a blind alley by their desire for perfection. Infeld said in his book that Einstein himself, after having written so many papers, would now look on some of them as wrong or antiquated. He recalled this short and poignant dialogue that revealed the tragedy inherent in all human effort and which even the greatest brain of our times was not spared: "When I discussed this very problem with Einstein, he said to me: 'Man has little chance.'"

Perhaps Einstein's real greatness is best illustrated by such an admission. If today he is isolated in his efforts, he is not the only one to be haunted by the longing for a perfect universe. André George drew this comparison between him and Louis de Broglie: "They both have a deep sense of the harmony of universal laws, of the decisions that rule the world. They find it miraculous that it should be so, and that in the

light of our reason a human understanding of these cosmic secrets should not be impossible. There is something aesthetic and almost religious in this feeling, in so far as it comes from these two great agnostics whose belief is not that man cannot and should not try to pierce the veil."

Einstein has expressed the individual character of his faith in one of those remarkable sentences of which he is such a master. Speaking of his divorce from contemporary theoretical physics, he wrote to his friend Sommerfeld in 1944: "We have gone to opposite extremes in what concerns our scientific ideas, and in what we expect from science. You believe in a God who plays at dice, whereas I believe in perfect laws in a world of existing things, in so far as they are real, which I try to understand with wild speculation."

Einstein's friends often heard him utter this sentence: "God does not play at dice." It is the final belief of his life.

This faith illumined for him the darkness that was then enveloping the world, that miserable time when everything seemed to be surrendering to arbitrary violence. His background of eternal values gave him the strength to resist the desolation of the present. "Science," he said, "is no more than the purification of daily thoughts." Such a purification was particularly difficult in those years, but at the same time more and more necessary. It was no longer possible for a scientist to draw a definite line of demarcation between his research and his everyday life. "The critical attitude of the physicist cannot confine itself to an examination of concepts in his own sphere," he wrote. He claimed for the scientist the privileges hitherto reserved for the philosopher. The physicist "cannot go forward without examining from a critical point of view a much more difficult problem: the analysis of the

nature of daily thought." Under the pressure of events this physicist-philosopher is also forced to examine the moral problem of our times, and discover the roots of the evil that is consuming it. What was the principal cause of this decay, Einstein wanted to know, of this victory of barbarous methods in politics? For him it lay in the obvious decline in moral values. "It is the cult of success, rather than the value of things and men in relation to the moral end and to a human society, that now dominates everything in the press, as well as in education, with its system of competition." The "moral degradation produced by an inhuman economic struggle" was added to the havoc wrought by this cult. Can a man conscious of his moral responsibilities, really imbued with an ideal—Einstein put these questions to Americans—enjoy without self-reproach a privileged position, "a reward in fortune and advantages superior to what other men have ever received"? Can he remain outside the struggle for security because his country is at the moment secure from a military point of view? Can he remain indifferent to brutal persecution, to robbery, and to the massacre of innocents? It was the moral weakness of the unconcerned and the indifferent which "together with the terrific efficacity of the new technical methods of battle," encouraged barbarous proceedings and made of them a "terrible menace to the civilized world."

Einstein felt this menace so intensely, so clearly, that it "throws a shadow upon every hour of my present life," he wrote in 1939. He wrote this on his sixtieth birthday, remembering the summary of his concept of the world written ten years before. "What I wrote then seems in its essence as true as ever, but it seems nevertheless strange and remote." How could that be possible? he wondered. Had the world

changed so profoundly in the course of ten years, or was it because he was ten years older and saw everything in a darker light? What were ten years in the life of humanity?—but these were "ten ominous years." Man's cultural inheritance had been threatened and his sense of stability had vanished: "The conscious man has, no doubt, at all times realized that life is an adventure, that it has to be ceaselessly torn from the clutches of death." But today the whole of human society was in danger.

In examining the last ten years in this way, Einstein anticipated a future that still seemed remote. The peace of the world in this spring of 1939 did not appear to be threatened any more than it had been only too often in recent years. Lazy consciences had acquired the habit of believing that danger could always be warded off at the eleventh hour. The men who were dying were far away. Hitler's massacres were far away, and far away too the Jewish pogroms. Nightmares vanished quickly under the influence of a summer sky. Poland was as far away as Czechoslovakia had once been. Why die for Danzig if one did not die for Prague? Yes, the reprieve could last forever.

Something happened during that summer of precarious peace, a peace balanced between inertia and violence: it was something so insignificant on the surface that even had it not been very secret it would have passed unnoticed. It was, however, an event of incalculable importance. Einstein was visited in July by an émigré physicist. The refugee scientists in America were among his most frequent visitors. The Hungarian Leo Szilard, formerly of Berlin, now professor at Columbia University, had received an introduction to Einstein through a compatriot, also a physicist at Princeton Univer-

sity. He had, like so many visitors before and after him, a manuscript he wanted to submit to the great man. All the circumstances surrounding this interview were ordinary and conventional. But at the very moment when Einstein faced his questioner and examined the contents of the manuscript, the world was on the verge of a change.

Thirty-four years had gone by since the young employee at the Bern Patent Office had published his five papers in the *Year Book of Physics.* One of these papers made a mark upon his time, but another one foretold the future revolution of the world. In the eyes of the uninitiated this prophecy looked like just another harmless equation. In the future the repetitions and popularizations of the press were to make the public familiar with it. This brief formula: "$E=mc^2$," was to be endowed with a magic quality, something like the signs Faust used to draw to conjure up the Evil One. And, in fact, like those magical signs, it unleashed the forces of hell.

In itself, however, it only established a relation between mass and energy; E being the energy contained in a body at repose, m its mass, and c representing the speed of light, about 186,300 miles a second. The equation opened up the possibility of liberating unsuspected forces. Later Einstein was asked how it was that it had not been noticed before that every ounce of matter contains such prodigious energy. "The answer is quite simple," declared Einstein; "energy cannot be observed unless it is exteriorized." And he added this picturesque comparison: "If a fabulously rich man never spends any money, no one can estimate the size of his fortune." Einstein's formula not only upset all static laws, it also defied the order of the world of yesterday, the world of classical concepts, in which nature never takes leaps. Now the leaps

of nature had become unpredictable. An infinite perspective of a new order of things was opened up.

As contemporary science pounced upon it, scientists in every country were sent out in search of miracles. The imagination of the world was stirred. On the eve of the First World War, H. G. Wells published a prophetic novel in which he described the effect of an atomic bomb falling on Paris. But Einstein himself, as he declared later, believed only in the "theoretical possibility of the liberation of atomic energy." He did not in the least foresee that it might be liberated in his time. But the fantastic nature of this theoretical possibility which he envisaged stimulated all minds as no other idea had done before.

In 1935, in the speech made at the awarding of the Nobel Prize, Frédéric Joliot declared that on the strength of increasing progress achieved by science we were justified in thinking that research workers, building and breaking elements at their will, would be able to realize transmutations of explosive character, real chemical chain reactions, and that the enormous liberation of available energy would take place.

According to Einstein, it was an accident that finally brought about the success of their research. The discovery took place in the Kaiser Wilhelm Institute, formerly familiar to Albert Einstein. A man and a woman who had worked together for twenty years, the chemist Otto Hahn, and Lise Meitner, were employed in an experiment which was to prove the theory put forward by Hahn and Strassman—namely, that the core of the uranium atom entering into collision with a neutron could disintegrate into two radioactive parts. Suddenly the atom disintegrated before their eyes. An element emerged in the process, barium, the pres-

ence of which Hahn could not explain at the moment. They both wondered whether there had been some mistake in their experiment. Perhaps the explanation already dawned then, more or less consciously, upon Lise Meitner, that remarkable woman whom Einstein used to call "our Madame Curie." Perhaps she was too absorbed by what was happening in her personal life to give the explanation more thought, to estimate the importance of this liberation of atomic energy. The Third Reich had discovered that Lise Meitner, not being fully Ayran, was not wanted in the sanctuary of national research. However, she managed to leave. She set off abroad, quite alone—a woman past her first youth for whom research was the principal object of life. She never suspected that she was traveling toward fame, but she carried with her her instinct and her secret knowledge. There was a kind of ironic justice in the fact that it should have been one of Hitler's victims, one whom he might have easily destroyed, that it should have been an Austrian whose country he had only just overrun and sullied, who deprived him of the secret which might have given him unequaled power. Lise Meitner had, in fact, wrested a monstrous force from the hands of a monster.

On her arrival in Stockholm, she learned through a letter from Hahn that the experiment had been successfully repeated. She checked it herself once more and sat down to make a report for a scientific publication in which she gave all the details of the strange experiment. But she had seen at close quarters the machine of destruction that the master race was erecting to dominate the world. She knew that the force unleashed in the Kaiser Wilhelm Institute would sooner or later let hell loose on humanity. Feeling that the whole

matter was extremely urgent, she wired to a friend—a scientist in Copenhagen, Dr. O. R. Frisch—and gave him the essential facts of the discovery. Dr. Frisch, son-in-law of the greatest atomic expert, Professor Niels Bohr of the University of Copenhagen, immediately realized the importance of the news. His father-in-law, who had already heard from Lise Meitner about the experiments taking place in Berlin, was absent. He was in fact in America in conference with Albert Einstein in Princeton. Dr. Frisch repeated the experiment tried out in Berlin. He came to the same result. He and Lise Meitner decided to call the phenomenon "nuclear fission." Thus a phrase was born and with it a science of the future.

The news traveled with the speed of lightning. It crossed the sea to disturb the minds of those who understood its significance. Professor Bohr telegraphed it to Professor Enrico Fermi.

The great Italian physicist was an anti-Fascist, also marked down to be one of Hitler's victims. Like Einstein, he had been forced to become an expatriate from his native land. He had worked for a long time at the disintegration of the atom, but, as one of his friends said later, at the moment when he was working at the experiments that were to lead to the atomic bomb, bombs were very far from his mind. Fermi and Bohr both verified Lise Meitner's calculations, and came to the same results. A conference of American atom scientists was then held at Columbia University, where Enrico Fermi had a Chair. They spent twenty-four hours in preparing the experiment. On January 29 a group of tired and anxious men pressed a button. The experiment was conclusive.

By a remarkable coincidence, three days before a conference of theoretical physicists, to discuss the latest research

into the possibility of disintegrating the atom, had taken place in Washington. Professor Bohr opened the conference. He was a tall, thickset man, with a massive head, a generous mouth, and bushy eyebrows over a pair of piercing eyes. He spoke in a low, deliberate voice with his hands, as usual, in his pockets. But what he said made the scientists present literally gasp for breath. Had the news been announced by anyone else, they would not have believed it. They felt that they were seeing the dawn of a new age.

Four years later, Bohr, another prospective victim of the Nazis, succeeded in escaping in a sailboat from the occupiers of his country, who were to install in it a regime of terror.

In that January of 1939 when the world, without knowing it, was living through its greatest upheaval, scientific thinkers could still join hands across the frontiers. Hahn and Strassman published the details of their discovery. Joliot-Curie, still ignorant of what was happening in Denmark, tried the physical experiment and obtained the same results as those Hahn had achieved in his chemical one. He published his report on it at the end of January, whereas Frisch's experiment was not made public until two weeks later. The turmoil of this great sensation remained limited, however, to the scientific world. The events at the Washington conference had aroused interest in the United States. Asked to make a statement on the American radio, Professor Fermi gave a summary of his previous work, which had been made possible by Irène and Frédéric Joliot-Curie's discovery of artificial radioactivity, a discovery made, by a strange coincidence, in 1933, the year when Hitler came to power. The audience understood but little of these highly specialized explanations and lost interest in them completely when

Fermi concluded by saying that it was still impossible to foresee whether the knowledge acquired on the inner structure of matter would have a practical importance or would remain in the domain of pure science.

This "practical importance" was obviously very remote at the beginning of the year 1939. Professor Fermi had contrived the slowing down of the neutrons, which allowed energy to be liberated with the maximum of efficiency. But this "cosmic fire," as the popularizers of nuclear physics called it, was not yet to be mastered by man. Experiments continued to be carried out in the silence of laboratories.

According to the news that came from Berlin, Hitler had mobilized two hundred of the greatest German scientists to follow up Hahn's experiment, the importance of which they had finally realized from the echoes that came from abroad.

There are many examples in the history of science of these races toward the solution of a mystery, or of simultaneous discoveries of something sensational. But there was something ominous about these parallel experiments on the eve of a world war. What was the real inspiration of the scientific brains of America? Were they trying to gain time in the race with Germany to harness atomic energy? Was it a sense of danger, of rebellion, or of pity? Did their clear judgment spring from the sufferings they had endured and a premonition of those the world was about to undergo? Above the scene of chaos, in the passionless world of scientific thought, a duel was taking place betwen the participants in the coming war—between the executioner and his victims.

In the spring of the same year, Joliot-Curie and his assistants proved by experiment that the disintegration not only split the core of the atom in two parts but liberated supple-

mentary neutrons. Bohr, together with a physicist from Princeton, supplied the theoretical explanation of the nature of uranium which allowed specialists in nuclear physics to move toward the stage of practical realization. Professor Fermi pursued his experiments on the effective use of chain reactions. In the summer he succeeded, with his colleague at Columbia University, Leo Szilard, in mastering atomic energy, and the manuscript Szilard took to Princeton was the result of their research. It proved that it was possible to capture and reduce to the size of a bomb the greatest force of destruction that the world had ever known. This result was outside the understanding of ordinary minds. It needed exceptional sanction, and there was only one man with a great enough name to bring an adventure of such scope within the limits of the ordinary imagination.

In normal times the results of a discovery of this sort, without precedent and as yet without means of control, would have been a long time in approaching realization. In normal times the immense sum of money necessary for the first trials of verification could have been collected only with the help of wide publicity and long preparation. The troubled times of the birth of this discovery demanded absolute secrecy and exceptional measures to hasten its development. There was one man, and one man only, who, though completely ignorant of nuclear physics, was quick to appreciate the language of the extraordinary: Franklin Delano Roosevelt. When Leo Szilard tried to reach Einstein he knew that the latter was not only the person most competent to make a statement on the subject but also the only person capable of making himself heard by the President of the United States. Everything, at that moment, except the reality of the disintegration of the

atom, was a game of chance, but a game on a universal scale.

From an infinitely lofty sphere, the discussion on the thesis of Fermi and Szilard descended to the most opportune way of approaching Roosevelt: whether to solicit an interview or write a letter—as if it had been a matter of a recommendation for a job or a personal request. Never perhaps in the history of thought and action had a new era started under such matter-of-fact auspices. A conversation almost without witnesses, a plain sheet of paper; and the atomic era was born. We know even the exact date: August 2, 1939.

After long discussion the wording of the letter that was to be handed to Roosevelt was agreed upon. This is approximately how this letter that made history, history without precedent, ran: "The results of the research recently pursued by E. Fermi and L. Szilard, submitted to me in manuscript, have revealed that we may in the immediate future expect to find the element uranium capable of being transformed into a new and considerable source of energy. This new phenomenon may also lead to the construction of excessively powerful bombs. A single bomb of this type, transported by ship and allowed to explode in a port, could destroy the whole port and the surrounding territory."

Separated from their context, from the urgency dictated by the occasion, from their link with the bell that tolls—not the one that tolls now but the one that will toll later—such words as "excessively powerful bombs," "the destruction of a port and its surroundings," "destruction of so many lives," have a sinister sound. Einstein was perfectly aware of the tragedy that it should be he, the fervent pacifist, who had to sanction the most terrible weapon of war ever at man's disposal. But this tragedy was played out under the pressure of

his knowledge, or rather of his premonition of the horror into which the world was to sink overnight. The parade of destruction across Poland was to start the next month, the tanks would soon be rolling over France and hell would be let loose over England, and soon, too, the sealed trains would be departing with their cargoes of half-dead people and the smoke from crematorium chimneys would sully the sky. The incalculable power of the atom could at any time fall into evil hands. Soon the adventure of the "heavy water" would start, the reserve of which was saved by the collaborators of Joliot-Curie from occupied France and taken to England: while the heroic battle raged on the ground and in the sky, while a madman shouted himself hoarse and mumbled his threats of secret weapons. What was actually taking place, at the beginning of that August, was a collision between a man, the most human of the species, and a beast, hidden behind a semblance of human features.

Matter-of-fact as was the atmosphere in which this collision took place, Einstein never tried to wriggle out of the terrible inner conflict that he underwent at the time. Later he often explained his own actions. "I do not consider myself as the father of the liberation of atomic energy. My part in this was quite indirect," he said to Raymond Swing in 1945.

To tell the truth, there was nothing to guarantee the success of the step he then undertook. President Roosevelt might easily have disregarded the importance of Einstein's statement, which was, in fact, still only on the border of the possible—maybe only the dream of a genius. If Roosevelt gave credit to his words, he might be swept away in the whirlwind of elections, the issue of which was uncertain. What if there should be no Roosevelt tomorrow? What if tomorrow the

U.S., guided by an isolationist President with no interest in Europe, decided to remain outside the battle? One day Einstein's letter, grown yellow with time, would be found in some secret file, an insignificant paper like so many others forgotten in their "strictly confidential" file. "In fact, I simply served as a mailbox. They brought me a letter and all I had to do was sign it," said Einstein as we recalled that time several years later in his study in Princeton. The gray light that shone through the large bay window brought out the deep furrows on his face and the shadows under his eyes. Silence fell, full of unasked questions.

Under the fire of the glance he threw at me, I said: "Still, you pressed the button. . . ."

His glance turned away from me. It moved to the winding valley, to the green lawn with its group of trees that masked the horizon. And then Einstein, as though he was replying not to me but to the top of those old trees on which his glance lingered, said slowly, each word separate from the other: "Yes, I pressed the button."

Chapter XIV

"THE war is won, but not the peace," wrote Einstein at the end of the nightmare. "The world was promised freedom from fear; in fact fear has increased enormously since the end of the war. The world was promised freedom from want; but large parts of it are faced with starvation while others live in abundance."

The balance sheet that he drew at the end of the war was a balance sheet of horror. He had lived far from the ordeals that had ravaged the countries of Europe which were occupied or attacked. But the victims of bombardments, the men and women tortured or dead, were not mere names or numbers to him; he knew their faces and many of them were his friends. There had been a close tie between him and Hilferding and Breitscheid, the leaders of the German Socialist Party who were offered asylum in France and then delivered by the Vichy government police into the hands of the Gestapo. For him the spirit of a France that could make no pact with the enemy was represented by someone who was very

dear to him—Paul Langevin. The sinister names that the world can barely utter for horror—Maidanek, Auschwitz, Buchenwald—were familiar to him; they kept cropping up in the letters he received from the rare fugitives of many unfortunate families. Every name signified a living hell, the dreadful death of a friend or a relation, the loss of someone near to him. His memories today are like a pilgrimage across a cemetery, a cemetery of horror, for it was almost with relief that he heard about those who died in their beds from a peaceful illness.

"These last years," Einstein wrote to me at the end of the war, "have produced more evil than the most inveterate pessimist could ever have imagined. But what is so strange is that our sense of justice and fair dealing should have been so impaired that the knowledge we have acquired of the roots of evil should not have had an educational effect."

His revolt against evil and his indignation in the face of unkept promises were enhanced by his anxiety about the future. On July 16, 1945, the first atomic bomb was tried out in the desert of New Mexico near Alamogordo. The experiment was watched anxiously by all those in the secret. One of the official observers reported a conversation he had shortly before the event with one of the atomic scientists. "They told me that they might not be able to arrest the explosion once they had allowed it to take place, that it was possible that it might go on and destroy the planet on which we live." But, he added with a sigh of resignation: "Possibly human experience has been nothing but a mistake."

All those who were present in that summer dawn at the experiment in the desert wondered, in fact, whether this was not the last hour of their lives. A great storm, followed by

torrential rain, raged throughout the night, as though heaven itself protested against the impudence of man. Certain parts of the bomb, assembled at the last moment, stuck. The danger grew with every hour, with every minute. Then the lever of the infernal weapon was thrown by a robot. Suddenly there was a flash of light of unbelievable intensity, more dazzling than a midday sun, a golden, purple, violet-gray and blue light. Then there came a gust of wind, a gale that followed the flash and blew the observers near the shelter off their feet; and then the apocalyptic sound of many thunders, "the terrible, long, persistent rumble of the Last Judgment," as a general who was present described it, "a rumble that made the poor little humans realize that they were blaspheming in wanting to play with forces reserved until now to the All-Powerful."

The war had come to an end in Europe. The victory of civilization was made certain at the moment when, according to Einstein, "the most revolutionary force was born since prehistoric man discovered fire."

Einstein suggested that the capitulation of Japan should be secured by a warning about this secret weapon. He tried with all his persuasive powers to convince the authorities that it would be sufficient to carry out a demonstration in a deserted spot in front of representatives of the enemy in order to put an end to the war, without bloodshed. He was not the only one among those in the secret to protest against the actual use of the atomic weapon. As Chancellor of the University of Chicago, Robert Maynard Hutchins, explained later, the Americans knew by then that the Russians were going to declare war on Japan, that the Japanese towns were devastated and the blockade operating efficiently, and that

consequently there was no necessity to use the bomb. But the man who might have listened to Einstein's advice, and to that of the scientists who shared his opinion, was gone, and the military advisers of President Truman did not believe that a warning by demonstration would be sufficient to make Japan capitulate. They argued that it was more humane to bombard a Japanese port than to conquer the enemy by invasion; they weighed the price of blood and balanced the lives of American and Japanese soldiers against the sacrifice of the population of a town. "Einstein openly questioned the opportunity and wisdom of an atomic bombardment of Japan," wrote Virgil Hinshaw. He replied to political and strategic arguments as follows: "Beside the realities of man's true desires and the realities of man's danger, what are the obsolete 'realities' of protocol and of 'military necessity'?"

The decision to bombard Japanese towns seemed dictated by even less admissible motives. "In fact," he said, "so much money has been spent on making the atomic bomb that it is necessary to demonstrate that these two billion dollars have not been spent in vain." He never knew who exactly gave the order to bomb Hiroshima.

The dreadful menace was let loose on the world. The lonely man in his study in Princeton was overwhelmed by the immensity of the disaster. He had seen on paper the calculations of the effect that would be produced, the letter he had signed had mentioned bombs, a port destroyed, a territory devastated, but no human imagination could have envisaged the hell that was described by eyewitnesses. Sixty thousand people died at Hiroshima. Clothes were torn off the calcified bodies by the force of the explosion. Under the dome of black dust that hung for a long time over the town,

the survivors—scarlet, monstrously bloated, scorched, maimed—died in horrible agony. The infernal fire that had consumed the town continued to smolder on the horizon. There was not a tree, not a blade of grass left on a vast carbonized area. People would go on dying for a long time in Hiroshima. "A brutal attack by radiation is a new phenomenon in medicine, known only since the explosion in Hiroshima." Even those who survived perished slowly—lost their hair, became blind, and died of hemorrhages or infectious diseases which they could not fight without the help of the white blood corpuscles which had been destroyed, wrote the American scientist Gerald Wendt in his illuminating book on atomic energy.

That August 6, 1945, was a dark day for humanity. "A sad day for us," said the director of one of the laboratories that helped in the preparation of the bomb. "Let us hope that we haven't put dynamite into the hands of children." A black day for Albert Einstein. He was now the prey of a bitter conflict: it was a silent conflict, but from time to time he allowed parts of this painful soliloquy to appear in the press or the radio, through his journalist friends. In November 1945 he explained his point of view to Raymond Swing, whom he had known since 1922, when the latter as a journalist in Berlin had asked him for an interview on the theory of relativity. "The release of atomic energy has not created a new problem. It has merely made more urgent the necessity of solving an existing one. One can say that it has affected us quantitatively, not qualitatively. While there are sovereign nations with great power, war is inevitable."

At that moment there was still every reason to foster illusions. The solidarity of a common struggle seemed to have survived the end of the war; the division of the world into

two hostile blocs had not yet become apparent; the lassitude of the exhausted countries was confused with the certainty of peace. But Einstein with his usual clear judgment was not deceived: "When I say this, I am not trying to foretell when war will break out, all I am saying is that it cannot be avoided." And he added: "This was true before the atom bomb was made. All that has changed is the degree of the destructiveness of war."

There is something like an attempt to elude the real question in these declarations; to minimize the new danger by linking it with the permanence of the old ones. But Einstein could not deceive himself for long; he never avoided responsibilities, either his own or those of others, particularly those that were not without precedent. "Physicists today are in a position similar to that of Alfred Nobel," he said. "Having invented the most powerful explosive ever known, Nobel, to atone for this and to relieve his conscience, established the Peace Prize. Now the physicists who have participated in forging the most formidable and dangerous weapon of all times are disturbed by the same feeling of responsibility, if not guilt." At that time he still said *the physicists,* but soon he was to say: "*We* have helped to create this weapon to prevent the enemies of the human race from doing so before us, for if they had, given the mentality of the Nazis, inconceivable destruction and the enslavement of the rest of the world would have resulted." There Einstein touched upon the real core of his tragedy. He told his friends confidentially, "Had I known that the Germans would not succeed in producing an atom bomb, I would not have lifted a finger. . . ." But how was he to know? When he was signing the letter to Roosevelt, he was convinced that the Germans were reaching

their goal. He knew that he was justified so far as his own conscience was concerned, but this did not alleviate his torment. The anger of a man who had been duped surged up in him. "We placed this weapon in the hands of the American and British people"—and it was deliberately that he said "people"—"as trustees of humanity and fighters for peace and liberty. But so far we have seen no guarantee of peace, no guarantee of the liberties promised to nations in the Atlantic Charter."

In the meantime, a great ideal died without ever having lived. Hitherto camouflaged dissensions appeared in broad daylight. The atomic bomb was a menace to the survival of humanity and by the next year, 1946, Einstein realized that "to avoid this menace has become the most urgent problem of our days." What were they to do, the scientists who were more or less responsible for introducing this peril? "We must never cease to warn, we must never relax in our efforts to make the nations of the world, and particularly their governments, conscious of the inexpressible disaster which they are sure to provoke if they do not alter their attitude toward one another and toward the task of shaping the future."

Convinced that he had this mission to accomplish, Albert Einstein found a meaning for the remainder of his life.

When he appeared in front of the crowds whom he addressed directly, or on television in front of millions of invisible spectators, with the halo of gray hair around his tragic head, he looked like one of the great prophets of the Old Testament, proclaiming Jehovah's terrible wrath. But he was not only a voice calling to heaven for revenge, he was also a realist who understood all the various national susceptibilities and ambitions and knew that it is not enough to throw

out warnings, however eloquent. One must also offer a policy in exchange. In a struggle against a conspiracy of egotism, one must fight for a precise idea, a definite plan. This plan was the establishment of a world government. He set about it with such ardor that the memory of all the defeats suffered by supranational organizations in the past did not succeed in shaking him. He was no doubt fully conscious of the insurmountable difficulties with which his plan would meet. If he persisted in propagating the idea, it was simply because he saw no other way "of eliminating the most terrible danger that man has ever had to face." He knew also that "the aim of avoiding total destruction has a priority over any other."

The obstacles that were raised against the plan came from all the interested parties at the same time. In 1945 Einstein was still able to believe that the constitution of this world government to which the United States would confide the secret of the atom bomb could be negotiated "by a single American, a single Englishman, and a single Russian" and that the suspicion of the Russians might be dispelled—suspicion caused by the fact that the secret of the atom bomb was concealed from them. But when he realized that the progress of the plan so close to his heart was too slow and when in 1947 he tried to hasten it with an open letter to the United Nations, he was already aware that he would have to contend with open hostility on the part of the Russians. In his letter to the United Nations, he outlined the reform of that international organization. He demanded that the delegates to the United Nations should be true representatives of their people, elected directly by them and not designated by their governments, and responsible only to their voters. "We would thus be able to hope for more statesmen and fewer

diplomats," he wrote. He also put forward an idea to which the Russians were particularly hostile: a proposal to increase the authority of the General Assembly by subordinating to it the Security Council, which was paralyzed by the veto. He demanded above all that the moral authority of the U.N. should be reinforced by bold decisions, such as taking the initiative in creating a world government. Even if Russia were to refuse to participate—but only after all the efforts to obtain her and her allies' co-operation had been attempted in all sincerity—the other countries should act alone, forming *faute de mieux* at least a partial world government.

This letter provoked great indignation among the Russians. Four of the most eminent Soviet scientists, the physicist Vavilov, president of the Academy of Sciences of the U.S.S.R., the chemist Frumkin, Joffe, director of the Chemo-Physical Institute of the Leningrad Academy, and Semionov, the director of the Chemo-Physical Institute of the Moscow Academy, addressed in their turn an open letter to Einstein which was published in the *New Times*. They vehemently opposed the "mistaken ideas of Dr. Einstein," which they considered to be "positively prejudicial to the cause of peace which Einstein so warmly espouses." They reproached him for playing into the hands of imperialists who used the idea of world government as "a screen for unlimited expansion" and who discredited the idea of national sovereignty in order to establish the world supremacy of capitalist monopolies. "It is an irony of fate," they wrote, "that Einstein should have virtually become the supporter of the schemes and ambitions of the bitterest enemies of peace and of international co-operation." The reform of the United Nations he proposed seemed to them as dangerous as his main project. At first

glance the election "by the people" which he suggested seemed progressive and even radical, they admitted, but they reminded him of the electioneering procedure, not only in the colonies or countries financially dominated by imperialist powers, but also in the United States, where "at the last elections to Congress only thirty-nine per cent of the voters went to the polls" and where millions of Negroes in the Southern states were virtually deprived of the right to vote. The idea of reinforcing the General Assembly at the expense of the Security Council was, in their opinion, nothing but "a desire to transform the United Nations into a branch of the State Department." They deplored that a man so respected as a scientist and so deeply imbued with public spirit should have allowed himself to be lured away by the mirage of a world government. An argument started in which old grievances and past dissensions were dragged up, far beyond the discussion of the moment.

Einstein's theories, or more correctly their philosophical interpretation, whose incoherence was attributed to the influence of the philosopher Mach, had raised bitter controversy in Soviet Russia. This at the very moment when in Germany the extreme right newspapers, forerunners of Nazism, had attacked his "bolshevik physics" for being as damaging to the mind of a German scientist as the Marxist doctrine is to that of a worker. But ideological and political considerations had been swept away by the respect for the scientist whom the *Great Soviet Encyclopaedia* proclaimed "the greatest physicist of our times." Einstein had been repeatedly invited to visit the U.S.S.R., but had continually refused to accept an official invitation, as though wishing to retain a complete independence in regard to the ideas which

German nationalism blamed him for propagating. But while abstaining from openly taking up a position, he did not avoid a discussion on matters of principle. He replied to American democrats who stressed the absence of liberty in Soviet Russia that this reign of a minority which they so deplored was a necessity for a nation deprived of political education and a country that lacked a majority capable of improving its disastrous conditions. Conditions of life in Russia, according to him, were not, as he said to Raymond Swing in 1945, "a menace to the peace of the world in themselves." And he added as an afterthought: "Had I been born a Russian I believe I could have adjusted myself to them."

In his analysis of Einstein's social philosophy on the occasion of his seventieth birthday, Virgil Hinshaw also spoke of his attitude toward Soviet Russia. According to him, Einstein was not the kindly yet naïve old man so many take him to be in that matter. His attitude was more like that of the scientist Harold C. Urey, also a Nobel Prize winner and a friend of Einstein's, who had recently declared: "I can't help it if the Communists fellow-travel with me on the Spanish line. I don't fellow-travel with them."

The attacks of Soviet scientists forced Einstein to give a clear definition of his attitude. He deplored the fact that the "cumbersome method of open letters" should have taken the place of a free and personal exchange of ideas, of the direct contact that creates an atmosphere of mutual understanding, but he appreciated the fact that his Russian colleagues had expressed their point of view with candor and without ambiguity; "mutual comprehension is only possible if you make the effort to understand the thoughts, motives, and apprehensions of your adversary so completely as to be able to see

the world through his eyes." In the letter of the Soviet scientists, Einstein could see a defensive mentality which might lead to unlimited isolation. Seen through Russian eyes, this isolation was understandable after the suffering endured in recent years, the invasions, the foreign interventions, "the systematic campaign of calumny in the Western press and the support given to Hitler justified as an instrument to fight Russia."

It was in view of this defensive attitude of the Russians that Einstein composed his reply, the reply of "a man who tries anxiously to find a possible solution without deluding himself that he knows 'the truth' or 'the right path.'" Accused by the Russians of serving capitalist interests, he expounded the ideas he had always held—namely, that capitalism, or, to speak more correctly, the system of free enterprise, never had been and never would be capable of maintaining a healthy balance between production and the buying capacity of the people, or of checking unemployment, and he added: "The day will come when all nations (inasmuch as such nations will still exist) will be grateful to Russia for having been the first to demonstrate the practical possibility of a planned economy." He criticized, however, the intolerance of fanatics who have made a sort of religion out of a social system and consider the "infidels" as traitors and evildoers. They were the same fanatics who, while passionately opposing anarchy in the economic sphere, became "equally passionate advocates of anarchy through unlimited sovereignty in the sphere of international politics." Einstein did not attempt to justify or even explain the policy of the American government since the end of the war. "One cannot deny, however," he wrote, "that the suggestions of the

American government concerning atomic weapons represented at least an attempt to create a supranational security organization, that they could have at least served as a basis for discussion. It was in fact the attitude of the Soviet government, partly negative, and partly dilatory, which rendered it so difficult for people of good will in this country to make use of their political influence as they would have wished to do, in order to oppose the 'warmongers.'" And after recapitulating the arguments of the Soviet scientists with a calm that clashed with their passionate outburst, Einstein asked whether the differences of opinion expressed in their strange exchange of letters should not be considered as "insignificant trifles in comparison with the danger that we are all facing"—a danger without precedent in history.

This note of alarm with which Einstein ended his letter was to be the leitmotiv of all his interventions in the future. In an article published at the beginning of 1946 in the New York *Times,* he could still express hope for the survival of civilization, even after an atomic war would have destroyed two thirds of the inhabitants of the globe. His apprehensions increased as he saw the competition to find more and more powerful means of destruction develop. The desire of the United States to safeguard the secret of the atom bomb appeared to him from the start a dangerous illusion; the refusal to declare it outside the law and the desire to use it as a political weapon, an almost unpardonable crime. After the end of the war he became convinced that the United States would not remain long in possession of the secret. "I know that it is considered that no other country has enough money to spend on the development of the atom bomb, a fact that is supposed to secure the secret for a long time," he told Ray-

mond Swing. "It is a frequent error in this country to measure things by their cost; it is the men and the material, the will to use them that counts, not the money." In 1947 he saw his prophecy on the eve of fulfillment: "As to the so-called secret of the atomic bomb, I expect that the Russians will have it, as a result of their own efforts, without much delay. The race toward total destruction is on. A race that might have been prevented."

Einstein's latent anger now burst out uncontrollably. To the arguments of those who declared that any understanding with the Russians was impossible under the present circumstances, he replied in 1946 that no serious attempt in this sense had been made since the war. "It seems to me that it is exactly the opposite that has taken place," he wrote. In a violent and bitter account he listed all of the things which he felt had been done to increase the distrust of the Russians. It was not necessary to produce new atom bombs without a pause and allot twelve billion dollars in one year to defense measures when no military danger existed in the immediate future. "Not necessary either to defer the measures proposed against Franco's Spain, nor to introduce fascist Argentina to the United Nations in spite of the opposition of the U.S.S.R."

The world was still far from an openly declared cold war. But Einstein saw the abyss grow not only with every year but almost with every day. Hostile to all nationalism, he feared, according to Virgil Hinshaw, the growth of nationalism in the U.S.A. more than in the U.S.S.R., "because he observes among us a kind of mob hysteria unbecoming to a nation otherwise so great. He also feels that his reaction to our hysteria is more than justified by the fact of our technological superiority over the Russians." The result, according

to Hinshaw, is that in Einstein's opinion the guilt of the United States in regard to the present world situation is greater than that of Russia. "Being the more powerful nation, we are actually in control of the situation and if a crisis should arise we would be more culpable than the U.S.S.R."

It was a bitter disappointment for Einstein to discover once again in the country of his adoption—the country to which he owed so much because of the work it had made possible by relieving him of all material worries—his eternal personal enemy, the militarist attitude of mind. He found, as he said one day, Potsdam transported to Washington. It was, for America, a new attitude of mind. It had been born under the influence of two wars. Einstein described it by saying that "people place the importance of what Bertrand Russell so aptly calls 'naked power' far above all the other factors influencing the relations among nations." He recalled how the Germans, misled by Bismarck's success, suffered the same transformation of mentality, "as a result of which they were totally ruined in less than a century." He criticized this militarist state of mind with the penetration of someone who knows his personal enemy only too well, a state of mind that considers non-human factors like atom bombs, strategic bases, weapons of all sorts, raw materials, etc., as essential, but psychological factors, like men's desires and thoughts, as unimportant and secondary. He found that from the theoretical point of view it had a similarity to Marxism. "The individual is degraded—he is no more than an instrument, he becomes mere human material, he loses the normal impulses of human aspiration." This militarist attitude, according to him, demands the sacrifice of the civil rights of a citizen in favor of the state. "The political witch hunt, all

sorts of controls (for instance, of education, of research, of the press, etc.) seem inevitable and do not, for that reason, meet with a resistance which, had it not been a matter of militaristic mentality, might have offered a protection."

All this seemed in a way all too familiar to Albert Einstein, a nightmarish "has-been," which he had thought he would never see again. "I must frankly admit," he wrote in 1947, "that the foreign policy of the U.S. after the war often reminded me, irresistibly, of Germany's attitude under Emperor William II, and I know that apart from myself, many others have sorrowfully drawn the same comparison."

Together with this disappointment and anger, Einstein was overcome with fear. Since the production of the first atom bomb, the destructive power of war had increased immeasurably. At the end of 1946 the former Assistant Secretary of War, John McCloy, declared that the first bomb was still "primitive" and that according to specialists "it will be possible to produce bombs ten times as powerful as the first." He also said: "If we use hydrogen as a source of energy we will have a bomb about one thousand times more powerful."

In his book, *Atomic Energy and the Hydrogen Bomb,* Gerald Wendt wrote that it was a challenge to humanity, the most startling challenge since humanity had existed, and he added that if ever a hydrogen bomb were made it would be the most horrible invention of man, the very essence of evil.

At the beginning of 1950 President Truman revealed that he had "ordered the Atomic Energy Commission to continue its research, particularly on what is called the hydrogen or the super-bomb." The Atomic Energy Commission had in its turn officially announced that it had submitted for study the

use of radioactive products to be dispersed in gigantic clouds by the explosion of a hydrogen bomb, or scattered by airplanes. "This radioactive gas," wrote Einstein, "that would spread over wide regions, would cause heavy losses without damaging buildings." From a military point of view, this method, wrote Wendt, "presented a particular advantage—*it only attacked life.*" Buildings, machinery, electric stations would remain intact. Four scientists of the University of Chicago, among them Leo Szilard (who had presented Einstein with the paper on the atom bomb), declared on the radio "that it was possible to disperse in the air a quantity of radioactive dust sufficient to kill all the living beings on the earth." In fact, once this weapon was put in operation, one could not limit its destructive power. Another scientist present, Dr. Harrison Brown, confirmed this, saying: "We are thus arriving at the paradoxical conclusion that it is easier to kill the whole world than to kill a certain number of people."

These new dangers aroused, especially among the uninformed, the fear of a chain reaction powerful enough to destroy a part or the whole of our planet. "But it is not necessary to imagine that the earth will be destroyed like a nova by a stellar explosion," wrote Einstein, "in order to realize that if another war is not prevented it is probable that it will bring destruction on a scale that never seemed possible before, which even now is difficult to conceive and after which very little of our civilization would survive."

Einstein knew that the United States was in particular danger, more than any other country, "because of the vulnerability of its concentrated industry and its highly developed city life." It was true, as Gerald Wendt wrote, that America had never envisaged that it might be attacked,

even less that it might be seriously harmed. That was made possible only because America had invented the atom bomb. Every increase of destructive power increased the danger to the United States. The hydrogen bomb, he added, instead of being their ultimate rampart, constituted a much more efficient weapon for the enemies of the United States than for the United States itself.

American scientists, experts in nuclear physics, technicians engaged in research on new weapons, never ceased to warn the world of the nature of the danger it was running. Perhaps it was precisely its quality of an apocalyptic vision that made it surpass human imagination. The reaction to the inconceivable is not panic but a kind of resigned apathy. Einstein was bewildered and disturbed by this phenomenon of general indifference. "Having been warned of the horrible nature of atomic war, people have done nothing against it and have even in a certain measure disregarded the warnings of their consciences." He wondered what the reaction of the world would be if, for example, an epidemic of bubonic plague threatened it with extinction: experts would get together at once and submit their plans to their governments, which would take immediate and general measures without considering whether their people might be spared while the neighboring ones perished. But there were passions which prevented people from reacting as they would to the threat of an epidemic. The real danger was the blindness caused by hatred. "The real problem is in the hearts of men," said Einstein. Since the Hiroshima catastrophe he had not ceased to make appeals to governments and political rulers, to all those responsible for the decisions on which depended the destiny of the world. He knew that his voice was not heard.

When still president of the Emergency Committee of Atomic Scientists, he supported the campaign which the Committee had launched with the following telegram: "Our world faces a crisis as yet unperceived by those possessing the power to make great decisions, good or evil. The unleashed power of the atom has changed everything, save our ways of thinking, and thus we drift toward an unparalleled catastrophe. A new way of thinking is essential if mankind is to survive and move toward higher levels."

One should go beyond and above the rulers, the politicians, the defenders of powerful interests, in order to make the voice of reason heard. "In the final analysis," wrote Hinshaw, summing up Einstein's ideas, "the decisions of the U.N. rest on those made in village squares. It is to the village squares that facts on atomic energy must be carried." But fear and confusion reign also on village squares; there, too, the voice of reason is lost amid turmoil and violence. "The mentality of man, having grown accustomed to war, becomes corrupt; the result is that intelligent, objective human action has very little effect—it falls beneath suspicion and is persecuted as anti-patriotic."

Einstein felt that he, too, was under suspicion; his activities were hampered by a distrust which only his fame prevented from appearing too openly. He was often deeply discouraged and tormented by the feeling of his own helplessness. Sometimes he despaired of man and his destiny. "It is easier to change the nature of plutonium than man's evil spirit." Many among those who had been close to him in thought now turned away, either from opportunism or because they were reduced to silence. This created a greater solitude around him and could not but increase his depression.

In December 1946 Langevin died of heart failure; his health had been failing after the ordeals of the occupation. "The news of Paul Langevin's death has been a greater shock to me than most of the events of the last years, so rich in disasters." Einstein, so restrained in his expressions when they concerned his personal feelings, was moved as he had rarely been in his life. Accustomed to self-analysis, he tried to discover the reason for his deep distress. It could not be the feeling of an incompleted life or of a premature death that shocked him. Paul Langevin had lived to a great age; he had found satisfaction in his creative work; he was loved and respected; his life "appeared at the end as a work of art." No, Einstein's sense of loss was a personal one. "The grief that the death of Paul Langevin has left me with is particularly poignant because I have the feeling now of being quite alone and deserted." They had often explored side by side the same spheres of scientific thought. He spoke of his gifts: "A rare clarity and nimbleness of mind linked with an intuitive vision, very firm on essential points." But it was above all the companion-in-arms that he missed in this critical hour. It was Langevin's generosity of heart that made him feel that his loss was irreparable, the generosity that made of him primarily an inspirer of others, limiting his own research to the stimulation of his disciples, "so that the fruit of his labor appears in the publications of other scientists more than it does in his own." And it was to this man, with his good-natured, intelligent understanding of humanity, that Einstein was so deeply attached. "All his life, Paul Langevin suffered from an awareness of the deficiencies and iniquities of our social and economic institutions. But he believed in the power of reason and knowledge." Though

more skeptical and cynical, Einstein felt very close to the man "whose desire to help all men to enjoy a happier life was perhaps even greater than his desire for pure intellectual knowledge." They had many traits in common. "Nobody who appealed to his social conscience went away empty-handed." In those times of unrest and the deficiency of human thought, Einstein felt even closer to the public-spirited Langevin than he had when he had steeled himself against any interest in human beings and against all personal emotions. This appreciation of his dead friend was rather like an examination of conscience. "There are so few men in a generation who combine a clear understanding of the nature of things, an intense realization of truly humanitarian needs and the courage to fight for them." Like all real grief, Einstein's expressed itself in simple words: "When such a man goes, he leaves a void, unbearable for those who survive him."

Einstein now lived almost like a recluse in Princeton. The town itself contributed to this. The train from New York crosses the hideous landscape of a modern metropolis of industry, with its gigantic chimneys belching black smoke which rises in the sky. Somewhere on its way the train stops on a shunting track. The train that winds its way on to Princeton has a suburban air and stops suddenly on a plot of green grass. It is the terminus of a journey that seems to lead not only beyond space but beyond time. The gray sky of that spring of 1948 gave to the Gothic buildings in gray stone the tarnished polish of a silver mirror. Against the walls and the sky, which merged together, the flowering bushes stood out as multicolored waterfalls, the trees a vivid yellow, a soft pink, an acid mauve, stretched out above, luminously, as though they held a hidden light imprisoned.

Somewhere a bell tolled, the strokes followed one another with a repeated echo. "There are so many bells ringing in Princeton," Elsa once wrote to me. Perhaps one hears them more clearly because they are surrounded with a silence that seems as though the town is holding its breath, after New York.

Public squares with children playing in them, parks, straight streets that seem to run on forever, lined with trees, passers-by who are in no hurry. This imitation of an English Gothic town, this stone effigy of Oxford or Cambrdge, reminds one in some way of a seaside resort out of season: halfway between prosperity and neglect. Mercer Street is very long. No. 112 is a house like so many others in Princeton, in the parts farthest from the center. It has no style, no period, and only the large trees in the background seem to give it an individual character.

Mademoiselle Dukas, appearing in the doorway, had not changed. Perhaps a little more energetic, more determined. I found Margot as frail as ever, the same sensitivity bringing shadows into her clear eyes. But the years had weighed heavily on Einstein. He came to meet me with a step in which I did not find the usual elasticity and silent movement. True, it was a long time since I had last seen him; there had been the years of exile, of war and mourning, in between. But I was struck by his appearance. He was not yet seventy, but his face was that of a great old man. His shoulders were still robust, his bare neck strong and round. But time had dug deep furrows on the plump cheeks, and the lips drooped at the corners, as though dragged down by bitterness. His high forehead was deeply wrinkled. Before, the wrinkles used to show only when he was plunged in deep thought, when

he was angry, or when he laughed. Now they had come to stay, darting in an irregular way from each side of the powerful bridge of his nose. The most moving change, however, was in his eyes. The burning glance seemed to have singed the skin underneath, the mauve and brown shadows descended on the sallow cheeks, forming a strange pattern crossed by the bluish line of the lips. The fringe of white hair stood out as a luminous halo and created a background for the dark pools of his eyes. The hair was as wiry as ever, with that curious life of its own, but it was more vivid, more crisp, more like silver flames; the eyeballs had become hidden in the deep sockets, but the glance, the inextinguishable black fire, was just as glowing. The face, paler, might be consumed from within, undermined by sickness and suffering, the lines of torment might have left scars on a flesh that had no longer the same resilience, but his strength burst forth through the eyes and triumphed over everything that was in decline. This huge head had a remarkable power, a power purified, as it were, of everything fleshly. It was the head of a visionary remote from earthly contingencies. More than ever did one feel his presence to be "only on a temporary loan"; it was distressing to know it was precarious and threatened. But at the same time it had a greater reality; he was closer to the concerns of humanity, and more determined to survive.

The large bare room which was his study provided a sober frame for this forceful personality. The walls were lined with books, manuscripts, volumes of reference, and there was a large, bare table in the middle, of dark wood, polished by time, which had long ago reflected the dull lights of the Haberlandstrasse. The bay window opened out on a long view, as though the room continued into the landscape,

inviting the sky, the trees, the lawn, the valley to take their part in the thoughts of the recluse. Einstein's glance turned lovingly toward this view, as though to make sure that it still existed, that it had resisted the destructive will of man. But there is anguish, too, in this room. It seems to be Einstein's only companion—silently questioning him. He spoke to me aloud, because I happened to be there, as he must, I am sure, have often talked to himself in a low voice. He spoke of Hiroshima, of the needless horror of that day. He spoke of the race toward destruction and everything done to accentuate it. He spoke of his personal experiences, of efforts undertaken in vain, of unheeded warnings. He spoke of man's folly, of his chosen blindness, of the fear of responsibilities that haunted humanity. When he spoke of some particularly disappointing conversation or absurd incident he burst out laughing, as he used to do when something incongruous tickled his sense of humor. But his laughter was harsh and abrupt. It did not come from the heart any longer—it was a laughter that did not extend further than the lips. "Yes, I am very frightened," he suddenly said, in a low voice. But instantly he threw his lowered head back, pulled himself up, and squared his shoulders as though bracing himself against this fear that came over him.

I spoke to him of a demonstration which I witnessed in New York in the Carnegie Hall, organized by an association called One World. He had been the winner of the first award and had been expected to appear. He had sent a message which a colleague read in his place. The message was unequivocal. Einstein expressed his gratitude for the honor bestowed on him, expressed his sorrow "that we, who want peace and the triumph of reason, are forced to realize bitterly

how diminished is the influence that reason and good will exercise today on political events." The hour was a critical one, an hour of decisions and consequences—and he explained their importance. "The plan to militarize the nation does not only present an immediate threat of war, it will slowly but surely destroy the democratic spirit and the dignity of the individual in our country. To say that external events force us to rearm is untrue; we must resist that view with all our strength. In fact, our own rearmament will create, through the reactions of other nations, precisely the situation on which the defenders of this view base their statements.

I told Einstein about the indescribable, overwhelming enthusiasm with which the crowd welcomed his message. He shook his head, resignedly: applause comes easily to American audiences.

But knowing as he did the temporary effect of his words, it did not discourage him. Only he spoke more rarely. He did not sign manifestoes with the same readiness and refused to add his name except in important cases. This spendthrift of generosity now restrained himself, and though he had often been reproached in the past for abusing the prestige of his name, this restraint gave me a pang, as though making me realize the measure of his renunciation.

He was quickly aware of my thoughts, as he had often been in the past, before I had even put them into words: "At a decisive moment, you know, my voice will only have more weight. I am waiting for this critical moment to come. Then I will shout with all the strength left in me." The intensity he put in these words made me understand what this cry, launched into the world, would be like. I also understood that his resistance to grief and sickness, this struggle

with his own body and soul, were inspired by his decision *to be heard when the time comes.* His was the sort of power that husbands itself, and forces itself to survive in order to spend itself in one outcry. I believe I never realized fully the horror of the future until that moment when I saw Einstein's features harden in fierce determination, the dark fire of his eyes conscious of this hour of peril. A solitary man facing the folly of the world.

I walked down the steps, blinded and breathless. An old woman passed me in the hallway, with dragging feet and jerky gait, leaning heavily on the arm of a nurse. She disappeared behind a door that banged. I caught sight of a white face, with tragic features, very like those of Einstein's, and the same gray hair. I had forgotten about Einstein's sister Maya, who had come to stay with him, had had a cardiac attack, and been unable to go back. She lived in his house until she died. I had also forgotten how much she resembled him. In the twilight it seemed to me that I had seen a ghost go by.

From the top of the stairs, Einstein waved his hand. He meant au revoir, but I knew it was good-by.

The abyss between Einstein and his time became deeper and deeper—the abyss between his sense of responsibility and the egotism of general indifference—between his need of a spiritual order and the isolated, anarchic efforts of those who adapt themselves to the present confusion: "I have recently discussed the possibility of another war with a man both intelligent and kindhearted, of a war that would threaten the very existence of humanity, and I told him that I believed only a supranational organization could offer protection against this danger," Einstein wrote in 1949, and

he continued: "To this my visitor replied calmly and coldly: 'Why are you so earnestly opposed to the disappearance of the human race?' " Einstein was staggered. "I am certain that a century ago nobody could have made such a remark so offhandedly." But such monstrous cynicism did not make him indignant. He, for whom man became more and more transparent, who was used to seeing the world with the eyes of his enemies, knew what misery was hidden behind such exaggerated statements. The feeling they aroused in him was one of pity. Such a statement could only be made by a man who had vainly tried to achieve stability within himself and had more or less lost the hope of ever achieving it. It was an expression of infinite solitude and isolation which many men suffer in our days.

In contrast to the neurosis of fear that becomes the negation of all human solidarity, in contrast to these attempts at escape in order to avoid a common fate, Albert Einstein now feels an increasing identity with his fellow beings, the feeling of identity that creates revolutionaries—and saints. Instead of the selfishness of old age which usually isolates the survivors of another generation, he feels an increasing compassion for human errors, a tolerance like the serenity of the mystics. He recently said to Raymond Swing: "For me the essence of religion is to be able to get under the skin of another human being, to rejoice in his joy and suffer his pain."

Albert Einstein was very ill in 1949. He underwent a serious operation, so serious that there was great danger that he would not survive. He is forced to be more and more careful about his health. But under the mask of an old man whose resistance is constantly undermined by physical afflictions there still lives the same fierce strength preparing for a de-

cisive battle. In May 1949 he said to Virgil Hinshaw: "Never do anything against your conscience even if the state demands it." He connected this imperative with the instructions from the Apostles: "Then Peter and the other apostles answered and said, We ought to obey God rather than men."

Einstein's principal source of energy, which allows him to defy the deterioration of his body, is the feeling of this mission that he has still to accomplish. It is the fire that feeds the flickering flame of his life, this mission he once defined as the task of being the vehicle of expression for the conscience of humanity. The man whose spiritual power has penetrated the widest domains of human speculation has given priority to ethics. "The moral qualities of great personalities are perhaps more significant for a generation and for the course of history than purely intellectual accomplishments."

The universe of Albert Einstein is governed in the twilight of his life by this moral obligation. He submits to a force which he sometimes calls "reason displayed in life," which in its more intimate depths is inaccessible to man. More and more often he calls it God. Not the personal and revengeful god of his ancestors, but the God of the supreme order of nature, who leaves nothing to chance. It is God who has given him the faith that made him persevere in his research, alone, and attacked even by those who were closest to him in thought.

Posterity will judge whether the years of incessant effort, of defeats overcome, of patient and obstinate reconstruction, were in vain; it will judge whether the theory of the unified field represents the triumph of human spirit over the chaos of the universe. This triumph would be a triumph of faith,

a faith which across spiritual victories and defeats will remain with him while he is alive. One day in a conversation Einstein summed it up in a sentence that made a great impression on his questioners, for it seemed to be a beacon capable of guiding searchers through the anguish of their exploration of the universe, through their battle for truth. This sentence expresses also the meaning of Einstein's struggle against man's folly and for the survival of humanity. It is now engraved over the mantelpiece of a room in Fine Hall at Princeton: "God is subtle but he is not malicious."

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