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The Greek Way

BY EDITH HAMILTON *

THE GREEKS were the first people in the world to play, and they played on a great scale. All over Greece there were games, all sorts of games: athletic contests of every description: races—horse-, boat-, foot-, torch-races; contests in music, where one side outsang the other; in dancing—on greased skins sometimes to display a nice skill of foot and balance of body; games where men leaped in and out of flying chariots; games so many one grows weary with the list of them. They are embodied in the statues familiar to all, the disc thrower, the charioteer, the wrestling boys, the dancing flute players (pages 261, 314-315).

The great games—there were four that came at stated seasons—were so important, when one was held, a truce of God was proclaimed so that all Greece might come in safety without fear. There "glorious-limbed youth"—the phrase is Pindar's, the athlete's poet—strove for an honor so coveted as hardly anything else in Greece (pages 265, 266, 296-7).

An Olympic victor—triumphing generals would give place to him. His crown of wild olives was set beside the prize of the tragedian. Splendor attended him, processions, sacrifices, banquets, songs the greatest poets were glad to write. Thucydides, the brief, the severe, the historian of that bitter time, the fall of Athens, pauses, when one of his personages has conquered in the games, to give the fact full place of honor.

If we had no other knowledge of what the Greeks were like, if nothing were left of Greek art and literature, the fact that they were in love with play and played magnificently would be proof enough of how they lived and how they looked at life. Wretched people, toiling people, do not play.

Nothing like the Greek games is conceivable in Egypt or Mesopotamia. The life of the Egyptian lies spread out in the mural paintings down to the minutest detail. If fun and sport had played any real part, they would be there in some form for us to see. But the Egyptian did not play.

"Solon, Solon, you Greeks are all children," said the Egyptian priest to the great Athenian.

At any rate, children or not, they enjoyed themselves. They had physical vigor and high spirits and time, too, for fun. The witness of the games is conclusive. And when Greece died and her reading of the great enigma was buried with her statues, play, too, died out of the world.

The brutal, bloody Roman games had nothing to do with the spirit of play. They were fathered by the Orient, not by Greece. Play died when Greece died and many and many a century passed before it was resurrected.

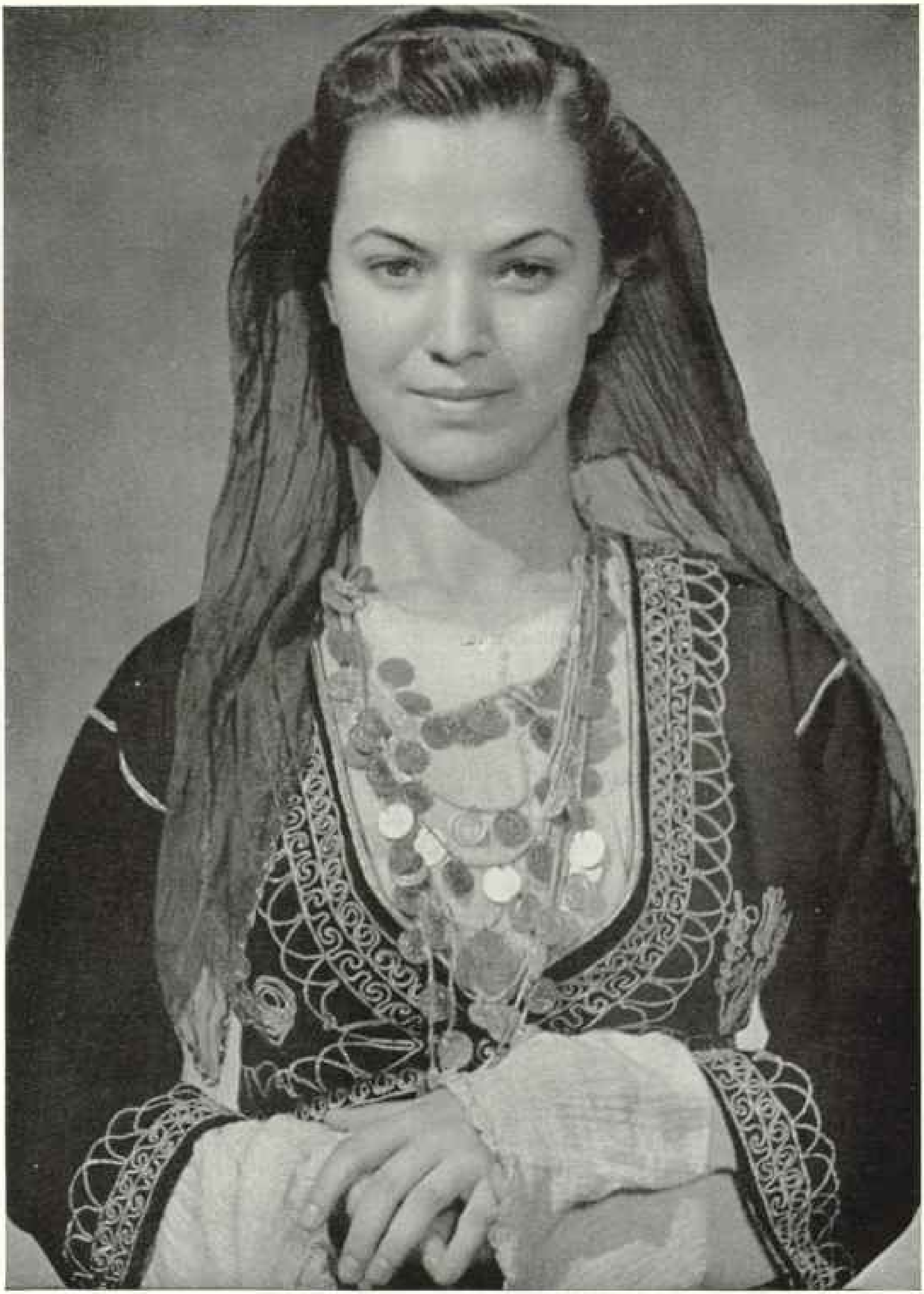
Joy in "Little Pleasures"

To rejoice in life, to find the world beautiful and delightful to live in, was a mark of the Greek spirit which distinguished it from all that had gone before. It is a vital distinction.

The joy of life is written upon everything the Greeks left behind and they who leave it out of account fail to reckon with something that is of first importance in understanding how the Greek achievement came to pass in the world of antiquity.

Never, not in their darkest moments, do they lose their taste for life. It is always a wonder and a delight, the world a place of

* This article contains excerpts from the author's book, *The Great Age of Greek Literature*, published by W. W. Norton and Company, Inc. Copyright, 1930, 1942. The volume is a remarkably lucid account of the intellectual life of the Greeks and their influence upon modern thought, art, and literature.—EDITOR.



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A Greek Mona Lisa of Mégara, Near Athens

Noted for their gayety, the people of Mégara pride themselves on the purity of their Greek descent.

beauty, and they themselves rejoicing to be alive in it.

The little pleasures, too, that daily living holds, were felt as such keen enjoyment: "Dear to us ever," says Homer, "is the banquet and the harp and the dance and changes of raiment and the warm bath and love and sleep."

Eating and drinking have never again seemed so delightful as in the early Greek lyrics, nor a meeting with friends, nor a warm fire of a winter's night—"the stormy season of winter, a soft couch after dinner by the fire, honey-sweet wine in your glass and nuts and beans at your elbow"—nor a run in the spring-time "amid a fragrance of woodbine and leisure and white poplar, when the plane-tree and the elm whisper together," nor a banqueting hour, "moving among feasting and giving up the soul to be young, carrying a bright harp and touching it in peace among the wise of the citizens."

It is a matter of course that comedy should be their invention, the mad, rollicking, irresponsible fun of the Old Comedy, its verve and vitality and exuberant, overflowing energy of life.

Birth of the Idea of Freedom

Abject submission to the power on the throne which had been the rule of life in the ancient world since kings began, and was to be the rule of life in Asia for centuries to come, was cast off by the Greeks so easily, so lightly, hardly more than an echo of the contest has come down to us.

In the *Persians* of Aeschylus, a play written to celebrate the defeat of the Persians at Salamis, there is many an allusion to the difference between the Greek way and the Oriental way. The Greeks, the Persian queen is told, fight as free men to defend what is precious to them. Have they no master? she asks. No, she is told. No man calls Greeks slaves or vassals. Herodotus in his account adds, "They obey only the law."

Something completely new is here. The idea of freedom has been born. The conception of the entire unimportance of the individual to the state, which has persisted down from earliest tribal days and was universally accepted in all the ancient world, has given place in Greece to the conception of the liberty of the individual in a state which he defends of his own free will. That is a change not worked by high spirit and abounding vigor alone. Something more was at work in Greece. Men were thinking for themselves.

One of the earlier Greek philosophic sayings is that of Anaxagoras: "All things were in chaos when Mind arose and made order."

In the ancient world ruled by the irrational, by dreadful unknown powers, where a man was utterly at the mercy of what he must not try to understand, the Greeks arose and the rule of reason began. The fundamental fact about the Greek was that he had to use his mind.

The ancient priests had said, "Thus far and no farther. We set the limits to thought."

The Greeks said, "All things are to be examined and called into question. There are no limits set to thought."

It is an extraordinary fact that by the time we have actual, documentary knowledge of the Greeks there is not a trace to be found of that domination over the mind by the priests which played such a decisive part in the ancient world.

The Right of Free Speech

The right of a man to say what he pleased was fundamental in Athens. "A slave is he who cannot speak his thought," said Euripides.

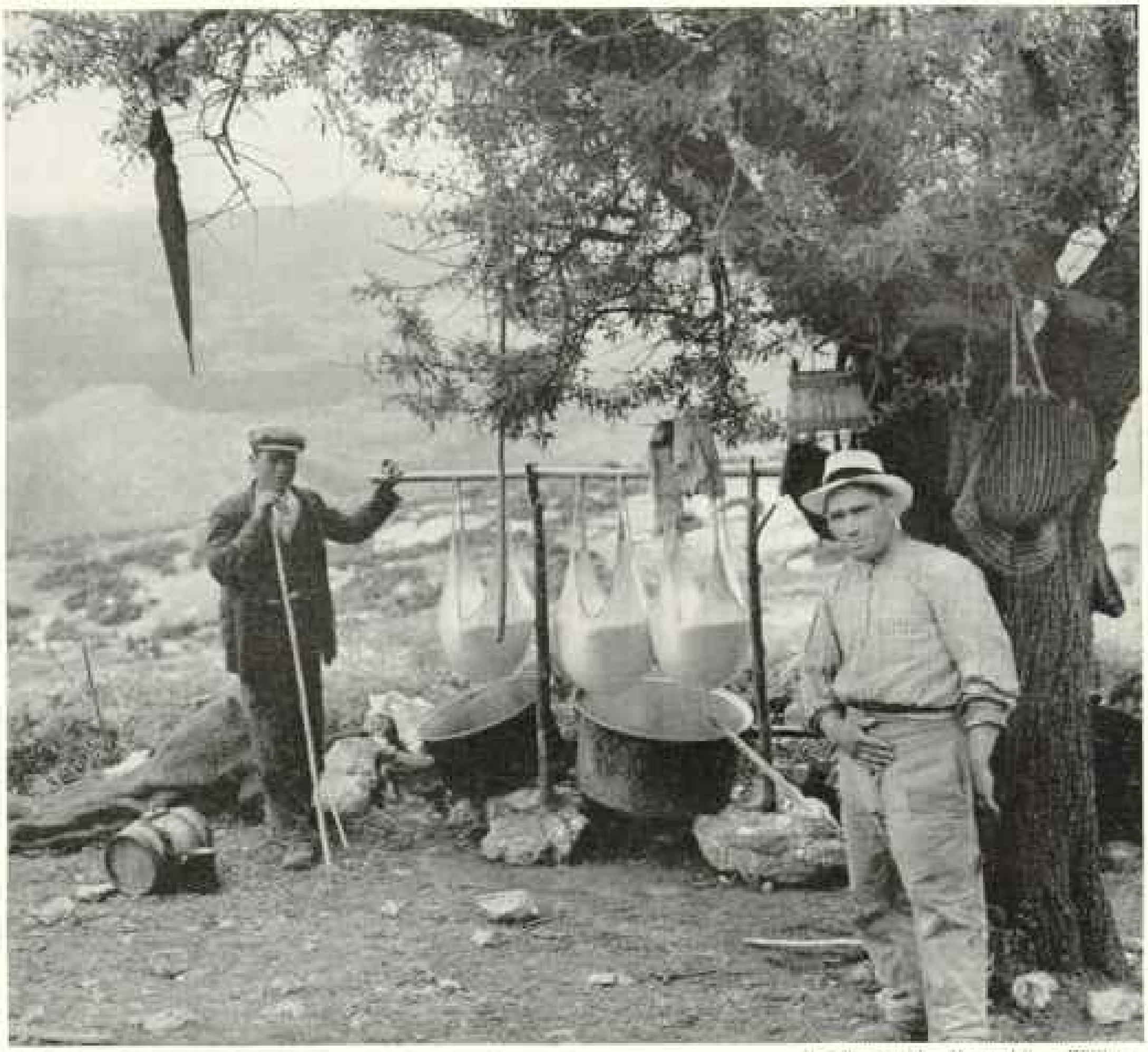
Socrates drinking the hemlock in his prison on the charge of introducing new gods and corrupting the youth is but the exception that proves the rule. He was an old man and all his life he had said what he would. Athens had just gone through a bitter time of crushing defeat, of rapid changes of government, of gross mismanagement. It is a reasonable conjecture that he was condemned in one of those sudden panics all nations know, when the people's fears for their own safety have been worked upon and they turn cruel.

Even so, he was condemned by a small majority and his pupil Plato went straight on teaching in his name, never molested but honored and sought after. Socrates was the only man in Athens who suffered death for his opinions. Three others were forced to leave the country. That is the entire list and to compare it with the endless list of those tortured and killed in Europe during even the last five hundred years is to see clearly what Athenian liberty was.

The Greek mind was free to think about the world as it pleased, to reject all traditional explanations, to disregard all the priests taught, to search unhampered by any outside authority for the truth. The Greeks had free scope for their scientific genius and they laid the foundations of our science today.

"Thoughts and ideas, the fair and immortal children of the mind," as a Greek writer calls them, were a delight to them. Never, not in the brightest days of the Renaissance, has learning appeared in such a radiant light as it did to the gay young men of imperial Athens.

Socrates has but to enter a gymnasium;



Staff Photographer Maynard Owen Williams

Greek Shepherds Watch While Whey Drips from the Cheesecloth

In near-by Dimitsána many a family has some relative in America, or one returned from the United States. On this rocky Peloponnesian hillside the sheep's milk is made into cheese as it was in Greece before butter was introduced from Scythia, thousands of years ago.

exercise, games, are forgotten. A crowd of ardent young men surround him. Tell us this. Teach us that, they clamor. What is Friendship? What is Justice? We will not let you off, Socrates. The truth—we want the truth. "What delight," they say to each other, "to hear wise men talk!"

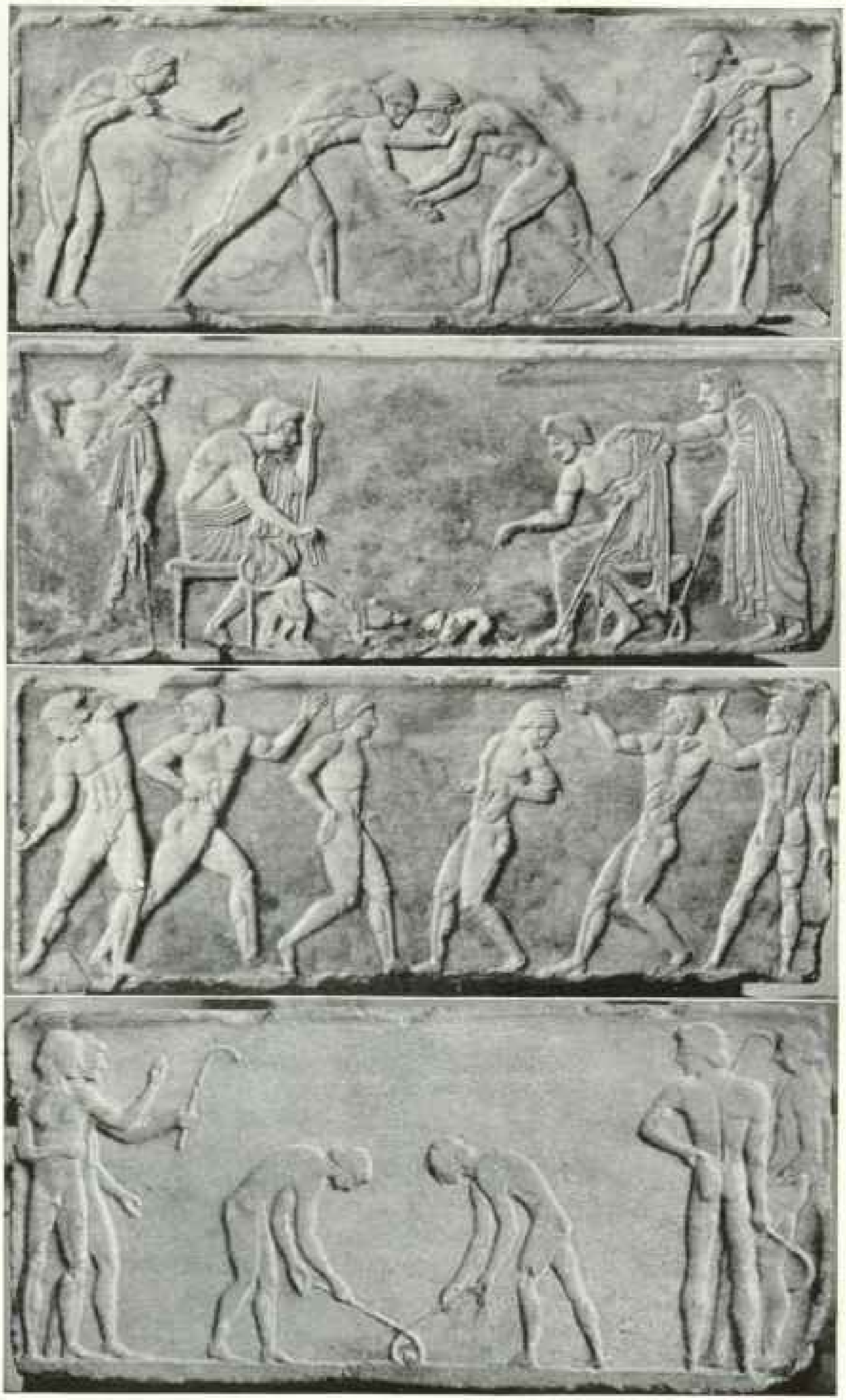
"Egypt and Phoenicia love money," Plato remarks in a discussion on how nations differ. "The special characteristic of our part of the world is the love of knowledge.

"The Athenians," said St. Luke, "and the strangers sojourning there spend their time in nothing else but to tell or to hear some new thing." Even the foreigners caught the flame.

That intense desire to know, that burning curiosity about everything in the world—they could not come into daily contact with it and not be fired. Up and down the coast of Asia Minor St. Paul was mobbed and imprisoned and beaten. In Athens "they brought him unto the Aeropagus, saying, 'May we know what this new teaching is?' "

The poet Sophocles, so the story is told, in his extreme old age was brought into court by his son who charged him with being incompetent to manage his own affairs. The aged tragedian's sole defense was to recite to the jurors passages from a play he had recently written. Those great words did not fall on deaf ears. Judge a man who could write such poetry not competent in any way? Who that called himself Greek could do that? Nay: dismiss the case; fine the complainant; let the defendant depart honored and triumphant.

Again, when Athens had fallen and her



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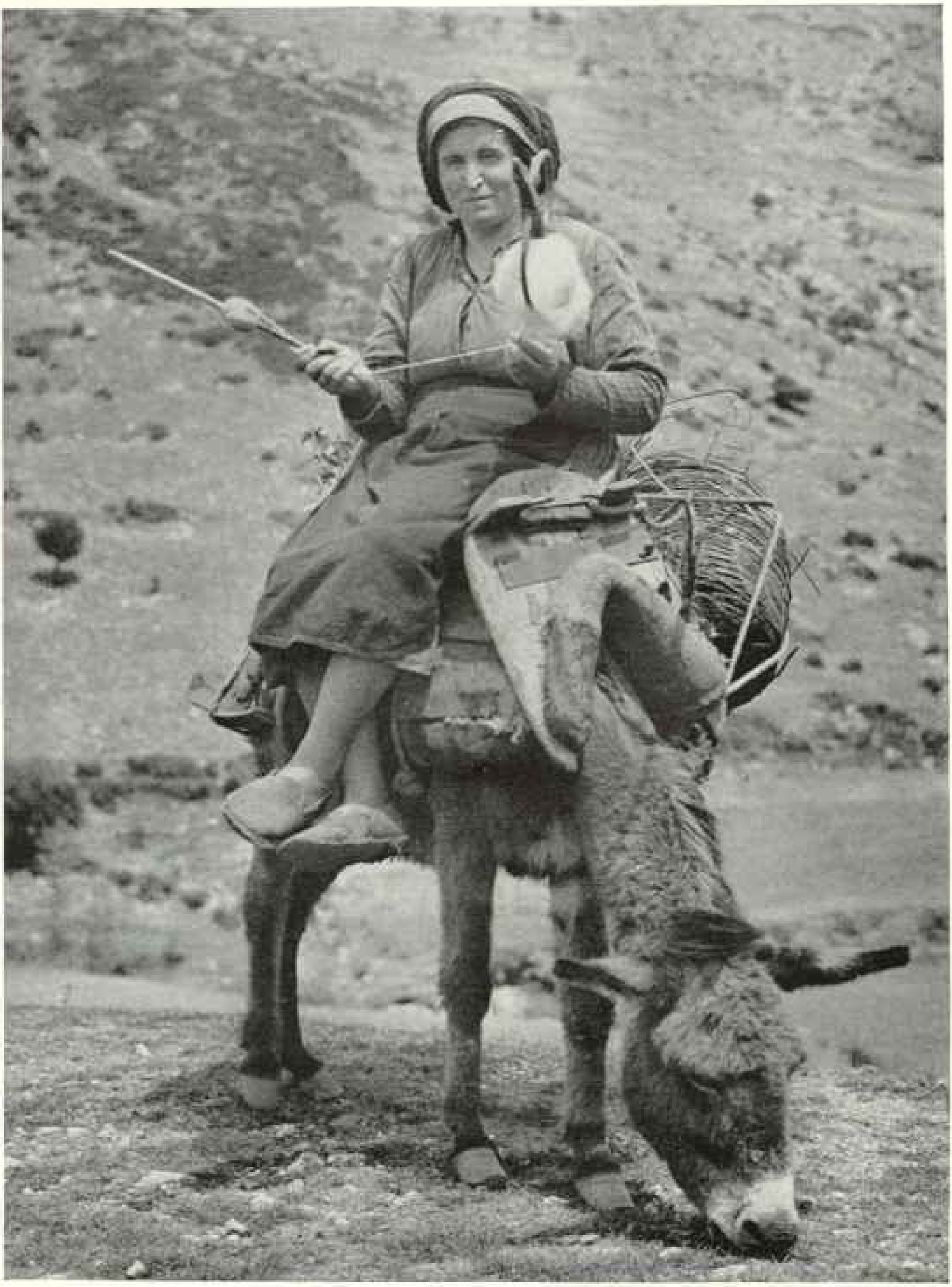
Sports Photographs of Ancient Times Are the Carvings of Greek Athletes

Depicted from top to bottom are: muscular wrestlers with their coach at left; indolent spectators of a cat-and-dog fight; action in a ball game, man at left pitching; and hockey players bullying off. These eyewitness "shots" give a magic-eye image of Greeks at play.



Staff Photographer B. Anthony Stewart

Bare-legged under Summer's Sun, She Spins the Wool for Winter Warmth

Her distaff, bunched with snowy fleece, is symbol for a woman's work. Her spindle, tool of Clotho, twists and twirls at tasks she dare not shirk. The rocky Peloponnesus is no place for sloth. She needs warm stockings and good homespun cloth (pages 318-9).

Spartan conquerors held high festival on the eve of destroying the city altogether, razing to the ground the buildings, not a pillar to be left standing on the Acropolis, one of the men charged with the poetical part of the entertainment—even Spartans must have poetry to their banquet—gave a recitation from Euripides, and the banqueters, stern soldiers in the great moment of their hard-won triumph, listening to the beautiful, poignant words, forgot victory and vengeance, and declared as one man that the city such a poet had sprung from should never be destroyed.

Herodotus is the historian of the glorious fight for liberty in which the Greeks conquered the overwhelming power of Persia (Iran). They won the victory because they were free men defending their freedom against a tyrant and his army of slaves. So Herodotus saw the contest. The watchword was freedom; the stake was the independence or the enslavement of Greece; the issue made it sure that Greeks never would be slaves.

The modern reader cannot accept the proud words without a wondering question. What of the slaves these free Greeks owned? The Persian defeat did not set them free. What real idea of freedom could the conquerors at Marathon and Salamis have had, slaveowners, all of them?

The question shows up, as no other question could, the difference between the mind of today and the mind of antiquity. To all the ancient world the freeing of slaves would have been sheer nonsense. There always had been slaves. In every community the way of life depended on them.

First Movement to Abolish Slavery

From time immemorial there was never anywhere a dreamer so rash or so romantic as to imagine a life without slaves. The loftiest thinkers, idealists, and moralists never had an idea that slavery was evil. In the Old Testament it is accepted without comment exactly as in the records of Egypt and Mesopotamia.

Even the prophets of Israel did not utter a word against it, nor, for that matter, did St. Paul. What is strange is not that the Greeks took slavery for granted through hundreds of years, but that finally they began to think about it and question it.

To Euripides the glory belongs of being the first to condemn it. "Slavery," he wrote:

> That thing of evil, by its nature evil,
> Forcing submission from a man to what
> No man should yield to.

He was, as usual, far in advance of his age. Even Plato, a generation later, could not keep pace with him. He never spoke against slavery; in his old age he actually advocated it. Still, there are signs that he was troubled by it. He says, "A slave is an embarrassing possession." He had reached a point when he could not feel at ease with slaves, and he does not admit them to his ideal Republic.

Except for this mild and indirect opposition and for Euripides' open attack, we have no idea how or why the opposition to slavery spread, but by Aristotle's time, a generation after Plato, it had come out into the open.

"There are people," Aristotle writes—he does not include himself—"who consider owning slaves as violating natural law because the distinction between a slave and a free person is wholly conventional and has no place in nature, so that it rests on mere force and is devoid of justice."

That is the point Greek thought had reached more than two thousand four hundred years ago. Less than a hundred years ago America had to fight a great war before slavery was abolished.

The matter for wonder is not that Herodotus saw nothing odd in slaveowners being the champions of freedom, but that in Greece alone, through all ancient and almost all modern times, were there men great enough and courageous enough to see through the conventional coverings that disguised slavery, and to proclaim it for what it was. A few years after Aristotle, the Stoics denounced it as the most intolerable of all the wrongs man ever committed against man.

Herodotus the Humanist

Herodotus was that rare person, a lover of mankind. He liked people, all of them. But he liked them more than he admired them, and he never idealized them (page 321).

Everything everywhere in the world of men was of interest to him. He tells us how the homely girls in Illyria get husbands, how the lake dwellers keep their children from falling into the water, what Egyptian mosquito nets are like, that the King of Persia when travelling drinks only boiled water, what the Adyrmachidae do to fleas, how the Arabians cut their hair, that the Danube islanders get drunk on smells, how the Scythians milk their mares, that in Libya (Libia) the woman with the most lovers is honored, how the streets of Babylon are laid out, that physicians in Egypt specialize in diseases, and so on, and so on.

"A tyrant disturbs ancient laws," Herodotus writes, "violates women, kills men without trial. But a people ruling—first, the very name of it is so beautiful; and secondly, a people does none of these things."

Staff Photographer B. Anthony Stewart

Beyond Constitution Square, Center of Modern Greek Life, Rises the Acropolis, Crown of Periclean Athens

The Syntagma, around whose tables and chairs the life of the capital surged at the day's end, is now a scene of starvation and hastily dug graves. But above it still stands the Parthenon, perfect symbol of the Greek way, the way of freedom of thought, speech, and religion. Greek blood has been ruthlessly spilled, but the glory that was Greece lives on in the hearts of Hellas and her admirers everywhere (pages 284, 310-311, 322-327).

Close Behind This Farmer, Cultivating His Field in Thessaly, the Early Stork Gets the Worm

Staff Photographer B. Anthony Stewart

Through This Portal at Olympia Passed the Most Famous Athletes of All Time

The modern Twelfth Olympic Games, scheduled for 1940, were canceled by war. But in ancient Greece all hostilities ceased during the Olympic games when athletes contested for the crown of wild olive.

Staff Photographer Maynard Owen Williams

Greek "Ballet Skirts," Here Festival Attire, Won Fame When Greeks Were Chasing Mussolini's Legions

On a slope of Mount Parnassus, these shepherds and Athenian citizens stood during the last Delphic Festival. Greek soldiers in heavy wool stockings and khaki skirts met and repulsed the Italians, even though Fascist warplanes dominated the Athenian sky.

Staff Photographer Maynard Owen Williams

Octopuses Dry in the October Sun at Kaválla, Famous Tobacco Port near the Field of Philippi

Since October was originally the eighth month and octopus means eight-footed, language reveals a relationship which a changed calendar has severed. While a fisherman mends his net, citizens lunch on the breakwater not far from Philippi, where Brutus and Cassius met defeat in 42 B.C. Though octopuses are eagerly sought for food around the Aegean, they sometimes endanger swimmers.

Staff Photographer B. Anthony Stewart

The Greek Staff of Life Looks More Like a Tire

Brown of crust, but snow-white inside, were the firm loaves of Greek bread before war brought starvation to Hellas. In ancient times the size and quality of the loaves were carefully inspected. Dunked in clabber, this white bread is delicious.

Only the tyrant was known throughout the East. When the Great King was on his march to Greece a very rich noble of Lydia entertained not only him and his courtiers, but his multitudinous host of soldiers as well. He set sumptuous feasts before all, Herodotus says, and in return begged humbly that one of his five sons, all in the army, might remain with him.

"You make such a request?" said the king. "You who are my slave and bound to give me all that is yours, even to your wife?"

He ordered the body of the eldest youth to be cut in two and placed on either side of the road where the army was to pass. The Persians were slaves, so called and so treated; the richest and most powerful claimed nothing as their right; they were completely at the disposal of the king.

Herodotus tells another story. A noble, who had for years enjoyed the royal favor and then had lost it, was invited to dine with the king. After he had feasted on the meat placed before him, he was presented with a covered basket. Lifting the lid, he saw the head and hands and feet of his only son.

"Do you know now," the king asked pleasantly, "the kind of animal you have been eating?" The father had learned the lesson slaves must master, self-control. He answered with perfect composure, "I do know, indeed—and whatever the king is pleased to do pleases me."

That was the spirit of the East from time immemorial, first clearly recorded for the world in Herodotus' book.

Little, poor, barren Greece was free. "You know perfectly what it is to be a slave," Herodotus reports some Greeks as saying to a Persian official who was urging them to submit to Xerxes. "Freedom you have never tried, to know how sweet it is. If you had, you would urge us to fight for it not with our spears only, but even with hatchets."

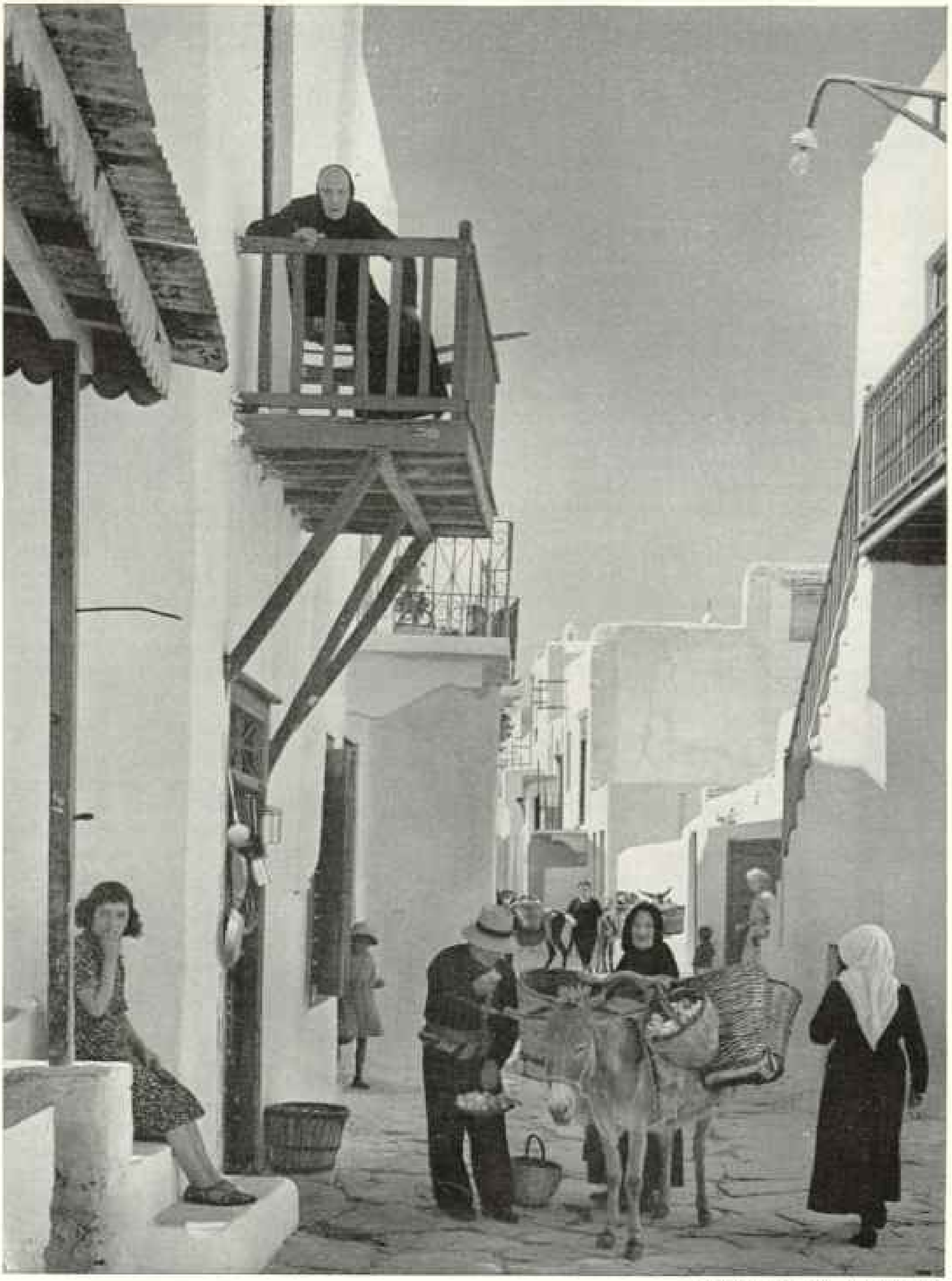
The idea of the Athenian state was a union of individuals free to develop their own powers and live in their own way, obedient only to the laws they passed themselves and could criticize and change at will. And yet underneath this apparently ephemeral view of law was the conviction, peculiarly Athenian, which dominated the thought and the art of the fifth century—that the unlimited, the unrestrained, the lawless, were barbarous, ugly, irrational.

Freedom, strictly limited by self-control—that was the idea of Athens at her greatest. Her artists embodied it; her democracy did not. Athenian art and Athenian thought survived the test of time. Athenian democracy became imperial and failed.

The Delights of Hunting

Xenophon writes a charming essay about hunting: of the delights of the early start, in winter over the snow, to track the hare with hounds as keen for the chase as their masters; in spring "when the fields are so full of wildflowers, the scent for the dogs is poor"; or a deer may be the quarry, first-rate sport; or a wild boar, dangerous, but delightfully exciting. Such rewards, too, as the hunter has: he keeps strong and young far longer than other men; he is braver, and even more trustworthy—although why that should be our author does not trouble to explain.

A hunting man just is better than one who does not hunt and that is all there is to it. Ask any fox-hunting squire in English literature. Hunting is a good, healthful, honest



Staff Photographer B. Anthony Stewart

Amid the Whitewashed Cubist Homes of Mýkonos This Green-goods Merchant Roams

Bright walls throw back the sun and blind both eye and lens to the halftones of dark cloth. This tiny island, neighbor of Dêlos (page 351), played no great part in ancient history, but in 1822, under the leadership of a woman, the people repelled a savage attack by the Turks. Now it is a place to which seamen retire.

pleasure, and a young man is lucky if he takes to it. It will save him from city vices and incline him to love virtue.

The guests at Xenophon's dinner, except for himself and Socrates, were ordinary people who would quickly have been bored by the speeches in the *Symposium* (pages 330-1). But no one could possibly have been bored at the party Xenophon describes. It was from first to last a most enjoyable occasion. There was some good talk at the table, of course—Socrates would see to that; and now and then the discourse turned to matters sober enough to have engaged even Thucydides' attention. But for the most part, it was lighthearted as befitted a good dinner.

There was a great deal of laughter when, for instance, Socrates defended his flat nose as being preferable to a straight one, and when a man newly married refused the onions. There was music, too, and Socrates obliged with a song, to the delighted amusement of the others.

A pleasant interlude was afforded by a happy boy, and Xenophon's description reveals his power of keen observation and quick sympathy. The lad had been invited to come with his father, a great honor, but he had just won the chief contest for boys at the principal Athenian festival.

He sat beside his father, regarded very kindly by the company. They tried to draw him out, but he was too shy to speak a word until someone asked him what he was most proud of, and someone else cried, "Oh, his victory, of course." At this he blushed and blurted out, "No—I'm not."

All were delighted to have him finally say something and they encouraged him. "No? Of what are you proudest, then?" "Of my father," he said, and pressed closer to him.

As was usual, entertainment had been provided for the guests. A girl did some diverting and surprising feats. The best turn was when she danced and kept twelve hoops whirling in the air, catching and throwing them in perfect time with the music. Watching her with great attention Socrates declared that he was forced to conclude, "Not only from this girl, my friends, but from other things, too, that a woman's talent is not at all inferior to a man's." A pleasant thing to know, he added, if any of them wanted to teach something to his wife.

A murmur passed around the table: "Xanthippe"; and one of the company ventured, "Why do not you, then, teach good temper to yours?" "Because," Socrates retorted, "my great aim in life is to get on well with people, and I chose Xanthippe because I knew if I could get on with her I could with anyone." The explanation was unanimously voted satisfactory.

A little desultory talk followed that finally turned upon exercise, and Socrates said, to the intense delight of all, that he danced every morning in order to reduce.

"It's true," one of the others broke in. "I found him doing it and I thought he'd gone mad. But he talked to me and I tell you he convinced me. When I went home—will you believe it? I did not dance; I don't know how; but I waved my arms about." There was a general outcry, "Oh, Socrates, let us see you, too."

By this time the dancing girl was turning somersaults and leaping headfirst into a circle formed by swords. This displeased Socrates. "No doubt it is a wonderful performance," he conceded. "But pleasure? In watching a lovely young creature exposing herself to danger like that? I don't find it agreeable."

Of himself Xenophon says nothing throughout the essay except at the very beginning when he explains that he was one of the guests and decided to give an account of the dinner because he thought what honorable and virtuous men did in their hours of amusement had its importance.

No Compulsion by Church or State

Athens had no authoritarian church, or state either, to formulate what a man should believe and to regulate the details of how he should live. There was no agency or institution to oppose his thinking in any way he chose on anything whatsoever. As for the state, it never entered an Athenian's head that it could interfere with his private life: that it could see, for instance, that his children were taught to be patriotic, or limit the amount of liquor he could buy, or compel him to save for his old age. Everything like that a citizen of Athens had to decide himself and take full responsibility for.

The basis of the Athenian democracy was the conviction of all democracies—that the average man can be depended upon to do his duty and to use good sense in doing it. *Trust the individual* was the avowed doctrine in Athens, and expressed or unexpressed it was common to Greece.

Sparta we know as the exception, and there must have been other backwaters: nevertheless, the most reactionary Greek might at any time revert to type. It is on record that Spartan soldiers abroad shouted down an unpopular officer; threw stones at a general whose orders they did not approve; in an

Staff Photographer B. Anthony Stewart

Who, Seeing This, Can Doubt the Story of the Baby-bearing Stork?

In the yard of a country school at Halmyrós, near Vólos, children come running while storks preen themselves over a job well done.

emergency, put down incompetent leaders and acted for themselves. Even the iron discipline of Sparta could not completely eradicate the primary Greek passion for independence. "A people ruling," says Herodotus, "—the very name of it is so beautiful."

Socrates and Plato

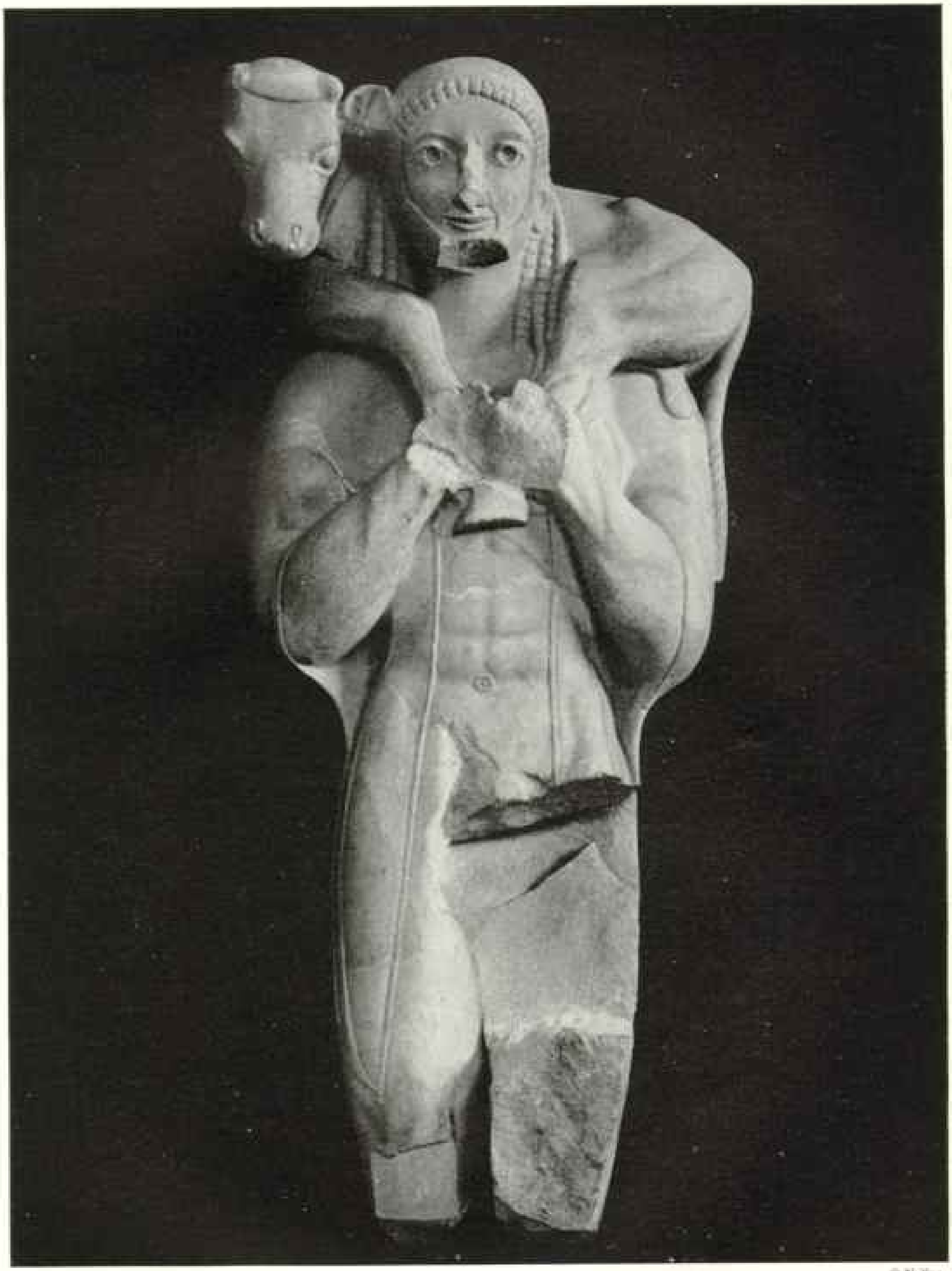
Together Socrates and his pupil, Plato, shaped the idea of the excellent which the classical world lived by for hundreds of years and which the modern world has never forgotten.

Socrates believed that goodness and truth were the fundamental realities, and that they were attainable. Every man would strive to attain them if he could be shown them. No one would pursue evil except through ignorance. Once let him see what evil was and he would fly from it. His own mission, Socrates believed, was to open men's eyes to their ignorance and to lead them on to where they could catch a glimpse of the eternal truth and goodness beneath life's confusions and futilities, when they would inevitably, irresistibly, seek for a fuller and fuller vision of it.

In the prison cell when the time had come to drink the hemlock, he had a kind word for the jailer who brought him the cup, and he broke off his discourse with his friends when he was telling them that nothing was surer than that beauty and goodness have a most real and actual existence, by exclaiming: "But I really had better go bathe so that the women may not have the trouble of washing my body when I am dead."

One of those present, suddenly recalled from the charm of his talk to the stark facts, cried: "How shall we bury you?" "Anyway you like," was the amused answer. "Only be sure you get hold of me and see that I do not run away."

And turning to the rest of the company: "I cannot make this fellow believe that the dead body will not be me. Don't let him talk about burying Socrates, for false words infect the soul. Dear Crito, say only that you are burying my body."



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A Homely Task Adds Life to the Old-fashioned Statue of the Calf-bearer

When Pheidias and Praxiteles touched perfection in Greek sculpture (pages 323, 340), this stiff figure, with its enigmatic smile, was already called archaic—the Greek word for old-fashioned. Originally the drapery, hair, and beard were painted, and the eye sockets were set with colored stones. The statue, representing a man carrying a calf to sacrifice, charmed visitors to the Acropolis Museum at Athens.

Greece—the Birthplace of Science and Free Speech

Explorations on the Mainland and in Crete and the Aegean Isles Reveal Ancient Life Similar to That of the Present

By Richard Stillwell

Formerly Director of the American School of Classical Studies at Athens

ONCE, soon after I had gone to Greece for the first time, a friend and I were picking an uncomfortable way down from the top of Mount Ithōme. The mountains of the Peloponnesus threw long shadows across the Messenian plain, but the late afternoon sun was still hot (map, pages 280-1).

A small, deserted monastery on the very summit had been our goal during a long afternoon's climb. We had inspected it thoroughly for remains of a sanctuary of Zeus, not much in evidence, to be sure, but none the less a legitimate objective for archeological travelers.

Now we were thinking of the possibility of a good dinner and a night's rest at the seaport town of Kalamata—a town toward which, some years later, several thousand British soldiers were to struggle in the vain hope of being evacuated to Crete or Egypt before the Germans could cut off their retreat.

Saluted as by the First Marathon Runner

Presently we met a young man. "Chairete" (rejoice), he cried. "Where are you going?"

Ever since the first Marathon runner gasped his life out with "Chairete, we have conquered," as he raced into the anxiously crowded market place of Athens with news of the great victory over the Persians, the word has been a common salutation among the Greeks.

On learning where we were bound, our new acquaintance took us to his home, where his sister brought us a pitcher of resinated wine. He then went with us down the road until we could no longer mistake our way, and when we would have paid him he gracefully avoided any reward save our spoken thanks.

Such was the hospitality of which Homer wrote time and again in the *Odyssey*. After many centuries it remains the same.

A thirteen hours' tramp next day through the wild Langada Gorge, across Mount Taygetus, from Kalamata to Sparta, ended with a couple of hours' walk through fragrant, moonlit orange groves and gave our first impression of Sparta a quality all its own. We felt like travelers of ancient days.

To lie out on a rocky, sunlit slope overlooking the dark sea, and hear sheep bells and a shepherd's pipe; to pass near a village and see women drawing water from a fountain, or washing clothes in great stone troughs near by; to ride through dense olive groves down to a little harbor—all these things are a part of knowing both modern and ancient Greece.

At harvest time the cutting of the grain with hand sickles, rows of donkeys' feet twinkling along as if part of animated haystacks, and finally the threshing on great, round, cobbled threshing floors—all take one back to the pictures of similar scenes on ancient vases.

Achilles Was Once a Draft Dodger

The excavator at an ancient site uncovers the past in pieces, as it were, but unless the place is utterly remote he may relive the past in many of the customs of the village whence his workmen come.

One winter two friends and I enjoyed Christmas on the little island of Skýros. If we had needed an archeological excuse to go there, we could have said that it was the island where Achilles, to avoid having to go to the Trojan War, put on a girl's dress and successfully avoided the draft until he betrayed himself by showing a most unmaidenly interest in some weapons the sly fox Odysseus put around where he could see them.

While we were there, we were invited to attend a wedding, and our host insisted that we wear native island costume.

Thus I found myself in a pair of full blue pantaloons which resembled nothing so much as a large bag, with holes for the legs in two corners, and the mouth of the bag held, I hoped, around my waist by a sash. Also there were a richly embroidered shirt, goatskin leggings, and strangely laced sandals.

The women's costumes were voluminous and elaborate, and I never did learn how many layers went to make them up.

We danced, after a fashion, and feasted, and went back to our house to fall into bed, but the wedding festivities went on for three days and nights. The celebrants were still making

Minoan Snake Goddess in Ivory and Gold

Slender as a modern movie queen in tight bodice and flounced skirt was the Cretan maiden who posed for this chryselephantine statue, which is now in the Boston Museum of Fine Arts. The great statue of Athena in the Parthenon was also of ivory and gold (pages 279 and 323).

merry, though a bit wearily, when we took the little steamer back to the mainland. Many of the details of such festivities can be paralleled in what we know of ancient Greek weddings (page 329).

Funerals also follow old traditions. The wailing women, the procession bearing the body, usually exposed in its coffin, the breaking of symbolic vessels—today a bottle, but once a beautifully shaped vase—and the placing of a sack of nuts or fruit with the body—all find parallels in ancient days.

Many of the graves of the ancient Greeks contained rich collections of vases and jewelry. Bronze pins, mirrors, and other articles were buried with the dead. An interesting custom was the habit of placing a bronze *strigil*, or scraper, in the grave of a youth, while a woman's grave was always indicated by the inclusion of a *pyxis*, or jar for cosmetics.

Children's graves often contain toys, and a warrior's grave a helmet. One such grave I saw opened at Corinth. In it was a beautiful bronze helmet, too small for a man, and the size of the stone sarcophagus showed that it probably belonged to a boy who did not live to fulfill his parents' hopes of a brilliant military career.

It brought to my mind the epitaph by Callimachus: "Philip his father laid here the twelve-year-old child, his high hope, Nikoteles."

Eggshells have also been found in graves, as a symbol of the awaiting of a new life.

When I was living in Corinth, I often examined the citadel of Acrocorinthus, which towers steeply behind the old city (page 285). I looked for the cliff from which, according to the story, Leon Sgourós, who was defending the citadel, is said to have leaped on horseback when he could no longer hold out against the enemy.

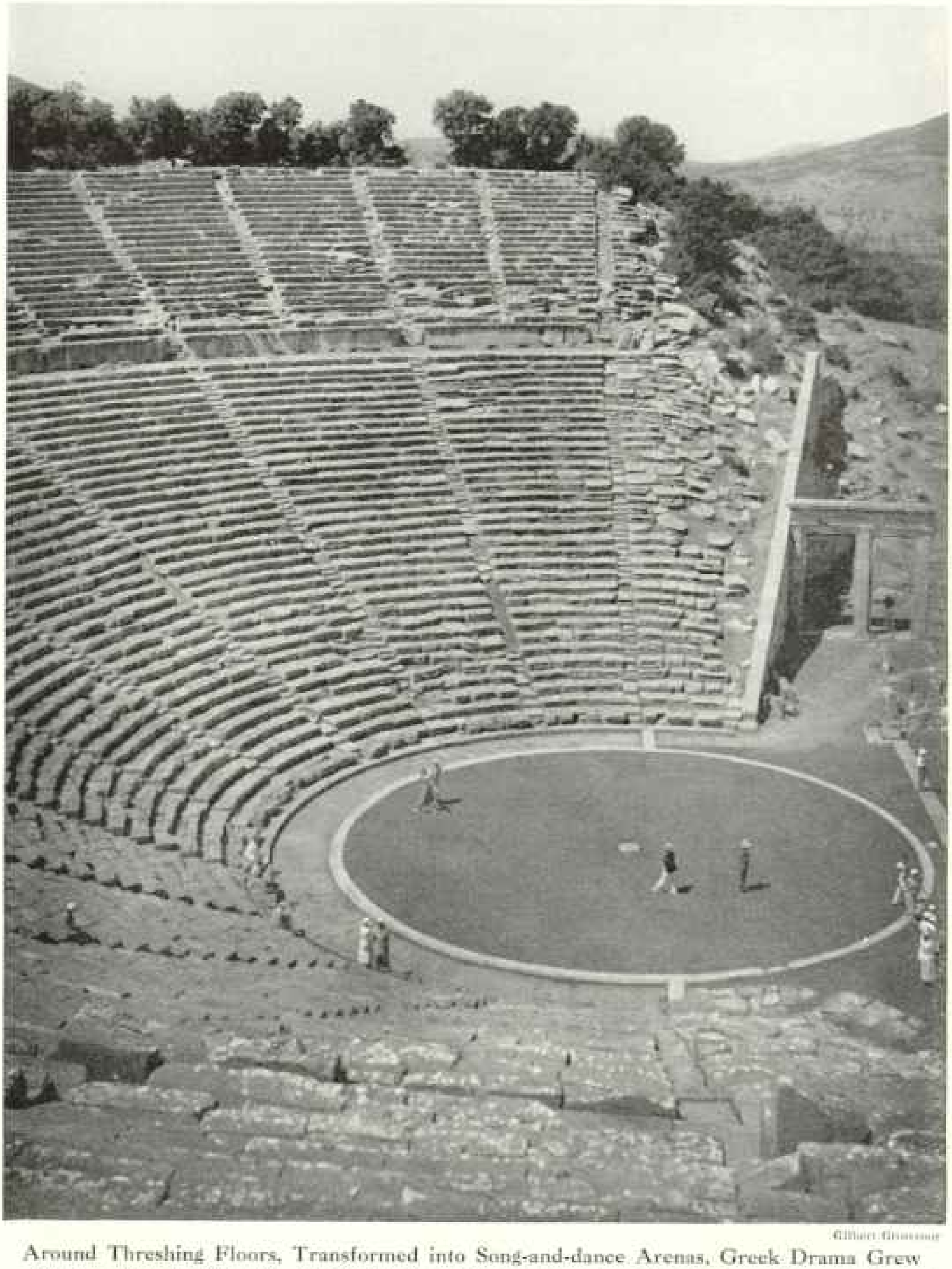
Workmen Can Climb Like Goats

It was one pleasantly recurring problem to try to make out just what route Aratus of Sicyon took up the crags of the fortress when he scaled the walls by night and recaptured the citadel from the occupying Macedonian garrison, 243 B. C. I often pitied the attackers fighting at the summit after they had climbed the steep slope. My pity was not just vicarious; for we ran an excavation up there all one spring, and every morning the climb took us about 40 minutes of very stiff uphill work.

Possibly, however, the pity was misplaced, for we had some workmen from Mycenae who camped up there, save when they went away for week ends. They would show up on Monday morning after walking from a little station several miles away and climbing the steep south slope, where ordinarily only goats can go.

Some years later I saw a race among shepherds at Arachova, a few miles east of Delphi. The prize was a sheep. The course was about one hundred yards up a 30-degree slope. Since there was no timekeeper, I cannot say what the record was; but those men literally sprinted up the hill. After that the performance of our Mycenaean workmen did not seem so remarkable to me.

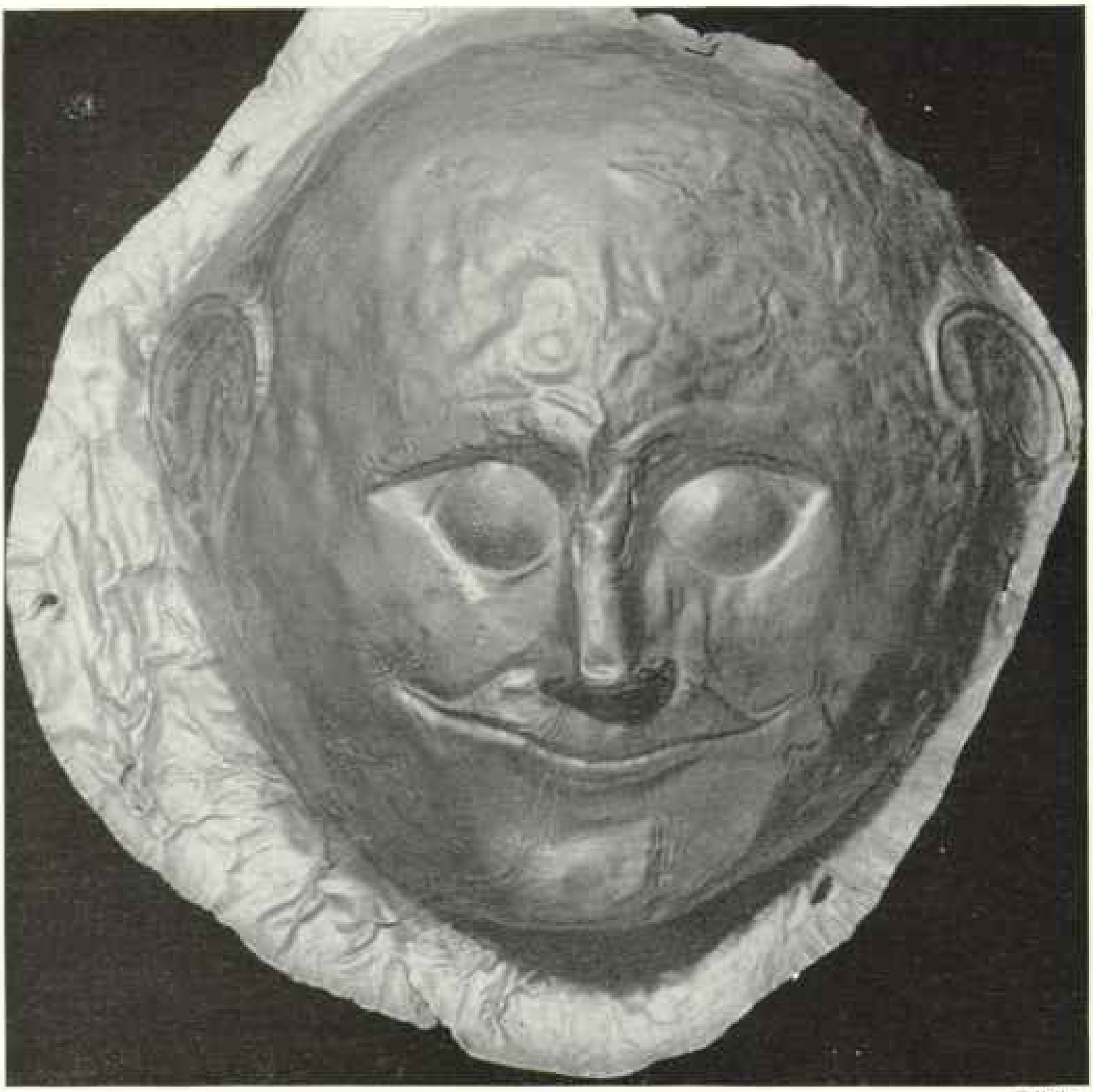
Once on an unforgettable nine-day cruise through the Aegean islands on a 60-foot



Gilbert Grosvenor

Around Threshing Floors, Transformed into Song-and-dance Arenas, Greek Drama Grew

In this 2,400-year-old theater at Epidaurus, twenty thousand spectators took their recreation seriously. The first orchestra—or dancing place—was marked out by circling cattle, threshing grain. The dancers sang lyrical interludes, against which formal drama made slow headway. Now the stage has retired behind curtain and footlights, and only musical comedy and the opera continue the song-and-dance tradition of early Greece. No loudspeaker is needed here, for the acoustics of the theater are so good that the words of the man in the white trousers can be heard to the top row without his raising his voice (page 349).



© Nelles

Following Homer's Tip in the "Iliad" about Mycenae "Abounding in Gold," Schliemann Found This Golden Mask

From royal tombs sunk upright in the rock, Heinrich Schliemann in 1876 recovered priceless Mycenaean treasures which had been almost forgotten even in Homer's day. Thus fame returned to the city of Agamemnon. Beaten out of a thin sheet of gold, this funerary mask once covered the face of a prince as he lay surrounded by ornaments and weapons. So pure is the gold, it bends to the touch (pages 277, 279, 292-3).

caïque (fortunately provided with a Diesel engine) some of us went ashore at Tēnos, where there is a famous church of healing.

It is surrounded by an arcaded portico where the pilgrims sleep when they come to the Feast of the Annunciation, just as the ancient Greek visitors to a sanctuary of Asklepios used to sleep in porticoes connected with the temple.

Inside the church were many votive objects in tin, silver, or occasionally gold—parts of bodies, ships, small replicas of automobiles—probably put there by people who had escaped serious injury in accidents. There were even one or two models of airplanes.

I was interested by one offering in particular, although I did not learn anything about it. It was a small replica of part of a man's skeleton beautifully executed in silver. Only the backbone and ribs were shown, and through the cavity of the chest was a small golden arrow!

Our cruise was leisurely, since we followed the custom of the ancient sailors and put into a harbor each night. The chief difference was that we did not beach our ship. Our

farthest point out was the volcanic island of Santorin, where the harbor is the old crater and too deep for anchorage.

We made fast to some bitts which had been set on the edge of a little lava cone that was forming in the center of the bay, and in the morning went for a swim. The water ran in layers: cool, warm, cool, and suddenly uncomfortably hot. No one tried swimming through the hot water for fear of being suddenly parboiled.

There was nothing archeological in that particular spot, but the fact that it lay in a region of continuous ancient tradition gave the savage prehuman aspect of the place an unusual significance.

Two days later we anchored in a cove under the columns of the Temple of Poseidon at Cape Soúnion. I had seen them first, tantalizingly, from the porthole of a steamer on the way from Istanbul. This time I could enjoy them at leisure. Many of the column drums had been rolled down to the sea to be taken away for Venetian marble cutters, and doubtless some of that material, now unrecognizable, is built into the walls of Venice.

The surviving columns are much weather-beaten, but they show the unmistakable character of Greek architecture in the middle of the fifth century. Then the Doric style reached its peak and culminated in the buildings of Periclean Athens.

© Nelles

Goldsmith's Art of 3,500 Years Ago Furnished Details for Herget's Paintings

Bare breasts and many-flounced skirt were the fashion in Crete. But this golden pin, found at Mycenae, proves the style was copied on the Greek mainland (pages 292-3).

Greece Nurtured the Spirit of Freedom

Greece is a rugged, mountainous country. The coastline is so deeply indented that the sea is never very far from any part of the interior.

In ancient times, as now, the country was divided into two parts: the Peloponnesus, and northern Greece, reaching up as far as Macedonia, which was not a part of Greece until the time of Philip.

The mountain spurs run down to the sea and divide the land into many small communities. From earliest times these districts were independent, save when some of them were brought together under a strong ruler or under one of the larger and richer cities.

This individualism, so marked in ancient times, is equally noticeable today.

The astonishing thing is that the ancient Greeks as a whole, no matter how much they fought and disagreed among themselves, were able to forge a civilization which has left its imprint so strongly marked on our own that we are indebted to them in almost every phase of our daily lives.

The idea of a community in which every citizen had an equal vote in the business of the state is one of the greatest of Greek contributions, although their ideas of democracy were limited to the citizens proper and by no means included the large body of slaves and foreign residents of the state, Greek though they might be. The democratic idea flourished especially in Athens (pages 259, 282).

Science owes a great debt to the Greeks. Geometry was developed by their scholars; they studied astronomy, and geography, and mechanics, and on their work we base an incalculable amount of our present-day knowledge (pages 316-7, 352-3).

Their philosophers led the way along nearly every path of speculative thought which has been followed since.

In the arts the Greek imprint was so strong that it has affected sculpture and architecture ever since. The Lincoln Memorial in Washington, D. C., famed art galleries in the heart of America, and many buildings of our great cities attest the enduring art and architecture of classic Greece (pages 264, 284).

The outstanding characteristic of the ancient Greeks which has survived most strongly is their fierce love of freedom.

The guerrilla bands which wrecked the railroad line near Lamia recently recall the long struggle the Greek states put up against the overwhelming power of the Roman Empire and the centuries of resistance to Turkish domination.

Sir Alan Cobham from Galloway

Planned by the Ancients, but Only Fifty Years Old, the Corinth Canal Makes the Peloponnesus What Its Name Implies—Island of Pelops

This four-mile waterway shortens the voyage from Piraeus to Patras by more than 200 miles. Along the right edge led the roadway over which small ships were hauled (pages 289, 302-303). Near the dark spot (upper right) lay the stadium where in 336 B.C. Alexander the Great became leader of all Greeks against the Persians.

As we go about among the Greek people in city and country; as we read and understand what the ancient Greeks themselves wrote, their history and philosophy, their plays and their poetry; as we see the remains of their buildings, and, with the aid of our ever-growing knowledge, restore them in our mind's eye, we can begin to form some idea of the race which glorified the heroes of the Trojan War, defied and successfully withstood the great Persian Empire, the world power of the day, and, 150 years later, led by Alexander, humbled her and spread Greek culture through the Near East (pages 283, 347).

Who were these gifted people and whence did they come? The question is as hard to determine as any other involving migrations and fusings of peoples. Although one may speak glibly of Pelasgians, Mediterranean stock, Minyans, Achaeans, and Dorians, it is difficult to trace them down to their original homes.

Briefly, before the dawn of written history strange tribes came down out of the north into Greece through the Balkans, and mingled with the earliest inhabitants. Some of the invaders were long-haired and blond. Homer's warlike Achaeans were among these.

The archeologist can distinguish different periods before historic times by their distinctive pottery or architecture, or modes of burial.

Modern Scholars Unearth Forgotten Lore

Our knowledge of ancient Greece has been greatly extended during the last fifty years. In some ways we know much more about the early prehistoric times than did the Greeks of the great period of Athens. The ancients had their legends. The *Iliad* and the *Odyssey* were known to nearly every Greek; the playwrights—Aeschylus, Sophocles, Euripides—built their plays around well-known stories and thus saved them for us.

It was reserved, however, for the modern archeologist to discover the great shaft graves at Mycenae, the golden treasure at Troy, and the labyrinthine palace at Cnossus in Crete where legend says Theseus killed the Minotaur (pages 290-293).*

Heinrich Schliemann, who started life as a grocer's apprentice in a small German town, firmly believed that the *Iliad* was more than a mere legend. He set out to make a fortune, became an American citizen in California in 1850, and later went out and dug up Troy.

To his surprise he found the remains of no fewer than nine separate cities, built one above the other. Lacking proper control material, he named the second city from the bottom Troy, the city of Priam, the one sacked by Agamemnon and the Greeks. Later explorations have identified this city with the sixth layer from the bottom, or really a subdivision now known as 7A.

He worked with his wife, a Greek girl who knew Homer by heart and used to recite the *Iliad* to him by the hour.

When his workmen began to unearth a rich treasure of gold jewelry, Schliemann with great presence of mind made an excuse to get rid of them. As the men quit work, his wife rushed out and gathered up the treasure in her red shawl.

She lost her own gold thimble there. Almost fifty years later, another archeologist, working over the site, found it and returned it to the owner!

Schliemann also excavated at Mycenae, the home of Agamemnon and that leader's treacherous wife, Clytemnestra. He opened five great shaftlike graves full of gold ornaments, masks, bronze weapons inlaid with silver and gold, ivories, etc. These treasures have since been shown to be much earlier than the period of the Trojan War (pages 276, 277).

The picture of those remote times, however, is still far from complete. The people of the second millennium B. C. knew writing, but no such quantity of material has been preserved as in Egypt or Mesopotamia. And, furthermore, only a start has been made in interpreting what has been found.

Schliemann's discoveries were presently complemented by the work of an English archeologist, the late Sir Arthur Evans, who uncovered the great Cretan palace and city of Cnossus, capital of King Minos.

It soon appeared that in Crete there had lived a rich seafaring people, highly cultured and possessed of much artistic and architectural skill.

Crete traded with Greece, Egypt, Syria, and the coast of Asia Minor. It had a profound influence on the art of pre-Hellenic Greece.

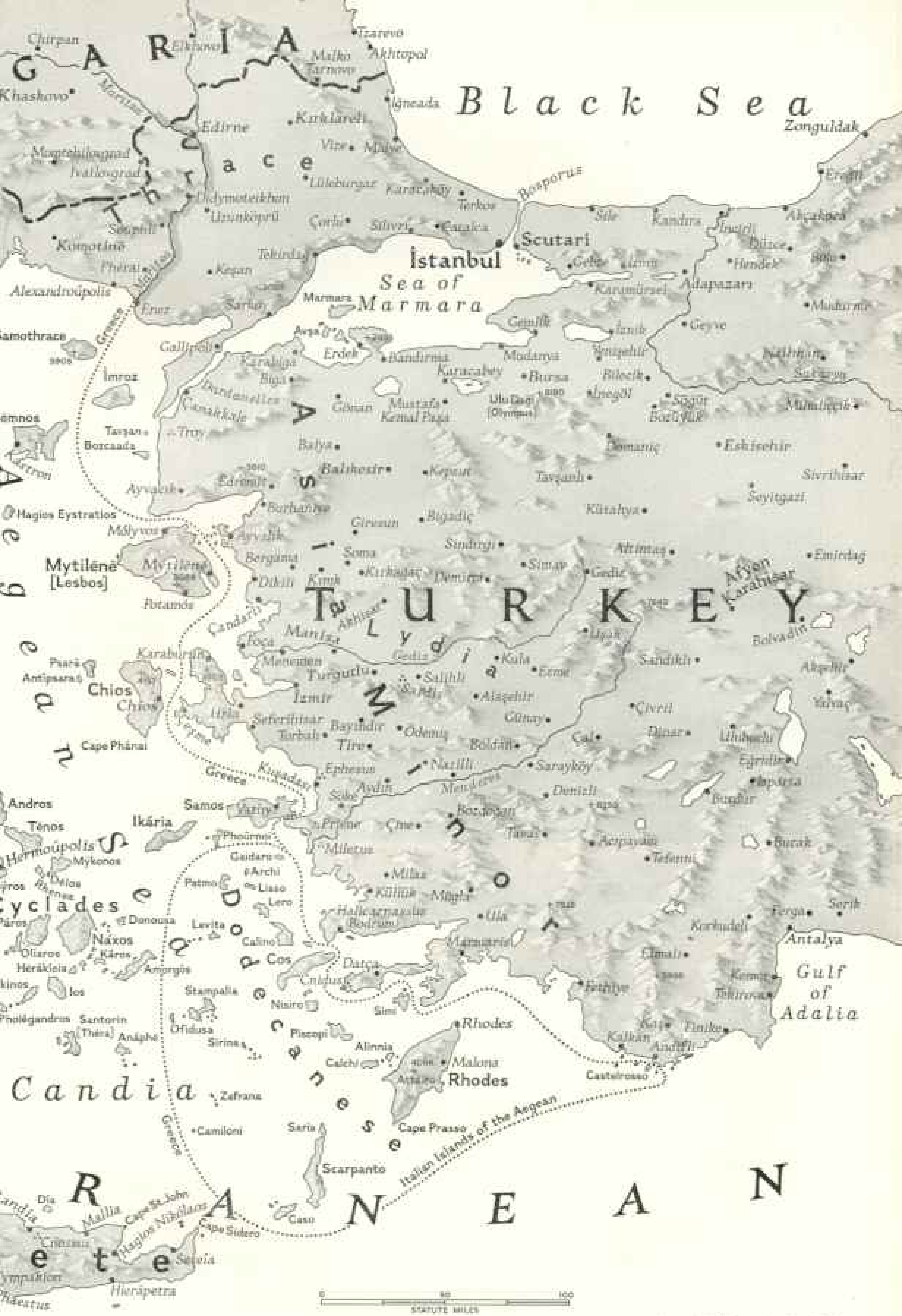
The rulers of Mycenae, on the Greek mainland, who may have been responsible for the overthrow of the Cretans, were a northern race. They brought with them many of their own traditions, such as buildings with pitched roofs, instead of the traditional Mediterranean flat-terrace type. Their rulers, to judge from the gold burial masks found at Mycenae, were stern, bearded men.

But constantly on the northern horizon, from beyond the mountains, more peoples were continually pressing down into Greece. They overran the tremendous fortifications

* This legend is best told by Nathaniel Hawthorne in "The Minotaur."

From Cyrus to Hitler, Tiny Greece Fought the Barbarian; Kept Freedom Alight

Aegean trade and art forms jumped from island to island. From the Caucasus to Spain, Greek colonies spread. A necklace of Hellenic cities adorned the coast of Asia Minor from Troy past Ephesus and Miletus—home of maps—to and beyond the Halicarnassus of Herodotus, Father of History (pages 320-1). When Asiatic despotism struck, mainland Greece bore the brunt at Marathon and Salamis (pages 312-3).



Drawn by H.E. Eastwood and Irwin E. Alleman

Staff Photographer B. Anthony Stewart

Hygeia, the Doctor's Daughter, Was the Personification of Health

Here in the National Museum at Athens, the hair-do of a modern Greek girl can be compared with that on the sculptured head of Hygeia, daughter of the god of healing whose shrine is at Epidaurus (pages 275, 336).

around the palaces of Mycenae and Tiryns until the glories of the Mycenaean period merged into the traditions of the Dorian invaders. Finally all came out together as a part of the social legend of the ancient Greeks.

Four Hundred Years Following the Trojan War Lost to History

The Trojan War is usually dated about 1100 B. C. We have no historical record between that time and some four hundred years later, in the eighth century before our era, when men began to record time for literary purposes by the celebrations of the quadrennial Olympian games.

It is evident from study of the comparatively scanty remains from these four centuries that this was a formative period for the burst of civilization which followed in the many small city-states which were growing up independent of one another.

Athens was, of course, always the chief center of Greek culture, but simultaneously, or in turn, other towns played an important part in Greek history, and hence in the development of Greek civilization. Thebes, in Boeotia; Mégara, 20 miles west of Athens; Corinth; and Sparta — these were the principal cities whose varying fortunes run like a magnificent pattern through the web of Greek history.

Sparta Throve on Arts of War

Sparta was a military state; her army was the body of her citizens. These were supported by the larger *Helot*, or serf class, who had no rights at all. Physical fitness and aptitude for war were stressed, and anything which tended toward softening of body or character was sternly forbidden (286, 306-7).

Athens was quite different. There the spirit of a true democracy soon asserted itself.

Athens built many merchant ships and a strong navy and thus won the leading position among the Greek states. This roused the dangerous jealousy of Sparta and other Greek cities.

But the Persian menace, which had absorbed the Greek colonies of the Asia Minor coast, united Athens and Sparta for a time. In 490 B. C. the Athenians turned back the Persian hordes of Darius the Great at Marathon (page 288).

Ten years later, Darius' son, Xerxes, burned

From T. Leslie Shear

This Bit of Potsherd Helped Ostracize Aristides, Athenian Hero of the Persian Wars

When it was thought a person had become too powerful and dangerous to the state, he could be banished temporarily by popular vote. This *ostrakon*, unearthed in the ancient market place, was a ballot against Aristides the Just, classic example of virtue in public life. In hastily scratched Greek letters is the inscription "Aristeides (son) of Lysimachos" (pages 334-5).

Athens and soon afterward watched the destruction of his great armada by the little Greek fleet at Salamis. Reluctantly the Persians withdrew, never to return (pages 308-313).

Athens, Center of Culture and Power

Athens was now the mistress of the seas. Her great prosperity and power released all that was best in Greek art and thought. The 60 years from 460 B. C. to the close of the century saw the great period of Greek drama, the rise of philosophic thinking in Socrates and Protagoras, an unparalleled blossoming in the arts of sculpture, painting, architecture, and the minor arts, and, toward the end, the biting satire and broad comedies of Aristophanes.

The Athenian commercial empire stretched mainly from the Kerch Peninsula, on the northern coast of the Black Sea, through many of the Greek islands westward to Sicily.

But Persia (Iran) still threatened, and the Greek cities of Asia Minor were still for the most part under Persian rule. Soon Persian gold incited Sparta to attack the Athenians.

The war between Athens and Sparta lasted about thirty years (432-404 B. C.), with intervals of truce. It left the rivals weak and exhausted and Athens temporarily defeated. Athens received a further bitter blow in the disaster to her expedition against Syracuse in Sicily.

Sparta fought a ruinous war against Thebes. Persian gold still animated the political marionettes of the Greek states, but in the north, in semi-Hellenized, semibarbarous Macedonia, a new power was growing up.

The Delphic oracle, the Pythian games, and Olympia's festival every four years brought together people from all parts of the Greek world and established a temporary truce among warring states (pages 265, 296-7, 304-5).

All this, however, failed to amalgamate the Greek states, and no real federation ever took place. There were leagues and alliances, but temporary expediency was their only bond, and they generally dissolved almost as quickly as they were formed.

Alexander's Conquests Spread Greek Culture

In 338 B. C., Philip, king of Macedonia, ably seconded by his brilliant son Alexander, defeated the Athenians and the Thebans in a critical battle at Chaeronea.

Staff Photographer B. Anthony Stewart

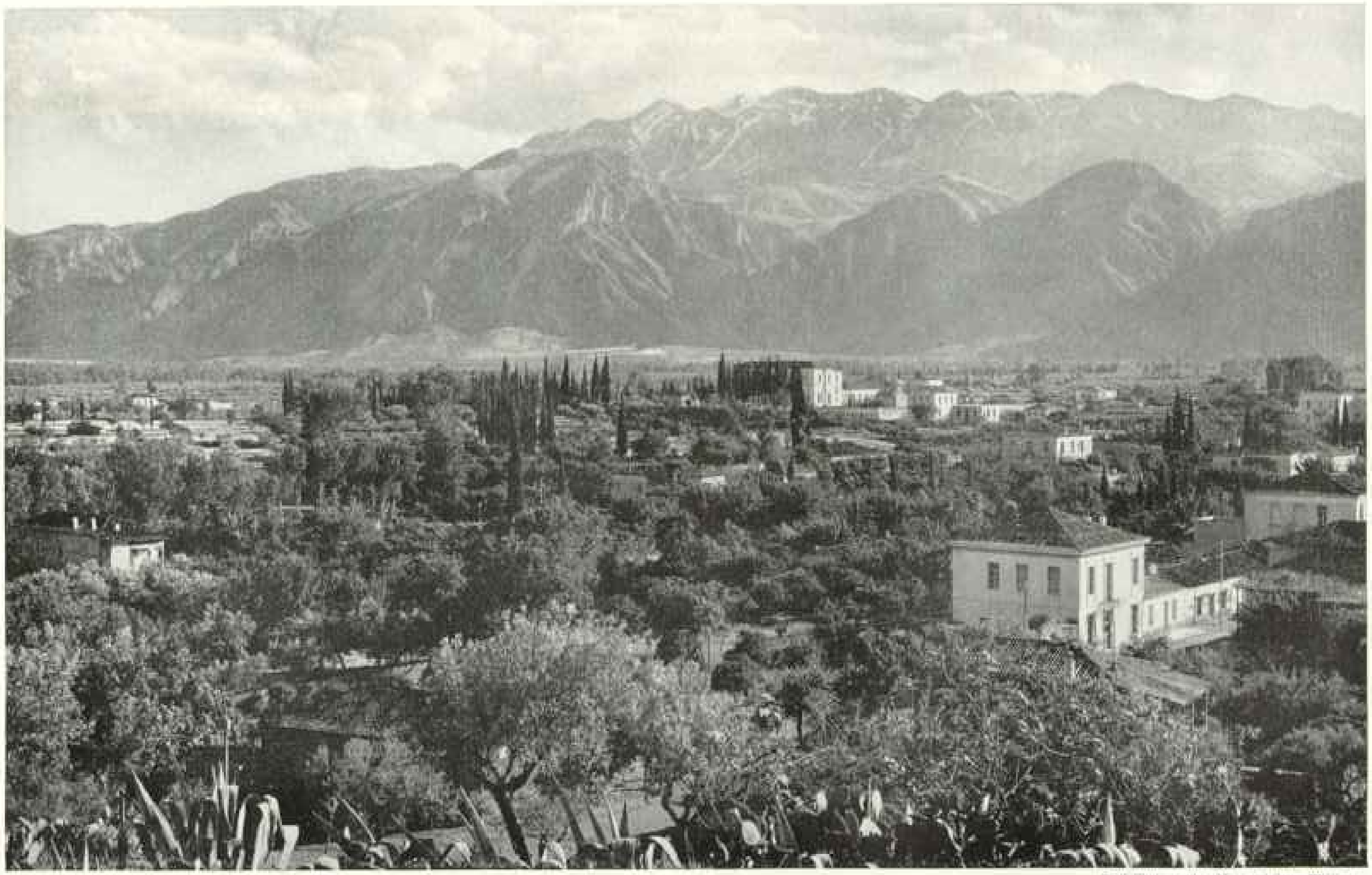
Blown Up by Venetian Artillery Only 257 Years Ago, the Parthenon, Peerless Temple of All Time, Has Had Its Columns Restored

Built as unemployment relief, the Parthenon, crown jewel of the Acropolis, was the abode of Athena, skilled in the arts of peace and war. The United States WACS wear her head as lapel and collar insignia. The colonnade was restored with American aid. Since the columns were fluted by the builders after the drums were set up, each had an individuality of its own. Tested by piano-wire measurements, the fallen columns were carefully restored to their original places.

Staff Photographer Maynard Owen Williams

From the Acropolis of Corinth One Looks Down on the City of St. Paul's "Corinthians" and New Corinth (right)

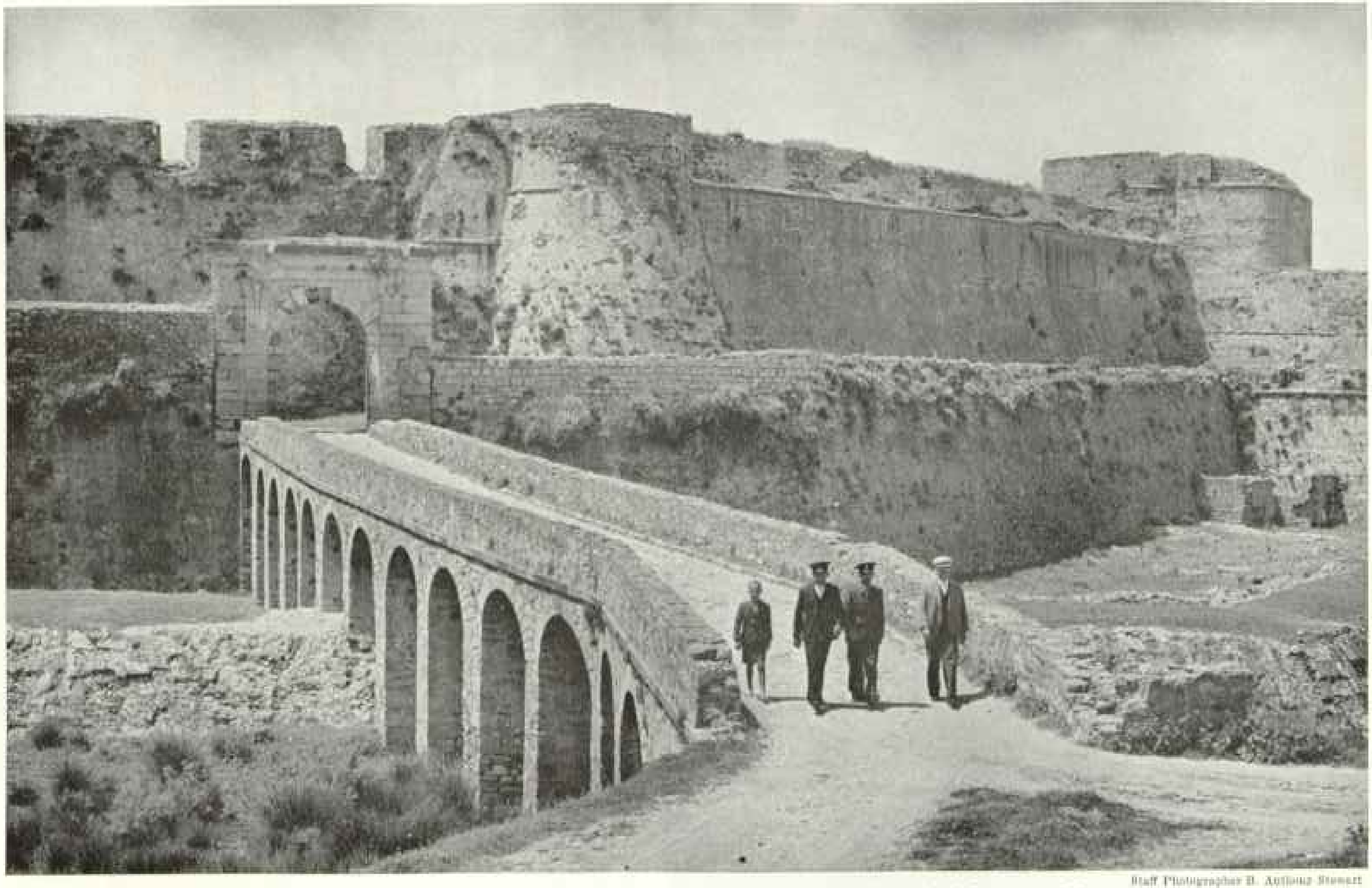
Far below are seven tiny columns of the Temple of Apollo (left) in the luxury-loving city whose merchants commanded transisthmian trade and whose priestesses made Aphrodite famous in every port (pages 274 and 302). Dark areas are fields of currants (seedless raisins), which take their name from Corinth. On the hill are Greek, Byzantine, Venetian, and Turkish ruins.



Staff Photographer Maynard Owen Williams

Every Soldier Was a Tower of Defense for Unwalled Sparta, Situated in a Plain and Dominated by Mountains

"I had expected to find Sparta an uninteresting city," wrote Dr. Williams, "for Thucydides said that her ruins would give no measure of her greatness. Yet few Greek cities have as fine a site. The walls of Sparta may have been the breasts of her sons, but the surrounding mountains may have had something to do with her impregnability. This view is across the roofs toward Mount Taygetus, by afternoon light on a rainy day." (pages 282-3 and 306).



Staff Photographer B. Anthony Stewart

The Fortress of Methónē Is an Abandoned History Book, with Crumpled Leaves of Stone

From the underlying Greek walls which resisted the Athenians in 431 B.C., to the final crenelations of the French, more than a century ago, this commanding site has endured a colorful career. Spartan and Nauplian, Venetian Crusader and Byzantine corsair, Turk and Frenchman defended its history-stratified walls, which face a stormy coast beyond the harbor of Navarino.

Staff Photographer B. Anthony Stewart

Under This Mound at Marathon Lie 192 Soldiers Who Swept Back the Persian Tide

While their Spartan allies awaited a full moon, Miltiades' men caught Darius' army in the most famous pincers movement of ancient times. When the Spartans arrived, the battle was won, and the original Marathon runner had brought the good news to Athens. Arrows of Ethiopian archers, described by Herodotus, have been picked up on this historic site (page 282). The steps are not relics of ancient times.

Upon Philip's untimely assassination—untimely because as a statesman he was probably far more able than his son—Alexander at only 20 years of age became the foremost personage in the Greek world.

His victorious campaigns against Persia ended with the Hellenizing of almost the entire Near East, including Egypt. Although after his early death his empire was divided among his generals and ultimately was engulfed by Rome, the three hundred years from 330 to 30 B. C. saw a tremendous spread of Greek thought and culture.

Many Ancient Findings Accurate

Eratosthenes of Cyrene computed the circumference of the earth to within about two hundred miles of what we now know it to be. Aristarchus of Samos (*ca.* 310-230 B. C.) propounded the theory that the earth revolved about the sun. Physics and mathematics and geometry took on the forms given by Euclid, Apollonius of Perga, and others.

The modern excavator who attempts to fill in the picture of ancient Greece is indebted especially to a traveler who wrote an excellent guidebook of that country in the second century after Christ.

If it were not for the careful descriptions which Pausanias left of a long list of sites in Greece, it would be difficult, if not impossible, to identify many of the monuments of Athens, Delphi, Olympia, and dozens of smaller places.

For example, in the early years of this century the excavators at Corinth were looking for the fountain of Peirene. It would give a key to the location of many other monuments (pages 285, 295).

The director of the excavations lost his glasses down a well in the courtyard of the house he was occupying. His foreman, who volunteered to go down after them, found himself in about two feet of water, with a narrow tunnel just big enough for him to squeeze through leading off in two directions.

He returned for a light and continued his explorations. At length he reported that he had come to a succession of "caves" partly filled with mud and water.

Pausanias' description of Peirene included the mention of a series of "caves" behind the façade of the fountain, and the excavators immediately set about clearing away the 30-foot deposit of earth that lay over the place. When it was all cleared out, Peirene lay open to the sky. It corresponded very closely with the account of the traveler of some eighteen hundred years before.

The country which Pausanias saw was the Greece of the Roman Empire, about the period of the Emperor Hadrian. Many buildings of earlier times, however, were still in use.

I once sat on a hillside near Lebadeia, on the way to Delphi, and read Pausanias' account of a visit to the oracle of Trophonius.

The elaborate preliminaries culminated in a sort of initiation ceremony wherein the consultant had to crawl feet first through a small hole in the rock. As he began to back through, he was seized and drawn swiftly inside. When he came out, it was apparent that he had had a terrible experience, for the description says, "After a time the power of laughter returns to him."

Pausanias' interest in Greece was typical of the attitude of people of his time, for although the country had been subjugated politically, Greek culture still remained supreme in all matters of art, literature, and philosophy.

Conquered, Greece Still Ruled the World of Letters

Corinth had been entirely destroyed by Lucius Mummius in 146 B. C. for heading a league of Greek states against the Roman power, and Athens had been burnt and sacked in 80 B. C. by Sulla, who carried off, among other souvenirs, some of the columns of the temple of Zeus Olympios to adorn the Temple of Jupiter Capitolinus at Rome. But it was not long before Greece achieved a complete cultural victory.

Julius Caesar refounded Corinth almost exactly one hundred years after Mummius had driven a symbolic plow over the site and strewn salt on the fields. After him, Roman emperors vied with one another in their eagerness to adorn Greece with new monuments. Nero made a tour through the country and ordered the building of a canal across the Isthmus of Corinth.

The project lapsed at his death, but the 19th-century engineers who cut the present canal found the Roman trial borings almost exactly on the line which they themselves followed (page 278).

Athens, Eleusis, Olympia, Delphi—all are full of Roman dedications and important buildings. They cannot compare with Greek work, either in precision or in artistic merit, but the very fact that they imitate it so often is tangible proof of the spiritual domination which the Greeks had established over their temporary conquerors.

Greece Has Suffered Many Invasions

The Slavs overran Greece in the sixth century of the Christian Era, and the great Byzantine emperor, Justinian, from his capital at Constantinople (Istanbul), rebuilt a wall across the Isthmus of Corinth to defend that part of the country, at least, from the invaders.

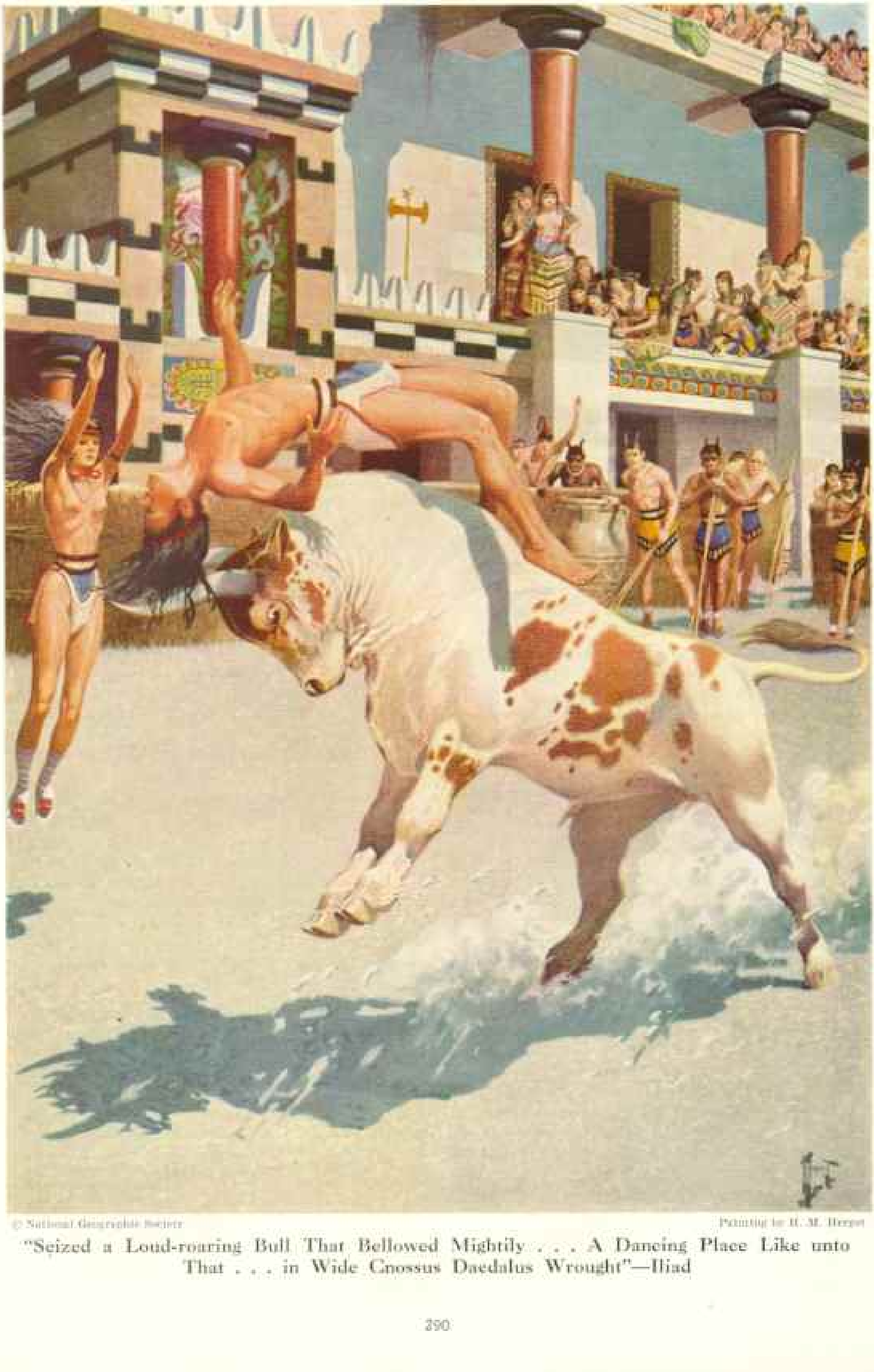
From Sicily, the Normans, men of the same stock as William the Conqueror, invaded and pillaged parts of Greece in their time. Crusaders, bound ostensibly for the Holy Land, were diverted to Constantinople and set up for a time a Latin emperor. Greece itself fell into their power, and many ancient fortresses of the classical period have the upper parts of their walls remodeled into the appearance of medieval castles.

It was the fashion for younger sons of feudal barons to come out from France or Germany or England to look for their fortunes in the Morea, as the Peloponnesus was then called. The Prince of the Morea, Geoffroy de Villehardouin, held a celebrated court of chivalry in the Middle Ages.

The Turks conquered Greece in the middle of the 15th century and held it for nearly 400 years.

The legacy of Greek culture to our modern world is tremendous, and its stream throughout the course of history is unbroken, though at times it ran through difficult and obscure periods. But the tenacious spirit of the Greek peoples ultimately triumphed over every oppressor.*

* For additional material on Greece and Crete, see the following articles in the National Geographic Magazine: "Mediterranean Checkerboard," by Frederick Simpich, April, 1942; "Classic Greece Merges into 1941 News," January, 1941; "Modern Odyssey in Classic Lands," March, 1940; "New Greece, the Centenarian, Forges Ahead," December, 1930, and "Seeing 3,000 Years of History in Four Hours," December, 1928, all three by Maynard Owen Williams; "'Glory That Was Greece,'" by Alexander Wilbourne Weddell, December, 1922; "Historic Islands and Shores of the Aegean Sea," by Ernest Lloyd Harris, September, 1915; "Crete, Where Sea-Kings Reigned," by Agnes N. Stillwell, November, 1943; "Cruising to Crete," by Marthe Oulié and Mariel Jean-Brunhes, February, 1929; and "Sea-Kings of Crete," by James Baikie, January, 1912.



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Painting by H. M. Herget

"Seized a Loud-roaring Bull That Bellowed Mightily . . . A Dancing Place Like unto That . . . in Wide Crossus Daedalus Wrought"—Iliad

Boy and Girl Grappling Bulls at Cnossus: Crete

EXCAVATIONS during the last 50 years in the great Palace of Cnossus, near modern Candia in Crete, have gradually revealed the remains of a remarkable ancient civilization. Relics give a picture of a seafaring people who flourished more than a thousand years before the Parthenon at Athens was built.

As the work of uncovering the Minoan palace went on, it became apparent that bulls had occupied a place of honor in the customs of the ancient Cretans. Fresco paintings, bronzes, and carved gems illustrate one of the favorite sports—that of bull grappling, or *taurokathapsia*. It was not a bullfight in the usually accepted sense, but resembled more a spectacular performance still found in southern France, where the object is not the death of the bull, but rather the display of agility and daring on the part of the men who skillfully avoid the charging animal.

The Minoans, vase pictures prove, brought the sport to a high degree of acrobatic skill. They would seize the bull by the horns and vault, or turn a sort of handspring, over its back, landing adroitly behind it as it passed. Apparently several athletes might do this in turn.

What is more surprising is that girls took part in this dangerous sport, and from the manner in which they are depicted by the Cretan artists, Sir Arthur Evans suggests that they were selected from among the best families of the country, and were not necessarily professionals. For these games they wore a costume similar to that of the men.

Occasionally there were accidents, as we know by depictions on Cretan objects which have been found, and such a mishap is illustrated here. The youth has missed his hold and is being thrown, while the girl who was about to vault in her turn has already begun her leap.

The games were held in front of a specially built grandstand. Sometimes they may have taken place in the great court of the Palace, as is shown here. Near the edge of the arena stand some of the "black guard," Ethiopians, officered by Cretans.

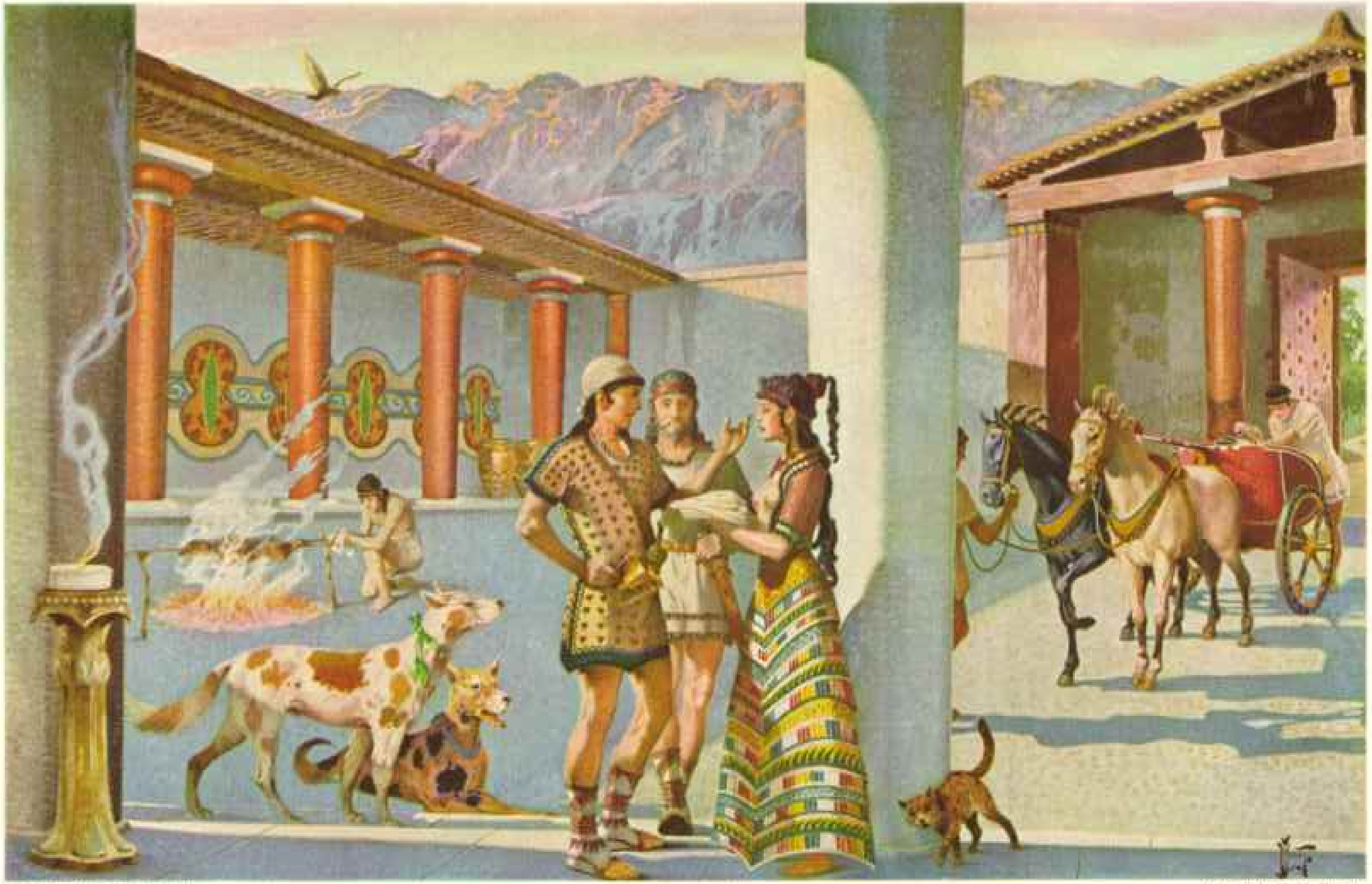
On the balcony of the Palace are groups of fashionably dressed ladies. At the left is a pillar shrine with a central column instead of a human or animal figure to represent deity.

Horned altars are used as a decorative as well as a religious motif above the cornice, and the stucco covering the rubble stone walls, which were strengthened with half-timbering to withstand earthquake shocks, is painted in such a way as to indicate the underlying construction.

There also appears the characteristic Cretan double ax, called *labrys*, from which the Labyrinth may have got its name. Anyone who has tried to find his way about the maze of rooms and zigzag passages in Cnossus has no difficulty in crediting the suggestion that the Palace of King Minos was indeed the Labyrinth where Theseus slew the Minotaur.

The exploits of Theseus were carved on the metopes of the Athenian temple known by his name.

On one of those metopes is a representation of Theseus struggling with the Minotaur, the mythical monster, half man, half bull, whom he was said to have sought out in the Labyrinth of the Cretan king, Minos, when he went to deliver Athens from the yearly tribute of youths and maidens sent to be the victims of the monster.



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Painting by H. M. Bergel

"Cherish the Stranger in the House, and Speed Him as Soon as He Has the Mind"—Odyssey

Travelers at a Mycenaean Palace

About 1400 B.C. the great Palace at Cnossus was destroyed by fire, and although part of it was rebuilt, Cretan civilization had passed its peak and never recovered. For a long time before that date, however, the people of Crete had traded with the people inhabiting the mainland of Greece. Many Cretan motifs and architectural ideas had been brought to the Peloponnesus, where, from about 1600 to 1200 B.C., flourished a civilization called Mycenaean, from the name of one of its principal cities, Mycenae.

There were many other rich centers as well, such as Pylos, Sparta, Tiryns, and Orchomenus in Boeotia, to the northwest of Athens. All these had added the graces of Cretan culture to their own basic northern ideas, for the lords of Mycenae and Tiryns in those days were probably northerners whose ancestors had come down into Greece in successive waves during the earlier centuries.

Cretan dress, slightly modified, was worn by the women. The characteristic Cretan column, tapering downward instead of up, was common; decorations patterned after shields which resembled a figure eight and are found in Crete also appear in Greece. Certain basic northern ideas, however, are found in Mycenaean architecture, especially the *megaron* type of house. The Mycenaean house, which stood isolated under its own gabled roof, was entered from the end through a porch with columns which stood between the projecting side walls of the building.

In the picture a youthful traveler is receiving from his Mycenaean host and hostess rich gifts—a golden cup and a woven garment. His companion is busy with the chariot in which they are to drive away, and in the courtyard at the left a servant is roasting a kid for a farewell breakfast.

Two great hounds, such as appear on a fresco painting of a boar hunt found at Tiryns, stand near by, and a cat rubs its back against one of the pillars of the porch.

The cat is not supposed to have been domesticated in Greece before the sixth century, but relics of the period prove that the Cretan and Mycenaean artists knew and represented cats. The commercial relations which existed between Egypt and Crete, and extended through Crete to the mainland, make it not impossible for a tame Egyptian cat to have found its way to the hearth of a Mycenaean palace.

Although the period of the Trojan War and Homer's *Iliad* and *Odyssey* is later than the height of the Mycenaean civilization, many of its glories remained in the memory of the later people, to be written ultimately into these great epic poems. Some startling parallels are to be found in Homer's description of certain objects, such as the famous silver cup of Nestor with two doves wrought on the handle, and works of art actually found in Mycenaean graves.

Our picture, though of the pre-Homeric period, illustrates such an incident as occurs in the *Odyssey* when the young Telemachus, in search of news of his father, Odysseus, drove from Pylos to Sparta and was welcomed and entertained by Menelaus and his fair wife Helen. On this journey Telemachus was accompanied by his friend Peisistratus.

The King of Mycenae, Agamemnon, was leader of all the Greeks in the Trojan War. His fleet of one hundred ships was the largest of the Greek contingents.

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Painting by H. M. Herget

"Water Nymphs . . . May Your Lovely Feet Tread on This Watery House . . . While You Fill It with a Pure Draught"—Greek Anthology

A Fountain House of 2,500 Years Ago

In Greece, just as in any other land which is baked by the summer sun, water has always been precious. Today the fountain in the square of any small Greek town which does not have a modern piping system is a meeting place for most of the women of the village, who now fill empty gasoline tins, instead of beautiful clay jars, and carry them away on their heads.

In ancient times, as now, the carrying of water was woman's work, and in the picture we see a group of girls who have come to a fountain house to perform their daily chore. The period represented is what is generally known as the Archaic; that is, it comes somewhere between the seventh century and the end of the sixth century B.C.

Many of the fountains were provided with draw basins, from which water could be dipped up, and the parapet wall was sometimes cut away behind so as to make it easier to let a water jar, or *hydria*, down into the water. In front of the parapet runs a little channel to carry off the overflow. It is provided with a catch basin to collect silt, so that the channel can be kept clear.

The water basins and draw basins were waterproofed with a very hard, fine stucco, and the architectural features, walls, and columns were also stuccoed, unless they were actually of marble. Marble was never used as a building material before the sixth century. The stucco, however, was exceedingly hard and white and gave an almost marblelike appearance to the stone.

Bronze or marble spouts usually took the form of lions' heads and might be used to supply the draw basin; or sometimes they were arranged so that a jar could be placed directly beneath them. The rear wall of the chamber conceals a large storage basin, or basins, where a great quantity of water could be collected to take care of a rush hour.

The wide, bell-shaped echinus of the capital, below the square abacus block, is characteristic of the early period, as is the row of leaves painted around the top of the shaft just below the spread of the capital. They recall the deep gorge which often occurs on capitals of the Mycenaean period.

Frequently the original spring from which the water came was at some distance from the fountain, and required a long underground channel. In other cases, as the fountain of Peirene at Corinth, the fountain house was cut in a stratum of stiff clay which underlay a formation of conglomerate rock. Collecting channels were driven through the clay, and the water which seeped through the rock drained into them and thus was supplied to the reservoirs.

The fountain, especially if it had been the chief source of water from the times of the early settlement, naturally established the location of the *agora*, or meeting and market place, and might also dictate the location of certain industries. The waters of Peirene had the reputation of being peculiarly suited to the tempering of bronze, for which Corinth was famous, and there is evidence that at one time a bronze foundry was set up close to this fountain.

The women in the picture wear the Doric *peplos*, of wool, with brightly decorated borders, and two of them also carry a cloak, or *himation*. Felt caps, much like some worn today, acted as cushions for the water jars carried on the head.

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Painting by H. M. Herget

"They Called Every Man to His Horses as They Flew amid Their Dust across the Plain"—Iliad

Chariot Race at Olympia

HOMER describes a chariot race in connection with the funeral games celebrated in honor of Patrochus, and it is certain that the sport existed in Greece in very early times. Enormous sums were spent on the training of teams and the maintenance of racing stables. Although women were not allowed to compete in the games, and were, moreover, excluded from watching them, we hear of chariot teams owned by women being driven in the races and winning prizes.

The chariot race probably was introduced to Olympia in the early part of the seventh century B.C. (*ca.* 680) and in its earliest form was for two-horse teams. Later, but still quite early, the four-horse team was introduced.

The sculptures on the east pediment of the great Temple of Zeus at Olympia represent the moment before the legendary race between Pelops and Oenomaus, the prize being the hand of Oenomaus' daughter, Hippodameia. More than a dozen luckless suitors had been beaten in similar races and slain, their heads being hung up by the jealous father. Pelops, however, is said to have bribed his rival's charioteer to remove the linchpin from the wheel, and won the race when Oenomaus' chariot upset.

Pindar tells us that the games at Olympia were established by Heracles in honor of Pelops.

Nothing remains of the Olympic hippodrome, which was, after all, a simple affair. Any flat, sandy stretch of land would do, and Pausanias tells us that at Olympia it lay between the stadium and the river. It was necessary merely to set up pillars at the turns, and occasionally there seem to have been wooden grandstands. The circuit of the course was about six stades, a little less than three-quarters of a mile. The total distance varied for different types of race, but was usually about twelve circuits of the course, or between eight and nine miles.

We hear of as many as forty entries in a race. A complicated system of starting gates to insure fair alignment was developed. One of the hazards of the course was an altar along the circuit called *Taraxippos*—terror of horses. Around this grew up a mass of superstition and legend. What frightened horses at that point and caused so many accidents is not known, but the ancients believed that it was some unfriendly demon.

The charioteers who drove were, for the most part, professionals, like our own jockeys, but occasionally an owner drove. As in races of our own time, the prize went to the owner, or trainer. A Spartan, Damonon, records that he and his son won 68 victories in eight festivals. They could hardly have done all the driving.

The charioteers always wore a long, white, sleeveless dress, called *chiton*. Their chariots were light, two-wheeled affairs with open backs, modeled after the earlier war chariots. In a race the starting signal was given by a trumpet blast; the turn was always to the left.

In the picture the chariots are seen passing in front of three judges, or *Hellanodikai*, who are seated on thrones of honor, and beside them are bronze tripods such as were given as prizes, or sometimes set up as dedications in the precinct at Olympia. Two chariots have come to grief rounding one of the columns set up at a turn.

Athena's Gift to Greece Was the Precious Olive

Besides decorating their vases with scenes from mythology, Greek artists delighted in showing events of everyday life. On some of the vases which have survived, especially those from the latter part of the sixth century B.C., are scenes having to do with one of the major industries of ancient Greece—the picking and pressing of olives and the marketing of olive oil.

To the ancient Greek, olive oil was really indispensable. He served it in many ways as food and used it to rub himself down. All athletes massaged their bodies with olive oil before entering the contests of the gymnasium. Whenever an ancient site is excavated in Greece, diggers find scores of the shallow clay lamps for which the fuel was olive oil poured from a specially shaped clay cup.

We are told that oil was even used for preserving fabrics, and read that Alexander, when he visited the Persian capital, Susa, in 331 B.C., saw some textiles, nearly two centuries old, which had been kept supple by being dipped in a mixture of olive oil and honey.

Attica was especially renowned for its olives. Solon, the Athenian lawgiver, who forbade the exportation of other crops, allowed oil to be exported freely. Athenian oil in clay jars found its way all over the Mediterranean.

Quite properly, Athens, as the center of oil cultivation, attributed the invention of the olive to her patron goddess, Athena, and a special enclosure was built on the Acropolis to protect the supposedly first, sacred olive tree.

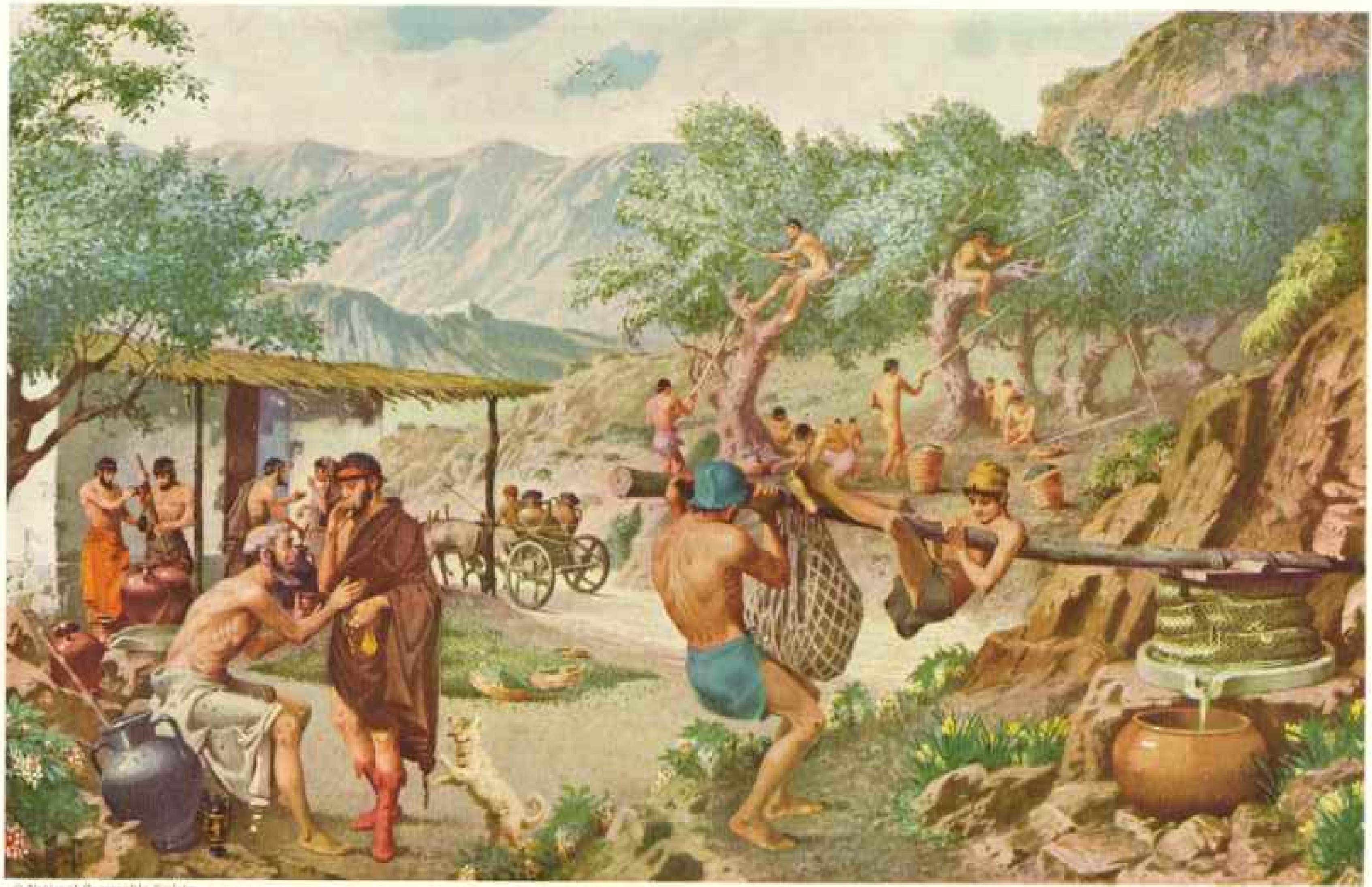
The olives were usually picked in the winter months, and in the picture we can see men beating the branches with pliant rods to shake down the fruit. The olives are then collected in baskets and bruised in a mill. Next they are placed in woven containers and piled up on a marble or stone press block with a groove around it and a spout at one side.

Numerous presses have been found in excavations. Some early paintings and reliefs show different types, but the simplest, and probably the first, was a long beam, wedged into some rocks and weighted with a net full of stones. The man in the foreground is pulling down on the lever, and his assistant has added his own weight.

The mash was often pressed several times over, but the quality of the oil became poorer at each pressing. Occasionally "summer oil" was made from green olives, but since this called for hand picking, the quantity was limited and the price correspondingly high. Aristotle says that a measure of ordinary oil, equaling about three and a half quarts, sold for three *drachmai*, about 32 cents a quart.

At the left of the picture are customers sampling oil or haggling over the price. A man with hunting boots is smelling some which he has rubbed on the back of his hand. Farther off another pours some into a little vase through a pottery funnel. Near the small storage shed is a cart loaded with oil jars to be taken into town.

The curious type of wheel appears on early vases and in terra-cotta models of wagons. One vase shows two men, seated, sampling olive oil, with the prayer inscribed on the scene: "O Zeus, would that I might become rich." On the other side is the fulfillment of this pious wish.



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Painting by H. M. Herget

"Amyntichos . . . Planted in Thee the Olive Stock . . . and Made Thee Plenteous in Fruit"—Greek Anthology

Fishermen in the Gulf of Corinth

Fish was a popular item in the diet of the Greeks, especially for the poorer classes. The Homeric Heroes seemed not to regard it highly but preferred great roasts of oxen, sheep, and goats. In this it is likely that they reflect their northern origins, for they came from inland countries where sea food was not obtainable.

In the fifth century, however, an Athenian banquet almost invariably included a fish course, and all sorts of rarer fish and mollusks were found at a well-set table.

The Athenian gourmets were especially fond of the great eels which were brought from Lake Kopaïs in Boeotia, and the ringing of the fish bell to announce the arrival in the market of a fresh catch of fish was the signal for a rush of householders to get there in time to obtain the best. For a long time it was the Athenian custom for the master of the house, accompanied by a slave, to do the marketing, and it was not until relatively late times that the women were allowed to have any part in it.

An old story relates that at a recital by a lyre player his entire audience, with the exception of one deaf old man, departed without ceremony when the fish bell rang. When the musician thanked him for his courtesy in remaining in spite of the ringing of the bell, the man said, "What! Did the fish bell ring?" and rushed off as fast as he could go.

Large quantities of sardines were caught in Phaleron Bay at Piraeus and, being plentiful and cheap, formed a major part of the diet of the poorer classes. Tunny also were plentiful. We hear of salt and smoked fish being brought from the Black Sea ports and the Spanish coast.

In fishing, the ancient Greeks used nets mainly, but they also angled with hooks and lines. Bronze hooks have been found in excavations. There is little to show, however, that fishing was ever regarded as a sport; it was always a serious business. Octopuses were caught then as now with tridents, which could also be used in spearing fish, especially at night by the light of torches.

Our picture shows a fishing scene on the shore of the Gulf of Corinth, beyond which rises Mount Helicon. A fishing boat has just put in, and baskets of herring and some tunny are being carried up to be taken to the fish market in the city, two miles or more away from the shore.

One old man has come down to the source of supply and is bargaining with the fisherman. Possibly he is convinced of the truth of the epithets found in the comedies, that fishermen were assassins and robbers.

Near by, on some rocks, a boy is fishing with rod and line. In one hand he holds a sort of landing basket, and in the water near him is another basket in which he probably puts the fish he catches so as to keep them fresh until it is time to go home.

Out beyond the young angler a warship is headed westward, her mast stepped and sail set to catch the breeze. The high latticed forecastle, single animal's head ram, and one bank of oars are characteristic of sixth-century ships.

In the tree above the man who is engaged in cleaning fish sits a small owl, such as still may be seen flitting about, even in broad daylight, although they usually come out at dusk and pass the greater part of the day in small burrows.

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"When a Man Sits on a Jutting Rock and Drags a Fish Forth from the Sea"—Iliad

Hauling a Ship over the Isthmus

BETWEEN the Greek mainland and the Pelopomesus is a narrow neck of land about four miles wide. Today it is cut by a canal through which fairly large ships pass between the Gulf of Aegina and the Gulf of Corinth. The passage saves a long trip around the storm-beaten southern extremity of the Peloponnesus.

The picture shows a Greek merchant ship being transported on rollers across the Isthmus along the roadway called the *Diolkos*. Probably no very large vessels were transported in this way, but the average ancient Greek merchantman could be handled fairly easily.

Such vessels were usually propelled by a single sail, of a square pattern, stretched on a great yardarm. The masts could be easily unstepped, since it was customary to beach ships frequently. There were also a limited number of oars on the merchantmen for use in case of unfavorable winds or in warping out of a harbor, but the great banks of oars and large number of rowers were found only on the warships. It was customary to raise woven mats above the bulwarks to help protect the cargo.

A ship was steered by means of a large oar suspended in a socket over the quarter; sometimes there were steering oars on either side, connected by a beam so that they would turn together. Because of the sharp stern construction, rudders were not used. The high curving sternpost found on all Greek ships, as well as on later Roman ones, was sometimes decorated with a swan's head.

Bows of merchant ships were rather bluff, and the stem projected forward as it rose from the water line. In the warships, however, the bow was drawn forward into a long beak fitted with a bronze ram. The planking was butt joined and smooth, and seams were calked with oakum and pitch. In fact, the entire hull might be pitched.

Although they must have been fairly seaworthy, the ships of ancient Greece were unable, on account of their rig, to sail against the wind, and consequently depended on favorable breezes to reach their destination. Usually the crew put ashore at night, which was not difficult where the distances were so small. It was only rarely that a ship kept the open sea for more than a few days at a time.

The city of Corinth grew rich in Greek times with the trade which passed by the Isthmus, and many goods were doubtless transshipped there, being carried across on mule-back from the eastern ports of Cenchreae and Isthmia. There was another port, Lechaion, on the shore of the Gulf of Corinth, connected in classic times with Corinth by long walls built down to it from the ring of the fortifications.

Little is known of the actual harbor in Greek times, but the Romans, when they refounded Corinth, dredged several capacious basins where shipping would lie safely sheltered from heavy westerly winds that often raged down the gulf.

Behind the city, which appears dimly on the terraced plateau halfway up from the shore line, rises Acrocorinthus, strongly fortified by walls. Some of these walls, dating from early days, recall the scenes of many a siege through the course of Greek history. Near the shore, in line with Acrocorinthus, is a low bluff where in pre-Mycenaean times there was a prosperous settlement, known today as Korakou.

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Painting by H. M. Herget

"Come, Let Us Draw down a Black Ship to the Fair Salt Sea"—Odyssey

The Famous Oracle at Delphi

OF ALL the oracles of the ancient world the most important by far was that at Delphi. Here were the richest offerings and dedications. The Greek states from all over the Mediterranean sent their embassies to consult the Pythian Apollo, who spoke through his priestess and prophetess, the Pythia.

Like all ancient mysteries, the secrets of the oracle were well guarded; so much so that when the temple where the oracle stood was excavated, every part of the *adyton*, the holy of holies inside the *cella* of the temple, was found to have been ripped out. From various literary sources, from a few stones, and from sculptures and vase paintings, however, we may reconstruct the scene to some degree.

Within the temple was a small stone chamber, partly or wholly below the floor level. Here stood a huge bronze tripod with the *omphalos*, which marked the navel or center of the world, in front of it. By the omphalos stood two golden eagles representing the birds which Zeus had released, one on the east, the other on the west, in order to determine by their meeting place the center of the earth. On this omphalos were laid sacred fillets or bands of wool.

By the tripod stood bronze laurel branches which the Pythia is said sometimes to have shaken in her prophetic frenzy. No one could understand her incoherent ravings, but the priests professed to do so and provided for the ambassadors who came to consult the oracle a written form of the prophecy.

There was always, however, enough doubt as to the exact meaning of the prophecy so that the oracle could never be called wrong.

The suggestion has been made that the Pythia, chosen at first from among the young women of Delphi, would go down into a chamber under the adyton, light a fire of herbs whose smoke had a narcotic effect on her, and then reappear and mount the tripod. In the omphalos was a hole through which smoke or vapor could rise into the room and increase the mystic effect.

Somewhere in the temple, very possibly in the adyton, was a golden statue of Apollo, holding in one hand a flat bowl for libations and in the other a bow. Helmets were hung on the walls as votive offerings.

The influence of the oracle was tremendous, and its pronouncements are legion. Sometimes it seems that the oracle was influenced, as in the case of the Spartan delegation which was sent to inquire as to the legitimacy of Demaratus in connection with his kingship.

Cleomenes, to be revenged on Demaratus, gained the help of a certain Cobon who persuaded the prophetess Perialla to say what they desired, and she gave judgment that Demaratus was not the son of his supposed father. As a result, he was deposed from his kingship. Herodotus goes on to say, however, that at a later day these doings were discovered, Cobon was banished from Delphi, and Perialla was deprived of her honorable office.

After the Persian Wars, a scandalous attempt to kidnap the priestess resulted in her always being selected from among the older women. In general, the woman who served as the Pythia was not required to have any training or education, but acted entirely on the instructions of the priests who managed the oracle.

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Painting by H. M. Herget

"The Delphian Priestess Sits on the Holy Tripod Chanting to the Greeks Whatever Apollo Bids Her"—Euripides

Young Spartans Were Tough

After the age of seven, Spartan boys no longer lived at home, but were brought up by the state in barracks, under the charge of a *paidonomos*, or governor. Their schooling was slight so far as reading and writing were concerned.

On the other hand, their physical training was of a severe order. From the time they were twelve they were allowed only a single garment, winter or summer, and for bedding they used rushes which they gathered for themselves on the banks of the Eurotas River.

Quarrels were encouraged among them and fights promoted, so that it went hard with any who were not able to take punishment. Military exercises were preferred to purely athletic sports, and all training was calculated toward strengthening the youth for bearing arms and enduring the rigors of a long campaign. On the feast of Artemis Orthia, some of the older youths were flogged at her altar so as to give an example of fortitude to the rest.

The young men were not allowed to marry until they were about 30 years of age. During all that time they continued to live with their units and to eat in the common mess. In fact, all citizens were required to take one meal a day at an eating club and had to provide, in grain and wine, their share of the provender, on penalty of losing their status as citizens.

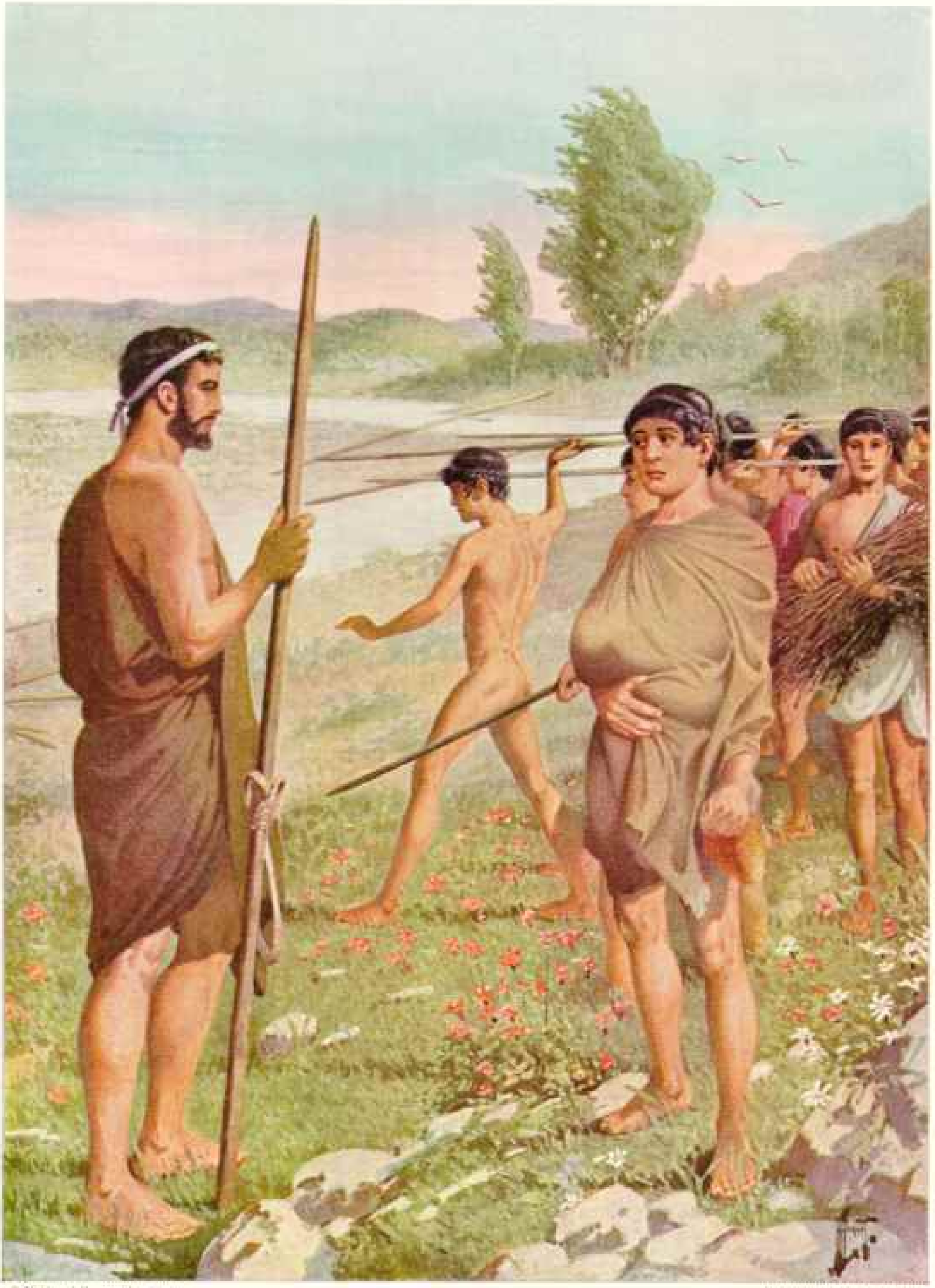
The girls were also given rigorous physical training so that they might become the mothers of healthy children. When a man married, he continued to live in barracks for some time and used to visit his wife secretly at night. Newborn children were reared only if perfectly formed; the weaklings were thrown from a cliff of Mount Taygetus.

Although the old story of the Spartan boy who concealed a stolen fox under his *chlamys* (stealing was encouraged as long as the offender escaped detection) may not be true, it is typical of the code under which the youths were trained. As every schoolboy knows, the boy, rather than be caught carrying stolen goods, allowed the fox to tear at his body.

No Spartan could engage in trade. That was reserved for the *Perioeci*, who lived in Lacedaemon but were not citizens, and for the servant class, the *Helots*, who were in much the same condition as the medieval serf and were bound to the soil. They usually accompanied their masters on military expeditions, acting as armor bearers and camp servants. When the Spartans went to war, they allowed their hair to grow, as an indication that to them war was a luxury.

The economic difficulties which arose in the later period of Sparta's history when women could and did inherit property, and in fact controlled a great deal of it, led ultimately to the downfall of the state. Many of the Spartan citizens became so impoverished that they could not supply their share of rations at the common mess and accordingly were deprived of their rights as citizens.

As a result, when the political power of Sparta reached its height in the fourth century B.C., the supply of Spartiates had diminished to such an extent that they were no longer able to fill all the necessary posts and supply the garrisons which were needed. Their code had been admirably adapted for a small state, but it lacked the elasticity needful to adapt itself to changing conditions.



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"Superiority Lies with Him Who Is Reared in the Severest School"—Thucydides

Leonidas' Immortal Sacrifice at Thermopylae

In the summer of 480 B.C. the Persian king, Xerxes, was moving down with a vast army against Greece. Most of the Greek states forgot their differences in the face of the common peril. Athens, fortunately, possessed a well-equipped navy, and, aided by contingents from other cities, was leader in the defense against the danger by sea.

Sparta, the other chief military state of Greece, advanced a shortsighted plan of campaign, which was to defend the narrow Isthmus of Corinth, hold only the Peloponnesus, and abandon the remainder of the country to the invader. But this was not approved by the majority of the Greeks.

For a time the Greek allies, led by Themistocles, an Athenian general, contemplated a defense of Thessaly near Mount Olympus. But the position was untenable, and the forces withdrew, leaving part of the army to block the Persian advance at Thermopylae, where the narrow pass between the mountains and the sea offered some hope of success.

This defense was led by Leonidas, the Spartan king, with some three hundred Spartans and their followers, and nearly five thousand other fighters from Tegea, Orchomenus, Corinth, Thespiae, Thebes, Locris, Phocis, and elsewhere.

For a time the resistance was highly successful, and the Persian numbers were of no advantage in the narrow defile. But a certain Epialtes from Malis betrayed to the Persians a secret way around the position, and in the night word came to Leonidas that his forces were being cut off from behind.

At daybreak, therefore, he dismissed his allies save for a thousand Phocians, 700 Thespians, and the Thebans, and with his three hundred fought an immortal delaying action at the pass. He himself and all but two of the Spartans perished, but the glorious memory of his devotion forms one of the brightest pages of Greek history.

The Spartan dead were buried under a mound near where they fell, and a stone lion was set up over it. Simonides wrote their epitaph: "O passer-by, tell the Lacedaemonians that we lie here obeying their orders."

In the picture Leonidas is seen bidding farewell to the departing allies. In the distance, watched by sentries, rises smoke from the Persian campfires, and in the middle distance appears part of a rough stone fortification erected by the people of Phocis as a defense in an earlier war.

The Greek warrior of that period wore a corselet of bronze and leather over a shirt. Lappets of leather hung from the cuirass to protect the abdomen, and the lower legs were protected by bronze greaves. On the head was a high-crested bronze helmet lined with leather or worn over a leather cap.

The shields were usually round, although the Thebans carried oval shields with indentations on either side. Swords were short and double-edged, and a spear completed the warrior's offensive armament.

Troops from the noncitizen class were equipped with a simple helmet or cap and carried bows, spears, or slings.

Three years ago Thermopylae was held again, this time by men from Britain—an island that was unknown in Greek times except to some Phoenician tin traders. Again the pass was taken, and the defenders had to fall back, leaving some of their number behind to hold off the enemy as long as possible, because they, too, had been outflanked.

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"O Passer-by, Tell the Lacedaemonians That We Lie Here Obeying Their Orders"—Simonides

The Persians Storm the Acropolis

After the Persians had passed Thermopylae, there remained no effective natural barrier between them and Athens. Themistocles, one of the most influential of the Athenian generals, persuaded the people to withdraw to the island of Salamis, which would provide a secure refuge as long as the fleet held out. Some Athenians, however, were reluctant to leave, and decided to defend the Acropolis. The Delphic oracle had pronounced, cryptically, that their safety lay in wooden walls.

The exact nature of the Acropolis walls at this period is somewhat uncertain, but it is fairly safe to say, on the grounds of later evidence, that above the massive stone foundations the walls were built of unburnt brick, strengthened with wood, and that there was considerable wood in the upper portions of the walls where they were crowned by covered galleries.

At first the Persian assault was successfully repulsed, but flaming arrows were shot against the defenders, and the old gateway, or Propylaea, was soon in flames. So, too, was the scaffolding around a great new building which was being erected at that time. Herodotus tells us that the Persians finally broke in by climbing up a path on the north side of the Acropolis, where no one thought it was possible to go. They probably made their way through the unguarded battlements and took the defenders from behind.

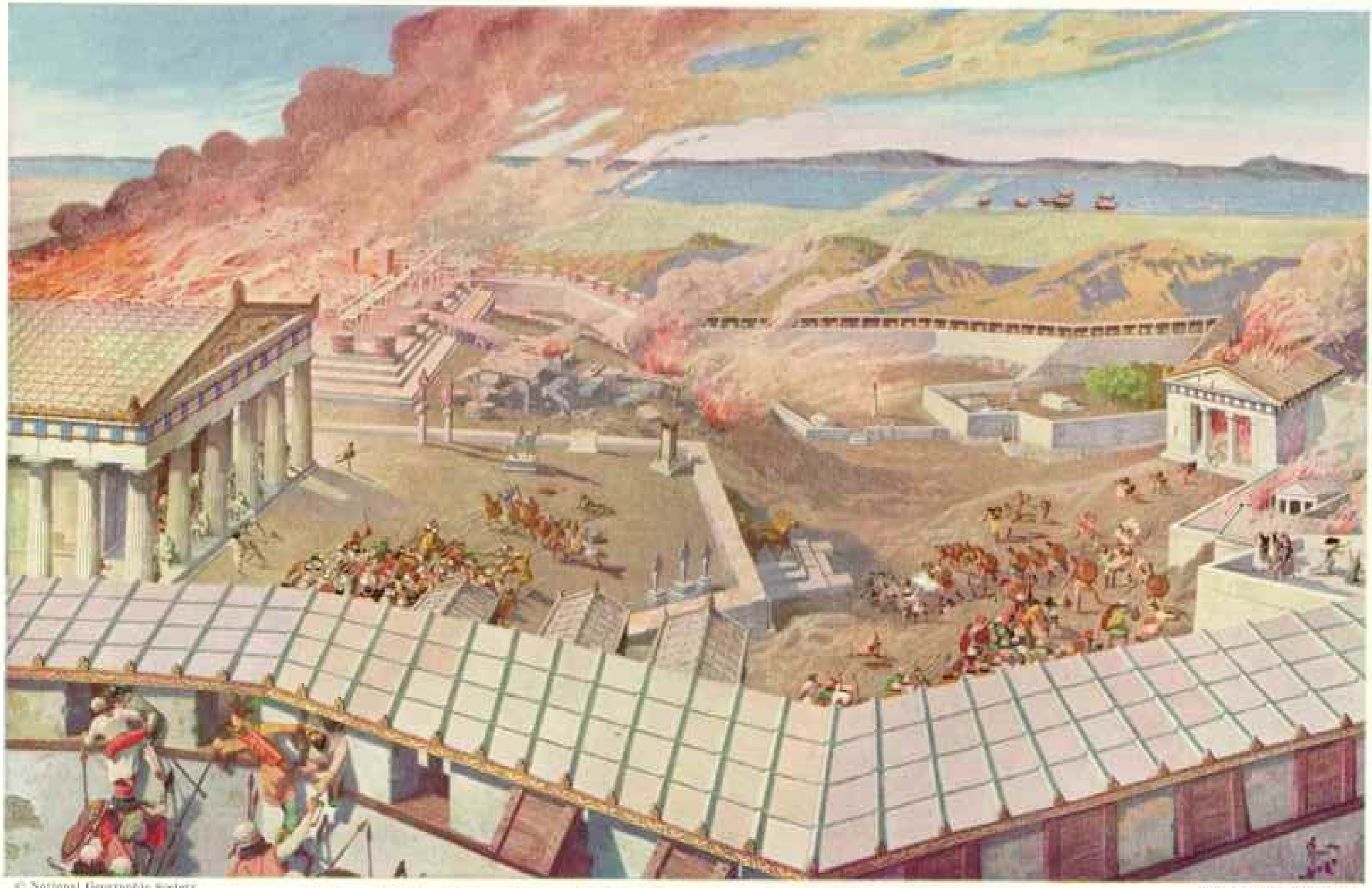
In those days, the principal temple was not, as later on, the Parthenon, but an earlier and smaller building called the Hecatompedon, or the Old Temple, which lay farther north. Not many decades before the sack, the Peisistratid rulers of Athens had remodeled and adorned this temple with a surrounding colonnade, and had also given it a roof of marble tiles and fine sculptured pediments.

Early in the fifth century a new and greater temple was planned. It was to be of Pentelic marble throughout, and to stand on a massive stone platform near the south edge of the Acropolis. Work on this temple, which was to have had a peristyle with six columns across each end, had been begun, and the steps and first few drums of the columns were already set up when the Persians came. Possibly the building had been begun as a thank offering for the defeat of Xerxes' father, Darius the Great, at Marathon in 490 B.C.

The marble work which had already been erected was badly calcined by the fire which raged through the scaffolding, and many of the damaged column drums were built later into the north wall of the Acropolis when it was hastily refortified after the Persians had gone. The foundation remained, however, and was enlarged somewhat to take the Parthenon, the great new temple which Pericles ordered built a little more than thirty years later.

We know that there were a number of other smaller buildings on the Acropolis at the time of the invasion, but only a few architectural fragments of them remain, and we have no good indication as to where they stood.

Practically all the old statues and monuments were destroyed by the Persians. Excavators have found large quantities of the fragments in the fill which was made at the south side of the Parthenon when in Periclean times the Acropolis was remodeled and widened toward the south.



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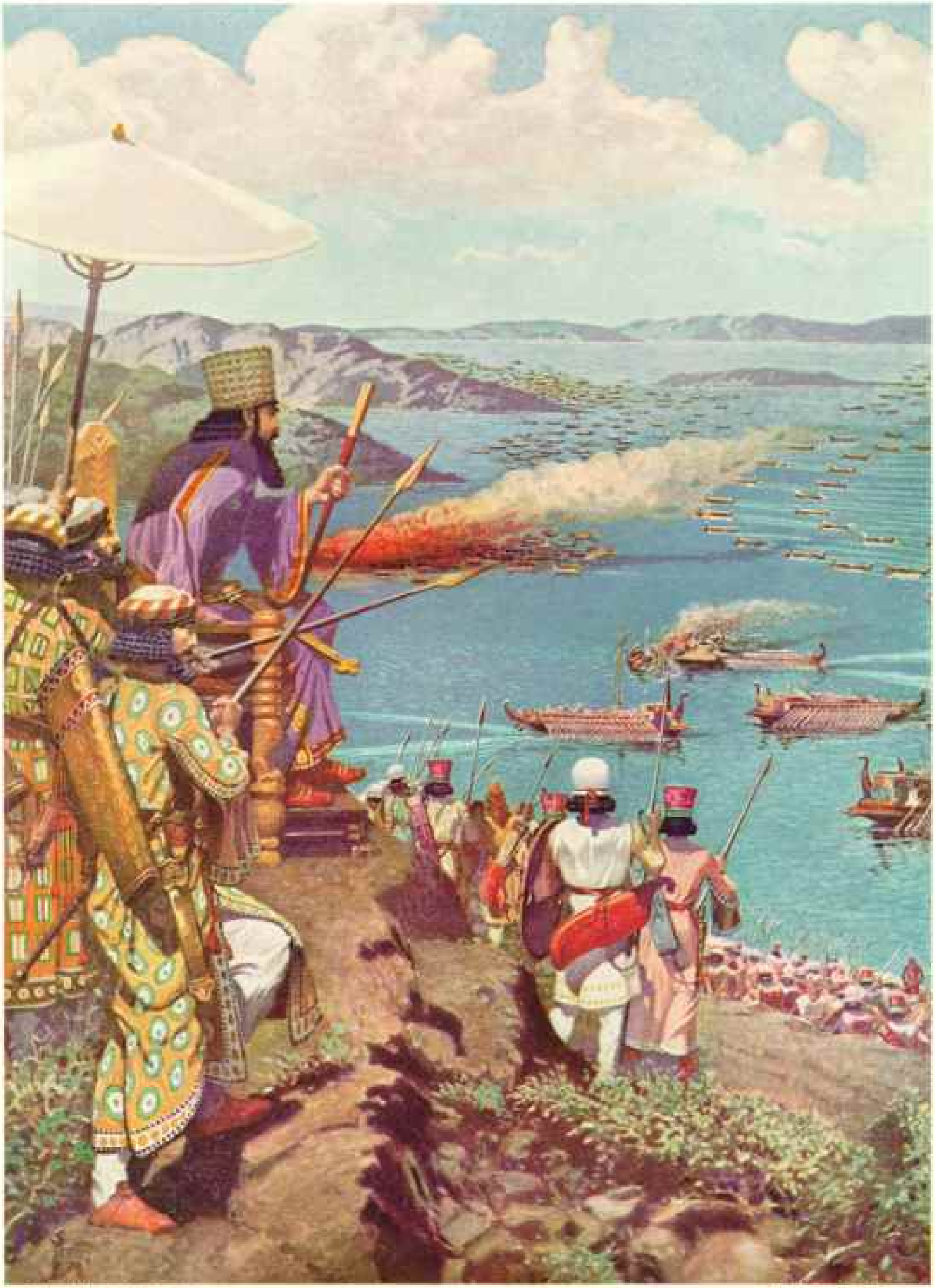
"Yet Shall a Wood-built Wall by Zeus All-seeing Be Granted"—Herodotus



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"Divine Salamis, Thou Shalt Destroy the Children of Women"—Herodotus

Xerxes Watching the Battle of Salamis, 480 B.C.

ABANDONING their homes, most of the Athenians escaped to the near-by island of Salamis, and the Greek fleet, well equipped and resolutely manned, although numerically inferior to the Persian, lay between the invader and the future of the civilized world.

Various schemes of defense were proposed, but the obvious tactical maneuver was to take advantage of the narrow waters between Salamis and the mainland, where the Persian numbers would not count so heavily. On the other hand, this would probably expose the Greeks to a long blockade, and there was every reason to attempt some operation which would result in a quick decision.

Themistocles resourcefully contrived to send off a message which would be sure to fall into the Persians' hands and indicate to them that the Greek fleet was on the point of slipping away. Xerxes, confident in the size of his fleet, and also, probably, impelled by the difficulty of supplying his forces for a long time, determined to join battle at once.

Accordingly, the Persian fleet was sent in to force the narrow waters between the mainland and the narrow peninsula of Salamis called Cynosura, "dog's tail." A small island, Psyttalea, split the Persian fleet into two parts and, so far as it is possible to reconstruct the battle from varying accounts, it appears that the great number of the Persian galleys, lacking sea room to deploy, were helplessly and hopelessly crowded together. The Greek squadrons swung into and rammed their enemies before they had any chance to open out in the broader reaches of the bay.

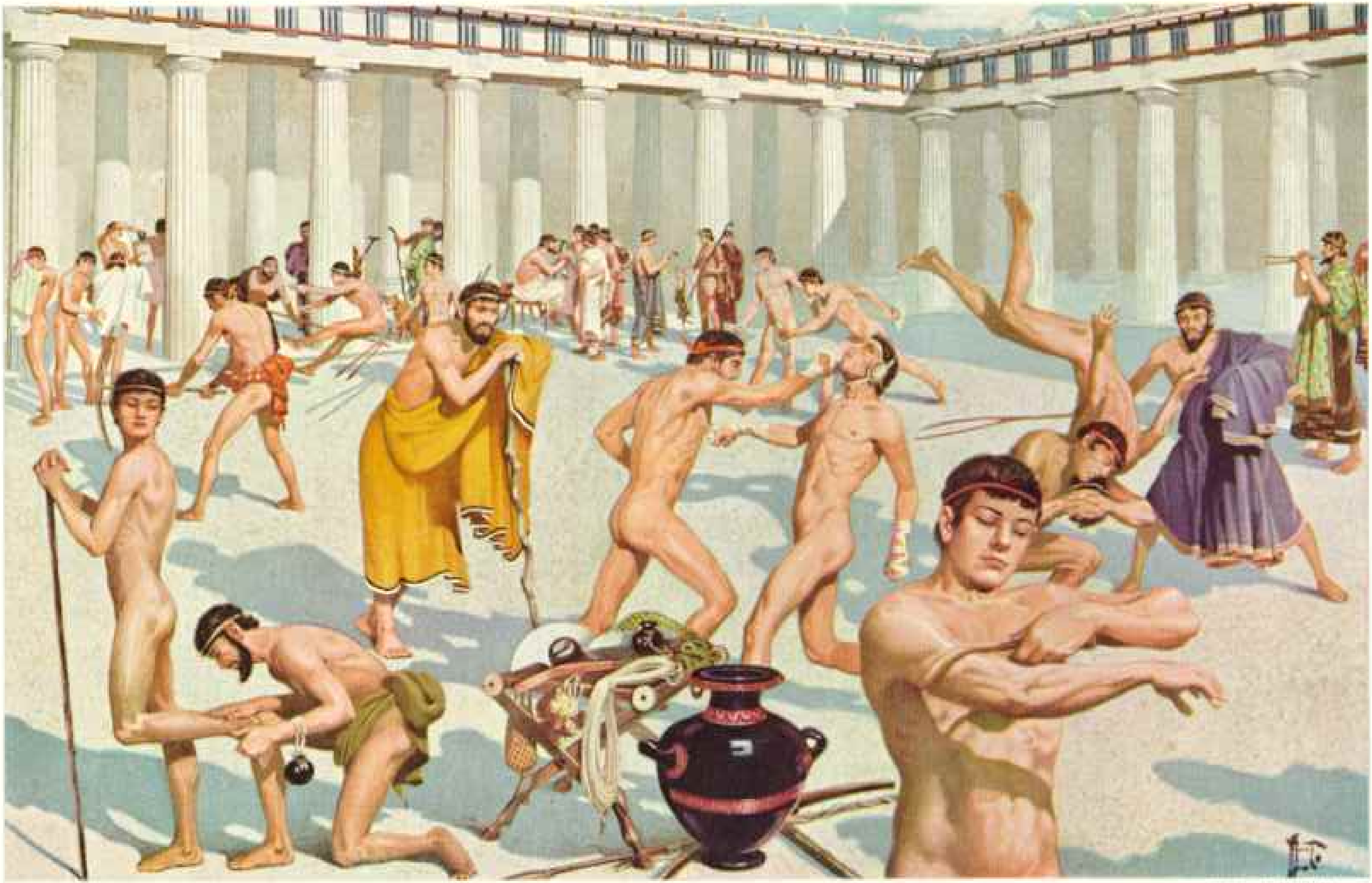
Xerxes watched the fight from a throne set up on a spur of Mount Aegaleos. Herodotus tells how, when the galley of Queen Artemisia, one of Xerxes' allies, ran down a friendly ship in a successful effort to escape, the monarch thought she was actually ramming a Greek vessel and exclaimed, "My men fight like women, but my women fight like men!"

Warships in those days were propelled by oars. A trireme had usually as many as two hundred rowers, and three banks of oars on each side, arranged thus: :·:·:·:·:· It carried a single large mast and sail which was unshipped and sent ashore if possible before going into action, but there was often a jigger mast which was retained to help in maneuvering or in escaping.

The bronze beaks on the bows were used for ramming, which was the favorite form of attack, but when a group of vessels became locked the fighting men boarded the opposing ship and fought hand to hand. Blazing arrows, bearing bundles of tow and pitch, were used as incendiaries. Most actions were fought near shore, and we frequently hear of crews "bailing out" and swimming to safety on the beach.

The disaster to his fleet and the impossibility of maintaining his land forces once they were cut off from sea-borne supplies forced Xerxes to return to Persia, leaving an army to winter in Thessaly. His plans to send reinforcements were delayed, however, and when his general, Mardonius, was defeated at Plataea the next year he made no further attempt to conquer Greece.

Thus the Battle of Salamis made Athens the mistress of the seas for many years and cleared the way for her notable political, commercial, and cultural expansion.



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"There Is No Greater Glory for a Man . . . Than That Which He Achieves by Hand and Foot"—Odyssey

To Greeks We Owe Our Love of Athletics

From the earliest times of which we have any record the Greeks were passionately fond of athletic games. To them we owe a large measure of our interest in track and gymnastic sports. In the Homeric Age we hear of jumping, discus throwing, running, wrestling, and boxing. Both high and distance jumping were popular, although only the latter was included in the Olympic contests.

We are told that it was customary to use weights, called *halteres*, to aid the jumper in getting greater momentum for his leap; some of these objects made of stone or bronze have been found, and many representations of them may be seen on Greek vase paintings. Probably the weights were used also to exercise the hands and arms just as dumbbells are used today.

The foot races were of varying lengths, the short straightaway being one *stadion*, or about 600 feet. In several of the old stadia there are still rows of stone blocks at either end, with grooves cut in them to give the sprinters' feet a firm hold for the take-off. There are also sometimes holes for posts which may have held ropes to divide the running lanes.

There was, as well, a distance race, which at Olympia was about three miles. Racing in full armor was also popular.

Throwing the discus and the javelin formed part of the standard pentathlon contest. Javelins were equipped with a thong wound around the shaft. This gave the missile a rotary motion.

Two types of wrestling were in favor. In one the object was to throw the opponent so that his shoulder touched the ground, while the adversary remained on his feet. The other was more rough and tumble, and the match continued until one wrestler declared himself beaten.

Boxing, considered a separate sport, was practiced more generally by the athlete who wished to win special prizes in the games. In earlier times skill counted more than brute force, and the hands were bound for protection, with soft leather thongs only. These later gave way to hard oxhide wrappings, often weighted with lead.

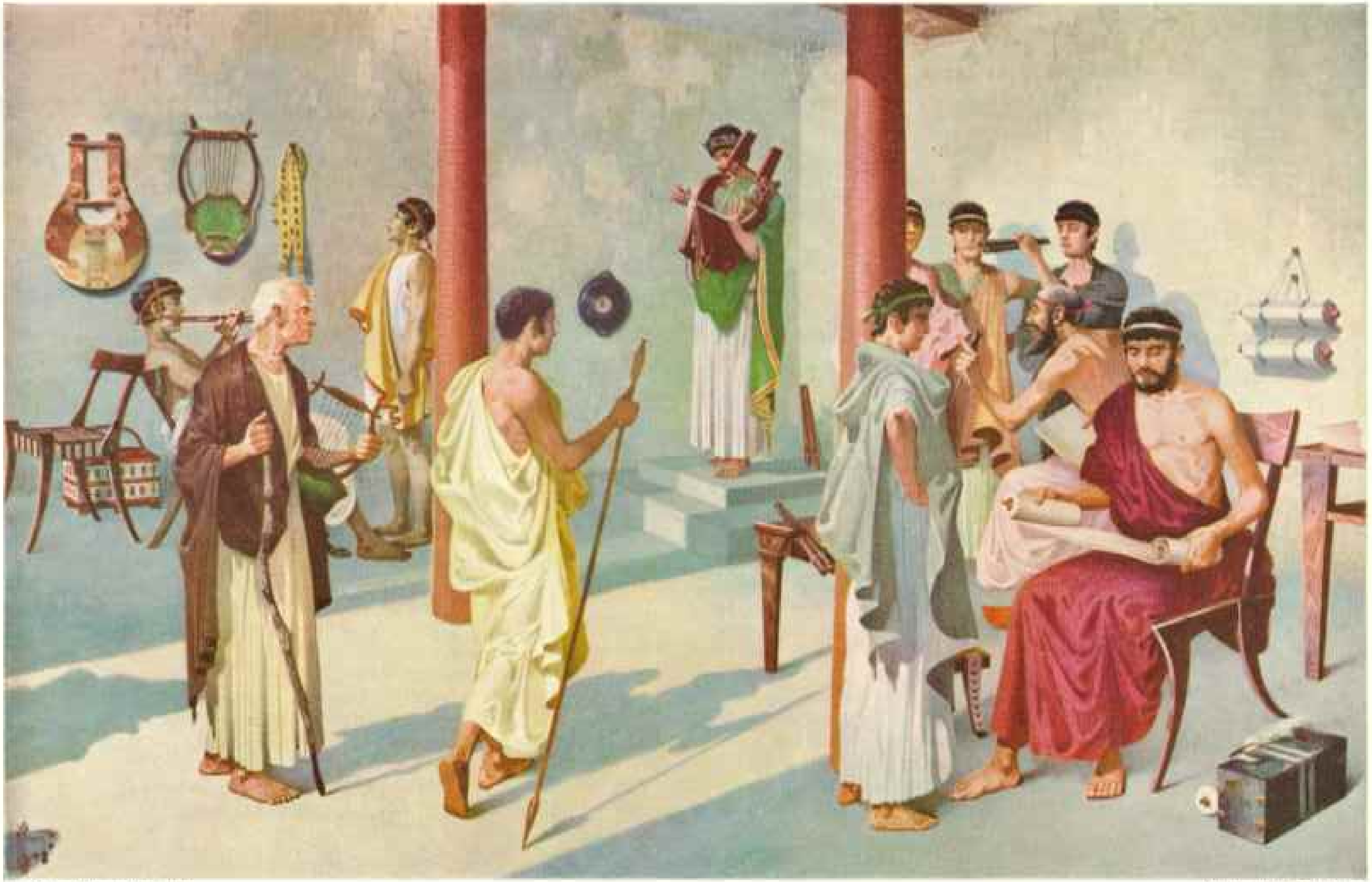
In Hellenistic and Roman times it was considered sport to watch two powerful boxers maul each other. This form of the sport would have been considered far too brutal for the high period of Greek civilization.

Training diet for contestants in the games consisted at first of fresh cheese, dried figs, and wheaten porridge. Sweets were forbidden and wine was used very sparingly. In later times there was a change in diet to beef, pork, and kid.

The youth in the foreground of the picture is using a *strigil* to scrape off the sweat and dust which have mingled with the olive oil rubbed on his body before the contest. By no ordinary bath could such a coating be removed. It had to be scraped off before the athlete went to the shower with which all the *palaistrai* were provided.

Great distinction attended an athletic victor. He might set up a statue of himself (at his own or his friends' expense) in the sacred precinct of Olympia.

At Athens after the time of Solon, an Olympic victor received a reward of 500 *drachmai*, and had the privilege of eating at the public expense in the Prytaneum. He might also be accorded a front-row seat of honor at the theater.



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"We Are Lovers of Wisdom, but without Weakness"—Pericles

An Athenian School

EXCEPT for the supervision of certain boards which were appointed by the state, education in Athens was left entirely to individual enterprise. After their sixth year the boys were put in charge of a *paidagogos*, who was usually an old slave. He had no responsibility for their education; his function was to accompany them to school and generally to keep watch over them. On a familiar Greek vase painting is a representation of one of these old men carrying the lyre of his master's son as the latter makes his way to school.

The school buildings were simple and had little in the way of furniture save some benches and chairs, with possibly a platform on which performing students might stand. On the walls hung various implements: lyres, citharas (a sort of lyre with a larger sounding board), flutes, goatskin flute cases, and sometimes a drinking vessel or so.

We also see scrolls of papyrus, which was the only paper the Greeks knew, and sometimes there are boxes in which such scrolls might be stored. Generally, however, papyrus was used sparingly, since it was expensive. Nearly all the work was done on waxed tablets, which corresponded to the slates generally used in American schools not long ago.

Reading and writing were taught first. With them came some work in numbers, but the Greeks used letters of the alphabet for their numeral system, and most simple mathematical calculations were performed on an abacus.

By the time a boy was 12 or 13 years old he took up music, not with the intention of becoming a professional performer, but because it was highly essential for an educated man to be able to accompany himself in singing or declaiming lyrics; hence singing also formed part of the curriculum. Flute playing was popular for a time in Athens, but later became less so; and flute players tended to be more of a professional entertainer class.

Languages, save native Greek, were not taught. The principal textbook from earliest times was Homer, and all young Greeks knew their *Iliad* and *Odyssey*, many of them by heart. Such subjects as natural science, geography, and history formed part of a higher stage of education and were generally taught in the philosophical surroundings of the academies.

As early as the fifth century some geometry was added to the usual curriculum, although Socrates thought it should be limited to what was strictly necessary. In the fourth century, however, the philosophers recommended geometry as an excellent subject for developing the intellect.

As stated elsewhere, gymnastic training was a prime requirement in education and continued for much longer than the purely scholastic training.

When the youth reached the age of 18 he was enrolled as a citizen of the state, received a warrior's shield and spear, and took the oath of allegiance: "Never to disgrace his holy arms; never to forsake his comrade in the ranks, but to fight for the holy temples and the common welfare, alone or with others; to leave his country not in a worse, but in a better state than he found it; to obey the magistrates and the laws, and defend them against attack; finally, to hold in honor the religion of his country."

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Painting by H. M. Herget

"Go to Thy Chamber and See to Thine Own Tasks, the Loom and the Distaff"—Odyssey

Weaving and Spinning

Most school children have read about the famous web that Penelope was weaving during the long courtship of the suitors who came to win her hand while she was waiting for her lord, Odysseus, to return from the long Trojan War. She undid each night what she had woven during the day, thus postponing the time for choosing a wooer.

The story describes one of the occupations of women throughout Greece in the old days. Even today small looms often form part of a household, and the women work on them as they did 2,000 to 3,000 years ago.

The pattern of the modern looms has changed somewhat, but we have several representations of ancient Greek looms. They have been carefully studied in an attempt to restore the system on which they were worked. Though restoration is not easy from vase paintings, study proves that the looms were upright, that the cloth was wound up in a roll at the top as the work progressed, and that the threads of the warp were weighted at the ends with small clay weights.

Hundreds of these weights have been found in excavations all over Greece. They are usually of clay and take the form of small cones or sometimes pyramids, each with a hole in the top through which threads of the warp were strung.

Spinning wheels were unknown, but the distaff and spindle whorl were used, just as they are today in Greece, where it is a common sight to see women walking up and down in the courtyard spinning as they go. Spinning baskets are often represented on vases.

The girl seated on the stool is rubbing wool over a roughened clay semicylinder which fits over her knee. This device was called *epinetron*. Farther off another girl is weighing wool on a scale.

Pet birds frequently appear on vases. In the courtyard may be seen a tame crane.

In Athens, which was always strongly influenced by Ionian styles and ideas from the Asia Minor coast, women's dress usually consisted of the thin, clinging Ionic *chiton*. This graceful garment was frequently draped so as to form short sleeves which were clipped together along the upper edge by studs or sometimes by elaborate gold pins. Occasionally the fasteners were fashioned in the likeness of grasshoppers.

There were various ways of catching the falling drapery up under a girdle, or sometimes two girdles, so as to obtain different effects.

In later days the intricate arrangement of the draperies is hard to explain unless one assumes that extra pieces were sewn to the basic garment.

Wool and linen were the most common materials. Cotton, muslin, and silk, introduced from abroad, were rare and costly and could be worn only by the rich.

The girl at the right wears a *peplos* over her chiton, rather an unusual combination but apparently one which was sometimes used.

For outdoor use, an *himation*, a cloaklike garment, was also worn. It is sometimes shown as draped over the head to form a sort of hood.

The styles of headdresses in the picture are all of types commonly found on fifth-century vases.

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"They Dedicated a Tithe of the Ransom, Making of It a Four-horse Chariot"—Herodotus

Herodotus—Geographer and Historian

HERODOTUS is the first Greek geographer and historian whose works have survived. Born in Halicarnassus (Bodrum), a Greek colony in Asia Minor, about 484 B.C., he is often called the Father of History. Without him we should lack the knowledge of a highly important part of it.

He was the greatest traveler of his day. He visited Egypt, and went as far up the Nile as Elephantine. He went westward to Cyrene, and east to Babylon and as far as Susa, the capital of Persia. Northward his wanderings took him to the Greek cities on the shores of the Black Sea.

About 447 B.C. he came to Athens, where he settled down to write of his travels. The Athenians enjoyed his public readings and voted him a good sum of money. He gives us a history of the entire ancient eastern Mediterranean from earliest times to the close of the Persian Wars. Naturally, the record is far from complete or accurate, in many cases, since he depended for his information on many sources which it was impossible to verify. He heard and recorded many "tall stories" about some of the more remote peoples of whom he wrote.

However, he was not so gullible as is sometimes thought, for he says, "I am under obligation to tell what is reported, but I am not obliged to believe it; and let this hold for every narrative in this history."

When Herodotus depends on his own observation, he is fairly reliable, and although his patriotism leads him to exaggerate the numbers of the Persian army, and probably to minimize the numbers and the losses of the Greeks who withstood them, he gives us a sound basis for historical research in those times.

In Athens during the great period of Pericles' leadership, he visited the Acropolis many times while the work on the Parthenon was going on. He tells of a four-horse chariot group of bronze that was set up on the Acropolis to commemorate a victory of the Athenians over the Boeotians and the people of Chalcis about sixty years before (506 B.C.).

The Athenians, by the sound tactical maneuver of defeating one enemy before the other's ally could come to their aid, took prisoner some 700 of each. Later the prisoners were ransomed, but the chains in which they had been bound were hung on a wall on the Acropolis and the chariot group was made from a tithe of the ransom money.

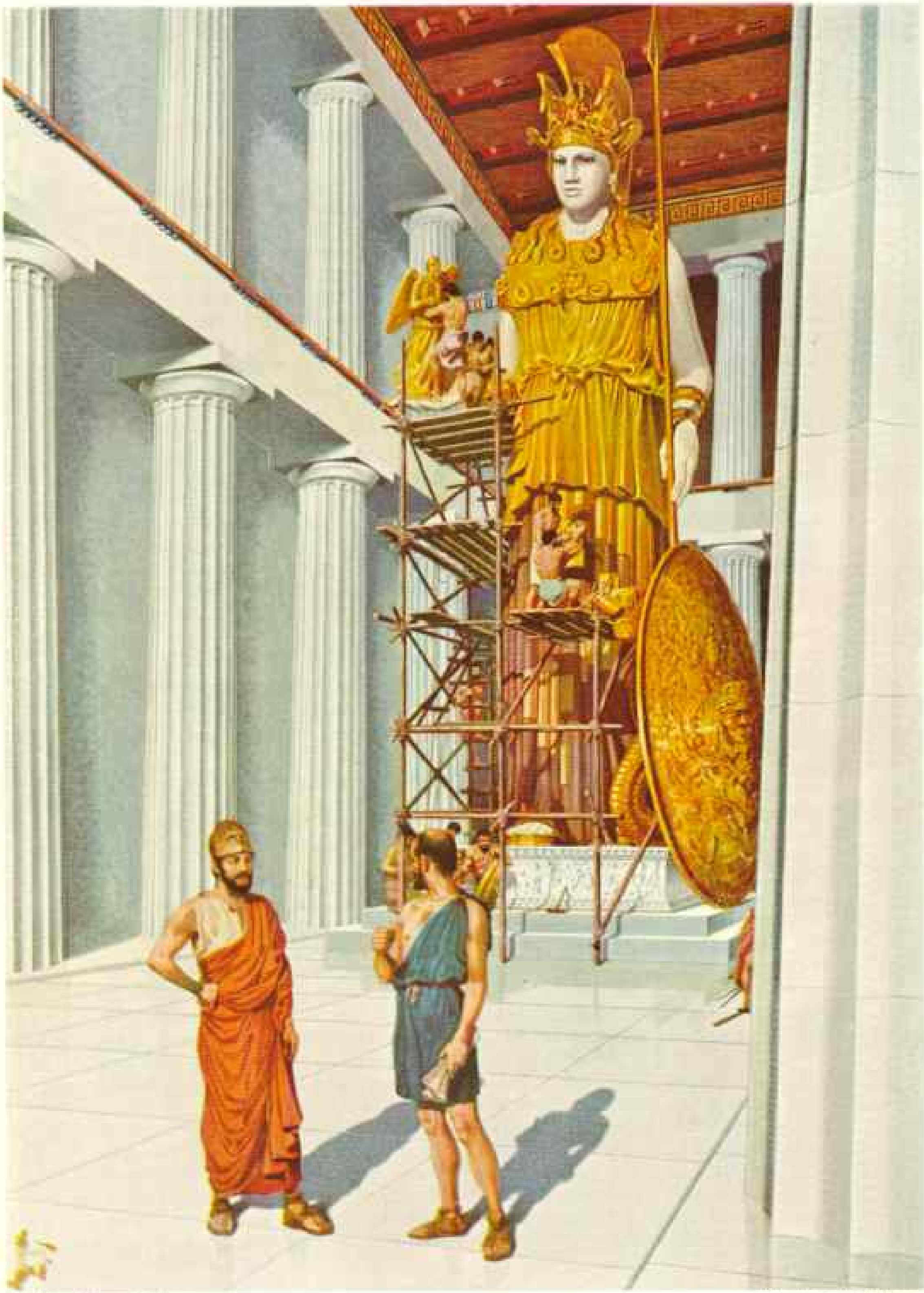
On the base was inscribed:

Athens' bold sons, what time in glorious fight
They quelled Boeotian and Chalcidian might,
In chains and darkness did its pride enslave;
As ransom's tithe these steeds to Pallas gave.

The dedication was made before the Persians had sacked the Acropolis (480 B.C.); hence the group appears in an earlier picture. (Page 311.)

A small surviving portion of the inscription gives us the forms of the letters. For the text we are dependent on Herodotus, who is seen here, on a rainy day in autumn, studying the inscription which he is to record later in his history.

The site chosen for this group is at the foot of a terrace wall that ran across a part of the Acropolis west of the site of the Old Temple of Athena. Near by is the base of the bronze statue of Athena Promachos.



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"Pheidias . . . Gave His Orders to All the Workmen . . . Because of His Friendship with Pericles"—Plutarch

Pericles and Pheidias in the Parthenon

THERE can be no doubt that the architectural magnificence of the Athenian Acropolis is due as much to Pericles as to any other. He came of a fine family and his father had fought at Salamis, but he owed his greatness to his own ability as a statesman. Although he soon abandoned the conservative oligarchic party for the more liberal people's party, he believed in the restriction of the franchise.

He knew the importance of keeping the mass of the people gainfully employed, and, to quote Plutarch, "It was his desire and design that the undisciplined mechanic multitude should not go without their share of the public funds, and yet should not have these given them for sitting still and doing nothing."

Funds for constructing the massive buildings that still adorn the Acropolis were obtained by transfer of the treasury of the Delian League to Athens. The Parthenon itself was built to hold the heroic-sized gold and ivory statue of the goddess Athena.

We are told that 44 talents (2,545 lbs.) of gold went into this figure. It is difficult to draw comparative values of money across so many years, but the amount has been computed as the equivalent of about $6,000,000, an enormous sum for those days, and relatively far greater in purchasing power than it would be now.

The artist who was responsible for the building and for its sculpture was Pheidias, already an elderly man. With him as architects worked Callicrates and Ictinus.

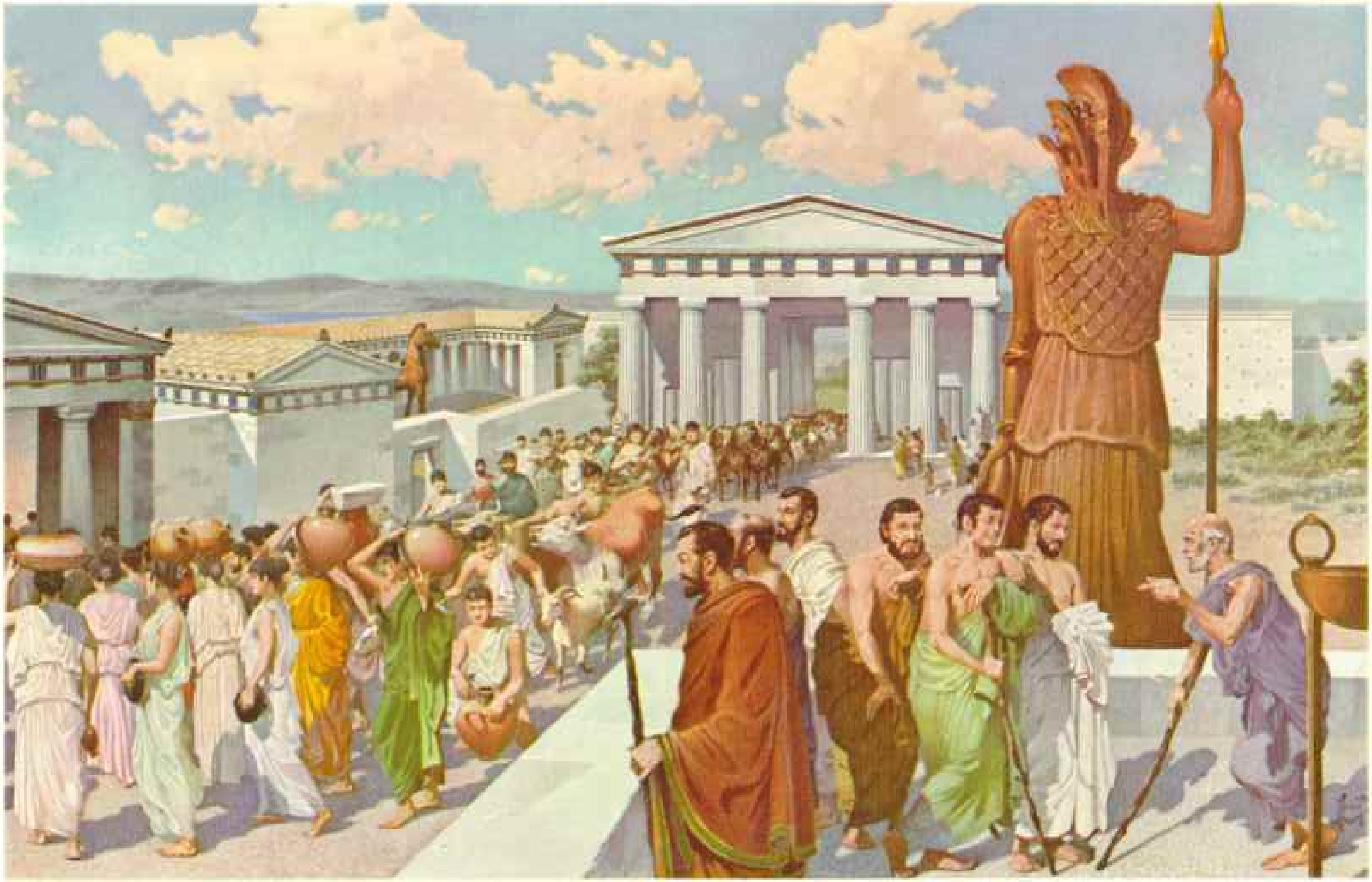
The Parthenos, as the statue was called, stood some 45 feet high. All the flesh parts were of ivory. The rest was of gold so attached, as Pericles carefully pointed out to the people, that it could be removed and borrowed for the treasury in case of need. Presumably there was a carved wooden core to which the plates were attached, since we hear of the statue's being regilded many years later, after its gold had been taken away.

We have from Pausanias a full description of the figure, and a few small-scale copies, all rather poor in workmanship, survive—sufficient to give us some idea of the statue, but contradictory in a number of details. It appears, however, that the goddess stood on a pedestal of marble which was carved across the front with a scene representing the birth of Pandora. Beside her was a great shield with reliefs showing combats of Greeks and Amazons.

One of the figures was said to resemble Pheidias, and this was held against him as an act of impiety when he was accused of withholding some of the gold:

The only light for the interior of the temple came through the east doorway, but in the brilliantly clear air of Greece, and especially at the time of year when, on Athena's feast, the rising sun shone directly through the opening, the illumination must have been entirely adequate.

Pheidias worked on the building for nine years, from 447 to 438. After his accusation, he was released on bail by his friends and went to Olympia, where he made the colossal gold and ivory figure of Zeus, and where his descendants for many generations remained as the special technicians in charge of its upkeep. This great work, which has also disappeared entirely, and is known to us only by Pausanias' description and by coins of Elis, was rated as one of the Seven Wonders of the Ancient World.



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"The Bright Land of Athena . . . Where There Are . . . Most Holy Processions of the Blessed Gods"—Aristophanes

The Panathenaic Procession Brings a New Robe to Athena

AFTER the defeat of Mardonius at Plataea (479 B.C.) had removed the Persian threat, the oligarchic landholders of Sparta viewed the rising power of Athens and her economic stranglehold on other Greek states as a menace to themselves. Athens had it practically all her own way, however, until the fatal thirty years' war broke out in 432 B.C.

During the heyday of Athenian power, one of the famous institutions was the great Panathenaic procession, which every four years brought a new *peplos*, or robe, to the goddess Athena. The robe, woven by the women and girls of the city, represented the battle of the gods and giants.

At early dawn on the feast of the goddess, the procession assembled at the Pompeion, near the Dipylon Gate at the north side of the city, and made its way through the streets to the foot of the west slope of the Acropolis. The chief place in the procession was occupied by a ship on wheels bearing a mast and yardarm on which the peplos was spread. Priests, archons (chief executive magistrates), and dignitaries came first. After them came maidens bearing sacrificial vessels; then foreign residents carrying flat dishes filled with honey cakes, fruit, and other offerings.

The sacrificial animals were led in the procession, and there were also youths carrying on their heads large jars possibly filled with tribute money. Finally came the flower of the Athenian army, the cavalry, splendidly mounted.

At the foot of the Acropolis the procession halted while the robe was removed from the yardarm and folded, to be carried the rest of the way. Then the procession passed through the great Propylaea, and shortly after turned to the right through a smaller gateway which led to a plaza opposite the west end of the temple.

The sacrificial animals, however, probably followed along a different path outside the precinct, while the greater part of the procession passed directly alongside the north colonnade of the building to the main entrance at the east end. There the priest of Athena was waiting to receive the offering to the goddess.

The whole procession has been preserved for us in the splendid carved frieze which Pheidias contrived around the top of the *cella*, or sanctuary proper.

In the background of the picture is the Propylaea, through the wide central opening of which comes the procession. It is not certain whether the cavalry rode up on horseback, although this would have been entirely possible, since it is known that sacrificial animals were led up, and the usual steps were omitted at the center of the building.

To the left, just inside the Propylaea, was a statue of Athena Hygeia. Next in order was a sanctuary of Artemis Brauronia, in which stood a bronze copy of the Trojan Horse, faithfully reproduced, even to the wheels on which it was said to have been mounted, and having two small windows on either side through which the hidden Greeks could be seen peeping out.

On the right, behind the group of elders who are watching the procession, stands the bronze statue of Athena Promachos, the goddess who fights in the forefront of battle. Her gilded helmet and twinkling spear point could be seen by homecoming sailors soon after rounding Cape Soúnion.

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"Mighty Monuments Which Shall Make Us the Wonder of Succeeding Ages"—Pericles

Setting a Capital on the Erechtheum

THE Erechtheum, only a few hundred feet north of the Parthenon, is one outstanding example of departure from the usual style of Greek architecture.

This remarkable building, in the Ionic style, was built on two different levels to house spots sacred to Athenian tradition and religion. Chief of these was the Temple of Athena Polias, the guardian of the city. Her image, carved from olive wood, was lighted by a perpetually burning golden lamp. Besides several altars to other divinities, there was the spot where a thunderbolt from Zeus had split the rock of the Acropolis.

Also, near by, was the Pandroseion where grew the miraculous olive tree which Athena had produced in her contest with Poseidon for the right of being the patron of the city. Since the olive was adjudged to be a greater gift to man than the horse, Poseidon's contribution, the contest went to the goddess and she gave her name to the city.

The picture shows a part of the northeast corner of the building. Two workmen are setting one of the carved marble Ionic capitals. The upper drum of the column has a round wooden peg set in a square block of wood sunk into the center of the shaft to aid in centering the capital and to serve as a dowel.

The columns when first set up were unfluted, save at the top and bottom, and the fluting was then cut on afterward, thus assuring perfect jointing and avoiding any breaks or spalls at the edges.

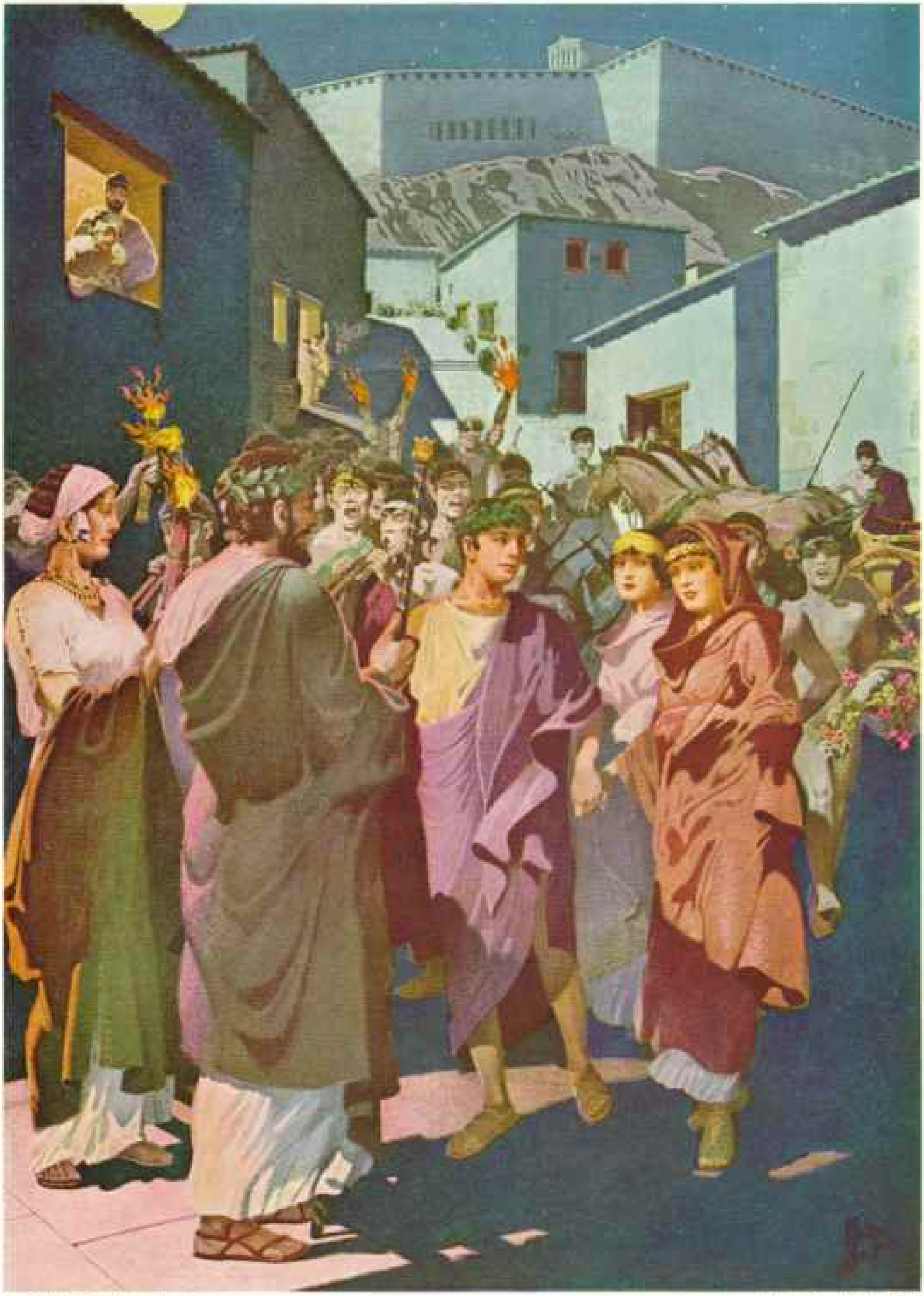
Since no mortar was used in these buildings, the greatest care had to be taken not to chip the edges of the stones at the joints; therefore a protecting surface was left to be worked off after the blocks had been set in place. This explains the narrow sunken band around the edges of the block in the foreground. The moldings were, for the most part, cut as simple profiles, and further carving was done later.

Another device to insure tight joints was that of cutting back the end surface of a block over all its area save for a band called *anathyrosis* around the edge. Adjacent blocks in a course were secured with bronze clamps, leaded in.

The small cutting between the two H-shaped clamps is a pry hole, to allow the right-hand block to be shifted slightly from side to side when it was forced up against its neighbor. Bronze dowels fastened the blocks of one course to the course below, and at the corners of the building, where there might be a shift in two directions from earthquakes, T-shaped dowels were frequently employed. One of these lies in front of the workman at the left.

In the distance appears the irregular cone of Mount Lycabettus and farther off are the slopes of Mount Pentelicus, site of the marble quarries from which came much of the material for the fifth-century buildings on the Acropolis.

It is usual to think of Greek buildings in terms of the symmetrical temple, oblong in plan, with a row of columns, or peristyle, surrounding it on all four sides. This, however, is not a complete picture. Although the temple had to follow a traditional form which had developed from the pre-Greek *megaron* type of house, identified with the house of the ruler and hence of the god, the Greek architect was capable of solving new problems in an unorthodox way.



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"Beneath the Blaze of Torches They Were Leading the Brides from Their Chambers"—Iliad

An Athenian Wedding Party

THE NARROW streets of ancient Athens, where the houses clustered against the north slope of the Acropolis, must often have witnessed scenes such as this—a wedding party come from the banquet at the house of the bride's parents and on the threshold of the new home the parents of the bridegroom standing to welcome the newly married pair.

Almost invariably marriages were arranged by the parents, sometimes with the aid of an intermediary. Close attention was paid to the marriage settlement and to the arrangements for the dowry, or its return in case of the death or divorce of the wife.

The old Homeric custom of obtaining a wife by means of rich gifts was no longer in use during the historic period. Marriages were contracted strictly between citizens' families, and almost always between families of the same station of importance. Occasionally, however, the state provided dowries for the daughters of impoverished citizens who had rendered signal service to the city.

The legal part of a marriage consisted actually in the betrothal. The wedding ceremonies, although they had a religious significance, were not actually religious in the sense that the presence of a priest was necessary. The marriage gods were invoked at the wedding banquet, and libations poured and sacrifices made to them.

The flesh from the sacrificed animals probably furnished a goodly part of the feast. In the hope that the marriage should be marred by no bitterness, the gall of the animals was discarded and not burnt with the other entrails.

It was customary for the bride, and for the bridegroom as well, to bathe on the morning of the ceremony in water specially brought for the purpose from certain particularly sacred fountains.

The legal part of the ceremony, or the sacrifices, probably took place in the morning, and the feast followed. This occasion was one of the few on which men and women outside of the intimate circle of the family ate together.

By the time the feast was ended, darkness was falling, and the procession started off for the house which the couple were to occupy. Except in the poorest class of wedding, the bride rode in a chariot drawn by oxen or horses. She was seated between her husband and his best man. She was attended by a bridesmaid, and her mother followed bearing torches symbolic of the marriage rite.

Others of the party followed, singing and playing on flutes and lyres. In Athens it was a peculiar custom for a young boy, whose parents must be alive, to go around bearing a basket of cakes and singing, "I fled from misfortune, I found a better lot."

At the door of the new home stood the father and mother of the bridegroom, the mother also carrying torches. All sorts of sweetmeats were showered on the nuptial pair, and the youths and maidens sang an epithalamium. There was much laughing and joking before the well-wishers finally went away and left the newly married couple in peace. On the following day they returned with the couple's relatives, who came to pay visits and offer congratulations to the new husband and his wife.

The festivities ended with a banquet given by the bridegroom, or by his father, but this time the women were not included.

Socrates Enjoys a Banquet

EXCEPT in the intimacy of the family circle, it was invariably the custom for men to be the only guests at a banquet. Any women present were either professional entertainers, or members of the special class of the *hetairai*. Many of the latter were highly educated and cultivated women who were employed as companions of an evening. No respectable Athenian woman ever went out at night, nor did she even venture forth by day unless properly accompanied, and usually veiled.

When guests had assembled, they removed their footwear and were presented with basins and towels, while a boy poured water over their hands. Then they reclined, usually in pairs, on couches in front of which were tables arranged around the room on three sides of a square. The center of the room was left open for the servants and for whatever entertainment the host might provide.

The variety of Epicurean delicacies of later times was virtually unknown at Athens in the fifth century. The meals were generally plain and wholesome. The first course consisted of meats, including game; fish; bread; and some green vegetables, among them the onion and garlic that are still favorites in the Mediterranean. For dessert there were cheeses and all kinds of fruits and cakes.

After the meal the tables were cleared, and the symposium, or drinking part of the evening, began. Wreaths of flowers were given the guests, and dainties were set about on the tables, on which also were placed drinking cups. It was not usual to drink unmixed wine, and large *craters*, or mixing bowls, were furnished.

Three libations were offered at the beginning of the symposium: to the Olympian deities, to the Heroes, and to Zeus Soter. A *symposiarch* was chosen by lot to determine what proportion of water to wine should be drunk.

If the company was inclined to serious discourse, as in Plato's symposium, the flute girl might be dismissed. Sometimes not only a flute girl, but other entertainers, such as jugglers, dancers, or acrobats, might be brought in.

Socrates, who is shown near the center of the picture, was most certainly present at many symposia besides the two known to us from Plato and Xenophon. There is no evidence that he drank any less than the rest of the company. The records, however, seem to show that he was able to imbibe freely without being in any way affected.

In an account of a symposium, Xenophon mentions that the dancing girl, after swords had been fixed in a circle with the points upward, immediately leaped headforemost into it through the midst of the points, and then out again with marvelous agility. A similar feat shown on a vase painting has been reproduced here.

Socrates is quoted as saying: "If I am not mistaken, nobody will deny but courage may be learned, and that there are masters for this virtue in particular; since a girl, you see, has the courage to throw herself through the midst of naked swords, which none of us dare venture upon."

The long evening ended with a delightful pantomime representing the story of Bacchus and Ariadne. The company then departed for their homes, but Socrates and some others, we are told, went walking in the early morning.

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"The Girl Leaped Headforemost . . . through the Midst of the Points . . . Then out Again"—Xenophon

Greek Women Used Mascara and Beauty Lotions

THUCYDIDES, the Greek historian, says, "The name of a decent woman, like her person, should be shut up in her house."

This somewhat harsh dictum of a masculine observer reflects, for fifth-century Athens, the general attitude toward women, and also indicates the strong oriental influence that appears so often in Athenian art, as opposed to the more rugged Dorian ideals of the Peloponnesus.

Save among a certain class of women, known as the *hetairai*, or companions, education and intellectual pursuits were not encouraged among the Athenian women. It was not until after the fifth century that women began to escape from a sort of intellectual bondage.

Aristophanes in his comedies makes fun of them, but indicates a trend toward their emancipation in a play in which the women go in disguise to the assembly, to take over the government of Athens on the ground that the men are incapable of handling affairs properly.

Normally, a woman's life was concentrated on home tasks—weaving, spinning, the care of small children, and a host of domestic duties. Marketing was usually done by the master of the house, and it was only under cover of a veil that the wife of a respectable citizen appeared on the street.

Ladies of less reputable character, however, went about quite freely, and special places were often reserved for them in the theaters. We hear of many courtesans, famous either for their beauty or, more rarely, their wit.

Prominent among these was Aspasia, who for many years was Pericles' companion, and who must have been a woman of remarkable talent. Socrates credited her with composing the funeral oration which Pericles delivered on the first men to be killed in the Peloponnesian War, and said that he himself had learned the art of eloquence from her.

The *chiton* was the normal indoor dress. On going out, a woman wore an *himation*, or cloak, as well. This rectangular piece of cloth, heavier than the chiton, could be draped about the body or pulled partly over the head.

Sometimes a scarf which could be drawn over the face was worn.

The young woman in the foreground of the picture is inspecting her coiffure by means of a polished bronze mirror. A servant girl is holding a casket with a necklace for her mistress to put on if she approves.

Beside her stands a *thymiaterion*, or incense burner, and on the low table at the right are a couple of small *pyxides*, in which were the cosmetics women used as freely in ancient days as later. Many exquisitely decorated examples of these little covered jars have been found, some even with remains of powder or rouge still inside them.

Eyes were darkened with mascara, and creams and beauty lotions were popular.

It is questionable, however, that the wife of an Athenian citizen would have bedizened herself with cosmetics in such a bold manner as to deserve the scornful ridicule of a reproach given woman in an Athenian comedy: "If you go out in summer, two streaks of black run from your eyes; perspiration makes a red furrow from your cheeks to your neck; and when your hair touches your face it is blanched with white lead."

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"We . . . Sit Around with Our Paint and Lipstick and Transparent Gowns"—Aristophanes

Voting in the Market Place at Athens

EXCEPT in the earliest period of its history, when there was a palace of the Mycenaean period on the Acropolis, the civic center of Athens was in the Agora, or market place, to the north, and beneath the steep slope of a small rise of ground, the Kolonos Agoraios.

Although there were other meeting places, such as the Pnyx, farther to the southwest, hardly a day went by without most of the citizens passing through the Agora.

Every citizen belonged to a *deme*, and on the basis of this division were chosen the lawmakers, the *Boule*, or Council, the *archons* and other magistrates, and the *prytanes*. By no means the entire population, however, enjoyed the rights of citizenship. In Pericles' time there were little more than 40,000 citizens out of a population of possibly 300,000.

Only a man born of two free Athenian parents could be a citizen after he had reached the age of 21. The remainder were slaves, *metics* (resident aliens), or women, none of whom enjoyed any franchise.

Every voter was a member of the governing body, the Assembly; there was no representative government at this level. The Boule was a legislative committee of the Assembly chosen by lot from among the register of citizens, and served with pay for a year. The Council was divided into ten committees, called *prytanes*, each of which presided in turn over the Council and Assembly for a month of 36 days.

One of the peculiar customs at Athens was the practice of ostracism, whereby any man could, by the majority of a quorum vote of the Assembly, be banished from the city for ten years. A way of eliminating any individual who began to play too prominent a part in affairs, it was intended as a safeguard against anyone's setting himself up as a tyrant.

It was customary to inscribe on a potsherd the name of the person whom one wished to have banished. Such a fragment was called an *ostrakon;* hence the word ostracism. Great numbers of these fragments have been found in the excavations carried on in the market place. It is evident that sometimes the ostracizing pieces were prepared in advance, with names painted on them. They could then be distributed to anyone who needed to have his mind made up for him. Some ostraka have been found on which a name has been scratched in one hand, obviously rather illiterate, and then obligingly corrected in another, much better hand.

Although no large number of citizens was banished in this way, the abuses and futility of the system finally brought about its abandonment.

The scene in the picture attempts to show an ostracism going on. The buildings on the west side of the Agora are the background. At one side on a boundary stone is inscribed *Horos eimi tes agoras*—I am the boundary of the Agora.

Pausanias, visiting the Agora in the second century of our era, mentions first the Stoa Basilike, where the king *archon*, an elected magistrate, transacted affairs. Farther on was a temple of Apollo Patroos. Then came the Bouleuterion, or council house. In the fifth century it became necessary to erect a new one behind the old to take care of the greater number of *boulevtai* representing the people in council. Next came the *tholos*, a circular building with conical roof. Here foreign ambassadors were entertained.

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"The Fragrant and Much-trodden Center of the City . . . and the Richly Adorned and Famous Agora"—Pindar

Potter Making Clay Figurines

MAKING figurines was a flourishing branch of the potter's art from earliest times, and although, generally speaking, the best known are from Tanagra in the fourth and third centuries, there were other centers of manufacture as well.

A few years ago, at Corinth, was discovered a potters' quarter that yielded an amazing quantity and variety of figurines of all periods, from the seventh century down through the fourth.

Many were hand-made. Many, also, were turned out in quantities from baked clay molds.

Figures of horses and dogs were particularly abundant. Some horses have riders, and some of the riders are unmistakably meant to represent monkeys.

Grotesque heads are found, as well as the delicately modeled features of female deities or priestesses. Plaques in relief might represent a warrior, with sword, helmet, and shield, and occasionally small circular votive shields were decorated with the figure of a warrior leaping down from his horse.

In this Corinthian factory, molds were found for the bodies and legs and arms of jointed dolls, and the actual impresses from the molds which also came to light fitted them exactly, if one made allowance for the shrinkage of the clay in the baking process. The heads of these dolls were molded separately and then attached to the torsos.

Small models were made of household furniture, such as tables, chairs, and couches. Models of boats, mirrors, tools, roof tiles, articles of food, and even miniature pots were turned out. These probably delighted the children of that time. Carts with curiously constructed, primitive wheels were found, pierced with holes in which small pieces of wood could be inserted to suspend the axle and to form the body of the cart. These may have been woven in grass to imitate a wicker-basket construction in the real ones.

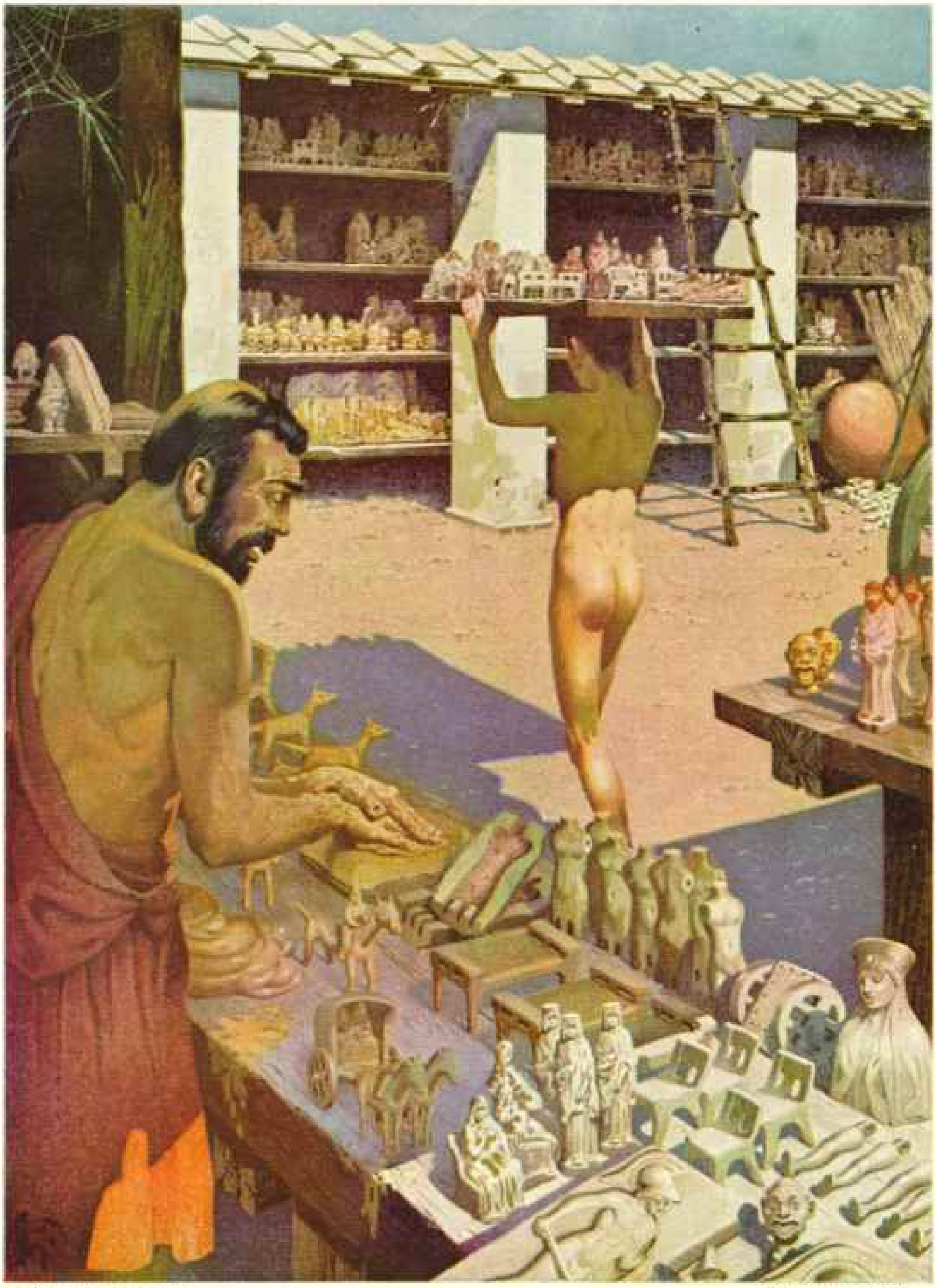
Even a covered buggy came to light, with two women seated inside it. One had her *himation* drawn over her head, completely veiling her features; the other, seated beside her, wore no headdress. Perhaps they represented a lady and her slave. Near the buggy were found two clay horses yoked together and of the proper scale to belong to the group.

The establishment was a modest one, simply built. On one side of a small courtyard four plain rectangular stone piers apparently supported a projecting roof which sheltered a series of shelves on which the objects could be stored. Large quantities of them were found piled up at that spot.

Clay was brought from a deep ravine just below the city wall.

The old potter in our picture is pressing clay into a mold. Immediately alongside his hands is the mold for the dolls' bodies, some of which are arranged on the edge of the bench. A boy is carrying a tray of finished figurines which have come out of the kiln, and a few more may be seen on the table in the courtyard.

Many of the figurines were painted, at least in part, in reds, reddish brown, and black. Pink and yellow were also used. Occasionally a faint trace of blue appears, but this color was used sparingly, at least at Corinth, and in any case usually fails to resist weather as well as the earth and iron oxide colors.



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"Another Earns a Living Fashioning with His Hands the Works of Hephaestus of Many Crafts"—Solon

Hippocrates, Father of Medicine

Born on the Aegean island of Cos, Hippocrates, the son of a physician, became the best-known physician of his time and laid the foundations of modern medicine. His early years were passed on his native island, where there was a famous sanctuary of healing, or *Asklepieion*, to which came great numbers of invalids and tourists. The school which he founded there was still the finest school of medicine under the Ptolemies.

About 430 B.C. he went to Athens, by invitation, to help combat a plague that was raging there. He thus forms part of the picture of the last half of the fifth century—a period of growing culture, science, and philosophy which blossomed in the Periclean Age.

There is a tremendous amount of Hippocratic literature, much of which was written after Hippocrates' time, but by general consent four works may be ascribed directly to him: the *Aphorisms*, the *Prognostics*, the *Regimen in Acute Diseases*, and the monograph on *Wounds in the Head*.

Hippocrates' principal contribution was, like that of his followers, the separation of practical medicine from religion and philosophy, and the expression of the conviction that all diseases are due to natural causes and not to the interference of the gods. Preventive medicine plays a large part in his writings. Hippocrates believed that a good doctor could, from a careful study of bodily conditions, learn to foresee the course a disease would follow. His practice made relatively little use of drugs, but included emetics, enemas, blood-letting, massage, and hydrotherapy.

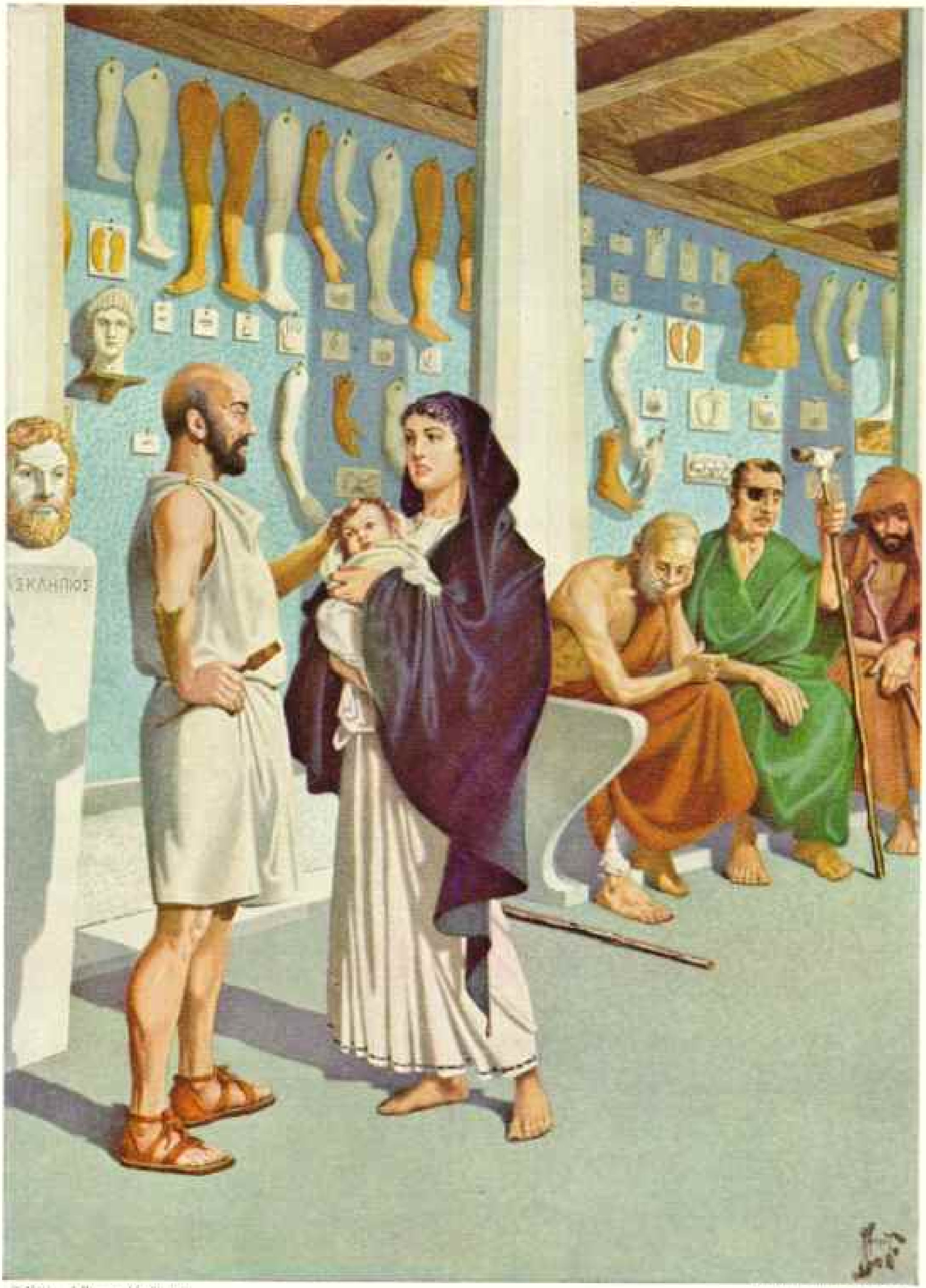
According to Hippocrates, the best way to avoid disease was to lead a wholesome life, and the best way to cure disease was to observe a proper diet and way of life.

Anatomy and surgery made rather slow progress in Greece, although the action of the heart was known, and the brain was recognized as the seat of consciousness and thought. Trephining operations for head wounds were performed, and reductions for dislocations, closely resembling modern methods, were known. Anaesthetics, however, were not in general use. A late manuscript of Apollonius of Citium is illustrated with drawings showing the tortures undergone by patients when dislocations of joints were reduced.

Throughout the Greek world there were centers of healing known as *asklepieia*. Here, doubtless, many simple and rational cures were effected by therapeutic means, and the presence of a big theater at one of the largest (Epidaurus) indicates plainly that relaxation and entertainment, combined with proper diet, fresh air, and a certain amount of mental suggestion, were recognized as an effective way of curing numerous ills.

Naturally, at such places the credit for the cure was given to the god Asklepios, and innumerable dedications have been found at the sanctuaries belonging to him. These dedications, in the form of affected parts of the body, might be made of marble, bronze, or terra cotta.

Inscriptions also testify to the miraculous nature of many of the cures, and we must assume that some of these were advertisements. Nevertheless, Hippocrates and his fellows of the fifth century set the high standard of professional ethics still observed by physicians who take the Hippocratic Oath.



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"I Will Use Treatment to Help the Sick According to My Ability and Judgment"—Hippocrates

Phryne Poses for Praxiteles

THE CITIZENS of the island of Cos, we are told, commissioned Praxiteles to carve them a statue of Aphrodite, and according to the story he did so with the aid of Phryne, a courtesan famous for her beauty.

The story, however, goes on to say that, when the work was finished, the good people of Cos were shocked to find the goddess quite nude. The sculptor thereupon did them another which was fully draped.

Meantime, the first statue was bought by the Cnidians, and it became one of the principal attractions of their town. It probably inspired the epigram by an unknown author: "The Cyprian (Aphrodite) said when she saw the Cyprian of Cnidus, 'Alas, where did Praxiteles see me naked?' "

The original statue has been lost, but several copies exist, and from them we may gain some idea of the original work. Phryne was so celebrated that some of her admirers, and, according to some reports, Phryne herself, dedicated a statue of her at Delphi.

She was indicted once on a charge of impiety, but was ably defended by the orator Hypereides. Athenaeus tells us that the case was really won, however, when she allowed her tunic to slip off her shoulder slightly. At that the judges immediately gave a verdict in her favor.

We have few works today that are certainly from the hand of any of the Greek sculptors known to us through the accounts of ancient writers; but, thanks to the Roman's passion for copying Greek statuary, we have a wealth of second-hand material.

Some of the fine pediment groups from Olympia, from the Temple of Aphaia on Aegina, and from the Parthenon give us an idea of what Greek sculpture was like, but of the works which were celebrated by the Greeks themselves, scarcely one remains.

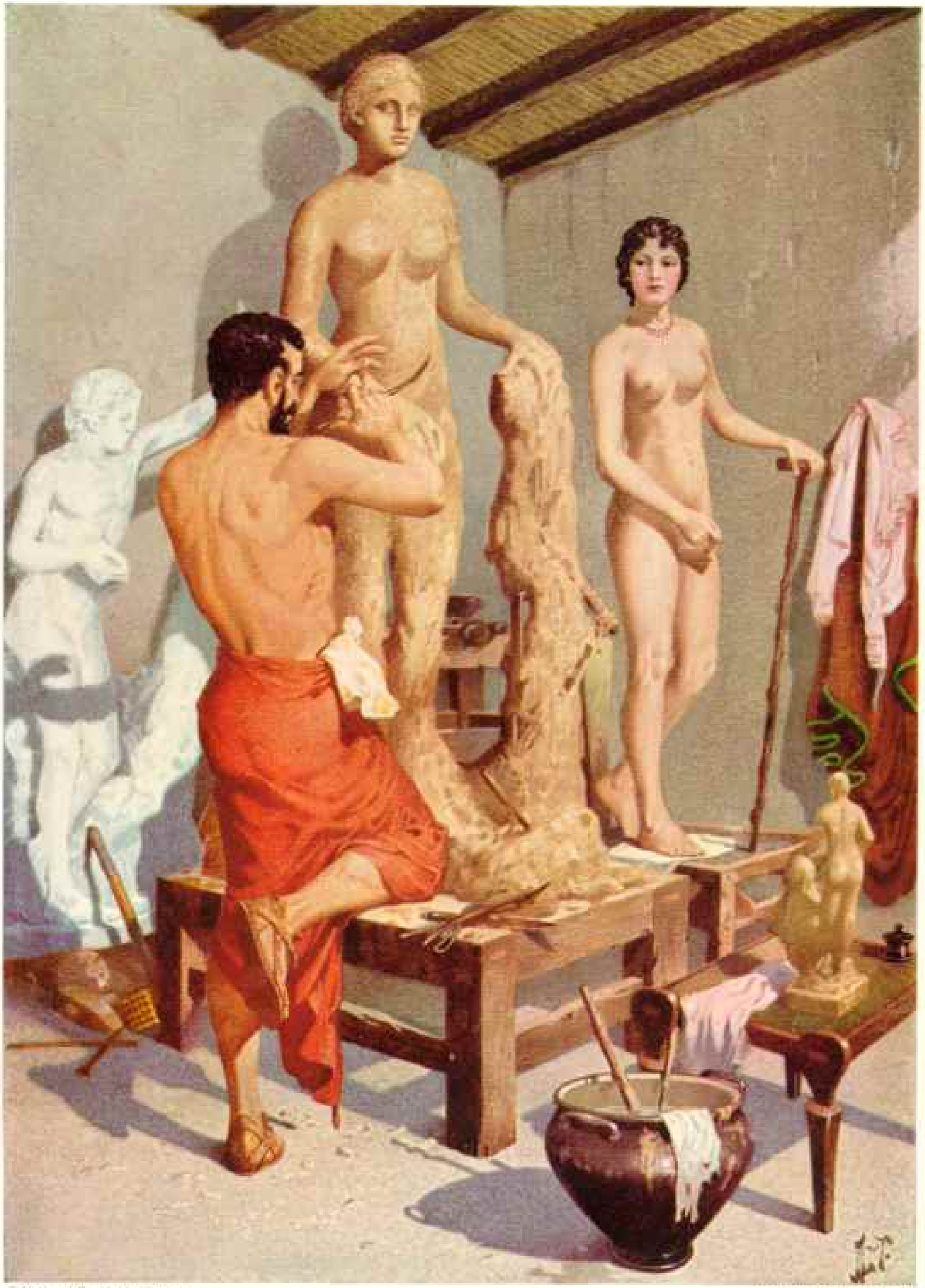
Until recently, however, one work from the hand of Praxiteles seemed sure. Pausanias speaks of a statue of Hermes in the Temple of Hera at Olympia, and during the excavations in the ruins of the temple in 1877 there was found a statue of Hermes, holding the infant Dionysus on one arm. It had been preserved by being buried in the ruins of the unbaked brick walls of the building.

Volumes have been written about it, and although archeologists are now divided as to whether it really is an original, or a most excellent Roman copy, the balance of opinion is still in favor of calling it an original Greek work.

It is characteristic of Praxiteles' style, as we know it from copies of his other works, and shows a softness and sensuality of form which is a definite stepping stone from the sterner, more idealized sculpture of the Periclean Age to the realism, or sometimes the bravura, which appears in a great deal of the sculpture of the Hellenistic period.

The interior of a sculptor's studio was probably very plain. The tools he worked with resemble those used by marble and stone cutters ever since. Although the drill was known rather early, it came to be used much more frequently in later periods. Flat chisels, pointed chisels, and surfacing hammers were used.

Since even the early sculptors worked in bronze, the use of clay for modeling is certain, and even if a statue was planned to be executed in marble, it is likely that by the fourth century, at least, a clay maquette, or study, would first be made.



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"Said the Cyprian . . . 'Alas, Where Did Praxiteles See Me Naked?' "—Greek Anthology

The Countryside Is Smiling; "Therefore, Ye Soft Pipes, Play On"

EXCEPT in the earliest times, the land available for cultivation in Greece was insufficient to supply enough grain. In Attica, for instance, barely two-thirds of the area was suitable for cultivation, and a large part of this was taken up by the olive groves which furnished one important part of Greek diet and, as noted elsewhere, sufficient surplus to allow export in exchange for other necessaries.

In many other parts of Greece, available land was even more scarce and, just as today, in ancient times there were many small fields tucked in among the hills. Each year the lands were carefully tilled, but the rocky soil must have been a perpetual discouragement to the farmer.

Cereals and vegetables, such as lentils, peas, beans, cabbages, asparagus, and garlic, were staples of diet. Fish was plentiful but meat was scarce, even as it is for the majority of the population in modern Greece. Sugar was unknown, but honey was an adequate substitute, and the flocks of goats and sheep furnished milk and cheese, just as they do now. Figs, and of course grapes, were the principal fruits. Citrus fruits were unknown, but mention is made of apples, pears, pomegranates, and quinces.

Hesiod, a resident of the little town of Askra, in Boeotia, wrote in *Works and Days* about the hard work of the farmer who elected by honest toil to wring a living from the land.

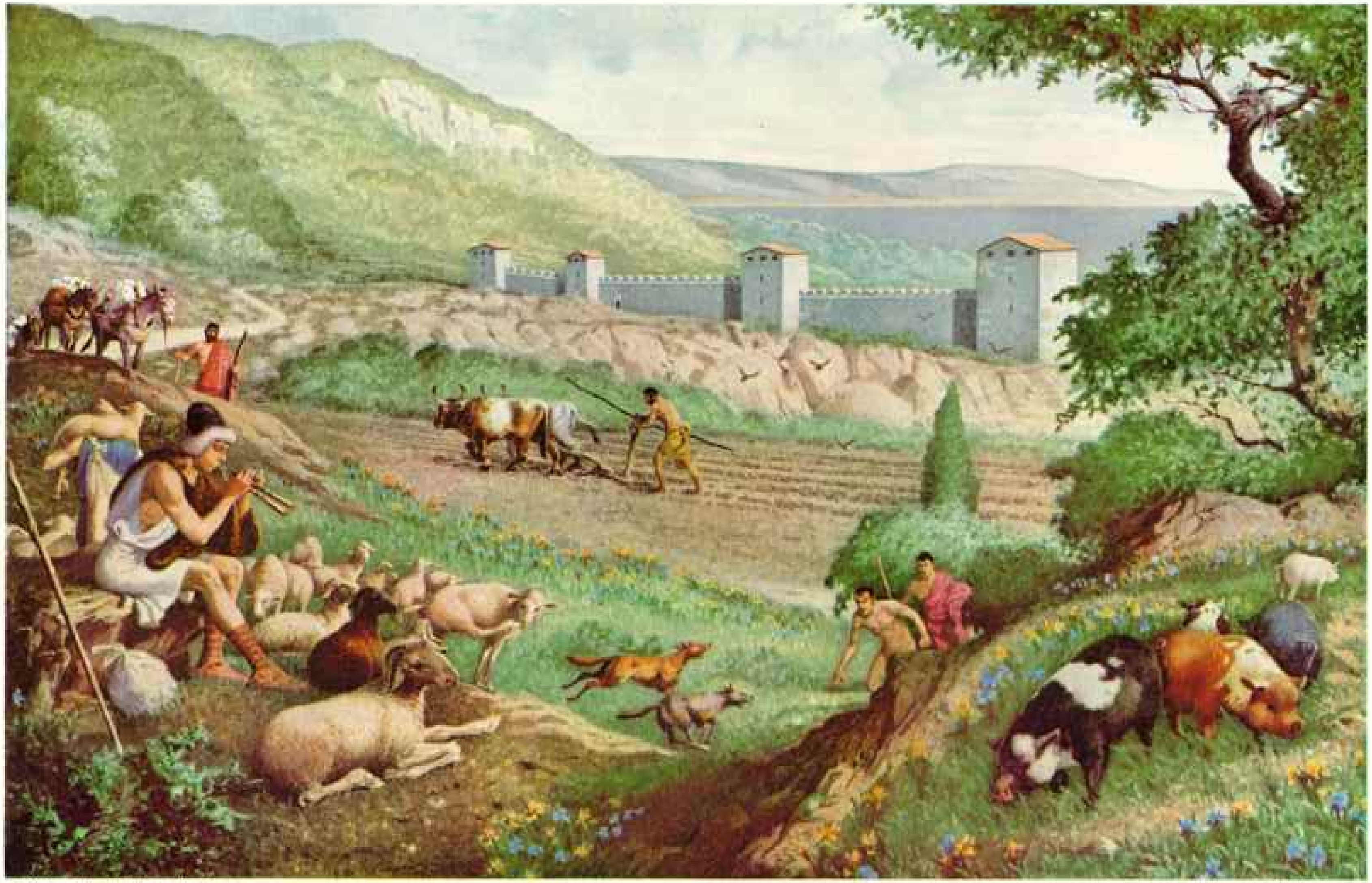
He tells of the hard winters of the country, the "piercing wind that flays the steers"; how one should dress warmly in winter and avoid drinking heavily in summer. He lays down precepts for plowing, planting, and reaping. The little hill town where he lived he calls "wretched in winter, insufferable in summer, and never good."

Primitive wooden plows may still be seen in the more remote parts of Greece, though the modern steel plowshare is generally used. It is only in the northern part of the country, where there are wide, flat, tillable areas, that any tractor plowing can be found. Oxen were generally used for plowing in ancient times, and some can still be seen today, although other draft animals are more common.

In our picture, near the walls of a small fortified town not too far from Athens, is a plowing scene, and in the foreground another pastoral scene, as common today as in antiquity. A shepherd sits piping to his flock, which rests or grazes near him. His dogs rush off to attack a couple of strangers passing by on the road, and the foremost traveler is about to pick up a stone to fling at the dogs.

If the traveler were to follow the modern custom, he would throw the stone over and beyond the dogs; and they would turn and rush after the stone, and then return to the attack. This procedure, if kept up for a time, usually results in keeping the dogs away until the traveler is beyond the area which they feel it their duty to protect.

The idyllic piping of the shepherd, which can be heard today on almost any Greek mountainside much as in olden times, recalls another writer who lived long after Hesiod. Theocritus, in the third century B.C., perfected pastoral poetry to a degree which left little or nothing for others, and showed a feeling such as no other Greek poet possessed for the sweetness and beauty of Nature.



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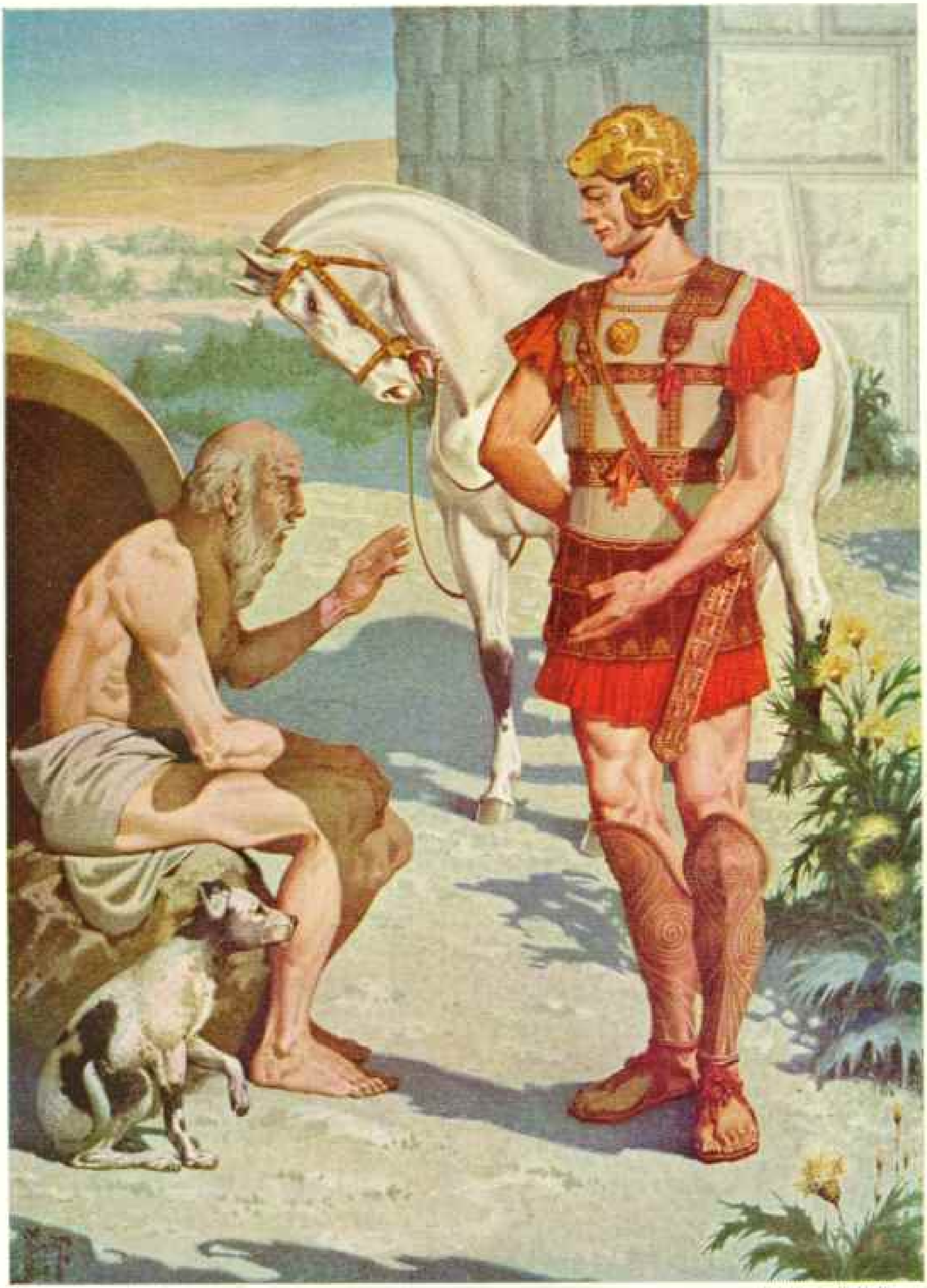
"The Shepherd on the Mountains, Piping at Noon, under a Copse of Leafy Plane"—Greek Anthology



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"If I Were Not Alexander, I Would Be Diogenes"—Plutarch

Alexander Calls on Diogenes the Cynic

To the cultured Athenian, the Macedonians of the north were barbarians. They produced no writers, artists, or philosophers of note.

From Macedonia, however, came one of the most successful military leaders of all time. The conquests of Alexander changed the cultural history of the world.

Alexander's father was Philip, king of Macedon. After passing a part of his youth as a hostage at Thebes, where he learned much of Greece and its people, Philip returned to his kingdom with the ambition of welding all the Greek states into a united nation. After reorganizing his army and training it in the Theban phalanx formation, he set out to make conquests.

The people of Chalcidice, east of modern Salonika, had been in alliance with Philip, but they realized that his interests were diametrically opposed to those of Athens, the city with which they had closer cultural relationships.

They broke with their dangerous ally, and paid the penalty for their defection. Several of their cities, among them Olynthus, were mercilessly destroyed, and it was not long before Philip appeared in Greece ostensibly as the arbiter of a dispute regarding the trusteeship of the Delphic oracle and its very considerable treasury.

The orator Demosthenes finally aroused the Athenians to form a Hellenic League against the rising power of the Macedonian; but the forces of the League, which Thebes had joined, were defeated at the Battle of Chaeronea, 338 B.C. Although the Greek cities, with the exception of pillaged Thebes, were allowed to retain their own constitutions, the power passed to the conqueror.

Philip then prepared to move over to Asia and destroy the only remaining great power which could oppose him—Persia. Before he could do so, however, he was assassinated. He was succeeded by his son, Alexander, at that time only 20 years old.

Contemporary with Alexander, but much older, was the philosopher Diogenes, known as the Cynic. The school of which he was the principal exponent took its name from the gymnasium called Cynosarges where its members were accustomed to meet.

The essence of their philosophy was to reduce the things of the flesh to the barest necessities so as to leave the mind as free as possible. Diogenes is reported to have lived for a time in a tub, outside the city walls.

There is a Neo-Attic marble relief which depicts the famous meeting between him and Alexander as described by Plutarch. The Cynic sits in the mouth of a huge clay jar, or *pithos*—many of these jars were large enough to accommodate a man—and on the top of it, as an allusion to the occupant, is carved a dog. The genitive form *kynos* of the word for dog suggests *cynic;* and probably the marble dog set over the philosopher's tomb at Corinth was a punning reference to his sect.

The famous conversation between the soldier and the philosopher probably took place at Corinth at a time when we have no evidence to show that a tub was still a part of Diogenes' domestic arrangements; but our picture is an attempt to bring the elements of the story together. When Alexander rather patronizingly offered to grant the philosopher any favor he might choose, Diogenes answered, "Yes, you can stand a little to one side and not keep the sun off me."

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Painting by H. M. Herget

"He Himself Fought among the Foremost . . . and Was Wounded in the Thigh . . ."—Plutarch

Alexander Defeats Darius the Persian at Issus, 333 B.C.

After his accession to power, Alexander wasted no time in restoring his father's kingdom to order and in stamping out rebellion in Greece. Thebes was destroyed, with the exception of the temples and Pindar's house. This terrible example put a speedy end to Greek resistance, but the rest of Greece Alexander treated leniently and continued all the rights which had been granted by Philip.

The destruction of Persia was now Alexander's chief aim. In spring of 334 B.C. he crossed the Hellespont, or, as it is now called, the Dardanelles, with an army of about 40,000.

It was clear that in order to carry out a successful campaign against the immense Persian Empire, he would have to control the seacoast. Accordingly, he devoted the first part of his campaign to securing the principal Greek cities on the Asia Minor coast and posting Macedonian garrisons in them so as to secure his communications with Macedon and to prevent any assistance from disaffected Greek states from reaching the enemy. He was careful, however, to grant each city a democratic government, although this had certain strings attached to it.

Near the entrance to Syria, just a little north of the present Turkish boundary, Darius III attempted to prevent Alexander's further advance to the southward.

Although the Macedonians were outnumbered nearly 20 to one, Alexander, by superior tactics which rendered the mass of his opponent's force ineffective, routed the enemy at the Battle of Issus.

Darius fled and left behind him an immense quantity of booty, as well as his mother, his wife, and his children. The booty was immensely welcome; and the captives were treated with great consideration.

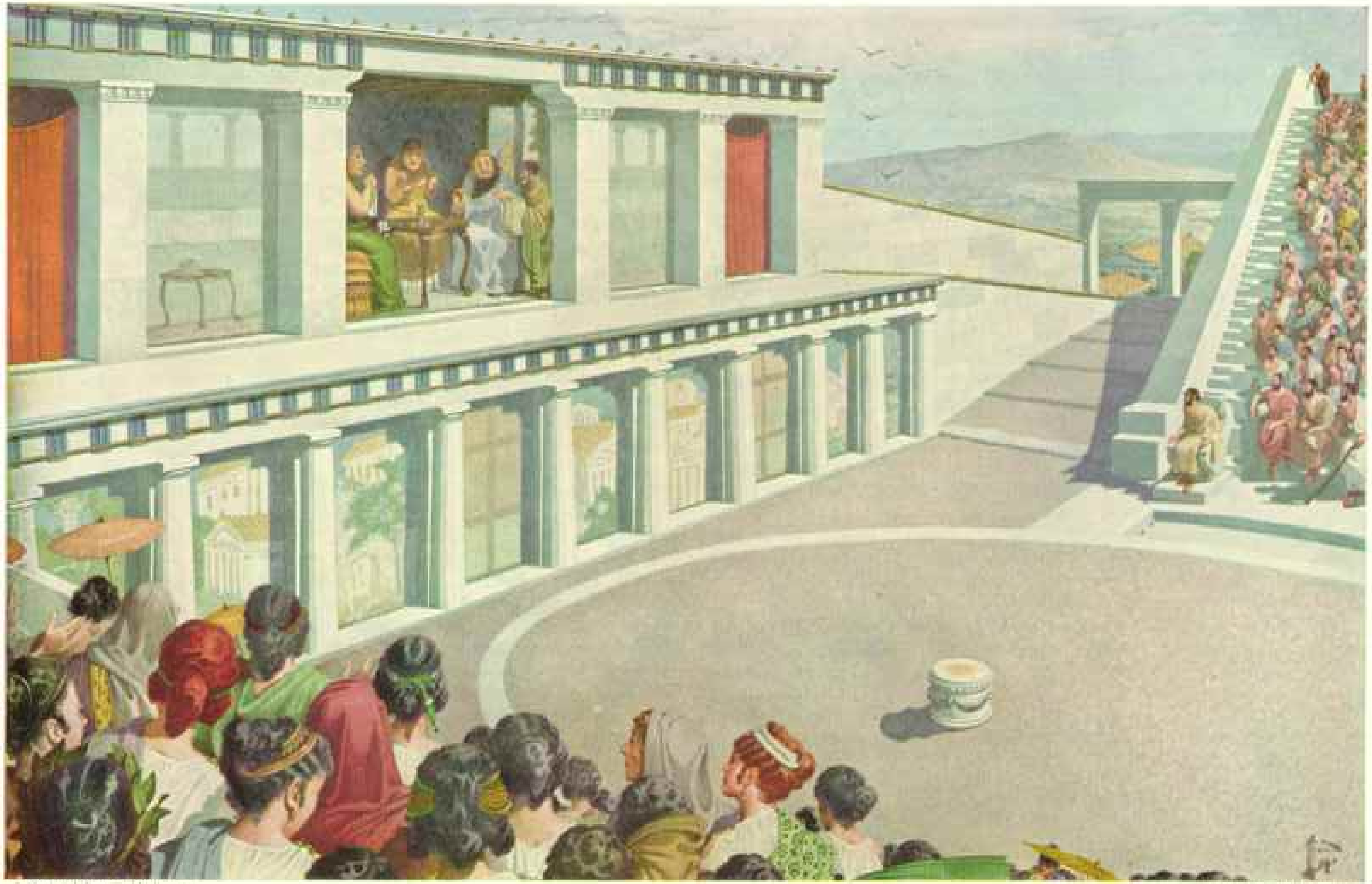
Alexander rushed into the thick of the fight with his cavalry, as was his custom, and was wounded by a sword thrust through the thigh. A famous ancient painting, of which a magnificent version in mosaic was found at Pompeii, represented Alexander attempting to reach the person of his fleeing enemy. This scene is the basis for our picture.

After the battle the Syrian cities surrendered peaceably, but Tyre, where there was a strong Phoenician fleet in Darius' pay, held out. Alexander took it after a bitter siege. Tyre was left in ruins, and its defenders were massacred or sold into slavery.

Next, Alexander went down to Egypt, visited the sanctuary of Zeus Ammon in the Libian Desert, and received assurance that he was indeed the son of Zeus—hence a god.

While in Egypt, he founded the city of Alexandria near one of the mouths of the Nile, and it became one of the centers of Hellenistic culture and learning. Alexander then turned north and met Darius in a final battle at Arbela, 250 miles north of Babylon. Darius was murdered not long afterward by one of his satraps.

His last words to Polystratos, who found him dying and gave him a drink of water, were: "This is the worst of my misfortunes, that I am unable to recompense you for your kindness to me. But Alexander will reward you, and the gods will reward Alexander for his courteous treatment of my mother and wife and daughters. Wherefore, I pray you, embrace him as I embrace you."



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"All Life Is a Stage and a Play"—Palladas

Painting by H. M. Herget

In Such a Theater Orestes and Electra Played Their Tragic Roles

THE THEATERS of the Greeks were always open to the sky, and almost invariably took advantage of the slope of a hill on which to support the rows of stone seats of the *koilon*, where the audience sat.

The auditorium formed slightly more than a semicircle. At either side was a passageway, known as the *parodos*, through which the Dionysiac procession made its entrance, and which could also be used by actors. The *parodoi* led directly to the circular orchestra, of hard-packed earth, surrounded by a stone curb and a gutter, deep or shallow, which collected the rain water funneled down from the seats. Flights of steps divided the *koilon* into a series of wedge-shaped sections, known as *kerkides*, and, if the theater were large, there might be a level aisle, called a *diazoma*, partway up the slope.

The front row of seats, facing on the orchestra, was reserved for the dignitaries and persons of greatest importance. These seats often were provided with backs, or even took the shape of individual thrones.

The stage was never connected into an architectural whole with the *koilon*, or auditorium, until Roman times. The stage, or *skene*, shown in the picture is typical of about the third century B.C. or slightly later. Only foundations remain of the stage buildings which saw the initial performances of the great plays of Aeschylus, Sophocles, and Euripides in the fifth century.

There was a shallow *proskenion*, consisting of a row of half columns backed against stone piers, between which were painted screens, called *periaktu*, which in some cases could be turned in their sockets to afford a change of scenery. Realism or naturalism in scenery was unknown.

Above the *proskenion* is the *logeion*, a narrow platform where, according to some authorities, virtually all the action of the play occurred.

Access to the *logeion* was either by stair at the back of the scene building, or by ramps at either end of the *proskenion*. Some theaters show a sort of trapdoor on the highest roof, from which a god could be made to appear.

Masks designed for the type of play were invariably worn by the actors. Women never appeared on the stage, all parts being taken by men or boys.

The Greek theater gave us several theatrical words. Scene comes, of course, from *skene*, which originally meant a tent, once made of skins, to which the actors retired. Our proscenium arch gets its name from the *proskenion*, which was in front of the *skene*. *Tragedy* and *comedy* both come from Greek words. Chorus derives from *choros*, the group which danced and sang in the early plays. The very word "drama" comes directly from the Greek.

The occasional revival of one of the political and social satires of Aristophanes shows the vital quality of Greek humor. The plays of Menander, in the fourth century B.C., set comedy in a path from which it has departed very little. The dramas of Aeschylus, Sophocles, and Euripides are among our greatest literary heritages. Among recent successes on the American stage was an English version of Aristophanes' *Lysistrata*, presented on Broadway in 1930 and taken later on a triumphal tour of this country.

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Painting by H. M. Herget

"Now Is the Season of Sailing . . . Weigh Thine Anchors and Unloose Thine Hawsers, O Mariner"—Greek Anthology

A Key to the Classic Sea Was the Port of Dēlos

THE island of Dēlos, the legendary birthplace of Apollo and his twin sister Artemis, was a sacred site. Its strategic location at a crossing of sea routes through the eastern Mediterranean gave it great power.

After the Persian Wars, the Greek cities of Asia and the Aegean organized a league to protect themselves against further Persian aggression, and all contributed to a fund which they placed under the protection of the Temple of Apollo at Dēlos. This fund later was transferred to Athens, since Athens was the dominant sea power, and went to build the Parthenon.

The advantages of its location, which was favorable as regards winds and passages between the islands, assured it a continued prosperity that lasted down into Roman times. In the Hellenistic period—that is, from the early part of the third century B.C.—it was adorned by many elaborate houses of the rich merchants and many fine public buildings.

Here came grain ships from Egypt and Syria. Merchants brought and exchanged their wares from the Black Sea ports; rich argosies came over from the Asia Minor coast, and as a free port Dēlos prospered in much the same way that other free ports have done in later times. The good natural harbor was improved by large moles. There were extensive quays to which vessels could be moored, and a few of the old mooring bitts of stone or marble have been found, although the harbor has for the most part become silted up.

Across the narrow bay was another island, Rhenea, where there were also dwellings. To that island all women had to withdraw to give birth to children, for it was sacrilege for anyone to be born or to die on Dēlos.

The picture is drawn as if from the deck of a merchantman putting out from the port, laden with dried figs, melons, and other fruits, and amphoras of oil or wine. The steersman is guiding the steering oar with a sort of whipstaff.

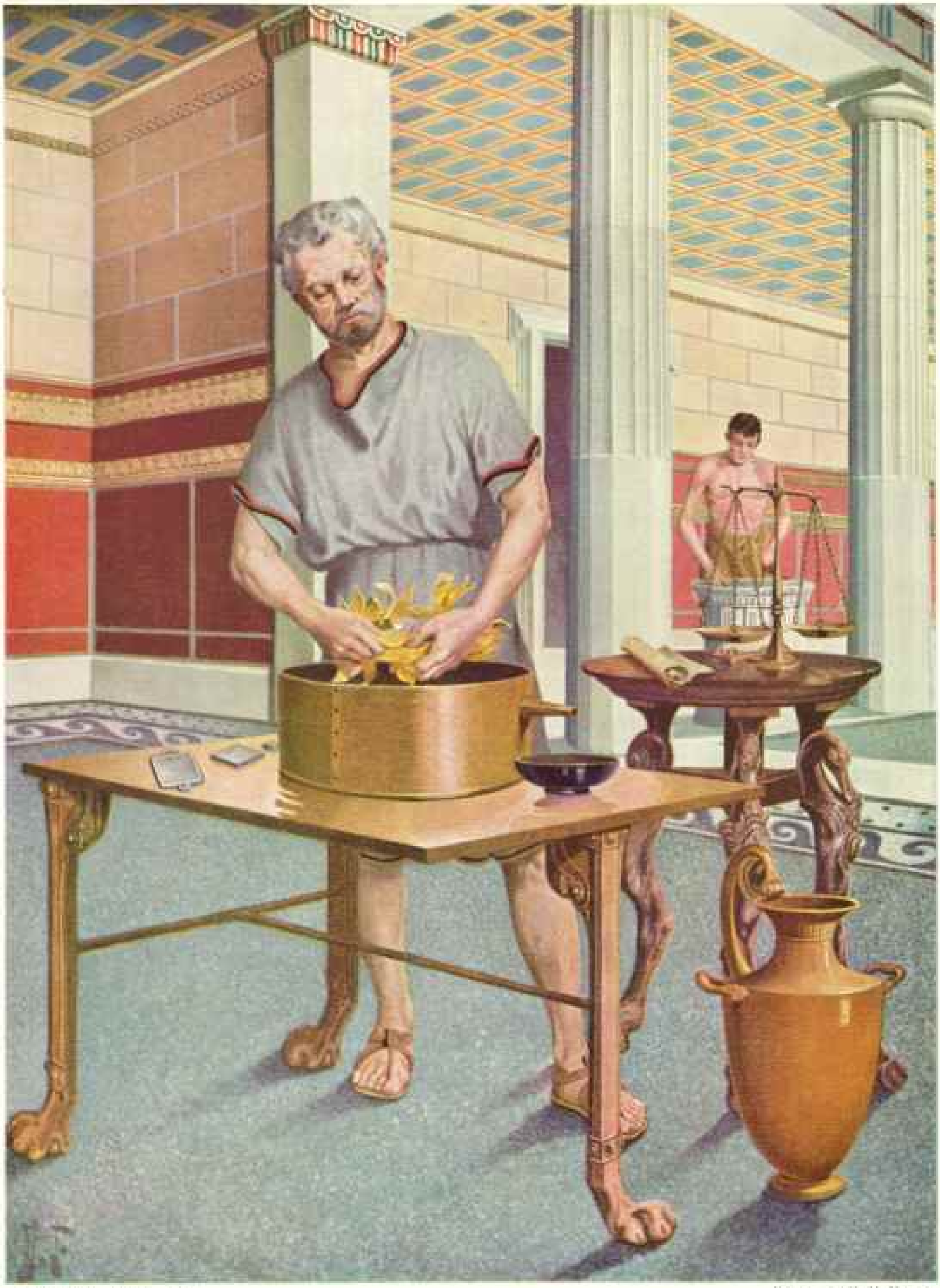
Near him, the ladder which was always carried instead of a gangplank has not yet been properly stowed. These ladders were always carried near the stern of the ship, since it was customary to moor the vessel with her stern to the shore, just as small caïques are handled now.

Near by is a warship, with three banks of oars. Her single mast is stepped, her yard squared off, and she is running out of the harbor with a favorable breeze, assisted by her oarsmen. The three-pronged bronze beak shows clearly, and just above and behind it one of the painted eyes of the ship, always included so that it might see its way.

On a raised walk between the banks of oars is the station of the "oar masters" (*toicharchoi*) and the *triorades* who gave time to the rowers by playing on a flute. The captain, or governor, of the ship had a cabin at the stern, and immediately in front of the cabin are two steersmen, one to each of the large steering oars.

The sails could be brailed up if need be, and the yards either sent down completely or "cockbilled." A ship usually carried two anchors, similar to the old wooden stock anchor generally used until the last part of the nineteenth century.

Nearly all the ships seen in the background are merchant vessels with characteristic bows and pronounced sheer.



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Painting by H. M. Herget

"Eureka! I Have Found It"—Vitruvius

Archimedes Discovered the Law of Specific Gravity

From the seventh century B.C. on, Greek culture had taken a firm root in Sicily and southern Italy, and even while Rome was a small provincial city, just making its way in the world, Greek art and Greek artisans had been pouring into the Etruscan cities of central and northern Italy.

Carthaginians from the region of Tunis and Bizerte had swept into Sicily in the fifth century and withdrawn again, with the varying fortunes of war; Pyrrhus of Epirus had come and gone; Greek had fought Greek at Syracuse, and thousands of Athenians had starved to death in the quarries of that city.

The impact of Alexander on the Greek world and the eastern kingdoms had not, however, been felt so strongly in the west, and Syracuse continued serenely as one of the great centers of Greek life, although its social life had had its ups and downs between radical revolution and a despotic, oligarchic oppression.

Fortunately, in the third century B.C. it fell under the power of an enlightened ruler, Hieron, whose reign of fifty-four years, although dictatorial, was, according to Polybius, one of the more remarkable. During that time, Polybius wrote, Hieron ruled "without killing, exiling, or injuring a single citizen."

Under him worked one of the foremost of the Greek men of science. Archimedes is best known, perhaps, for his discovery of the law of specific gravity. This he is said to have suspected when the water ran out of his bath as he himself got in. He utilized the idea in determining for his patron whether all the gold supplied for a crown had been used, or whether some silver had been substituted.

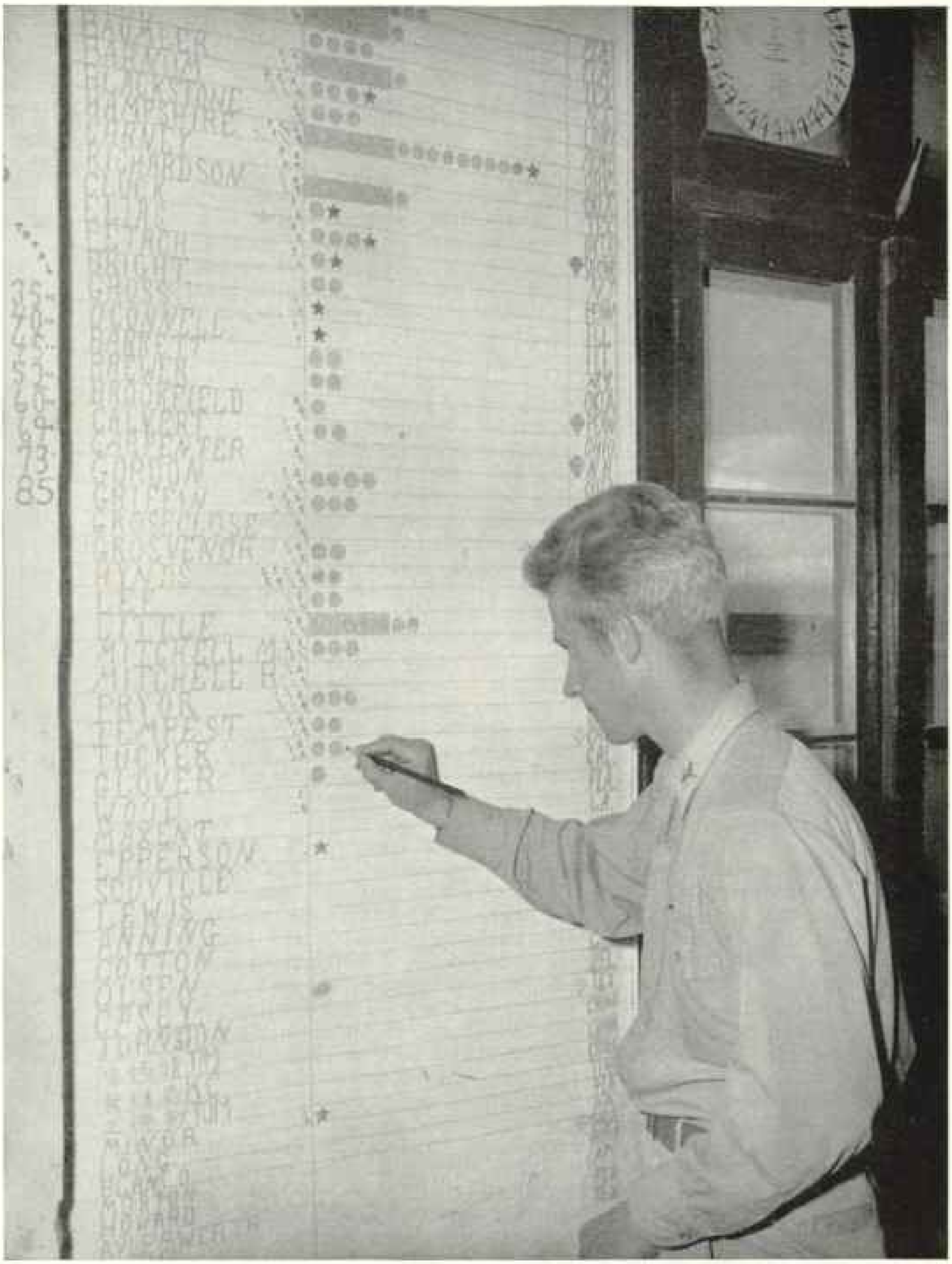
The picture shows him immersing the crown, or wreath, as it probably was, in a basin of water and preparing to measure the amount of water displaced. Scales of a pattern not unknown today were used then, and numerous leaden and bronze weights have been found, many of them carefully marked with their value.

Besides weighing Hieron's crown, Archimedes experimented with many mechanical devices. He was one of the foremost mathematicians of antiquity, and wrote extensively. Although he was keenly interested in theory, his chief interest seems to have been in applied science.

He made a planetarium to represent the movements of the heavenly bodies; he invented the compound pulley and the endless screw used to pump out ships. Hieron, in reply to Archimedes' alleged statement that he could move the earth if given a place whereon to stand, challenged him to beach a large galley with which his men were having difficulty, and Archimedes arranged a mechanism in such a way that he himself, working at one end of it, was able to draw the vessel up to dry land.

When Syracuse was besieged by the Romans a few years after the death of Hieron, he invented all sorts of engines of war: grapnels that drew enemy ships up out of water by one end and then allowed them to fall back and sink; great engines for hurling stones; and mirrors that concentrated the sun's rays and set the ships afire.

Although the Roman general Marcellus had given strict orders to spare his life, he was killed by an impetuous Roman soldier whom he declined to accompany until he had finished a mathematical problem.



U. S. Army Air Forces, Official

On the Tally Board an Army Airman Pencils the Sign of His Third Victory in China

"D.F.C." and "A.M." opposite his name show Lt. Charles Tucker has the Distinguished Flying Cross and Air Medal. Others hold Silver Star and Purple Heart. A block of five circles denotes an ace. Casey's single victory is shown by a radiant Rising Sun. Parachutes refer to jumps. Three Chinese names are on the board. A dart sticks in the door. Above it, the "clock" is an airplane identification chart.

6,000 Miles over the Roads of Free China

By Josephine A. Brown

I WAS in the far interior of China, in the mountain village of Kwangyuan, when I heard the news of Pearl Harbor. A vigorous old man, changing a tire on our truck, emphasized the news with whacks of his hammer.

"Pearl Harbor has been bombed. Manila has been bombed. America has declared war. America and China are allies."

I was glad for all the ways America and Americans had been helping in China, particularly for that group known as the "Fei Hu" (Flying Tigers). These American men who had joined the Chinese air force were called by all the Chinese "our boys." Going out with limited equipment to meet the enemy, they gave their best to China.

They had a particular spiral known as the "victory roll" which they did on their return to their home airport, to show that at least one Japanese pilot had been shot down on that flight.

In return, China treated them royally—in their pay, their living quarters, everything she could provide for them. I saw the beautiful white silk scarfs embroidered in red with Chiang Kai-shek's name. The Generalissimo had presented these scarfs to each Flying Tiger at Christmastime.

"Victory for China, or Death"

For Maj. Gen. Claire Lee Chennault, their intrepid commander, he had sent a sword. As the American general received the gift, he bowed, lifted the sword to his forehead, and gave his gift in return as he pledged, "Victory for China, or death."

I had flown to China three months before Pearl Harbor. My arrival made upon me a deep and lasting impression.

The propellers had stopped and the door of the plane was opened for the passengers to alight. What a stillness! Only the sound of crickets on the cool evening air. In single file we felt our way over low wavering bamboo bridges that spanned the paddies. Our only light came from two irregular rows of flickering smudge pots that marked the runway. Could this be an airport? Could this be the entry into Free China?

An hour and twenty minutes before, we had left the modern well-equipped Kai Tak Aerodrome. Our plane rose above peaceful and unconquered Hong Kong, which looked like fairyland with the necklaces of lights outlining Victoria Peak reflected in the water of the bay.

Our Chinese pilot had turned the blunt, inquisitive nose of his Douglas plane straight to the North Star as he made for Namyung, 200 miles away. This Kwangtung village is the southern gateway into Kiangsi Province. Just before Pearl Harbor it was Free China's closest airport to Hong Kong (map, page 359).

Through the windows we had caught glimpses of the Kwangtung coast, hazy in the moonlight but distinct enough to let us see smoke curling up from little fishing villages and the nets spread out to dry.

All was quiet as we crossed over the Japanese lines, but we knew the enemy was there.

On north we went into Free China, circling over and around the mountain border between Kwangtung and Kiangsi. The very air was different. All of us seemed to feel this as we landed, for we walked straighter and breathed more deeply.

The illusion of a peaceful meadow was shattered with the hum of freight planes descending. One after another they came, until in the 30 minutes needed for our inspection, six such planes loaded with medicines, machine parts, lubricating oil—all vital necessities for China—had roared to a stop.

Within the thatched inspection sheds we realized that system and efficiency made up for lack of equipment and facilities. Six different inspections were required of us: health (smallpox and cholera), customs, passports, purse for letters, firearms, and cameras.

For the last, a letter from Chen Han Seng, secretary of the International Committee of Chinese Industrial Cooperatives at Hong Kong, allowed me to bring in my two cameras and an adequate supply of films. These had already cost precious hours in getting official permits to let me take them out of Hong Kong. Everyone was examined speedily, but with great care.

This was China at war.

Free China was a different China from the one I had left in 1936, thinking never to return. A new national spirit was here unifying all, regardless of province, wealth, education, or job. Tales of courage, as her people migrated to the west, and of ingenuity, as China built a new nation, had pulled me to return and lend my energy to this constructive work. This was why I had chosen the Chinese Industrial Cooperatives through which to do volunteer service.

I began this work in the Philippines, during my eight months' wait for a visa into China, by helping the Philippine Association

China Film from Paul G. Gaffhauette

Chiang Kai-shek, Here Surrounded by His Aides, Is Savior and President of China at War

Flags of country (right) and Kuomintang flank the portrait of Sun Yat-sen, founder and even in death the spiritual leader of the Chinese Republic. He is the George Washington of China. His pictures bear a message he left in his will: "The Revolution has not yet been accomplished. Comrades, carry on!"

for Industrial Cooperatives in China in one of its finance campaigns. Because of their interest in this association, Mrs. Francis B. Sayre, in Manila, and Mrs. Paul V. McNutt, in Washington, D. C., helped me to obtain that prized visa which now gave me the chance to feel the pulse of China in her gallant struggle.

A Good Turn Earns a Hotel Room

In the airport sheds it was late and everyone was thinking of shelter for the night. Impatience to hurry the inspection and rush with the baggage was heightened by the news that "the town is packed, every hotel is full." As the truck took us into the village proper, everyone looked for a hotel.

I was rewarded for having helped a fellow plane passenger with the straps of his seat, for as we came to the pretentious-looking Nanking Hotel, he jumped out, calling to me to come along. Evidently, someone had given this old Chinese gentleman some inside information, for he got a room immediately. When he saw there was none left for me, he gallantly offered me his bed and took a small sofa. Much was lacking in accommodations, but it was a roof over my head and I was grateful.

Next morning, when I walked down the street of Namyung, the months of waiting and the struggle to return were forgotten. I was home again. Here were the little food shops; the early market with vegetables, glistening wet in baskets; a sniffing dog following strips of pork dangling from a grass string in the hand of a shopper.

My ears caught the sounds of early morning: food vendors crying their wares; pigs in woven bamboo cases, squealing as they were carried on long poles over the shoulders of two men; charcoal-burner buses being wound up for the start to Kanhsien; the sputtering of hot sesame-seed oil, exuding a fragrance which vied with the odor of stagnant gutters.

Some of these sights and sounds were famil-

U. S. Army Air Forces, Official

Mitchells over Hong Kong Harbor Destroy Millions of Gallons of Japanese Fuel

The black plume above Lai Chi Kok is the start of a magnificent blaze wrecking tanks, warehouses, docks, and a pipe line. To hurt the enemy, the 14th Air Force bombed the property of an American oil firm. Part of Kowloon is at the lower left.

far; some were new. As the months passed, more and more of these impressions seemed to me peculiar to China at war. One of the first was the rise in the price of food—ten dollars seemed terribly high for a fried chicken. Yet three months later I was glad to pay twice that.

The trucks were hidden or camouflaged. When paint to splash body and cab with green and yellow was unobtainable, branches of trees were used to cover them. When they were not in motion they were backed up against a hill or hidden in a clump of bamboo.

From south to farthest northwest in every village I saw groups of men, sometimes women, gathered before wall newspapers (page 381).

Some of the sheets were crude scrawls, others were real art; both spread the news of recent battles and urged the people to resist. Big flaring slogans with black exclamation marks exhorted the people to sacrifice. Often I would see a student pointing out word after word, teaching the crowd its first characters.

Once I saw a farmer returning from market. He stopped and placed his empty baskets on the ground. Somewhere he had acquired a little more learning than his neighbors; so proudly, albeit slowly, he read off the words to the others. At Kweilin's busiest street intersection a large amplifier had been placed. Here a crowd could always be found, listening to the musical Mandarin of the announcer's voice.

"Women of China, Arise!"

To help awaken the people and educate them for resistance, groups of young folk went from village to village, teaching the rudiments of hygiene, conducting group singing, and staging propaganda plays (page 361). At Paoki (Precious Chicken) in the Northwest I saw one such play, called *Women of China, Arise.*

The plot treated of a son and daughter who discovered their father was giving information to the enemy. They tried to convince their

U. S. Army Air Forces, Official

Red Lanterns and Tall Tree, China's Auxiliary Air Raid Signals

One ball run up the pole tells citizens that Japanese bombers have taken off; two balls announce they are drawing near. In big cities, sirens shriek at zero hour. Where power signals are out of order, Free China depends on lantern warnings.

mother of this, but she disbelieved until she overheard her husband with the agents. Then she planned his death, with her son and daughter aiding. The climax came as, with her husband dying at her feet, she raised her clenched fists calling, "Women of China, arise, defend our country against traitors!"

Another play, *The Uplifted Whip*, I saw in a village outside Chengtu. The students who gave it were dressed as farmers—a man and his daughter and one or two neighbors. They performed on a street corner rather than the outdoor stage. They almost fooled the audience into thinking the play was real.

The daughter sang and begged, as the farmer and neighbors beat gongs and passed the drum. The song was one that grew out of the fall of Manchuria, "Nine—One Eight," September 18, 1931.

So sad were the words that many bystanders were in tears, and not only those posted to do so, but many others, flung coppers and new pennies onto the drum. But the girl faltered, falling to the ground exhausted. Angered because the harvest of money was just starting, the father raised his whip to beat her.

At that moment a student stepped from the crowd. He caught the father's hand and threw the whip to the ground. But the girl raised herself, snatched the whip back, and handed it to her father. She beat the student with her fists, screaming, "He's my father! He can do what he wants with me."

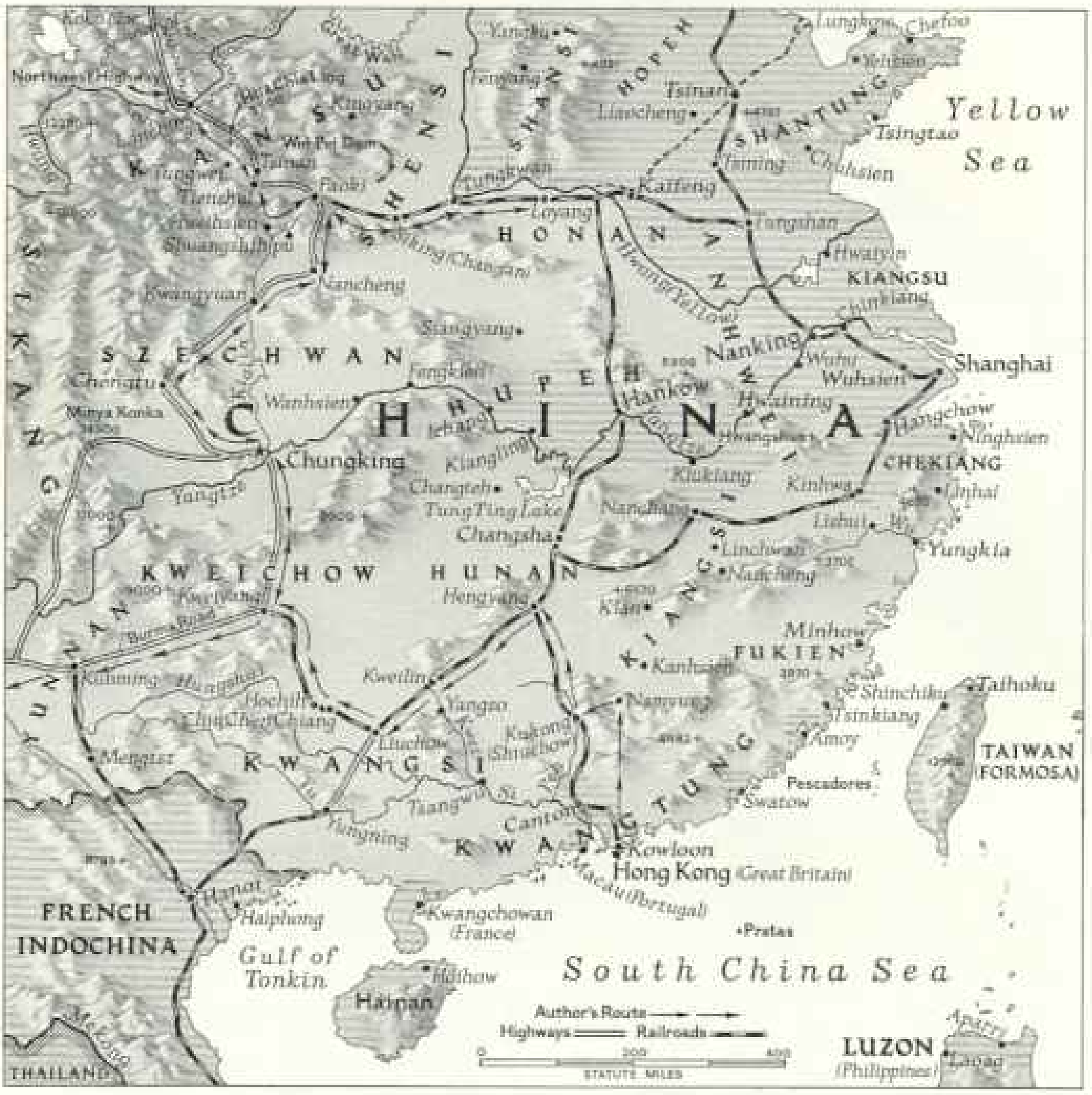
Then followed a short scene in which the student tried to make the girl understand that the old customs were done away with and a new life of freedom was open to her. Humor had been introduced in the whimpering bleats of the father, questioning how he could eat if his daughter no longer begged, and the answer that he might try working.

"Arise—Our Fatherland Needs Us"

Then all the crowd joined in the close, as one of the students led them in singing that popular war song, "Ch'i Lai":

> Arise, no longer be slaves but free men.
> Out of our own flesh build
> Once again a towering Great Wall.
> Our fatherland needs us
> In this hour of danger.
> Every man must lift his voice
> And with his last breath call
>
> Arise, arise, arise!
> Thousands joined together
> Face the foeman with courage.
> March on!
> Face the foeman with courage.
> March on, march on, march onward!

My travels of five months between September 2, 1941, and January 29, 1942, took me



Somewhere in China Lie the Bases from Which American Bombers Will Attack Japan

"Neither Japanese shipping nor industry will survive," says Gen. H. H. Arnold. Four loads of supplies must fly in from India before a load of bombs can hit the target. Areas of Japanese penetration are shaded.

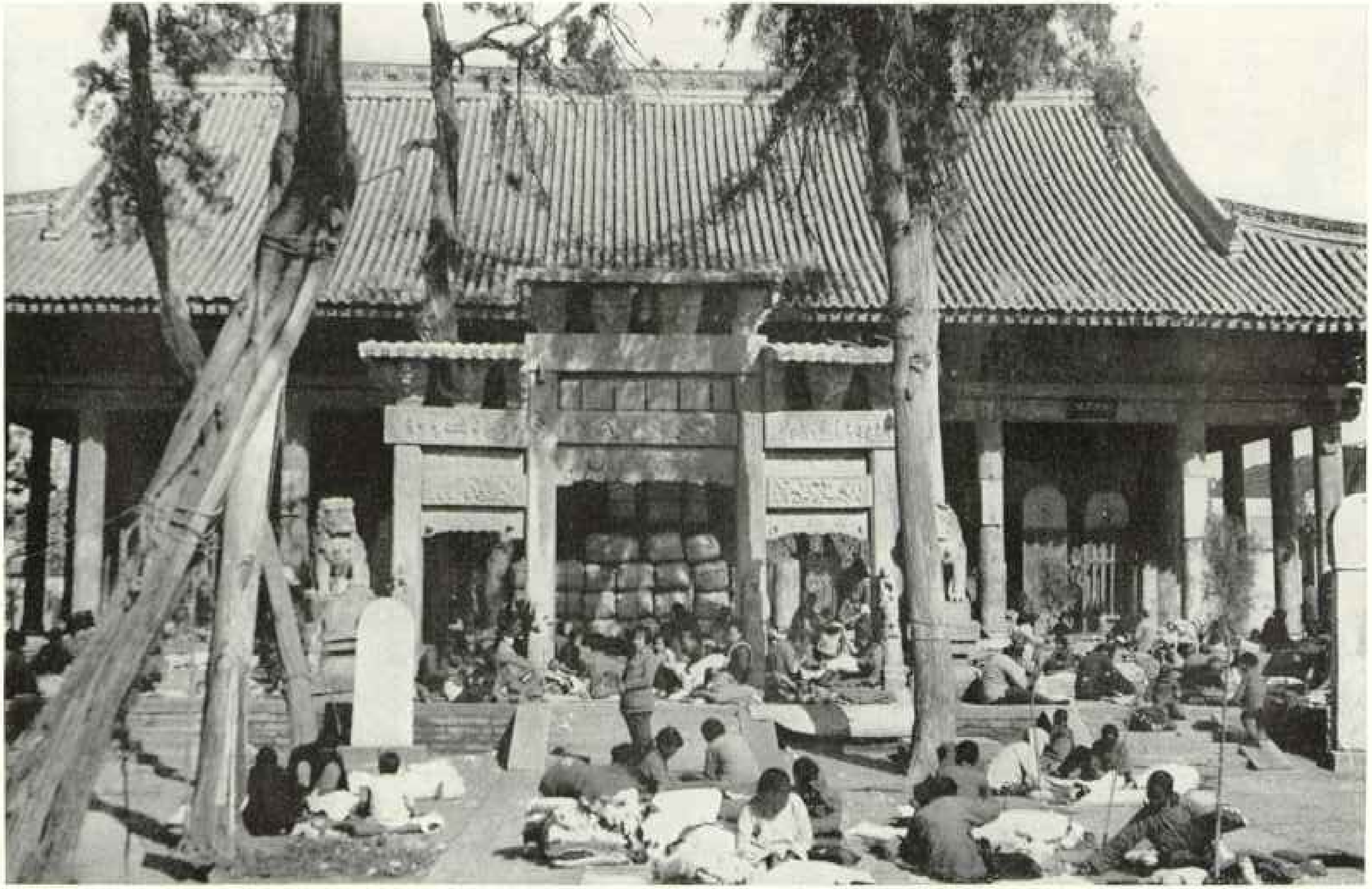
6,000 miles by truck, train, bus, boat, wheelbarrow, airplane, raft, railroad handcar, on donkeyback and afoot. Sometimes it was almost luxurious, sometimes most primitive.

There was the efficient express train between Kukong (Shiuchow) and Kweilin, and on to Chin Chen Chiang, carrying sleeping cars, clean and comfortable. Neat attendants served meals in my compartment with stated prices for everything, including tips.

Most of this line had been built after the beginning of the war. The part beyond Kweilin had been completed just that summer and was so new that the cuts through the mountains were still great raw gashes. The bridge approaches and much of the roadbed were so soft that the speed of the train had to be slowed to a crawl. At certain precarious places, the creaking of the cars brought everyone to the windows, to see if we would make it.

Along the way, sidings were crowded with rolling stock salvaged from all parts of China. In northern Yunnan I saw where the Chinese had saved even more—they had picked up the ties and rails of 100 miles of the Tien-Yueh Railway, which runs to French Indochina, and transported it bodily to where it was more needed.

My other train trip was from Paoki to Siking (Changan). There I greeted the Green Express of the Lung-Hai Railway as an old friend, for I had been a passenger on the first



Josephine A. Brown

At an Ancient Temple Converted into a Cooperative, Women Refugees in Siking Sew Uniforms for the National Army

Bales of finished garments are stacked below the *pailou*, or honorary arch. Upright stone tablets, bearing donors' names, are memorial gifts. Shade trees creak with age; before long the seedlings will replace them. Republican China uses temples as public buildings.

United China Relief

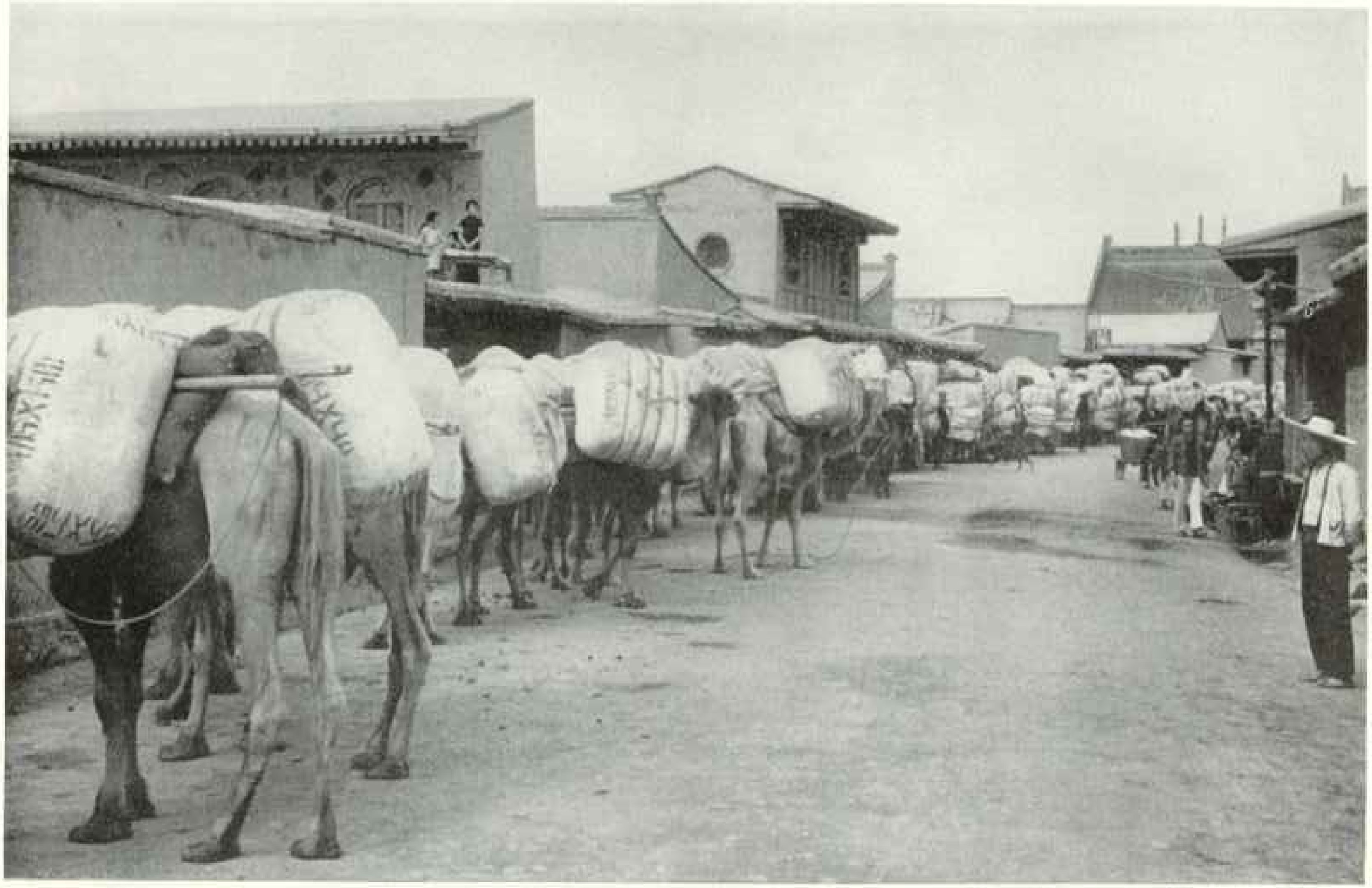
China's Students, Once So Secluded, Tour Public Squares with Plays and Songs to Stir Patriotic Fervor

The author heard such a crowd sing, "Out of our own flesh build once again a towering Great Wall" (page 357). Here the Young People's National Salvation Movement (sign, extreme left) exhorts people to work and fight (vertical banner). Skull-and-bayonet flag says, "We must exterminate the enemy."

Thomas Kwang from Paul G. Gallimore

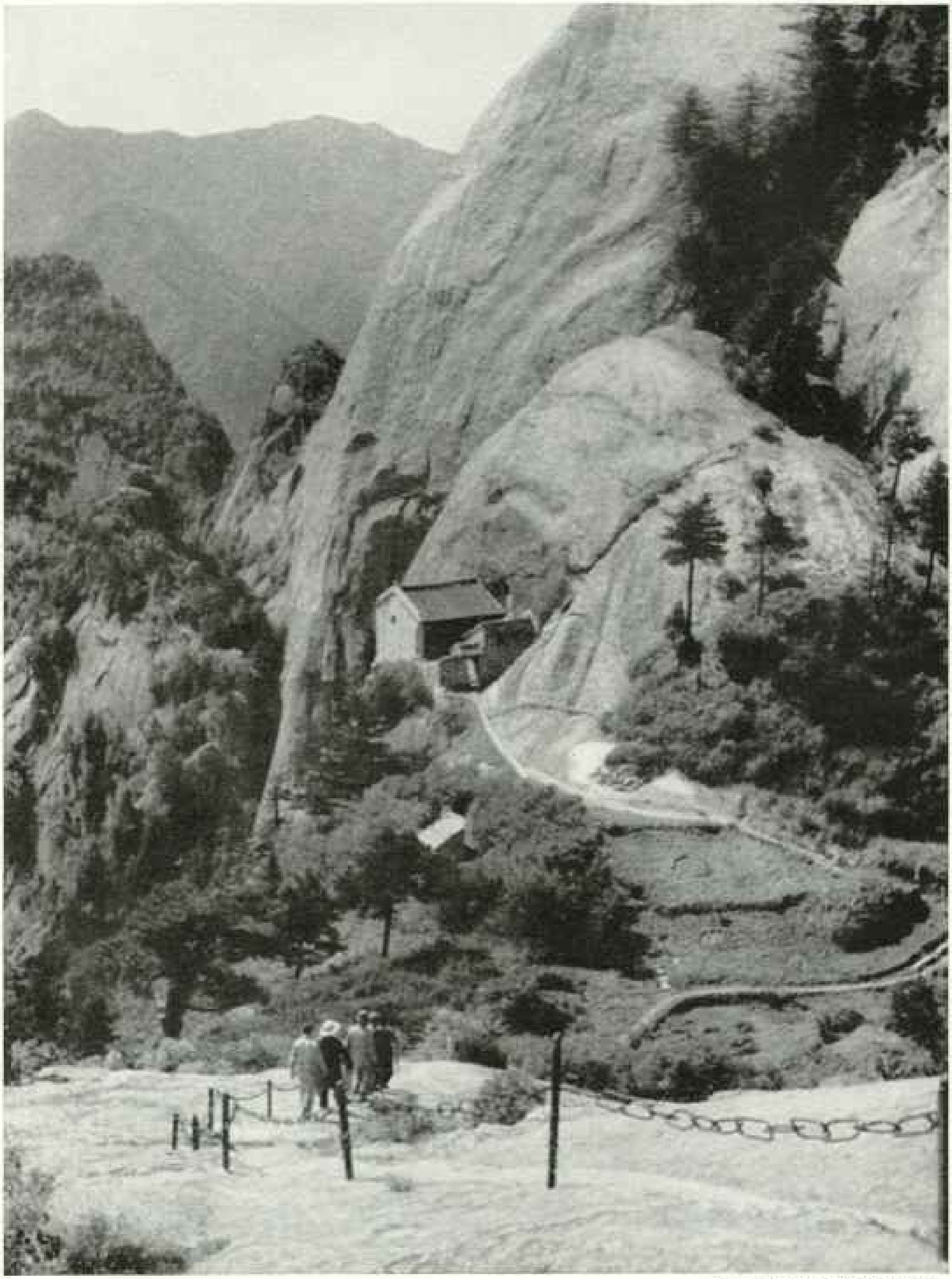
There Goes East China! From the Invaded Coastal Provinces Some 50 Million Have Fled to the "Wild" West

With belongings piled high and bicycles slung from open cars, soldiers and civilians jam the trains to capacity. Many less fortunate walked hundreds of miles to safety. Some carried rails, ties, or dismantled factories on their backs; others evacuated the silk industry, silkworms and all.



Bales of Russian Goods Conceal Double Humps of Bactrian Camels Resting at Lanchow, Ancient Gate between Asia and Europe

At Lanchow the author saw such a caravan "five months on the way from Russia" (page 382). In the days of Imperial Rome, this was the silk route. Since the Stone Age the central Asiatic highway has carried people, goods, and ideas. Her coast blockaded, China has turned to this road again.



China Film from Paul G. Guillimette

Vertical Fortresses of Granite Are Free China's Great Wall

Foolhardy Japanese, pushing up the valleys, have suffered disasters in the mountains. Here some Chinese officials (short tunics) follow the hand rail to a dwelling (not a temple, the gate's position shows). Rugged Shansi is the province. Both Central Government and Communist troops have defended it.

Puffing "Warphans," Wards of Mme. Chiang Kai-shek, Learn to Play Western Music

China's ancient music system, having a scale of five tones, is losing ground save in temple and theater. Since the 1911 revolution Western instruments have come into favor with army, police, and civilian bands.

United China Relief

China's Sons in Overalls, Like Boys the World over, Delight in Building Model Planes

In an orphanage near Chungking, these lads are trained as technicians to develop China's future. United China Relief, a member agency of America's National War Fund, supports thousands like them.

Thomas Kwong from Paul R. Hutchinson

Laden with River Water, Laborers Climb to an Emergency Reservoir in Hilly Chungking

Now, if bombs smash the mains, water will be available for fire fighting. A cliffside air-raid shelter is to the right of the far steps. At the left a second exit evidently is being built, so that a direct hit cannot seal hundreds in the cave.

train ever to pull into the Province of Shensi.

That was in June, 1932, when I was coming west to see the opening of the Wei Pei Dam, an International Famine Relief project. That day, since all the officials coming for the ceremonies were aboard, the train for the first time was taken through the recently completed tunnel under the wall of Tungkwan, the border between Honan and Shensi.

Charcoal and Alcohol Are Gasoline Substitutes

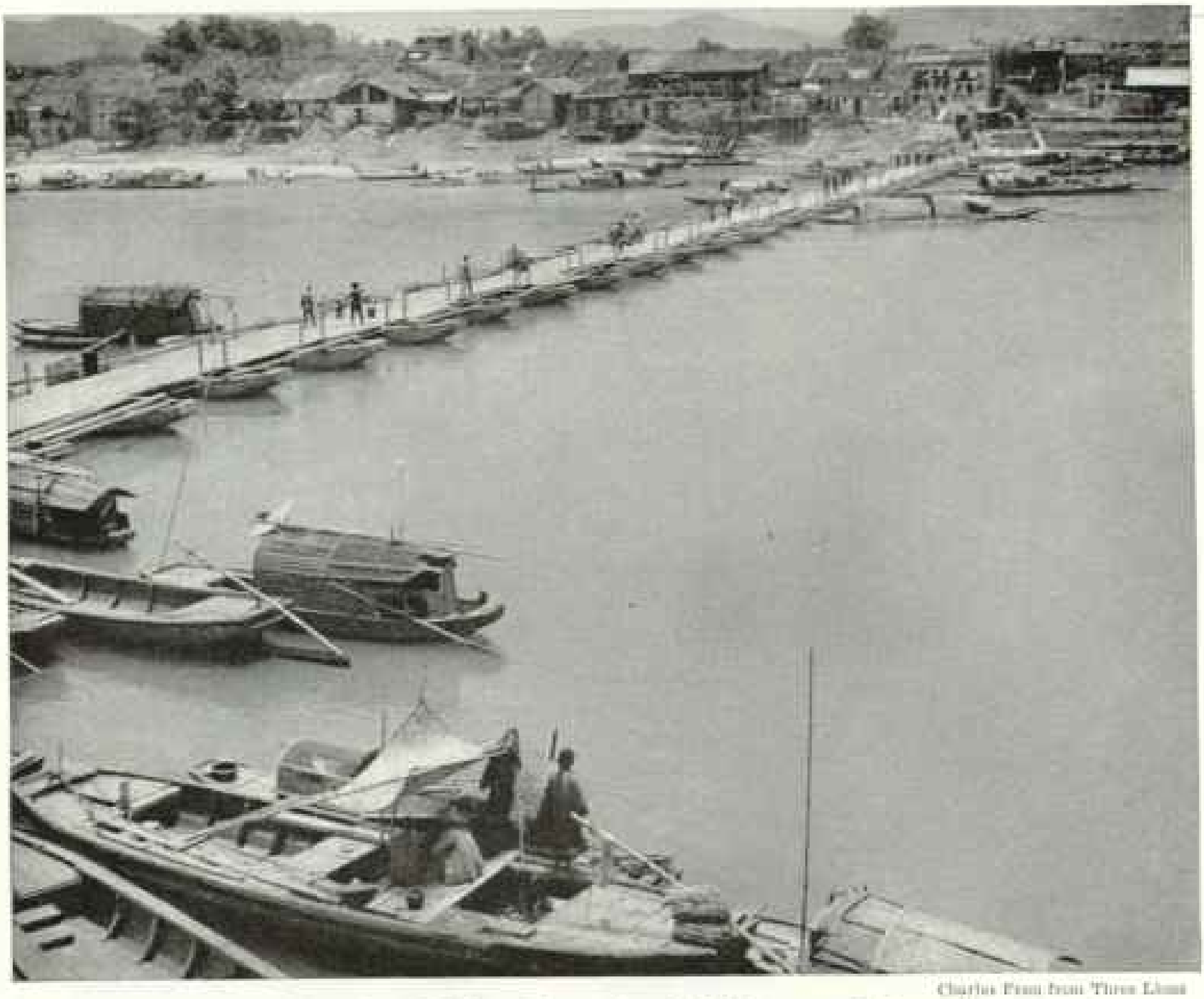
But all travel was not so easy. I went by every kind of truck and bus—some of American, some of Russian make. Some used charcoal, some alcohol made from sugar cane or kaoliang, a grain sorghum, as well as gasoline. Often there was barely enough power to get us over the mountains, but we always made it. Perhaps the credit was due mostly to the little porters whose job it was to jump out and put a wooden block behind the wheels on a steep grade, or dash with a washbasin for water from a ditch for the overheated engine.

The scenery took my mind off most of the discomforts. It was autumn and the colors were glorious. I had long heard of the mountains around Kweilin (page 368). They were more weird and fantastic than my wildest imaginings. Right out of the flat plain rise these steep limestone cliffs. They look as if once the earth went on a rampage and the whole ancient ocean bed was turned up on end. Now they are heavily wooded and on the peaks are gardens, pagodas, and temples.

Chinese artists must have used these for models. Farther north the tung-oil and persimmon trees made brilliant splashes of color along the way.

As we left Chengtu for the north, we saw snow-capped mountains glistening on the distant horizon. Between Kweiyang and Kunming, I saw the great waterfall.

One day up in the mountains on the borders



Charles Fenn from Three Lions

A Pontoon Bridge for Civilians Spans the Peh River at Kukong, Kwangtung

China's rivers and canals aggregate some 100,000 miles. With boats, rafts, and inflated skins, Chinese navigate many of those miles, even into rapids. Raising children and chickens, countless thousands spend their lives aboard river boats. In some ports sampan villages are floating suburbs.

of Szechwan and Shensi I was startled by a golden pheasant, brilliant in its plumage of gold and scarlet, with a tail some two feet long! The next day, as I waited for our truck to be repaired, I found one of the scarlet feathers and tucked it in my hat.

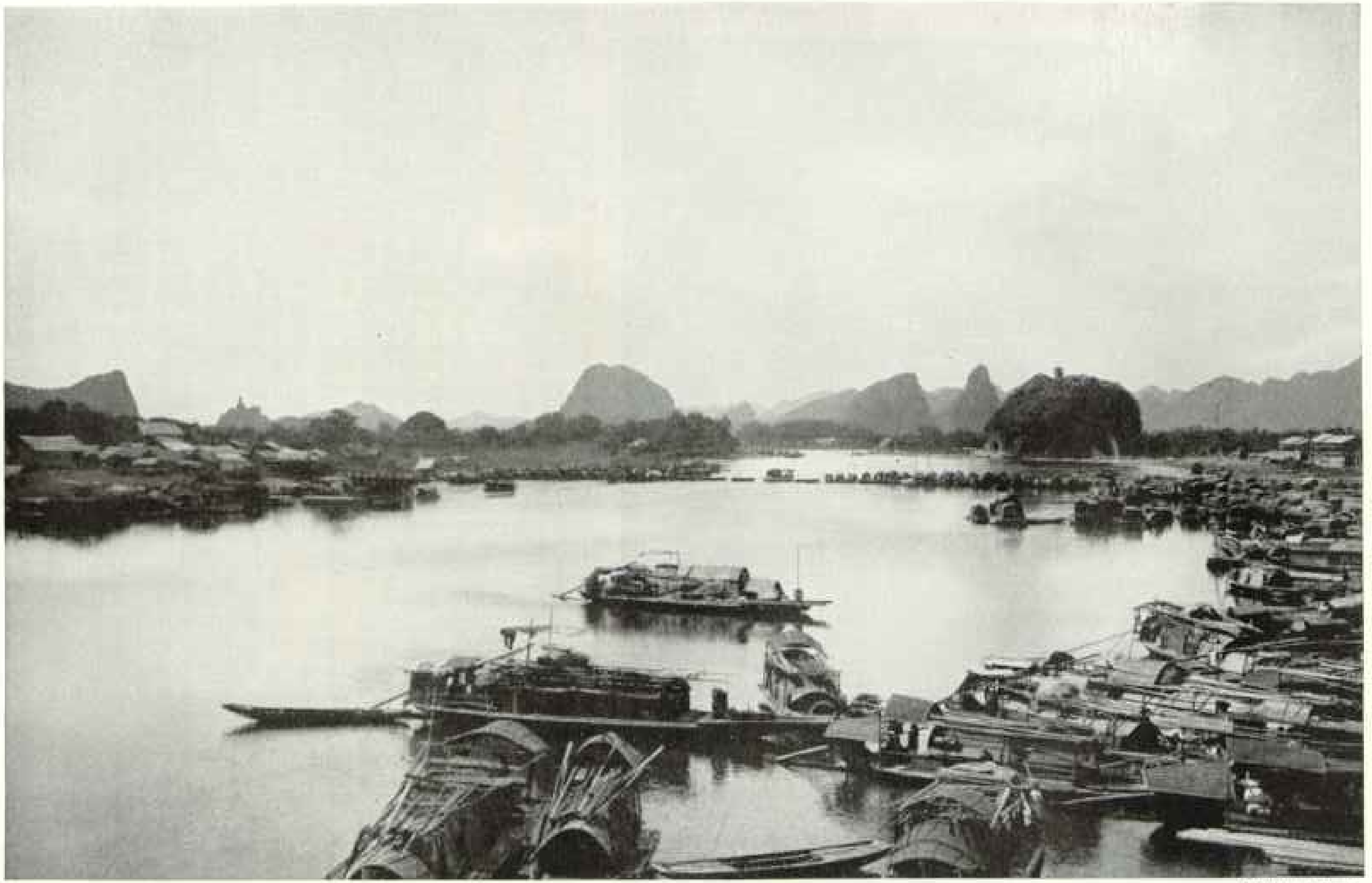
Road of the Seven Curves and Nine Windings

We passed over beautiful old roads. One, out of Chengtu, built in the Ming dynasty, was called "the seven curves and nine windings" and was bordered by cypress trees at least 400 years old. Farther on we came to the section called "Chan Tao," dating from the Chin dynasty. This road had been carved by a war lord out of the side of a rocky gorge of the Kialin River so he could make a surprise attack on an enemy.

Many of these roads followed the old caravan routes, over which elephants once carried marble from Burma to Peking (now Peiping) for the imperial palaces. Along the way were old eating places and inns, and about each had sprung up gasoline stations, auto repair shops, and bustling towns.

In particular, I think of Hochih (River Pool), seven miles from Chin Chen Chiang. It was a typical boom town, similar to oil towns I had seen in west Texas in 1919 and the Alaskan mining towns of American movies. People were buying up flashlights, thermos bottles, all the little things they had forgotten, as if this was their "Last Chance."

These towns lie nearly a day's journey apart, about every 125 miles. Every night they are filled to overflowing. One night I estimated I was one of a thousand transients in the town. Traffic was typical of that in every town from Burma to Chungking, every night, before the Japanese advance. It meant the worst sort of congestion, streets jammed with trucks, people all wanting the same things at the same time, the air filled with shouts of "Tea boy!"



Josephine A. Brown

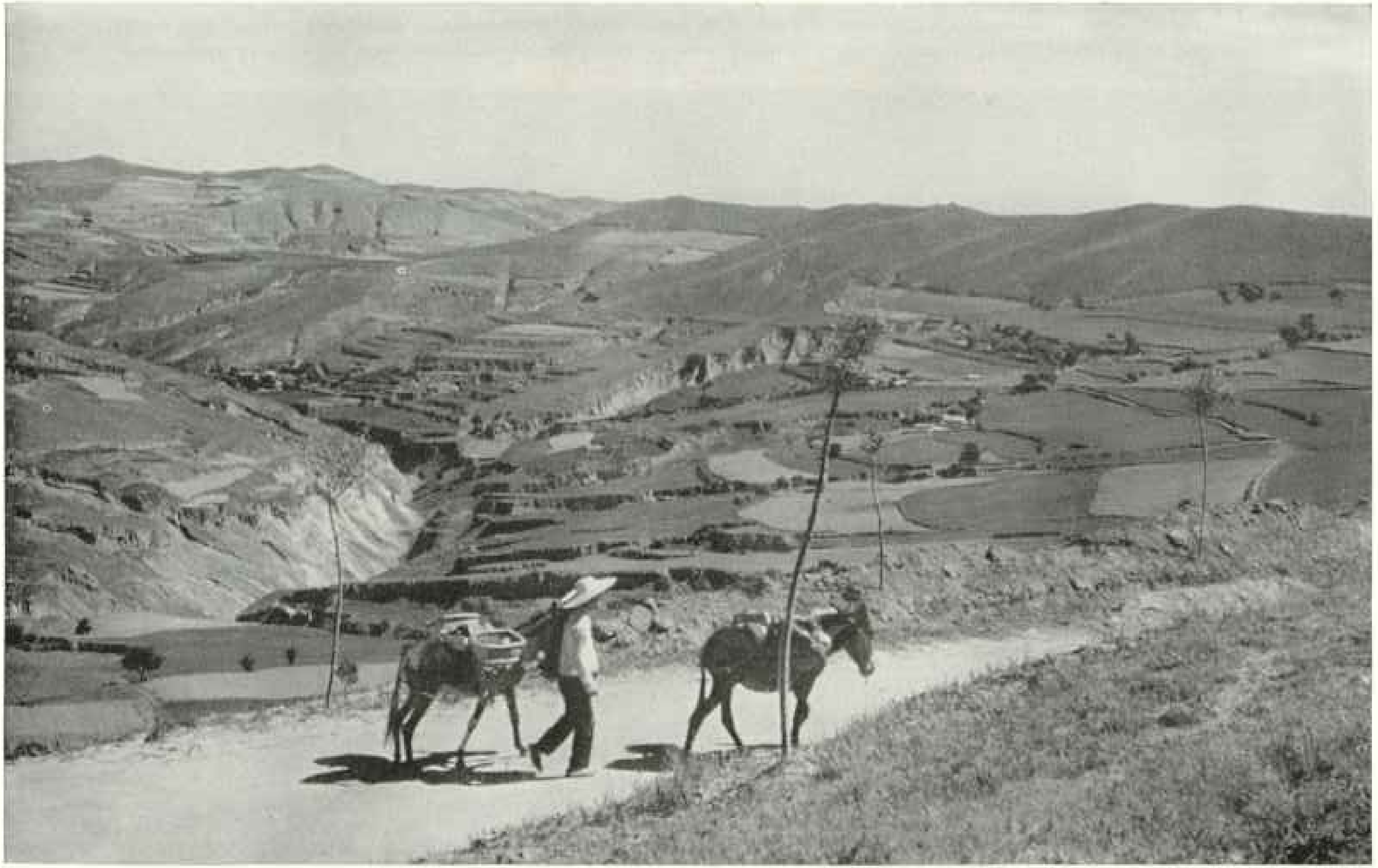
Honeycombed with Limestone Caverns, These Fantastic Peaks Sheltered Hundreds of Thousands from Bombed Kweilin

Loved by poet and artist, the mountains were too steep for the plowman. When Japanese began destroying the Kwei River city, the people took to the hills. Caves were divided into apartments. Some housed schools; one had a maternity ward. Electric wiring was woven among the stalactites (pages 366, 383).

China Film from Paul K. Guillemette

Impassable Mountains, Unbridgeable Chasms, Fever Valleys, Lack of Tools—Nothing Stops China's Road Builders

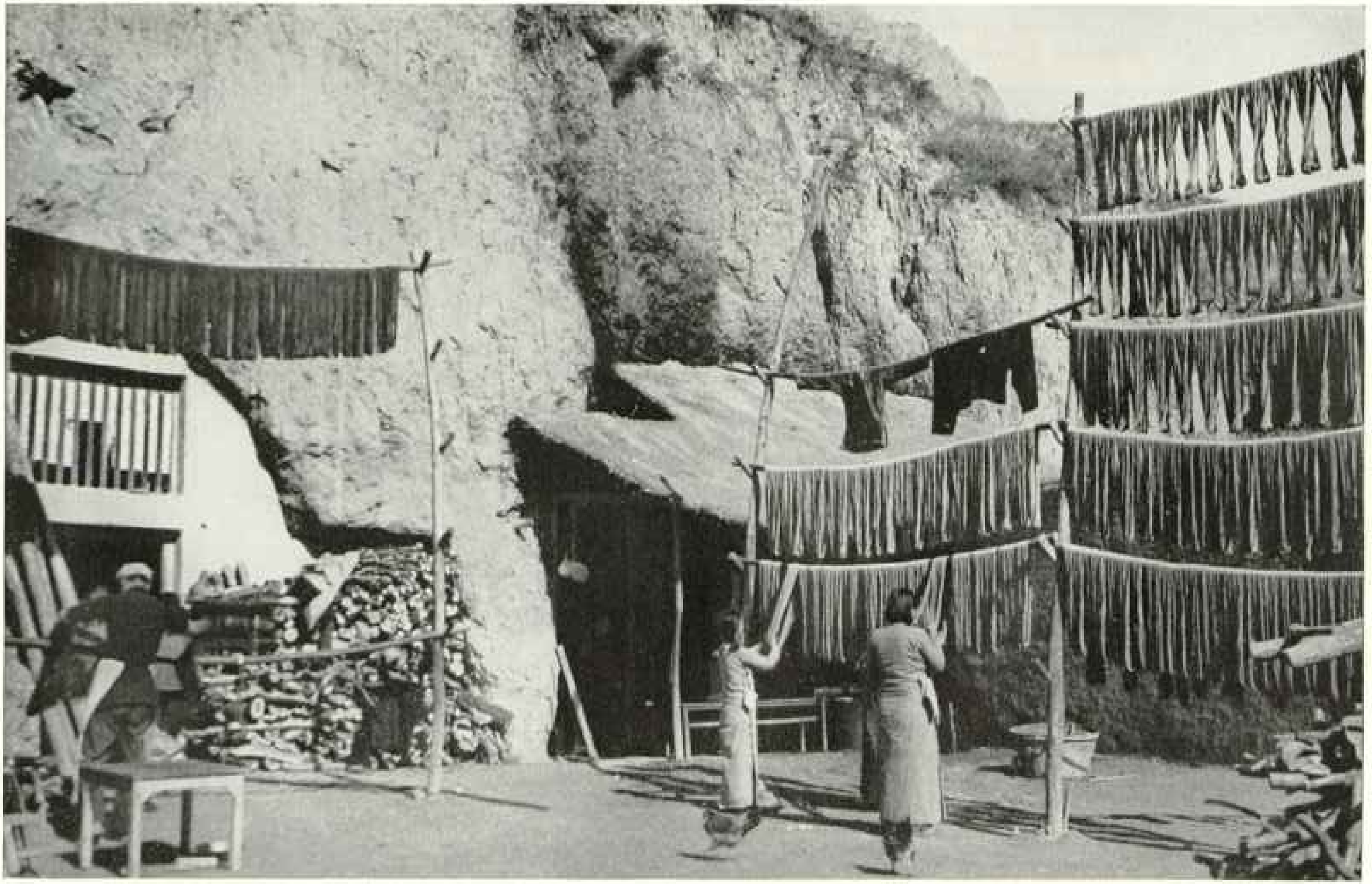
Women and children have scratched trails almost with bare hands. Let the enemy cut a lifeline, a safer road is soon opened. Seizing the initiative from Western powers, China is opening the backward parts of Asia. Development of her remote interior keeps our ally in the fight (page 382).



Jacket from Paul G. Guillumette

Long Ago a Silt-powdering Wind, Acting Like a Giant Flour Sifter, Blew This Entire Landscape in from a Desert

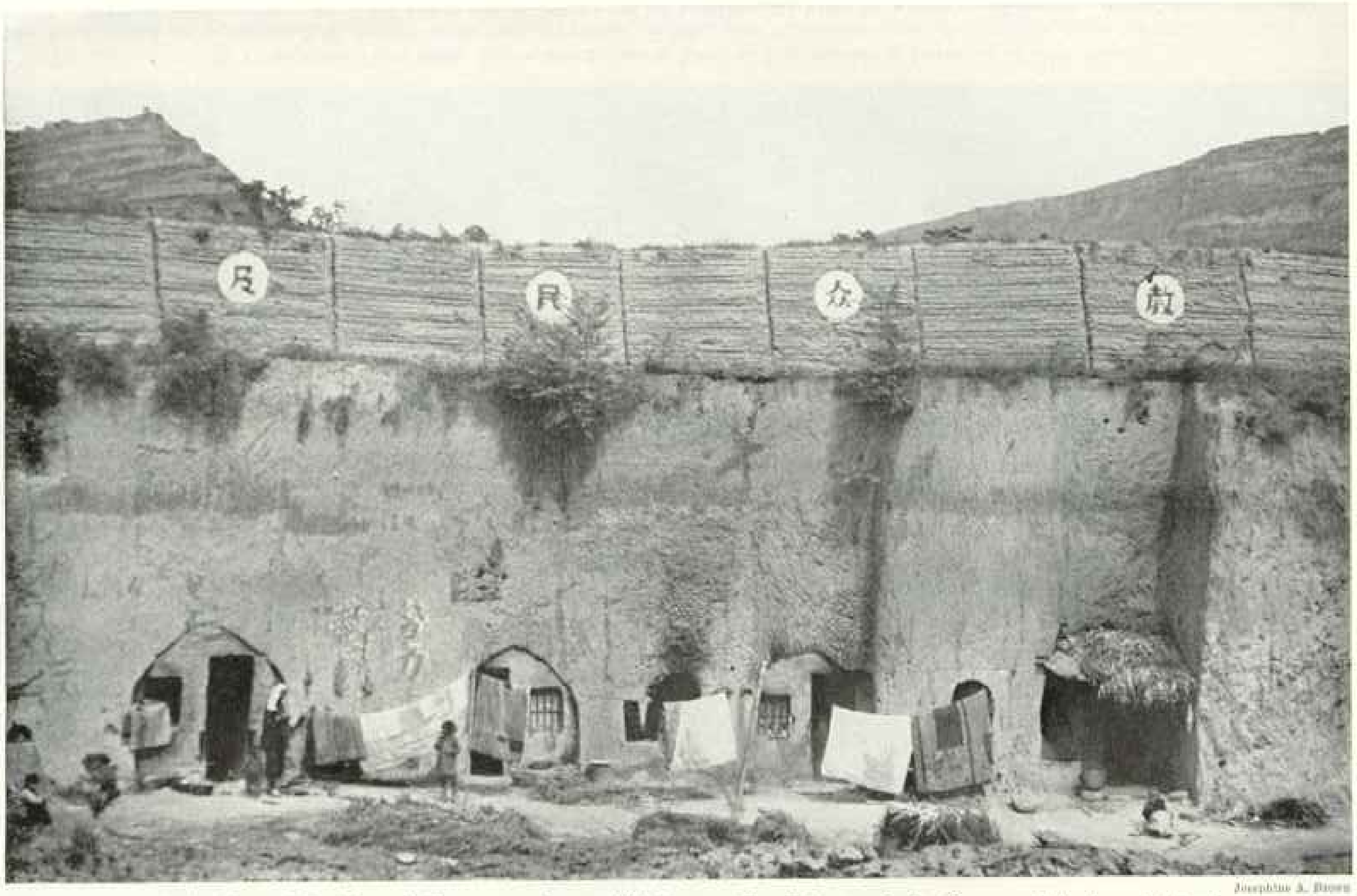
Near Lanchow, this is a part of northwest China's loess lands. So soft is the earth that streams gouge ravines, like that to the left, hundreds of feet to bed soil. The road is newly made; otherwise it would be a canyon worn so deep that only walls and sky would be visible. In the last decade loess lands were formed in the American Southwest by topsoil blown from the Dust Bowl.



Josephine A. Brown

On Poles Five Tiers High, Dyers Hang Cotton Yarn to Dry outside a Loess Cave near Paoki

China has cultivated cotton since the 12th century. In the 1930's its textiles, competing with Japan's, became an economic cause of war. In old China, blue was the traditional dye for civilians, purple and yellow were for nobility, red for festivities, and white for mourning. Black was considered depressing.



Josephine A. Brown

Vertically Sheared by Natural Cleavage, a Loess Cliff Houses War Refugees in Its Caves, a School on Its Roof

Earthquakes and landslides—"when the mountains walked"—have killed hundreds of thousands, yet millions continue to live in such caves. Chimneys sometimes are bored to fields above. The caves are warm in winter, cool in summer. These homesteaders near Paoki hang quilts in the sun.

British Information Services

Can Japanese Terror Conquer Such as These? China's War Babies, to Whom Peace Is but Hearsay, Perform an Air-raid Dance

Though thousands like them have died in ruthless attacks, they sing a defiant bombing song. "Childhood innocence," says the curtain in their kindergarten, but they are taught to face war's horrors unflinchingly (page 384). Dog and ball on the aprons are not a traditional Chinese design.

Josephine A. Brown

Long before Americans Rode Ferris Wheels, Chinese Used Huge Water Ladders

Near Lanchow, this wheel, 75 feet in diameter, irrigates a farm some 60 feet above the Yellow River. Creaking on its wooden axle, it is turned by paddles dipping into the millrace. Long wooden scoops carry water to the top. There, turning downward, they spill their contents into the sluice (page 378).

I did not expect to have a room to myself. I slept on tables and on the ground, yet everywhere I received the utmost courtesy and help, whether because of my gray hair, or the fact that I was a lone woman and an American, I could not say. On long trips fellow passengers became like old friends.

Once, between Kweiyang and Chungking, we played the game of dialects, each person repeating a given sentence in his native tongue. It was started by a Chinese who was returning from Batavia. Among the 21 of us, there were 13 different dialects. All the Chinese cheered when I said their sentence in English: "America and China are good friends."

Sometimes I was temporarily separated from my baggage, but I did not worry. When this happened at Hochih, I simply slept in my slip and fanned myself dry after a good bath. Fortunately, in South China every room is provided with a huge palm-leaf fan.

As always, I went well provided with personal name cards in both English and Chinese. We used to say that the inspectors used them to paper the walls of their homes.

Long experience had taught me that name cards are a valuable and indispensable part of traveling equipment. I never gave out one that I did not recall an incident during the Japanese siege of Shanghai in 1932.

I was on an old model-T truck going back and forth through the battle zone from the International Settlement at Shanghai, trying to rescue the bedding and clothing of girls in the YWCA hostel.

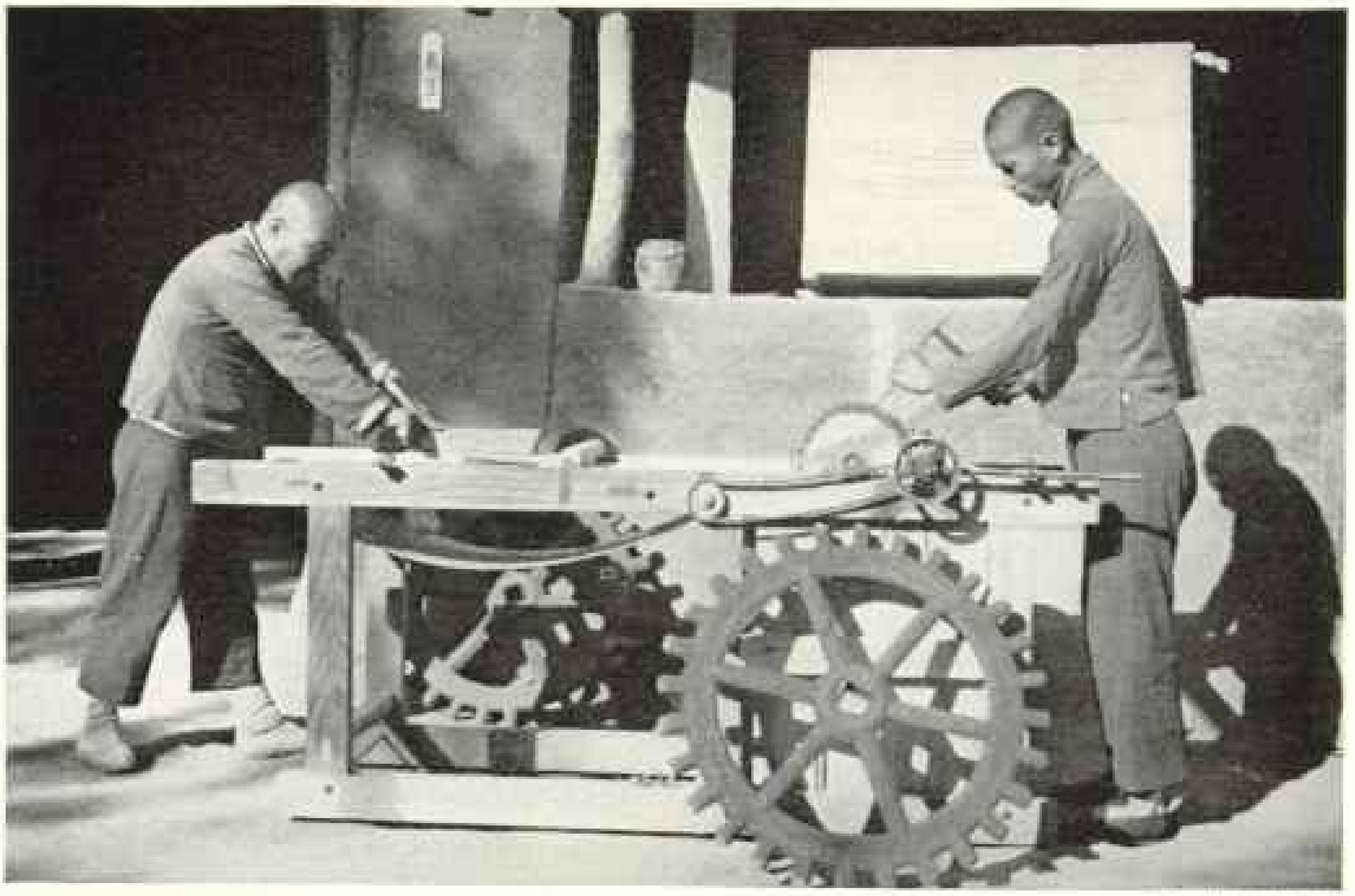
At that time Westerners were able to get permits and were unmolested, but my Chinese truck driver was frightened as we went farther in and was ready to jump and run.

Even the Pigs Respond to Name Cards

I had been showing my permit, giving out name card after name card to Japanese sentries as we went along. Suddenly, we were brought to a standstill. The way was blocked by a whole drove of pigs which refused to budge. I leaned down with my card in hand, putting it right in front of a huge pig. He jumped and started the other animals forward! My driver was so amused he shouted with laughter, all fear gone. Muttering, "Show your card to the pigs!" he drove on.

War Orphans at Shuangshihpu Proudly Display Spinning Wheels, Textiles, and Mascot

They wear the Sun Yat-sen short tunic, as opposed to the old-style long gown. Cotton padding is appropriate for chilly Shensi Province. Barely discernible, a temple surmounts the conical mountain.



Josephine A. Brown

Bombed out of Arsenal Jobs, These Men Became Their Own Masters in a Cooperative

Having cast the cogwheels from scrap iron, they are finishing a machine which will card tangled wool for army blankets. Some 500 items are made by Free China's 2,400 industrial cooperatives (page 384).

Mildred Owen

Atop Wooden Wheelbarrows, Two YWCA Girls Survey Rural Szechwan

In overpopulated regions man does the work of draft animals because he cannot spare grain to feed them. Wheelbarrows draw loads of astounding bulk. Some have sails, others have ropes by which boys assist their fathers. The author used such vehicles in her "6,000 miles."

But now in wartime China name cards were not enough for identification. Again and again I was grateful for two letters I carried, the one from Chen Han Seng, and a second from Dr. H. H. Kung, vice president of the Executive Yuan and Minister of Finance, authorizing me to take pictures for the CIC; otherwise, going about with Kodaks as I was, I should have been under instant suspicion.

At all important stations along the way inspectors were on the alert. Passing through Liuchow one Sunday morning at 6 o'clock, I saw the station, burned in a bombing the week before, and the new ticket office, set up in an old box car. On duty was the inspector, all helpfulness when he knew my business.

If only I could express my gratitude to each of the many who helped me along the way—the YMCA secretary for the "Friends of Wounded Soldiers" who was my traveling companion from Kweilin to Liuchow; the young woman doctor from the Northern Front; people who helped me obtain tickets and find rooms; and the many men who answered my questions.

One showed me how to cut open a tung oil nut; another explained the intricate machinery of a hydroelectric plant.

My main itinerary was by plane from Hong Kong to Namyung; bus to Kukong; express train via Kweilin to Chin Chen Chiang; bus via Kweiyang to Chungking; medicine truck from Chungking via Chengtu to Paoki; by the Lung-Hai Railway via Siking to Loyang and return; atop a Chinese Industrial Cooperative truck from Paoki to Lanchow; by Russian truck to Shuangshihpu; by military truck back to Chengtu; by government postal truck to Chungking; International Red Cross truck to Kunming; plane to Calcutta, trains across India to Bombay; and to New York City aboard the ill-fated *Manhattan*.

Then, of course, there were many side trips to small villages, to visit and photograph cooperatives. I traveled by wheelbarrow at Loyang, by railroad handcar at Paoki, by golden-colored, inflated goatskin rafts on the Yellow (Hwang) River at Lanchow, by rickscha and a rope seat around Chungking, and in a brand-new 1942 Ford at Kunming.

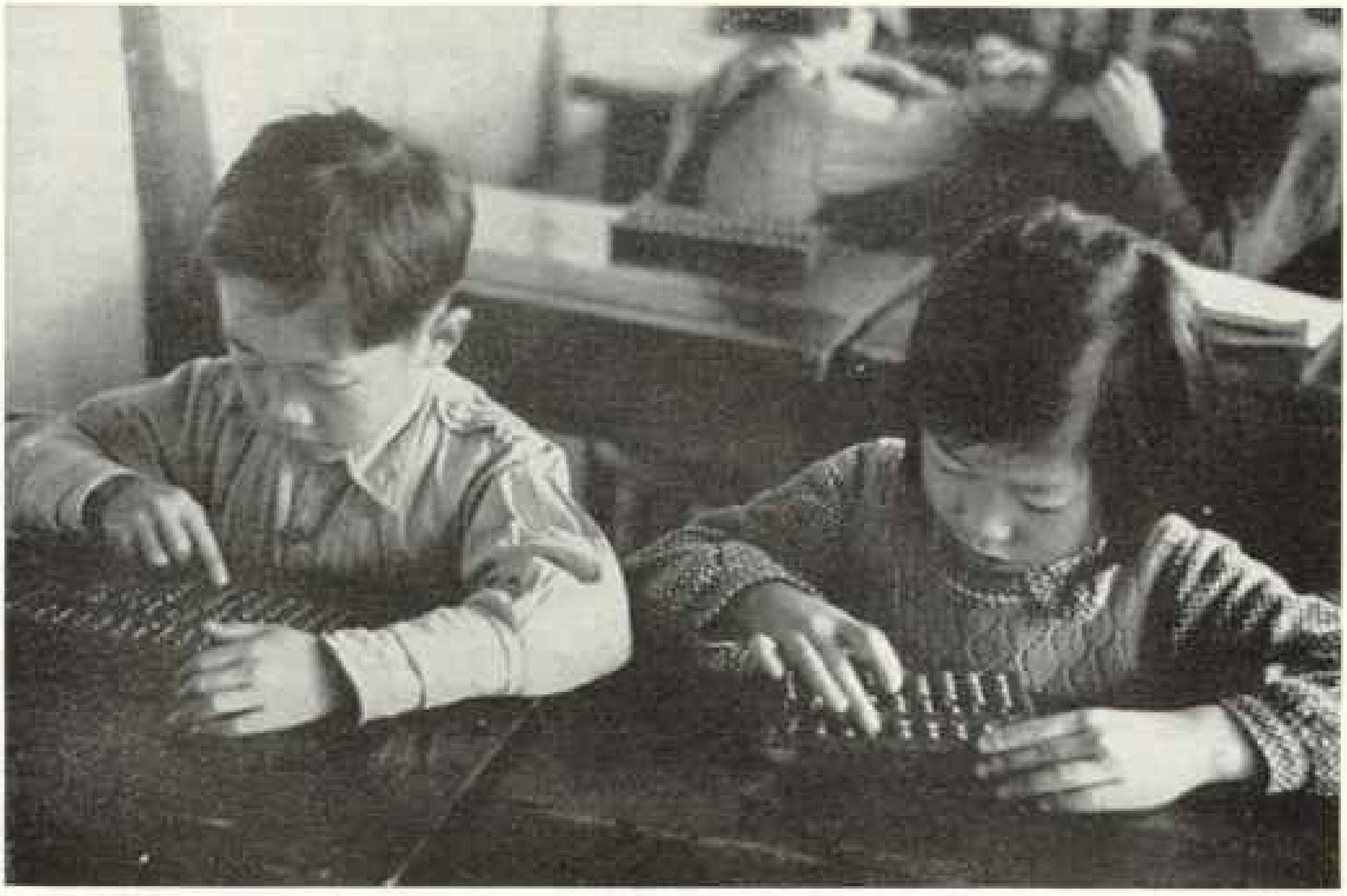
A Center of National Defense

Of them all, the trip to the Northwest from Paoki to Lanchow was the most satisfying. Years before, it had stirred my imagination, and now I knew it had become one of the

Josephine A. Brown

"Be Man's Equal Economically," Teacher Tells the Women of China

Learning to support themselves, these widows and orphans are granddaughters of helpless "bound-foot" generations. Students use pencils; the less convenient brush is reserved for formal writing.



United China Relief from Trans-Pacific

By Shifting Counters on an Abacus, Orphans Learn to Add, Subtract, Multiply, and Divide

This ancient-modern device attains almost the speed of a calculating machine, but makes no permanent record. From the operator's right to left, each column has a higher decimal power.

most vital centers of national defense and reconstruction.

We spent a week traversing the 435 miles of road between these two cities, riding on a Dodge truck of the Industrial Cooperatives, which was carrying a load of cotton yarn for mills in Lanchow. On top of this piled people with all their baggage.

There was a young agriculturist going to a new job, and several wives and small children, one a tiny baby, on their way to rejoin their husbands, who were military officers at the front. Altogether, there were 20 of us, all but three perched atop the bales of yarn.

I sat on my duffel bag and made space for my feet between the pieces of baggage, partly to keep warm, for it was late November, partly to keep from being thrown out when the truck lurched around bends, and partly to have an unobstructed outlook.

At the start we had glorious views of the Kialin River and distant peaks through which our road wound. In the third mountain valley we came to the town of Hweihsien, head of the river traffic to Chungking. More than half of its population are Mohammedans.

Here we visited two interesting cooperatives. One was for marketing the roots of the "heavenly flower ashes," which come from a wild mountain plant. It is famous in Chinese medicine for treatment of tuberculosis. The other was a fur cooperative operated by Mohammedans, where special goatskins, white, silky, curly, and highly prized for linings of winter garments, were prepared.

There were also red-fox pelts, and skins of huge black and white Siberian dogs. Exceptional skill is required in cutting and fitting the skins to form a perfect garment. The chief cutter was named Ma (horse), a surname common to many Mohammedans of the Northwest.

Four Walled Cities in One

Another ride through wild mountains in cold rain brought us to Tienshui (Heavenly Water) for our second night. This interesting old city is really four walled cities, built one after another hundreds of years apart, and all in a row along one main street.

Before the recent development of Lanchow, Tienshui was the financial center of Kansu. It is noted for woolen goods and furs. Around it lies a prosperous farming community.

Here we found wool knitting, cotton and wool textile, rug, leather tanning, printing, paper, and fur cooperatives. I bought a wool blanket to keep out the Kansu cold, for snow was falling. I walked out through the soft snow to get pictures of sheep and when I returned I huddled over a big pan filled with glowing charcoal to get warm.

When the ground was frozen hard enough for us to resume our trip, we were delayed two hours until our driver repaired a tire—a task he could have done the day before. It was bitter cold on top of the truck as we headed north through the mountains to the old city of Tsinan, in Kansu Province. Its reputation for fine wool yarn dates back many centuries.

As we approached the village, we saw blue-clad folk streaming up the valleys because of an air-raid warning. No raid took place, but we had difficulty getting lunch, for we found only one shop willing to open.

Just at dusk before reaching Tungwei, where we were to spend the night, we saw two big gray wolves watching us from the brow of a hill.

That night I slept at a villager's home on a warm *kang*, a platformlike bed filling half the small room, built of sun-dried mud bricks through which a flue winds. As the smoke circulates it warms the top of the kang.

Once in the night I was half wakened by an occasional grunt outside the paper window as an old sow shifted position with her litter of pigs.

The next day the brilliant sunlight on the loess hills of Kansu reminded me of the colors of Arizona mountains—the same hazy blues, deep gold and lavender.

The houses along the way were built with low, rounded rooftops and Moorish arched doorways. Sheep grazed on the hillsides and long camel trains wound through the valleys. The colors were vivid in the sunshine of the high, thin air.

I was puzzled by some fields completely covered with small stones. I was told that the farmers place them there deliberately, for in that arid region the stones help to preserve moisture for early planting.

Breakfast at Flowery Home Mountain

We had breakfast near Hua Chia Ling (Flowery Home Mountain), altitude 7,500 feet. Through here passes the Northwest Highway which links Russia, Mongolia, China, and Burma. At sunset we saw the old Yellow River with huge water wheels 75 feet in diameter which are used to irrigate orchards and gardens around Lanchow (page 374).

Next morning, accompanied by the woman educational director, I visited cooperatives for wool spinning and weaving, leather shoes and belts. We made an exciting crossing of the Yellow River on a goatskin raft. It was a small one, made of 13 inflated skins

© Hans Kessler

Carrying Her Parasol, a Chengtu Lady Crosses an Old Bridge by Wheelbarrow

Chengtu has automobile roads, but its province, Szechwan, has long had a transportation problem. Draft animals and carts are rare; rivers are swift. Men, therefore, bear or pole many of the burdens.

tied together beneath a light bamboo frame.

Larger ones, for carrying all kinds of river freight, have 52 skins. Their golden-yellow hue is strikingly beautiful. One man skillfully steers such a raft down the rapids with a paddle. After each trip the rafts are put out to dry, then carried upstream on the oarsman's back for the next trip.

In Lanchow city we visited the Epidemic Prevention Bureau. This work has been supported by the League of Nations. That night we dined at the Governor's palace, with 30 other persons who had come to the Northwest from all parts of China and abroad. Here were experts on public health, engineers of the economic council, the president of the farmers' bank, the director of the animal epidemic prevention bureau, and Industrial Cooperative staff members. Lanchow was taking its place in New China.

Coming in from the outside, I had thought all China's efforts would be focused on the actual war. I knew the national slogan: "Resistance and Reconstruction." But I was amazed to find the second half of that phrase as important to this New China as the first.

On the second night of my return I was on the crack express train out of Kukong. One of three men with me in the compartment began a conversation in Engish. I discovered he was a young hydroelectric engineer who had just returned from two years in Egypt, where he worked on irrigation projects on the upper Nile. Now he was engaged on similar projects in his native Province of Hunan.

At a dinner party in Kweilin, I looked about the table at the group—a textile expert (French returned student), a banker, an accountant, two former YMCA secretaries, and two former school men. I asked them why they were working in this organization. The answers were the same. They did not have military training, but wanted to give their lives to their country. Here they could use all their skill in reconstructive work, in training the unskilled, in producing needed goods,

United China Relief

Teacher Takes the Case History of an Orphanage Recruit

Footsore and ragged, he has walked hundreds of miles from his bombed home. Though shrapnel and disease have spared him, he remains bitter and unsmiling. Medical attention and regular food will teach this "old man" to play again. He is China's hope for the future.

thereby strengthening China's economic life and so helping develop a country worthy of the defense and sacrifice of their armies.

Women Enter Business Life

Women everywhere were active, and not just in the traditionally accepted spheres. A friend of mine whose family had owned and operated a big furniture factory in Shanghai was drafted by the Economic Council in Kunming to organize a factory making desks and furniture for the influx of government offices.

The site of her factory was that of the old elephant stables of the Ming dynasty! Her husband, a graduate of MIT, was technical adviser to the Economic Council of Yunnan Province, which was developing water power, cotton mills, copper smelting, and a sulphuric-acid plant.

The achievement of which he was proudest I discovered by accident one evening as we were strolling along the irrigation ditches. They were full of clear, flowing water. I exclaimed at the way every farmer we passed greeted him with the term "teacher." He told me the story.

When he first came back here to his native province, he found the fields barren and the ditches dry. The ditches had been built during the Ming dynasty, and many had been cut out of solid rock. He asked the farmers why they were not used. Scornfully they would reply, "No water." But there lay a great lake near Kunming, a natural reservoir!

His trained eyes saw what had happened, and he began to bargain with them to clean out the ditches. They protested it was no use. He set a date and promised them water if they would fulfill their part. Doubtingly, they complied. He installed pumps to raise the water to the level it had been when the ditches were first built.

On the appointed day the farmers, still unbelieving, gathered. Like magic the water began flowing. No wonder the farmers now address him in their highest term of respect!

All over the country I found old ideas, old superstitions, old customs being changed. In old China each district made sharp distinction between man's work and woman's work. Often there was no real reason—it just always had been done that way. It took conviction and courage to break this custom.

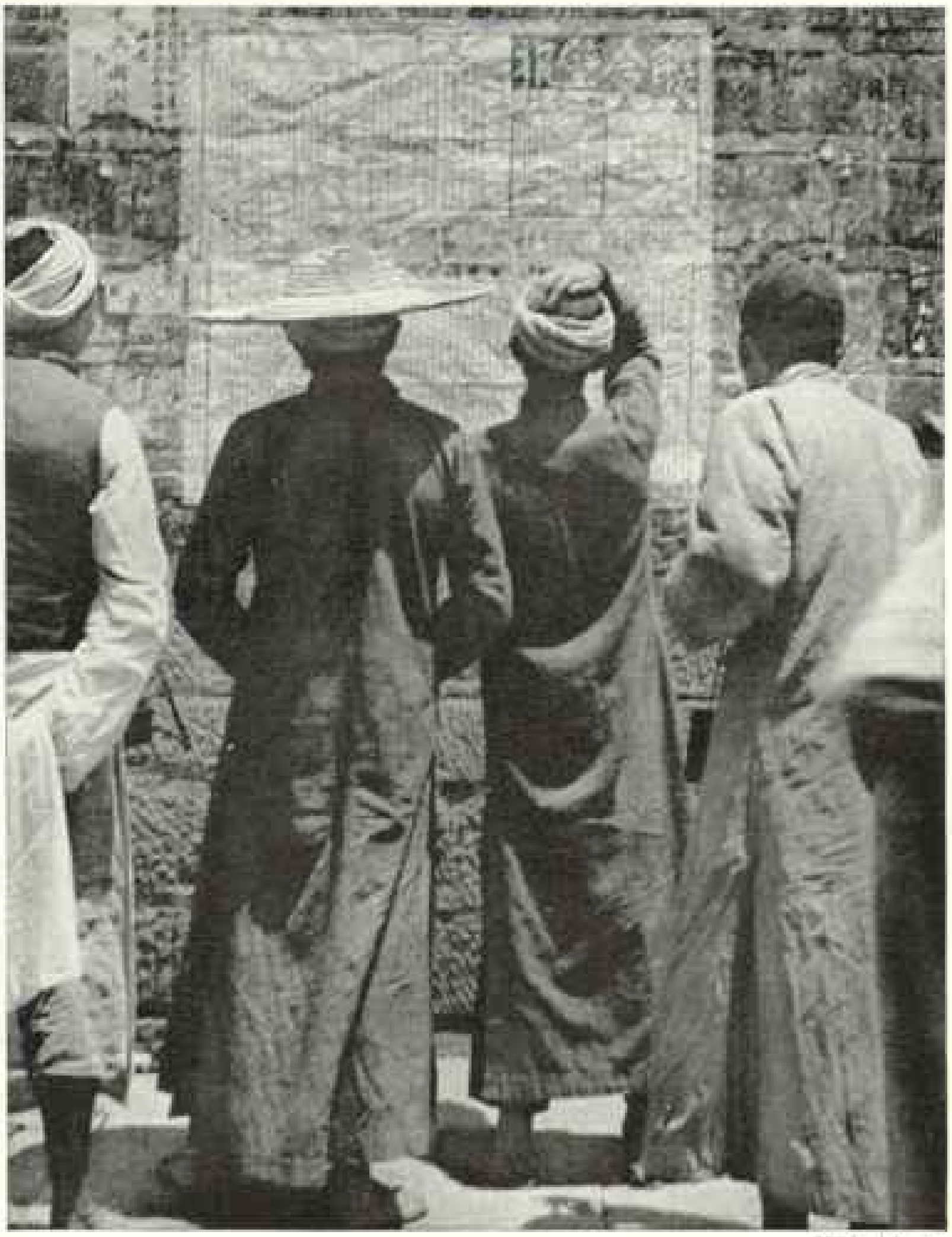
Because she had much of both, the secretary of the YWCA in Kweiyang built up a

women's umbrella-making cooperative. Into the YWCA destitute girls and women, many wives or widows of soldiers, had been coming, and all wanted help in earning their living. What could be done with them?

When the general secretary first came to this city, she had been amused at its name, Kweiyang (Honorable Sun). No wonder, for the sun rarely showed his face. Two days out of three it rained. But, strangest of all, umbrellas were imported from Hunan!

Weren't there raw materials available? Yes, there was bamboo, and tough paper, and there was tung oil for shellac. In a near-by village she saw curled yellow sheets of glue made from water-buffalo hoofs and horns. Why not use them? But women couldn't make umbrellas—they never had!

Through the cooperation of the CIC, two men from a Hunan umbrella cooperative came to Kweiyang and taught the women. No doubt then of their ability. They made beautiful umbrellas, painted with bamboo designs bearing linked insignia, the blue triangle of the YWCA and the red Gung Ho (Work Together) of the CIC (page 383).



Mildred Owen

Hat Styles and Wall Newspaper Identify the Scene as Szechwan

Says the English headline: "Chinese Students Help Build a Glorious New China—Arise!" The Chinese text recalls the dates of two Japanese grabs in Shantung. It is pasted over a Szechwan proclamation (page 357).

Another tireless group is the postal service. Carriers and cart men along the highways wear a green sleeveless cotton jacket with "Postal Service" in Chinese characters across the back. They use every sort of conveyance to go back and forth, across the very battle lines, and the mail goes through. New roads and better transportation have been a blessing to them.

I was amazed at the fine engineering shown on difficult grades in the building of these roads. They were narrow in many places but well surfaced and kept in fair repair, although the thousands of workers had no machinery to aid them and all was done by hand. I saw women sitting by the roadside, crushing rock with small hammers. Men carried this in small scoops and smoothed over the road with bamboo rakes.

Many Bridges to Cross

We crossed many new bridges, and seldom used ferries. This was in marked contrast to a long trip I made in 1935.

Then I was taking an October vacation in my own car. Starting from Shanghai, I drove down the coast of Chekiang, then up the Wu River to Lishui, Kinhwa, and into Anhwei Province to Hwangshan (Yellow Mountain).

United China Relief

"Work Together!" Says the Triangular Sign on Cooperative Truck and Warehouse

Chinese Industrial Cooperatives' center in Nancheng is identified by the larger sign. Observing the unselfish devotion of the cooperatives, Col. Evans F. Carlson gave their slogan, *Gung Ho* (Work Together), to his Marine Raiders. Soon, he wrote, "they began calling themselves the Gung Ho Battalion."

On that trip we seemed always to be driving down a bank, then out on two little planks to a ferry, or sometimes just two small sampans lashed together.

Once the only way to reach the water's edge was down a steep stone stairway of forty steps. Coolies held the car back by ropes fastened to the rear axle while I alternately released and held the brake and guided the car. We got down, but it was a hair raiser!

Certainly those modern roads are one of the great developments of Free China (page 369). At Kunming (formerly known as Yunnanfu), in January, 1942, I took a picture showing three historic roads, rising one above the other, leading out to the southwest.

First, there lay the old stone pack road of the Ming dynasty; then the far-famed Burma auto highway,* officially opened in 1939 and now cut off by the Japanese; finally, highest of all, was the new railroad of which a 50-mile stretch toward the Burma border had just been completed before the Japanese invasion.

These roads are one of the most important factors in China's resistance to Japan. When one is cut off another is opened up.

Camel Caravans from Russia

At Lanchow I saw long camel caravans. Huge shaggy beasts, which had been five months on the way from Russia, came in loaded with machine-gun parts for the Generalissimo's army. There are roads leading right up to the front lines (page 363).

On my trip to Loyang I came closest to active battle lines. At Tungkwan we could hear the constant thunder of Japanese artillery. Train service was disconnected, so we went along a road cut deep in the loess hills, out of sight of the north bank of the Yellow River. Within a few miles of our destination,

*See "Burma Road, Back Door to China," by Frank Outram and G. E. Fane, National Geographic Magazine, November, 1940.

Josephine A. Brown

"Women Can't Make Umbrellas"—Thus Spoke Tradition—But War Said, "They Can!"

Rainy Kweiyang, importing umbrellas from Hunan, couldn't find work for refugees until a YWCA secretary united idle hands and abundant local materials. Here a Hunan craftsman teaches his trade. One apprentice shellacs a paper top; the other fits a bamboo frame (page 381).

where we could catch a train again, there was a sudden air-raid warning and our truck stopped.

We persuaded a farmer to take our luggage by wheelbarrow and lead us along the way. He urged us to hurry, for we had to cross a stretch visible to the enemy, where people had been shelled the day before. His theory was if you went fast enough you didn't get hit. We made our train.

Chinese Will to Resist Grows Ever Firmer

The more Japan bombs and attacks, the more firm do the Chinese grow in their will to resist. This is demonstrated by the civilian population in the way they have adapted their living to air raids and bombings.

I saw this first in Kweilin where the city's population makes use of historic caves for shelters (page 368). The electric-lighted Seven Star Cave can hold fully 3,000 people at a time, though they may get a bit wet from the water dripping from the stalactites. At the entrance is a public library with daily newspapers and books which people are encouraged to read, checking them in again when the raid is over.

Rarely do the Chinese show panic. We were nearing Siking on the Lung-Hai train on a beautiful clear October day and had not heard the signal. But we knew what was happening when our train lurched to a stop and began backing up.

As soon as it halted, everybody piled off, hunting shelter, and headed out across the fields that were vivid green with fall wheat. I ran toward grave mounds carrying the little Tibetan dog of my doctor friend.

As we lay among the big mounds of dirt, we knew we were comparatively safe from flying shrapnel.

In the distance we could hear the explosions of bombs falling over Siking. With the all-clear everyone scrambled back, talking and

laughing, taking the whole incident philosophically.

Even children are expected to act with coolness and bravery. They are taught what to do in emergencies, especially during air raids. They are urged to think through and understand the meaning and aims of the war. Parents discuss current events with them. Interest is not limited to China alone, but reaches out around the world (page 373).

One day at lunch with Madame Feng Yü-hsiang, I noticed maps hung on all the four walls of her dining room. She smiled as she explained. "It's only at the table that our family gets together. Then we discuss all the happenings of the world. Often we needed a map to settle some point, so we hung them up here to be handy."

She pointed out to me maps of Chungking city, Szechwan Province, all of China, the world, and, finally, one of the universe, a star map!

New "Great Wall"—of Human Bodies

Of course, the brunt of resistance falls on the common soldier. My throat filled when I saw the first straggling groups of China's soldiers in Kwangsi, wounded, sick, and worn from their months at the front. Their clothes were rags, they had very little equipment, they limped along on foot. They were the defenders of China!

These men had made of their bodies the New Great Wall to turn back the invader. They had as much courage as the crack troops of the Central Army that I saw later at Kunming—well-equipped with leather shoes, modern guns, warm clothing—going by truck down into Burma.

Of almost as great importance as the soldier are the workers providing goods for both army and civilians. When China lost her coastal cities, with their great producing factories, she was hard put to it to obtain even the necessaries of life. Then men, often with only ideas and patterns left in their heads and the most meager of tools in their hands, by ingenuity and resourcefulness built up small producing units all over the country.

One of the most courageous of these was a group of 17 men who had been workers in an arsenal before it was bombed out of existence. They obtained a loan and formed a cooperative to make wool-carding machines out of old scrap iron. This greatly speeded up the processing of wool for army blankets (p. 375).

Blankets are one of 500 different articles being produced in 2,400 self-owned and operated cooperative units scattered through the eighteen provinces of China.*

I planned to start for the United States the last of January, leaving China via the Burma Road and sailing from Rangoon. Since that was impossible, I flew direct by the new air route that had just been opened between Kunming and Calcutta.

The P-40's of the Flying Tigers were cutting capers on the Kunming airfield as we took off. At Lashio, where we had sandwiches and coffee, I saw a large signpost that made me realize I was on my way. The sign had two big arrows. Beneath one, pointing east, I read, "New York City, 12,923 miles," and beneath the other, pointing west, "New York City, 10,291 miles."

I stood in the shade of a wing of the plane and thought ahead to the United States and back to Free China. My farewell salutation to China had not been this morning in Kunming. I realized it had been given in Lanchow, my farthest Northwest point, the evening before I turned back southward.

I had walked out alone through the long streets of Lanchow, through the Old West Gate, and had turned north to cross the Yellow River by the steel bridge which was built in the days of the Empress Dowager by the American Bridge Co. of New York City.

There was a traffic jam of limping old passenger buses, a long camel train, a herd of shaggy yaks, big military trucks, rickshas, and crowds of pedestrians. I made the north bank and climbed to a little temple on a hill overlooking the river and the city where I could follow the line of the road to the great Northwest by the haze of dust.

I thrilled to think of the meaning of that road to China, and knew that I was overlooking one of the oldest caravan routes of the world. I faced the sunset, lifted my hand high to the Northwest, and said: "Some day I shall drive that road till I reach the Volga! China, I am coming back."

* See "China Opens Her Wild West," by Owen Lattimore, National Geographic Magazine, September, 1942.

Notice of change of address for your National Geographic Magazine *should be received in the offices of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your May number, The Society should be notified of your new address not later than April first. Be sure to include your new postal zone number.*

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purposes for which it was founded fifty-six years ago, the National Geographic Society publishes this Magazine monthly. All receipts are invested in The Magazine itself or expended directly to promote geographic knowledge.

Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives.

The Society's notable expeditions have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region, The Society's researches solved secrets that had puzzled historians for three hundred years.

In Mexico, The Society and the Smithsonian Institution, January 16, 1930, discovered the oldest work of man in the Americas for which we have a date. This slab of stone is engraved in Mayan characters with a date which means November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to the world altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.

The National Geographic Society–U. S. Navy Expedition camped on desert Canton Island in mid-Pacific and successfully photographed and observed the solar eclipse of 1937. The Society has taken part in many projects to increase knowledge of the sun.

The Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,028 feet was attained.

The Society granted $25,000, and in addition $75,000 was given by individual members, to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees in the Giant Forest of Sequoia National Park of California were thereby saved for the American people.

One of the world's largest icefields and glacial systems outside the polar regions was discovered in Alaska and Yukon by Bradford Washburn while exploring for The Society and the Harvard Institute of Exploration, 1938.

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A NEW DAY DAWNS IN RAILROADING

War traffic has more than doubled the volume of freight hauled by the Western Pacific Railroad from Salt Lake City to San Francisco. Wherever the going is toughest on this rugged route, General Motors Diesel freight locomotives have kept this vast stream of vital munitions moving steadily.

A crack "Express Train" of 1863 as pictured by Currier & Ives. Four years later an important new era began when the first railroad linked the Atlantic and Pacific.

Throughout history, wars have set up new milestones of transportation progress. And with this war, it is the General Motors Diesel Locomotive that is ushering in the new era. What advances the future will bring are already apparent in the present performance of these locomotives and the way they are helping to meet the abnormal demands upon the railroads today.

War building is being rushed ahead with reliable General Motors Diesel power. In the days to come this dependable, economical power will be ready to do the hard jobs of peace.

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"It's a Weapon—Soldier"

"Yes, that runt of a shovel is a *weapon* . . . and after it's saved your life a time or two, you'll have a healthy respect for it.

"There are tricks to using it, too . . . tricks you'll learn by watching *movies* of guys scooping out foxholes and slit trenches in the side of a nameless hill in Italy.

"That movie . . . and reel on reel of others . . . will *train* you to pick the best place for a foxhole . . . when to dive into it . . . how to fight from it . . . how to use every shrub and rock and tree and hillock for cover and concealment."

Practically every Filmosound Projector that we make today ends up in a camp or on a battle front . . . to do its part in training men or to bring them welcome bits of home with movies. Every Filmo Camera enlists in the services . . . to film war tactics for the millions still in camp. Thousands of secret devices that we never made before are giving pilots and gunners and ships' crews an important edge over the enemy they're whipping.

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*Opti-onics is OPTIcs . . . electrONics . . . mechanICS. It is research and engineering by Bell & Howell in these three related sciences to accomplish many things never before possible in war or peace.

Filmo

Bell & Howell

One of a series of incidents in the lives of immortal composers, painted for the Magnavox collection by Harry Anderson

The stormy beginning of "Tonight We Love"

"FRANKLY your concerto is worthless, Peter Ilich, utterly worthless! It is trivial—unplayable!"

This was the devastating criticism of Nicholas Rubinstein, celebrated Russian pianist and colleague of Peter Ilich Tchaikovsky, when the composer played his Concerto No. 1, in B-flat Minor, for his friend's appraisal. "By degrees his passion rose and finally he resembled Zeus hurling thunderbolts," Tchaikovsky wrote, describing the scene.

Although deeply discouraged, Tchaikovsky did not destroy his concerto as Rubinstein advised and it was first played in Boston in 1875. For sixty-six years, though popular with concert goers, it was practically unknown to the public. Then, in 1941, Freddy Martin made the arrangement which became known as "Tonight We Love." *In a few weeks, it took America by storm.*

To appreciate the true worth of Tchaikovsky's compositions, or any of the thousands of other musical treasures we have inherited from the past, you should hear them played by a Magnavox radio-phonograph.

Because of its incomparable clarity and tone quality, this is the instrument chosen over all other radio-phonographs by such famous modern musicians as Kreisler, Rachmaninoff, Rodzinsky and Horowitz.

The Magnavox Company is now producing electronic and communication equipment for the armed forces and music distribution systems for warships—and has won the first Navy "E" award to be given in this field. When the war ends, Magnavox will again take its place as the pre-eminent radio-phonograph combination. The Magnavox Company, Fort Wayne 4, Indiana.

Buy War Bonds For Fighting Power Today—Buying Power Tomorrow

Magnavox • *The choice of great artists*

RADIO PHONOGRAPH

Magnavox radio-phonographs are bringing relaxation and courage to our fighting men on many new battleships and aircraft carriers. See your Magnavox dealer for a wide selection of records to send to your soldier or sailor.

"Don't tell the General . . . but I helped put his army on synthetic rubber tires!"

"It all began back home before the war, with a road test that totaled 80,000,000 miles"

"Here's what I mean," said the P.F.C. "The tires I drove in the test were the *ancestors* of the ones on this buggy. The B. F. Goodrich Company wanted to prove that synthetic rubber would work in passenger tires. So they sold several thousand tires, and asked people to send in mileage reports. All together we rolled up 80,000,000 miles, and that's a lot of miles."

The passenger car tires used had more than 50% of their natural rubber replaced by our own synthetic—Ameripol. Today's all-synthetic passenger car tires are made with government synthetic—"GR-S." And 99% of the natural rubber has been replaced by it.

That pre-Pearl Harbor test gave us a 3-year head start. It gave us the "know how" that has already enabled us to produce a synthetic passenger car tire *almost* as good as the Silvertowns you used to get! It's easily the best synthetic tire you can buy today.

There are some synthetic tires today available to those who can qualify. But our fighting forces still need every ounce of rubber they can get. So do everything you can to make your present tires last—don't drive even one unnecessary mile.

The B. F. Goodrich Company, Akron, Ohio

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THE men who do the fighting, whether on land, sea or in the air, know how important it is to have the best equipment.

They realize that the work we do in our factories can, if done well enough, give them a combat advantage.

We realize that, too. That's why we are devoting all the skills we have developed, all the crafts we have mastered, to give our armed forces the all-important edge.

Whether it's a plane, an anti-aircraft gun, a tank, or a highly sensitive flying instrument, each gets every technical plus we can give it — and that's several.

Craftsmanship is a Fisher tradition. And today we believe craftsmanship carries a particular punch of its own to give a fighting man a break when a break is more than welcome.

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Listen, Chipper...

This is your old man talking.

We've got big plans for you, son. Nothing's going to stop your being a *big man* in life . . . not if I can help it.

Oh, you'll get a few bumps along the way—everyone does—a black eye from some husky playmate or a reprimand for the way you scuff your shoes. But if lots of love, a happy home, and a good education can develop a fine boy into a healthy, well-adjusted man who's going places . . . then, little man, that's your future.

Just to be *sure* that nothing prevents your getting this good start in life, today I've taken enough life insurance to protect you and your mother in case anything happens to me. Now I know you'll both be taken care of. You see what I mean? I'm taking no chances on *your* future.

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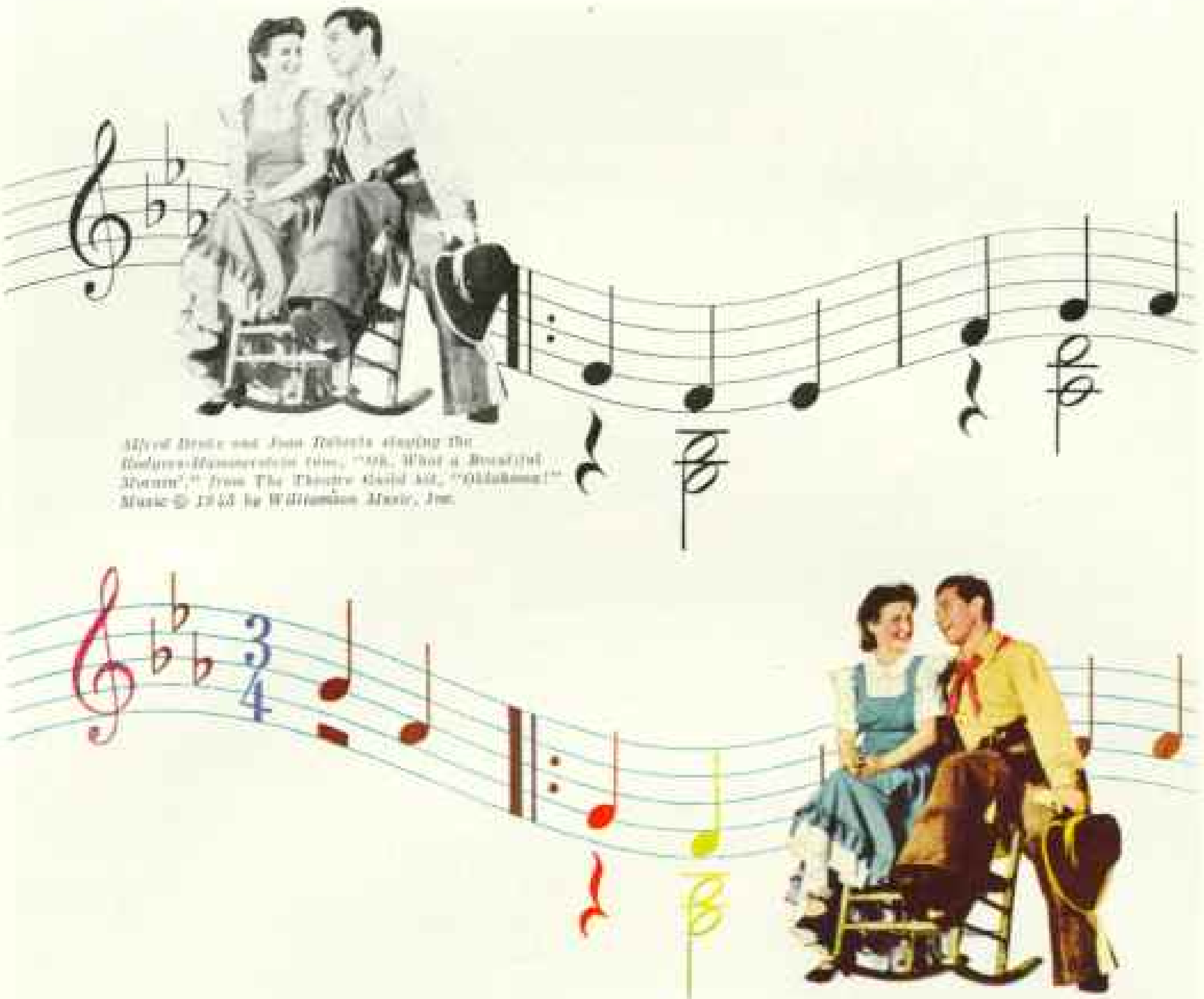

Alfred Drake and Joan Roberts singing the Rodgers-Hammerstein tune, "Oh, What a Beautiful Mornin'," from The Theatre Guild hit, "Oklahoma!"
Music © 1943 by Williamson Music, Inc.

ONLY FM RADIO BRINGS YOU ALL THE NOTES IN GLORIOUS "NATURAL COLOR"

As different as black-and-white movies and movies in full color . . . as different as a cloudy sky and "Oh, What a Beautiful Mornin'". . . *that's* the difference between conventional radio and FM!

FM (Frequency Modulation) is an entirely new kind of radio. On conventional radio, notes literally "get lost" from studio to home. You hear only a *third* of them.

But an FM radio receives *all* the notes—high, middle, low—*plus* the overtones that give music its color and beauty!

Your General Electric radio tomorrow will be FM at its finest. Many of the new General Electric post-war radios will receive *both* Frequency Modulation and conventional broadcast and on either kind will give you finer reception than you have ever had before!

General Electric Company, Schenectady, New York.

Tune in General Electric's "The World Today" and hear the news from the men who see it happen, every evening except Sunday at 6:45 E.W.T., CBS. On Sunday evening listen to the G-E "All Girl Orchestra" at 10 E.W.T., NBC.

Every week 192,000 General Electric employees purchase more than a million dollars' worth of War Bonds.

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Every General Electric radio is an electronic instrument
The heart of every G-E radio is the electronic tube. This tube is similar to electronic tubes used in G-E television equipment, and in G-E electronic apparatus that speeds war output in thousands of industrial plants.

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"I SAID GET A RE-CAP—NOT A NEW CAP"

She's right! The plain, unvarnished fact is that the tire crisis is still acute . . . because *military needs* get first call.

You must save the tires you have. That means *recapping*—in time—by experts who know how.

Your General Tire dealer alone offers you—right in his own shop—General Tire-Kraft System *balanced* recapping. On the most modern equipment, his trained recappers can give your worn tires new treads up to rigid factory standards. Kraft System Recapping is your assurance of dependable mileage and General Tire *quality*.

Get to know your local tire expert . . . your General Tire dealer. He will go the limit to help you keep rolling until you can again ride on the tire that, "—goes a long way to make friends". . . *General*.

★

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WAR BONDS

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"Goodbye Johnny . . . when you wake up, I'll be gone. . . .
"And all the things I've planned for you will have to wait . . . the games we were going to go to . . . the books we were going to read . . . the music we were going to discover together. . . .
"I'll make up for them some day, Son. . . . They're my *unfinished* business. . . ."

* * *

A father looks at his son

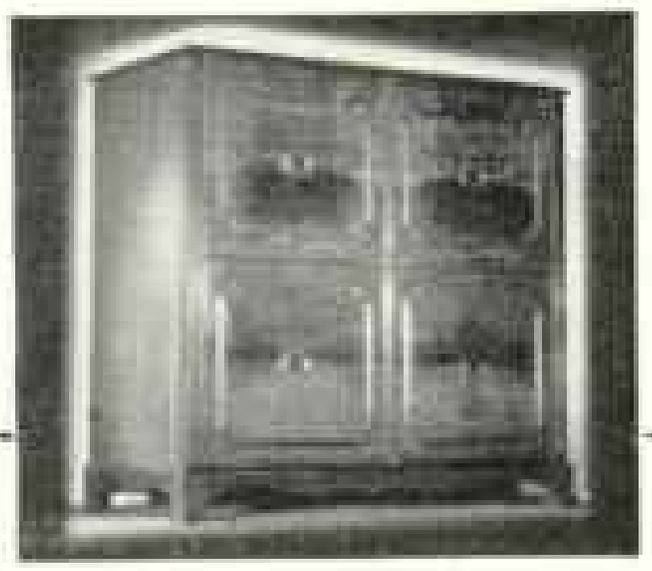
When families are together again, you'll want to give your children advantages they're missing today.

You may consider buying a fine radio to bring great music into your home.

If you do, we suggest you listen to a Stromberg-Carlson.

For into this instrument will go the skill of half a century . . . the magic of FM radio at its best . . . and many revolutionary wartime developments.

If you want your children to know the inspiration of great music in all its greatness, plan to have them hear it through the postwar Stromberg-Carlson. Until then, buy War Bonds to speed that happy day.



IT WAS PEOPLE, working for Victory, that won Stromberg-Carlson the Army-Navy "E" . . . To these men and women, and to our men in the Armed Forces, we have a responsibility to assure them good jobs when peace comes. That is the important reason for planning fine radios for you...and for all post-war planning.

IN RADIOS, TELEPHONES, SOUND EQUIPMENT...
THERE IS NOTHING FINER THAN A

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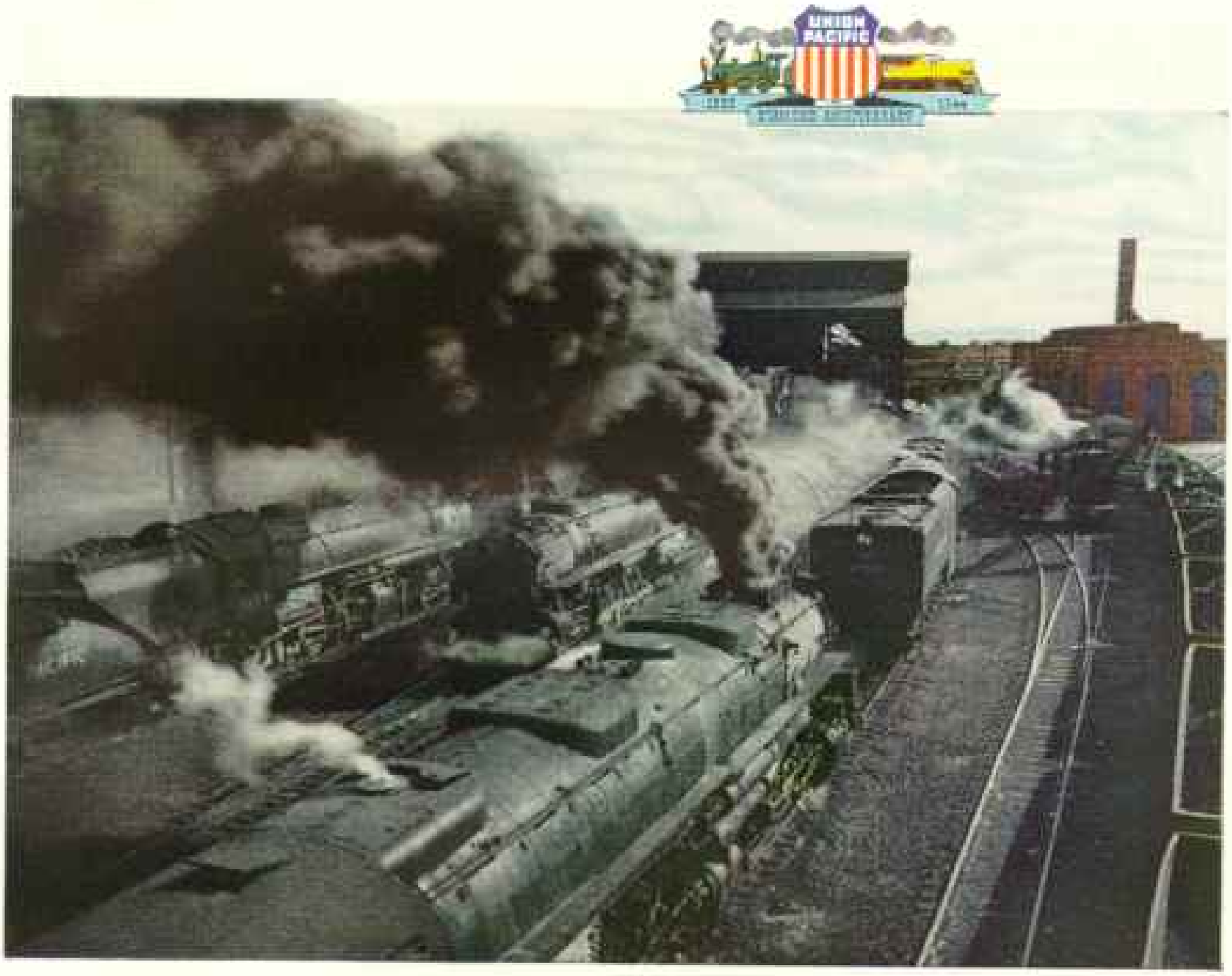


The Man with the "Thousand Track" mind

● Along the Union Pacific are many types of locomotives —tons of pulsating power — designed for particular tasks. It's the job of the train dispatcher to know, at all times, what locomotives are available and to assign their "runs."

Heavy wartime traffic—the movement of troops and war materials—has greatly added to the dispatcher's responsibilities. More than ever before, he must be exacting, alert and resourceful—a man with a "thousand track" mind.

Dispatchers, like hundreds of other Union Pacific employes in key positions, are especially trained to handle the heavy traffic which flows over "the strategic middle route." They have the experience and ability. They know that hard work and initiative are recognized and rewarded.

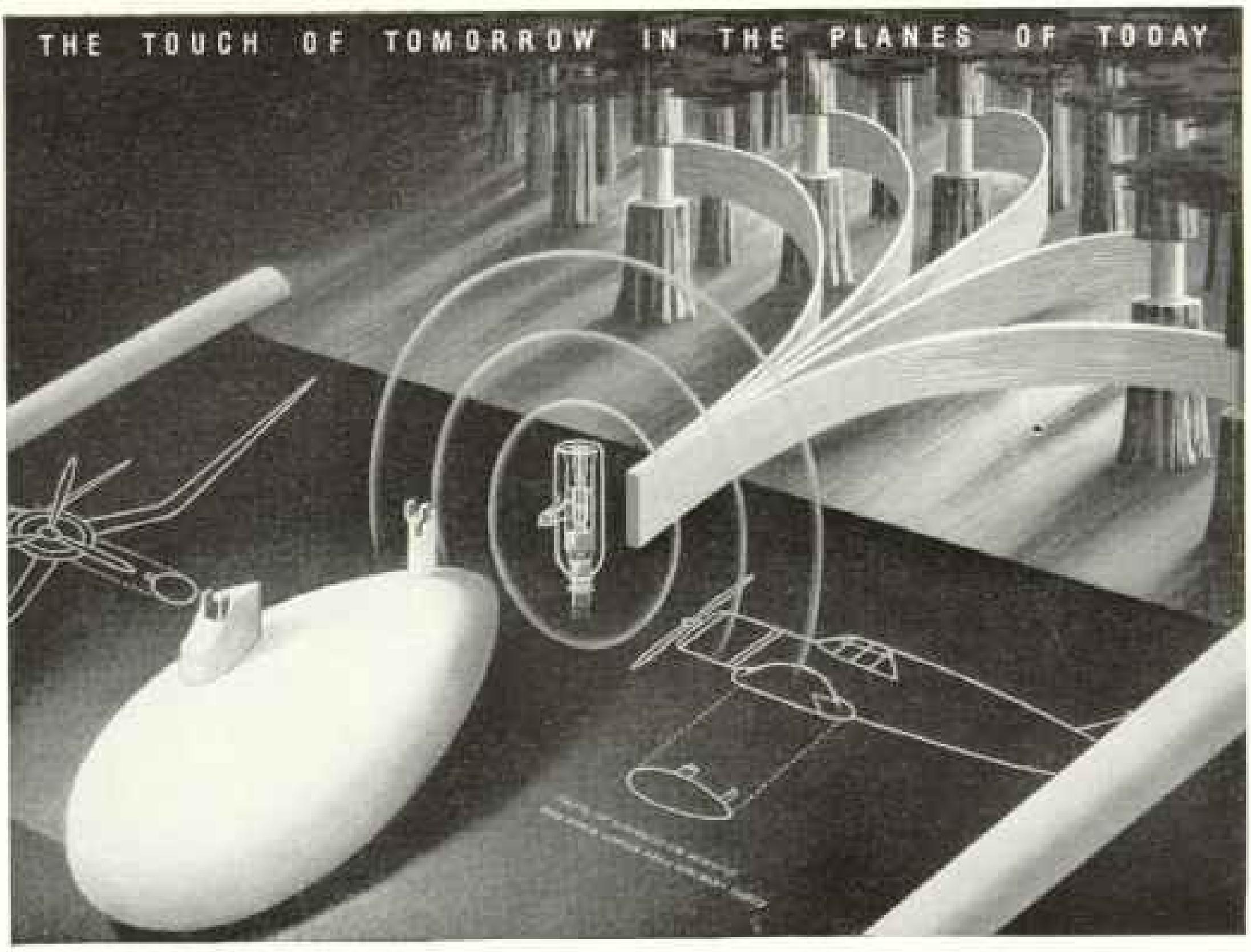
Today, 60,000 Union Pacific workers are carrying on the tremendously important wartime transportation job. An additional 12,000 employes are in the armed forces. Their common objective is victory—to maintain the spirit of freedom, individual enterprise and equal opportunity for all.

★ *Help the war effort by not dealing with black markets nor paying over-ceiling prices.*

THE PROGRESSIVE

UNION PACIFIC

RAILROAD



Warbirds Hatch Extra Range from this "Egg"

Today, the skies over targets deep inside the perimeter of Japan's island defenses know the roar of our Navy's fighters, dive bombers and torpedo planes.

Carrier-based aircraft, whose range was once comparatively limited, can now strike at the Japs hundreds of miles in advance of Navy task forces, thanks to the egg each plane carries under its belly.

To give our Navy planes this extra range, Fairchild engineers have designed a DURAMOLDED expendable gasoline tank much lighter than its metal counterpart, but holding the same amount of fuel.

When the egg is sucked dry by the plane's hungry engine, the pilot drops it by simply pressing a button, and switches over to his ship's regular tanks.

Built entirely of plywood, it is veneered and shaped by a process known as DURAMOLD. In this process layers of wood, laid cross-grain, are permanently glue-bonded with special resins and moulded under heat and pressure.

DURAMOLD, another milestone in the progress of American aviation, is a striking example of Fairchild's "touch of tomorrow in the planes of today."

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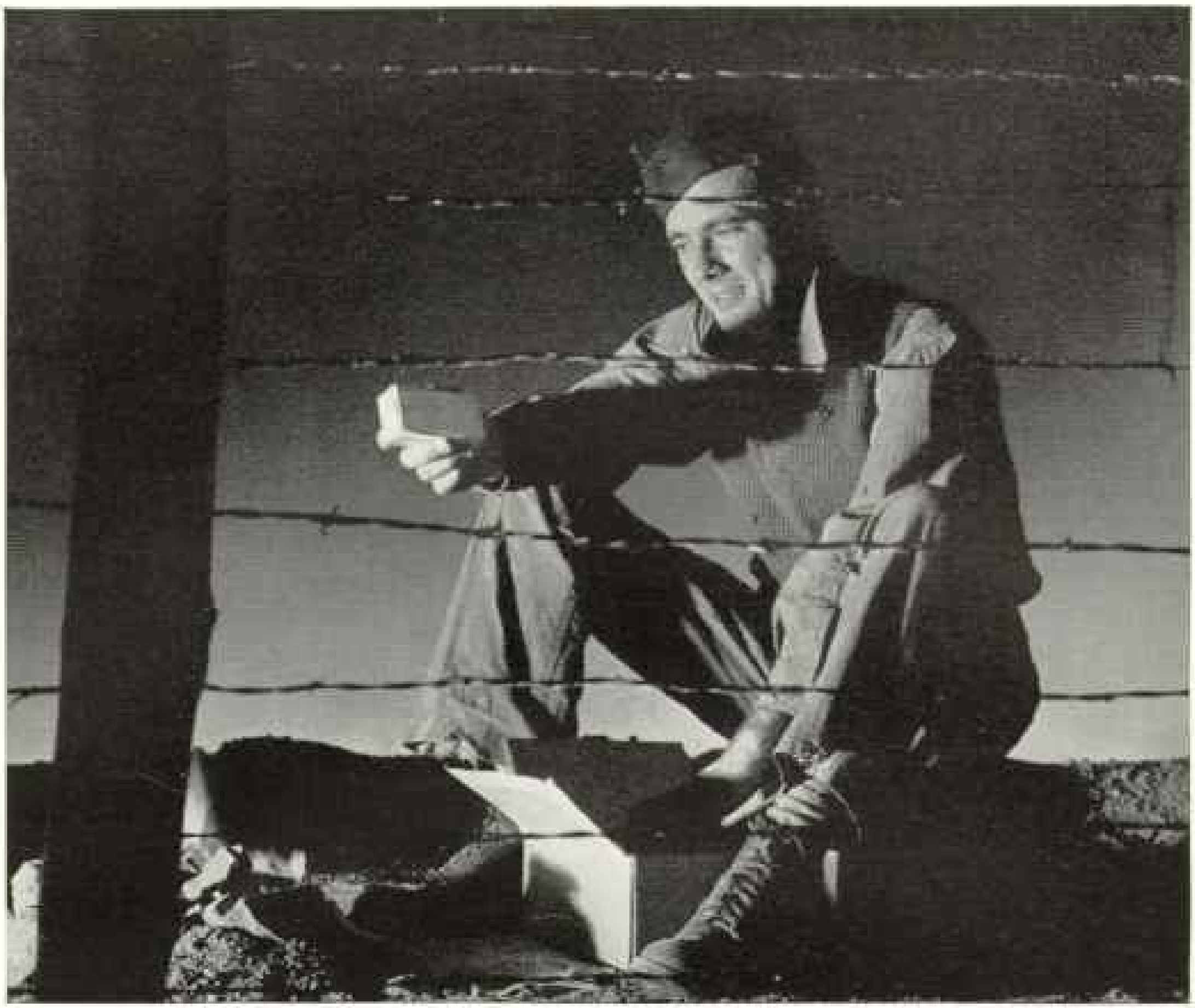

BUY WAR BONDS AND STAMPS

"Honest-to-gosh American food!"

Put yourself behind German barbed wire—a prisoner of war. You're hungry and homesick. Into your hands comes a heavy carton.

It's all yours. Raisins, sugar, coffee, oleo, corned beef, biscuits, ham, salmon, orange concentrate, milk chocolate, cheese, powdered milk, soap and cigarettes! Familiar cans and packages. Labels that look like old friends.

Can you imagine your *gratitude?*

The Army arranges for a carton of this kind to be sent to every American soldier in every German prison camp *every week.* The food is really needed to help keep American boys healthy and hopeful until V-day dawns.

To that end, the *kinds* of food in the carton are carefully selected to provide the most nutritious diet possible under prison conditions. Dairy products are well represented because milk is nature's most nearly perfect food.

National Dairy regularly supplies products for the prisoners' packages. National Dairy Laboratories helped develop cheese and milk which can safely be shipped anywhere.

Dedicated to the wider use and better understanding of dairy products as human food . . . as a base for the development of new products and materials . . . as a source of health and enduring progress on the farms and in the towns and cities of America.

Kraft · Sealtest · Breyers

NATIONAL DAIRY
PRODUCTS CORPORATION
AND AFFILIATED COMPANIES

Gasoline Savings *Guaranteed*

Try a fill of Macmillan RING-FREE Motor Oil and if you do not save gasoline your dealer will refund the full cost of the oil! That's Macmillan's unconditional guarantee to every motorist.

How, you ask, can such a guarantee be made? Here is the answer. Macmillan RING-FREE Motor Oil reduces motor friction *fast*. In other words, it delivers to the rear wheels of your car more of the power that is ordinarily wasted in overcoming the internal friction of the motor itself (this power waste runs as high as 50% according to recognized automotive engineers). By reducing friction, RING-FREE reduces power waste—gives more miles per gasoline gallon—reduces costly motor wear.

These facts were conclusively proved by 1094 certified road tests made in individual owner driven cars. In these tests the average increase in gasoline mileage was 1.3 miles per gallon after crankcases had been drained and refilled with Macmillan RING-FREE Motor Oil. Increases of 10% were not uncommon. Start saving your gasoline today and start getting another big advantage with RING-FREE—it removes motor carbon while you drive.

MACMILLAN PETROLEUM CORPORATION

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Copyright 1944 Macmillan Petroleum Corp.

There's a sweet melancholy to the cello (oh yes a melancholy), but it will gladden your heart to hear it on a Scott!

Surely you've noticed that as beauty nears perfection it conveys pain as well as pleasure. Perhaps that is why the voice of the cello . . . so tender, vibrant and compelling, has more than a tinge of melancholy. But how stirring, how assuaging it is, only those who hear it in its full voice can tell. When you can listen with a Scott, the cello's surging notes will come to your unbelieving ears with the eloquent, moving melancholy of a "living performance."

Meanwhile a Scott is something to wish for, wait for and BUY BONDS for. The only Scotts being built today are marine models—the famed low-radiation receivers that emit not a whisper that lurking submarines can trace. Scotts are going aboard tankers, merchant vessels and men-of-war *wherever the flag flies*—to bring vital messages of war safely to our ships, and to provide lonely seamen with welcome programs from home.

Scott technicians are proud of the coveted Army-Navy "E" and the Maritime "M" which they have won for excellence of production. Soon, soon, soon they hope, they will turn their talents back to the happier arts of peace—to bring *you* the Scott that will be your heart's desire.

E. H. SCOTT

E. H. SCOTT RADIO LABORATORIES, INC.
4448 RAVENSWOOD AVENUE, CHICAGO

E. H. Scott Radio Laboratories, Inc.
Dept. IC4—4448 Ravenswood Ave.
Chicago

Please send complimentary copy of your radio booklet, "Achievement Through the Years."

Name .....

Address .....

City ..... State .....

You owe it to your Uncle Sam!

He needs manpower—every available person. A hearing deficiency may keep you out of the armed forces . . . but you can do your fighting on the home front . . . in war material plants. A good hearing aid enables you to go all out in the war effort. The movement is growing. In our plant today are workers wearing hearing aids and contributing as competently as if their hearing were normal.

You owe it to your friends!

They want to enjoy your company as much as you do theirs. Your hearing aid means as much to them as it does to you.

Are you really doing your part?

That question only *you* can answer. *Think!*

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆

The New Zenith RADIONIC
HEARING AID
$40.00 READY TO WEAR

Complete—with Radionic Tubes—Crystal Microphone and Batteries . . . *Liberal Guarantee*

•

Zenith has built the best that modern knowledge and *radionic* engineering make possible into this $40.00 hearing aid. It has no other models . . . *one* model . . . *one* price . . . *one* quality.

Report on a Revolution

Zenith recently started a revolution—to reduce the *cost of hearing*. After years of research and preparation, the Zenith Radionic Hearing Aid is now offered to the public.

The price—$40—(about one-quarter that of other good vacuum tube instruments). Complete—ready to wear—with miniature radio tubes, crystal microphone and batteries—liberally guaranteed.

Inquiries from everywhere have flooded the mails—telephone calls—telegrams.

A sales volume—unheard-of in this field—is gaining daily momentum—and is a demand created by self-evident merit of the instrument itself. Today our problem becomes one of production and distribution—to as quickly as possible make the Zenith Radionic Hearing Aid available in all localities.

We are doing our best to furnish additional manpower for Uncle Sam's production forces. And—in the doing—we are experiencing that rare satisfaction born of directly contributing to the welfare of individuals.

THE ZENITH HEARING AID WILL BE AVAILABLE THROUGH REPUTABLE OPTICAL ESTABLISHMENTS FRANCHISED BY ZENITH. (NO HOME CALLS OR SOLICITATIONS.)

Write us for address of outlet nearest to you.

☆ ☆ ☆ ☆

There are cases in which deficient hearing is caused by a progressive disease and any hearing aid may do harm by giving a false sense of security. Therefore, we recommend that you consult your otologist or ear doctor to make sure that your hearing deficiency is the type that can be benefited by the use of a hearing aid.

TO PHYSICIANS:
A detailed scientific description will be sent upon request. Further technical details will appear in medical journals.

Write for Free Descriptive Booklet

ADDRESS DEPT. NG-3, HEARING AID DIVISION
ZENITH RADIO CORPORATION
CHICAGO 39, ILLINOIS

ZENITH
•LONG DISTANCE• RADIO
RADIONIC PRODUCTS EXCLUSIVELY—
WORLD'S LEADING MANUFACTURER

Copyright 1944, The Pullman Company

"Maybe you're the guy I'm grateful to!"

"Tough day! Assembly line got all snarled up. Didn't finish till seven o'clock.

"Then came a phone call from Plant 5. They need an engineer. Tomorrow morning. 300 miles away. So it's up to me to climb on my horse—my *iron* horse.

"I tried for a Pullman bed, of course, as soon as I knew I had to go, because a fellow sure does need *sleep* going to *keep* going on a job like mine. But everything was sold. Which didn't surprise me, either, *for I know that half the Pullman fleet is busy moving troops.* And that the *other* half is carrying *more* passengers than the *whole fleet* did in peacetime.

"Anyway, there I was—dead tired—and no bed. I saw myself sitting up all night and getting to that essential job too fagged out to tell a blueprint from a bluepoint.

"But somebody *cancelled* a reservation just in time for me to get this space. Maybe it was *you!* If it was, thanks a million. Boy, will I *sleep* tonight! And will that sleep *pay dividends* tomorrow!"

* * *

You never know how important the Pullman bed that you can't use may be to someone else. So *please* cancel *promptly* when plans change.

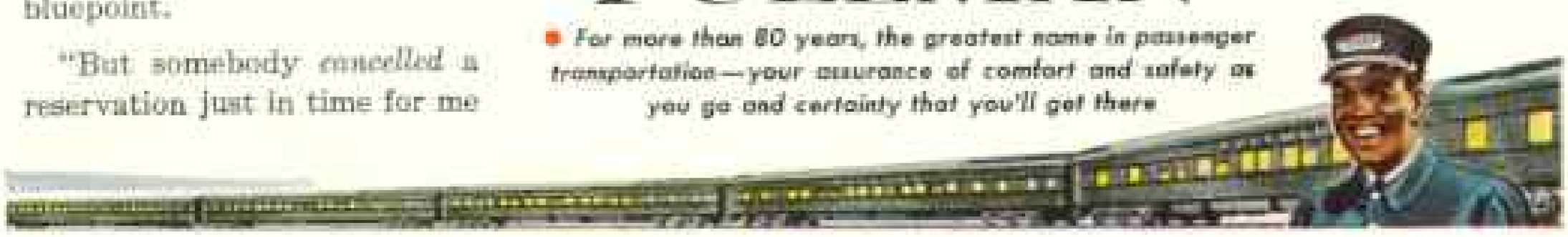
That is one of the most helpful contributions you can make to wartime travel, because sleeping cars are loaded to a higher percentage of capacity than ever before. Yet practically every train carrying Pullmans *still* goes out with *wasted space* due to people who either just don't show up or who cancel *too late* for the space to be assigned to others.

And only *your cooperation* can prevent this waste of needed accommodations!

★ LET'S ALL BACK THE ATTACK WITH WAR BONDS! ★

PULLMAN

For more than 80 years, the greatest name in passenger transportation—your assurance of comfort and safety as you go and certainty that you'll get there



His home town of Mt. Carmel

treats Howard Barlow to a

Foretaste of the future

THE world of music was alive with news of a great "miracle" instrument developed at Mt. Carmel, Illinois . . .

And Howard Barlow, symphony conductor—one of the great American-born music masters of his time—was to be first from the outside world to break the mystery surrounding the music room at Mt. Carmel high school—where the new instrument is on loan "for the duration."

Rightly so, too, for Howard Barlow was "a home-town boy." And, as he waited in the pre-audition hush, he prepared himself for what he feared most . . . *disappointment!*

Instead, as Howard Barlow himself described it: "The room was suddenly filled with the music of my own orchestra—amazingly real, crystal clear—as all-pervading as if the instruments were no more than a baton's length from my own hand. I heard recorded music reproduced *exactly* as my orchestra played it. What a gift to mankind, to music, is this new science . . . *electronics!*"

Howard Barlow had just been listening to the only Meissner electronic radio-phonograph in existence—the final laboratory model perfected just before war turned all of Meissner's skill and knowledge to the manufacture of electronic war equipment.

This priceless set will have its luxurious post-war counterparts for all who enjoy the good things of life . . . for all the lovers of artistic perfection who have long been irritated by the "missing elements" in much of today's recorded music. For them, Meissner offers these and many other important advantages:

Automatic Record Changer—plays *both* sides of a record in sequence, *one* side only, or *repeats* a record just played . . . avoids record breakage. Provides 2 hours or more of music without your touching a record.

Frequency Modulation—plus advanced electronic features for fidelity and tonal range greatly surpassing such qualities in home radio-phonographs now in use.

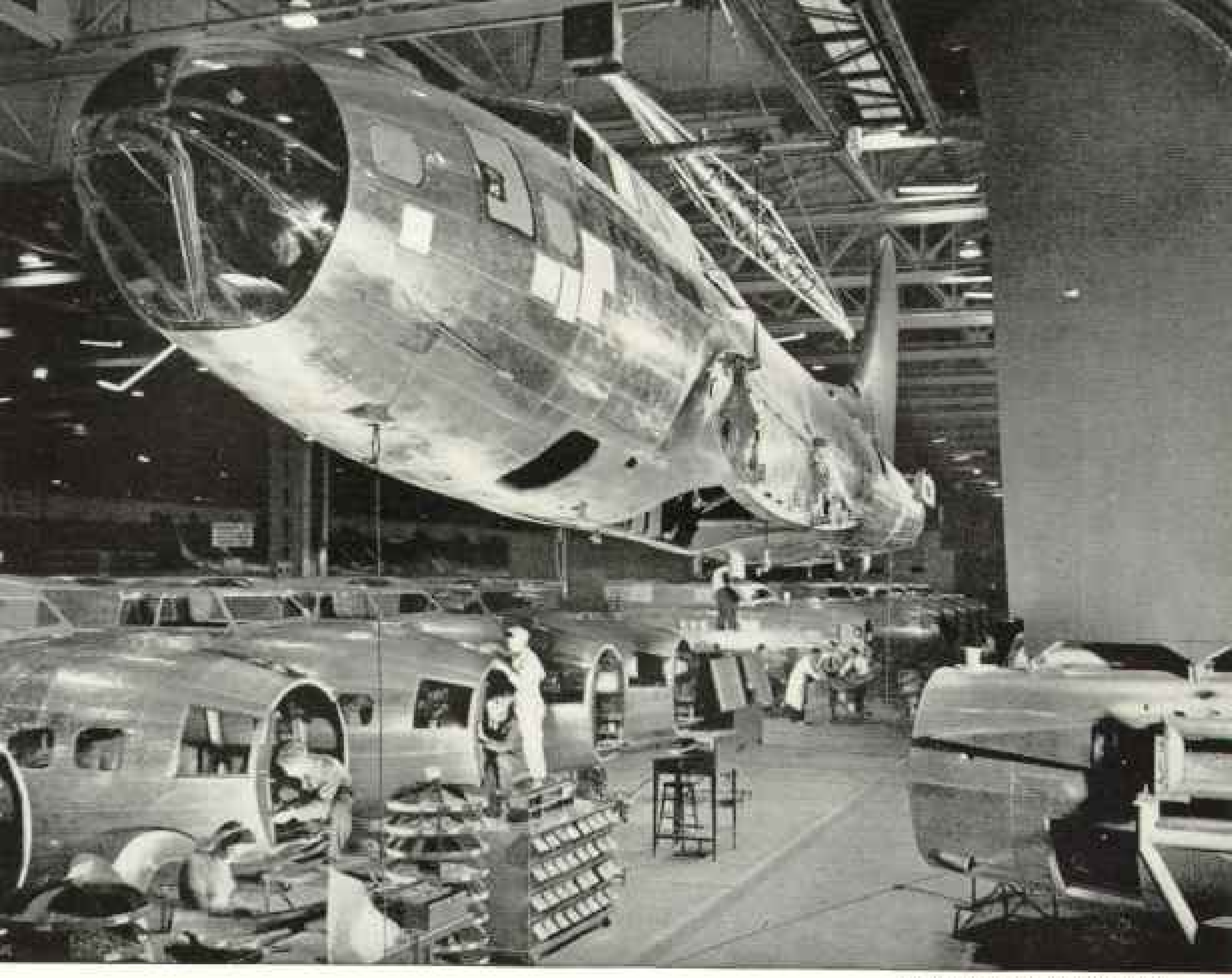
Super Shortwave . . . Distinguished Cabinets . . . New Ideas in a host of other advancements already being engineered into Meissner electronic equipment for our armed forces around the world.

For tomorrow—
A NEW WORLD OF SOUND AT YOUR FINGER TIPS

MEISSNER

MANUFACTURING COMPANY • MT. CARMEL, ILL.

ADVANCED ELECTRONIC RESEARCH AND MANUFACTURE



Finish the Fight with War Bonds

Flight without Wings

There is no roar of engines when the great, gleaming fuselage of a Boeing Flying Fortress makes its first flight. Smoothly and quietly it glides above the compact rows of partly completed bodies to the final assembly line. After the overhead crane has set it down in position, the wings, tail surfaces and landing gear will be joined to the fuselage and the big bomber will be ready for the air.

Thrilling even to the uninitiated, this scene holds a far deeper significance for the trained technical man. It typifies an entirely *new development* in production engineering—a major Boeing contribution to wartime speed and efficiency.

The Boeing system emphasizes short-flow, multiple-line production. It provides maximum use of every foot of plant space. It allows for flexibility in design—vital to rapidly changing combat needs. *And it turns out planes faster.* Boeing's rate of production today is 10 times what it was the month before Pearl Harbor.

Boeing production engineers have proved that by completing each section of a plane separately, and bringing the sections together only in the last stages of assembly, both space and time are saved. After a plane receives its wings it occupies several times as much room as when it is in sections. That is why even the wiring of a Fortress is fully assembled and installed before the final joining of wings and fuselage.

• • •

Without basic innovations in design, engineering and manufacture, Boeing could never have achieved the swiftly multiplied production that now darkens enemy skies. True today, it will be true of any product tomorrow . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE NEW B-29 SUPER BOMBER • THE STRATOLINER • TRANSOCEAN CLIPPERS **BOEING**

Plan to Spend YOUR VICTORY VACATION in Old Virginia

Scenic Skyline Drive Overlooking Shenandoah Valley

When victory comes, you will want to visit Old Virginia . . . relax at her picturesque mountain and beach resorts . . . see famed Williamsburg, the homes of great men and other historic shrines . . . marvel at the strangely beautiful caverns and other natural wonders . . . enjoy the wonderful scenery from the Skyline Drive atop the Blue Ridge. Plan now for that long-awaited vacation in this lovely and historic land.

Write for FREE Copy of Beautiful Pictorial Booklet

VIRGINIA CONSERVATION COMMISSION

Room 825, 914 Capitol Street
Richmond 19, Virginia

Motion Pictures on Virginia Available

Rest and play at Virginia Beach, Ocean View and other seashore resorts

KEEP IT FULL FOR THE LONG PULL!

Willing Willa writes wilful Willie Wednesdays! Wonderful words . . . written without woe. Willa wishes Willie would write willingly. What wonderful words writes Willa? . . . "Dearest Stupid: Why won't you learn to fill your pen properly? Then I could read it *all* . . . not just the splutters for kisses!"

Of course Willa's right: . . . Proper filling make pens willing . . .

ONLY ONE PERSON IN 5,000 KNOWS HOW TO FILL ANY FOUNTAIN PEN PROPERLY!

An Inkograph pen will give perfect satisfaction for many years—equal to that you expect from the highest-priced fountain pen—*provided you fill it properly.* If you haven't received one of our instruction sheets from your dealer, send us a 3c stamped, self-addressed envelope and we will mail you a copy.

Beware of imitations—Only by insisting on the genuine can you enjoy *every one of the advantages* offered by Inkograph. Look for the name Inkograph on every pen.

Please do not order pens by mail. Go to your dealer.

DeLuxe Model **INK-O-GRAPH $2**

Inkograph Co., Inc., 200 Hudson Street, N.Y.C. 13

Multiply him by

1,458,912—

MULTIPLY him by 1,458,912 and you have the number of passengers who rode The Milwaukee Road's Hiawathas during 1943—as many people as the population of Milwaukee, St. Paul, Minneapolis and Tacoma combined—the equivalent of the personnel in 97 infantry divisions!

Many of those Hiawatha passengers were men and women in uniform—traveling under orders or on furlough. Many others were civilians on missions vital to war production. And to the credit of Americans, let it be said that trips "just for pleasure" were few and far between.

The nearly a million and a half that the Hiawatha fleet carried last year were swelled by millions of others who rode the Olympian, the Pioneer Limited, the Arrow, the Southwest Limited, the Chippewa, the Marquette, the Sioux and other Milwaukee Road trains.

In addition, hundreds of thousands of men in the armed forces were transported to camps, maneuvers and embarkation ports on special trains via The Milwaukee Road and its connections. Altogether, America's railroads carried over four times as many passengers during 1943 as they did in recent pre-war years.

What form of transportation, other than the railroads, could keep the nation's passenger traffic moving so smoothly under existing war conditions? What other form of transportation could provide such swift, dependable, economical service for the mass movement of a nation of 133,000,000 people?

THE MILWAUKEE ROAD

SERVING THE SERVICES AND YOU

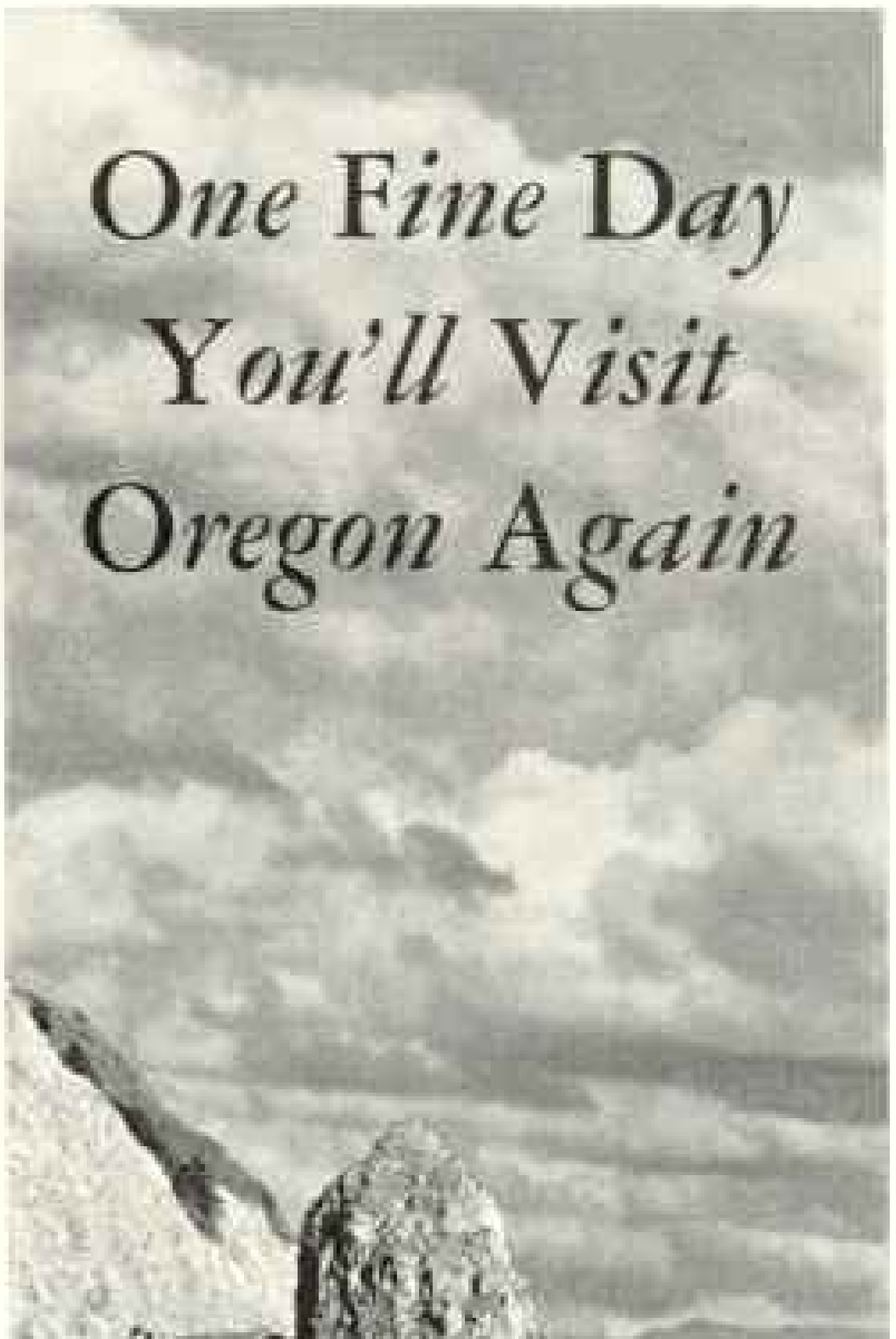
Three Ways to a Perfect Shave

Some men like lather cream, some brushless, others prefer shaving soap—but all who recognize quality look for the name Old Spice when buying shaving requisites. Their consistent excellence, distinguished character and tangy refreshment have made Old Spice the guarantee of shaving satisfaction. Old Spice Shaving Soap, in pottery mug, $1.00. Old Spice Shaving Cream, Lather or Brushless, 50¢. *Not illustrated: After-Shaving Lotion $1.00. Talcum 75¢. Bath Soap, 2 cakes $1.00. Also in sets, $1.00 to $5.00.*

Each a Shulton Original.

Let's All Back the Attack
• Buy War Bonds •

*Trade Mark Reg. U. S. Pat. Off.
SHULTON, INC. • ROCKEFELLER CENTER • NEW YORK 20, N.Y.



On the famed Oregon Coast Highway

ONE bright and shining day, when Victory comes, you'll return to pleasant thoughts of alluring vacation lands.

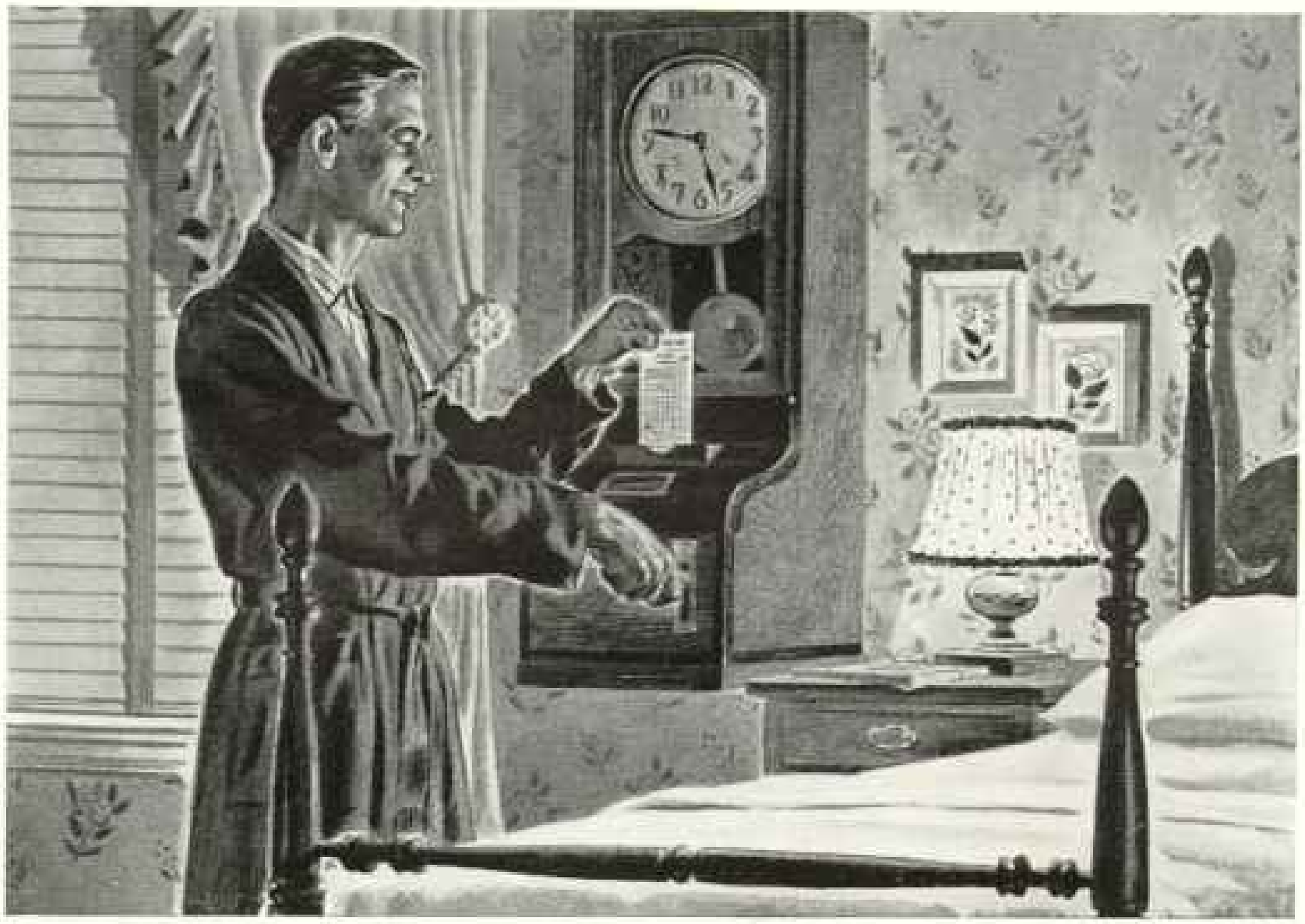
Remember Oregon! Our valleys will be as lush and green as ever, our majestic mountains still snow-crowned, our waterfalls, our beaches, as inviting as in the days of your memories.

The wildflowers will be in bloom, the rhododendrons, the azaleas, the misty blue lilacs. In the shaded pools and in the crystal lakes more trout will lurk. The trees in our great forests will be a little taller. From the mountains to the sea your favorite recreation will be awaiting you in this Evergreen Playground.

BUY BONDS TODAY SO THAT TOMORROW YOU MAY DRIVE

OREGON Highways

"Buy U. S. War Bonds—They Identify You"



If you punched a clock when you went to bed

IF YOU PUNCHED a time clock on going to bed, and again on arising, how many hours would your time card show?

Authorities say that adults need daily at least eight hours of sleep or rest in bed – children need considerably more. *This is especially true in these strenuous wartime days.*

Refreshing sleep comes more easily when you slow down and relax *before* bedtime. Try to forget your worries. They result in tension that defeats sleep. Try to have your bedroom dark, quiet, and well-ventilated. Bed clothing that weighs too heavily is an enemy of sleep. So is too much food, either solid or liquid, just before bedtime.

If you have difficulty getting to sleep, remember that complete relaxation is the next best thing. Relaxing physically means letting yourself "go limp all over." It is the exact opposite of tenseness.

You can teach yourself to relax. First, learn to recognize tenseness wherever it occurs in the body. Then, practice letting the tense muscles go limp. Try it at odd moments during the day —it is the secret of conserving energy.

Plenty of sound, *undisturbed* sleep is especially important to workers on a night shift. Someone —usually it will be the wife or mother—must take responsibility for planning the night worker's schedule on an orderly, regular basis. His bedroom should be away from family activity. A screen between window and bed will help shut out light.

Healthy, normal sleep permits your heart, lungs, and other vital organs to "loaf" along. The body can then mend its worn-out tissues and build new ones. Your full quota of sleep should carry you through the next day *feeling well, working efficiently, and in good spirits.*

To help you meet the increased pressure and strain of these busy days, Metropolitan will send you, on request, a free copy of a folder, 34-N, entitled, "*Relax and Revive.*"

COPYRIGHT 1944 — METROPOLITAN LIFE INSURANCE CO.

Metropolitan Life Insurance Company

(A MUTUAL COMPANY)

Frederick H. Ecker, CHAIRMAN OF THE BOARD

Leroy A. Lincoln, PRESIDENT

1 MADISON AVENUE, NEW YORK 10, N. Y.

Why do the birds fly north in the spring?

MANY OF THE BIRDS that spend their "winters" in the tropics, spend their summers in the northern part of the United States and Canada.

Our ruby-throated humming bird is one of these. In spite of his small size, he is said to wing his way across the Gulf of Mexico in one night.

Why do these birds make the long journey north in the spring? Why don't they spend their summers as well as their winters in warmer regions? This is a question to which science has not yet been able to find an adequate answer, although many interesting theories have been advanced.

One explanation is that they may need more hours of daylight, when they are raising their families, than the tropical twelve hour day would give them. For it takes a lot of bugs to bring up a family of nestlings.

So the birds wing their way north to New England, to Canada, even as far as the Hudson Bay region where they have sixteen, eighteen or twenty hours of daylight to do all the work which must be done.

If you are the father of young children, you need insurance protection for much the same reason that the birds are said to fly north. It takes time to earn the money required to bring up a family. Often as long as twenty or twenty-five years.

You have no guarantee that you will be granted that time. There is also the danger that you might have to dip into precious savings to meet some heavy expense following an accident.

But two kinds of insurance, which every man with a family should carry, will give you the protection you need: Life insurance to support and educate your children whatever happens to you; Accident insurance to pay the bills and provide an income for your family should some accident lay you up.

The Travelers man in your community would be glad to discuss your protection problems with you.

• • •

MORAL: Insure in The Travelers. All forms of insurance and surety bonds. The Travelers Insurance Company, The Travelers Indemnity Company, The Travelers Fire Insurance Company, Hartford, Connecticut.

LEADERS IN *Writing* PROGRESS !

THE BOTTLE WITH THE TOP WELL

Top Well keeps fingers clean because it is not necessary to dip into bottom well. Only SKRIP has the Top Well. All other writing fluid containers are bottom-well bottles. SKRIP, successor to ink. Double size, 25c—regular size, 15c.

ASK FOR SHEAFFER'S WHEN YOU ASK FOR LEADS

Most of the better stores have complete Sheaffer lead departments containing all sizes, colors and grades—strong, smooth-writing, grit-free—the original, genuine Fineline leads developed for Sheaffer by the Jos. Dixon Crucible Co. Economy package, 25c; regular package, 15c.

From outside styling of obvious beauty to exclusive inside features of mechanical excellence, Sheaffer writing instruments combine artistry with craftsmanship of rare precision. Built to serve faithfully and long, perfectly balanced for instant, pleasureful writing, your Sheaffer's will prove a source of pride and satisfaction through the years.

Much of Sheaffer's plant and personnel is now 100% devoted to precision manufacture of armaments. Of the pens and pencils being produced by authority of the War Production Board, a substantial percentage is available for civilians. W. A. Sheaffer Pen Company, Fort Madison, Iowa; Toronto, Ontario, Canada.

At left: "TRIUMPH" *Lifetime* * pen, with clip, $12.50; pencil, $5—"TRIUMPH TUCKAWAY" model, without clip, for men or women, carries safely *in all positions* in purse or pocket—pen, $12.50; pencil, $4.

*All *Lifetime* pens, identified by the White Dot, are unconditionally guaranteed for the life of the first user except against loss and willful damage—when serviced, if complete pen is returned, subject only to insurance, postage, handling charge—35c.

Listen to **SHEAFFER'S WORLD NEWS PARADE** *with* **UPTON CLOSE**
***NBC Complete Network*—Sundays, 3:15 P.M. E.W.T.; 2:15 P.M. C.W.T.; 1:15 P.M. M.W.T.; 12:15 P.M. P.W.T.**

SHEAFFER'S

Copyright 1944, W. A. Sheaffer Pen Co.

* Trademark Reg. U. S. Pat. Off.

CINÉ-KODAK SPECIAL making a training film on the great sound stage of the Naval laboratory at Anacostia.

Official U. S. Navy Photograph

A great war camera—the "SPECIAL," leader of all Ciné-Kodaks

IF you are an advanced amateur, you have long known Ciné-Kodak Special as the movie camera that "has everything." Its combination of great qualities makes it far and away the finest instrument for advanced 16-mm. movie-making ever produced.

If you are a doctor, physicist, biologist—you are familiar with the Special's remarkable adaptability in recording and demonstrating all kinds of scientific work.

And now—as a great war camera—Ciné-Kodak Special is again demonstrating its tremendous versatility.

Hundreds of these Specials are in Army, Navy, and Air Force hands today, contributing to the most complete war record ever attempted. The Special's adaptability to the toughest and most varied conditions gives it a very great range of war uses—from filming action on Navy ships, and with our Army at the front, to making educational and instruction films in the great Naval laboratory at Anacostia, as shown in the picture above.

* * *

Your own Ciné-Kodak is a blood brother of this great war camera. Take care of it. Use it, these days of limited film, to make movies of the home front, for your soldier or sailor to see on his return . . . Eastman Kodak Company, Rochester, N. Y.

Ciné-Kodak

EASTMAN'S FINER HOME MOVIE CAMERA

Coming...

From the Crucible of War

When motion picture cameras and projectors can again be made, Revere — the leader in the 8 mm. field — will have new improvements assuring finer movies and still greater simplicity of operation.

Revere Camera Company
Chicago, Illinois

© 1943, Henry Leonard & Thomas, Inc., Grand Pa., N. Y.

Fixing 'em on the Fly for Victory

How Santa Fe Is Speeding Up the Servicing Time of War-Vital Freight Cars

Another chapter in the story "Working for Victory on the Santa Fe"

War can't wait. The load on a freight car might win a battle . . . and save the lives of thousands of our fighting men.

There's a battle-winning spirit in the way Santa Fe crews are keeping freight cars rolling these days. They are actually repairing loaded cars without unloading them!

When an inspector reports a flat wheel, a splintered side, or a shifted load on a Santa Fe freight, the car is cut out of the train . . . fixed "on the fly" on a repair track . . . and switched back on the same train, or the one immediately following.

Ready to Roll Again

A Santa Fe gondola has pulled up with a flat wheel. The car and its war load are lifted by pneumatic jacks. Within a few minutes a complete new truck of four wheels is in place, and the car is again ready to roll.

Santa Fe

SANTA FE SYSTEM LINES

Serving the Southwest and California

ONE OF AMERICA'S RAILROADS—ALL UNITED FOR VICTORY

Distinguished

FOR SERVICE TO OUR NATION AT WAR

Widely used on training, combat and production fronts — in the Army, the Navy, Merchant Marine, Red Cross, Civilian Defense—at Home, as well as by The United Nations the world over.

A Peacetime World Will Benefit From Victor's Wartime Achievements

Victor

16MM SOUND MOTION PICTURE EQUIPMENT

ANIMATOGRAPH CORPORATION

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New York — McGraw Hill Bldg., 330 W. 42nd St.

Chicago — 188 W. Randolph

CALENDOGRAPH, *famous Movado watch, registers the procession of time—in seconds, minutes, hours, days and months. The supply of these watches is limited.*

MOVADO

WINNERS OF 165 OBSERVATORY AWARDS

SOLD AND SERVICED BY LEADING JEWELERS ALL OVER THE WORLD

Copr. 1944, Movado Watch Agency, Inc., 510 Fifth Ave., N.Y.
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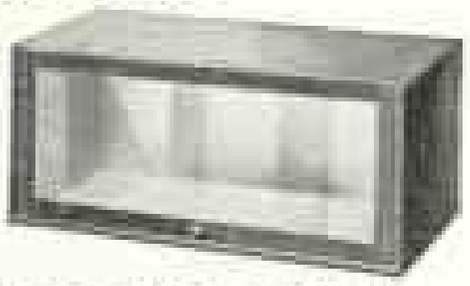
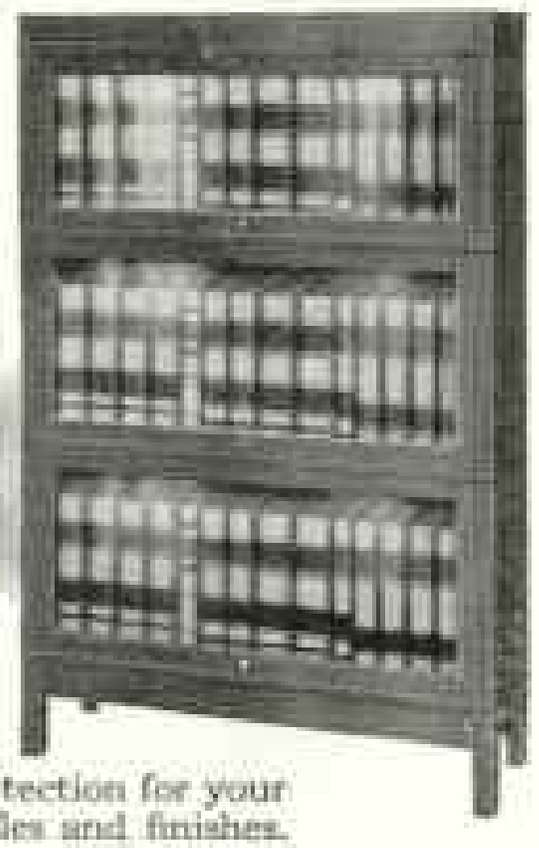
GLOBE-WERNICKE

SECTIONAL BOOKCASE



GROWS WITH YOUR LIBRARY!



Now you can "add" to your bookcase as you add to your library . . . a section at a time! Finest examples of wood craftsmanship. Protection for your books. Choice of several styles and finishes. The Globe-Wernicke Co., Cincinnati, Ohio.

Write for FREE 32-page book "The World's Best Books." Dept. 3

Globe-Wernicke

SECTIONAL BOOKCASES

"Buy U. S. War Bonds—They Identify You"

Here is that mighty midget in the U. S. Army Signal Corps' matchless communications equipment arsenal. Pioneered and developed exclusively by Motorola Electronics Engineers it is fighting for Victory on every battle front.

For production "beyond expectation" Motorola has received its third award. It is the aim of every Motorola employee to produce faster and better until final Victory has been won.

Motorola RADIO
FOR HOME & CAR
GALVIN MFG. CORPORATION • CHICAGO

SHEPARD Home LIFT

THE AUTOMATIC ELECTRIC RESIDENCE ELEVATOR

Operates from Light Circuit

Safe—dependable. Moderate price—inexpensive to operate. Easily installed in new or old homes.

Not available now because of war work, but send for descriptive literature. Keep this desirable home convenience in mind.

THE SHEPARD ELEVATOR CO.

Builders of Finest Office and Hotel Elevators

2432 COLERAIN AVENUE CINCINNATI, OHIO

Representatives in Principal Cities

This tiny MAICO brings you a world of SOUND

90% of America's precision hearing test instruments are MADE BY MAICO

● Small, light and easy to wear. Enables hearing normal conversation clearly, even whispers. Write today for "*New Experience in Hearing.*"

THE MAICO COMPANY

2632 Nicollet Avenue, Dept. 53-A, Minneapolis, Minn.

USE LAVORIS

A Refined Healthful Habit

There is no substitute for absolute mouth cleanliness

*DUES: Annual membership in United States, $3.50; Canada, $4.50; abroad, $4.30; life membership, $100. Remittances should be payable to National Geographic Society. Those from outside of continental United States and Canada should be made by New York draft or International money order.

RECOMMENDATION FOR MEMBERSHIP

IN THE

NATIONAL GEOGRAPHIC SOCIETY

* *The Membership Dues, Which Are for the Calendar Year, Include Subscription to the National Geographic Magazine*

PLEASE FILL IN BLANK BELOW, DETACH, AND MAIL TO THE SECRETARY

_____ *1944*

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington 6, D. C.:

I nominate _____

Occupation _____

(This information is important for the records)

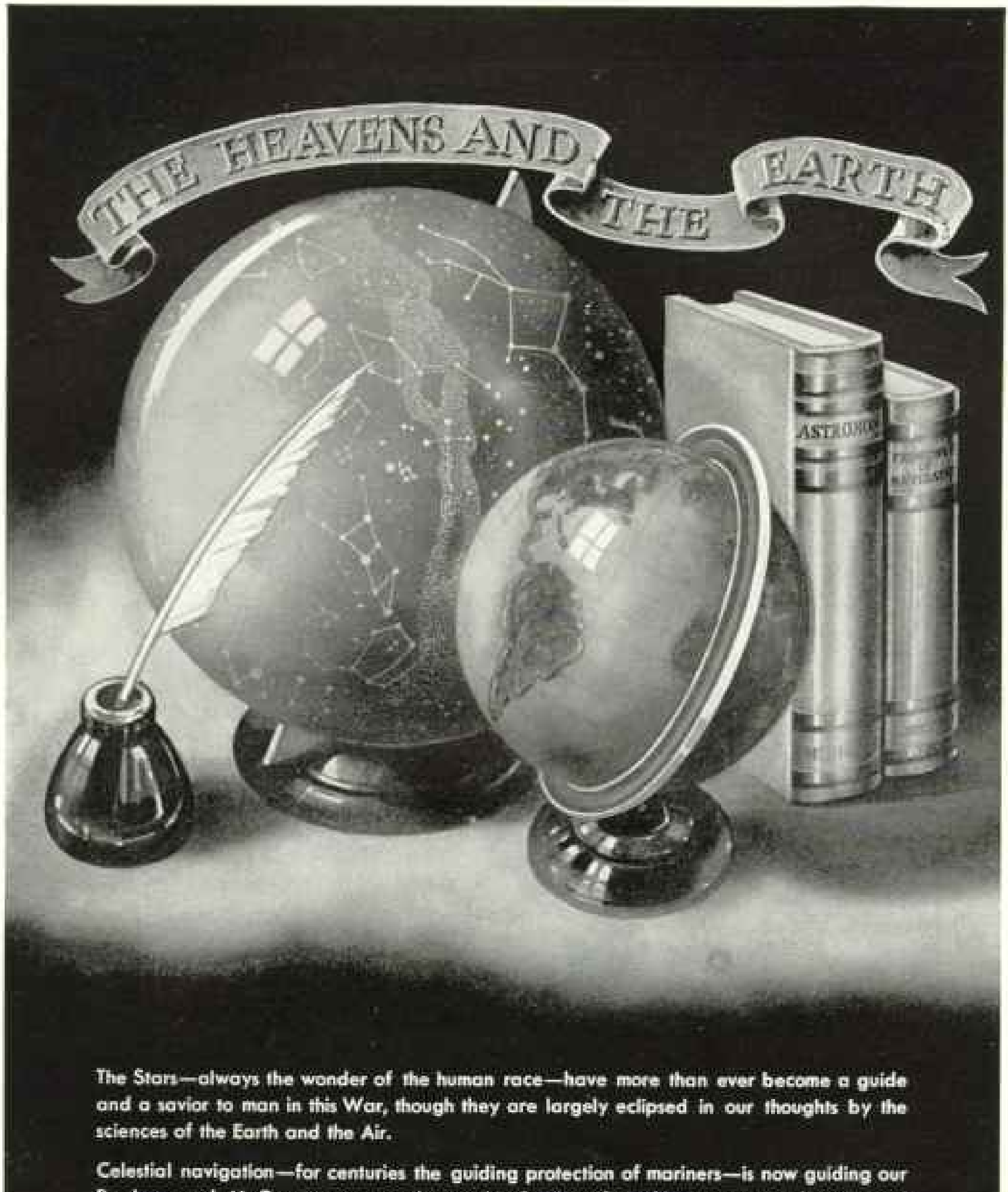
Address _____

_____ *for membership in The Society.*

_____

_____

3-44 *Name and Address of Nominating Member*



The Stars—always the wonder of the human race—have more than ever become a guide and a savior to man in this War, though they are largely eclipsed in our thoughts by the sciences of the Earth and the Air.

Celestial navigation—for centuries the guiding protection of mariners—is now guiding our Bombers and Air Transports over thousands of miles of trackless ocean and uncharted wilderness, day and night, with uncanny accuracy.

Thorough training in the science of the Heavens is as important to our long-range Air Navigators as their training in the use of compass, radio and instruments. Like the Pilots who fly them, these navigators receive much of their air training behind reliable engines built by Jacobs.

JACOBS AIRCRAFT Engines

POTTSTOWN, PENNSYLVANIA, U. S. A.

SHE HAS THE VOICE WITH A SMILE, TOO

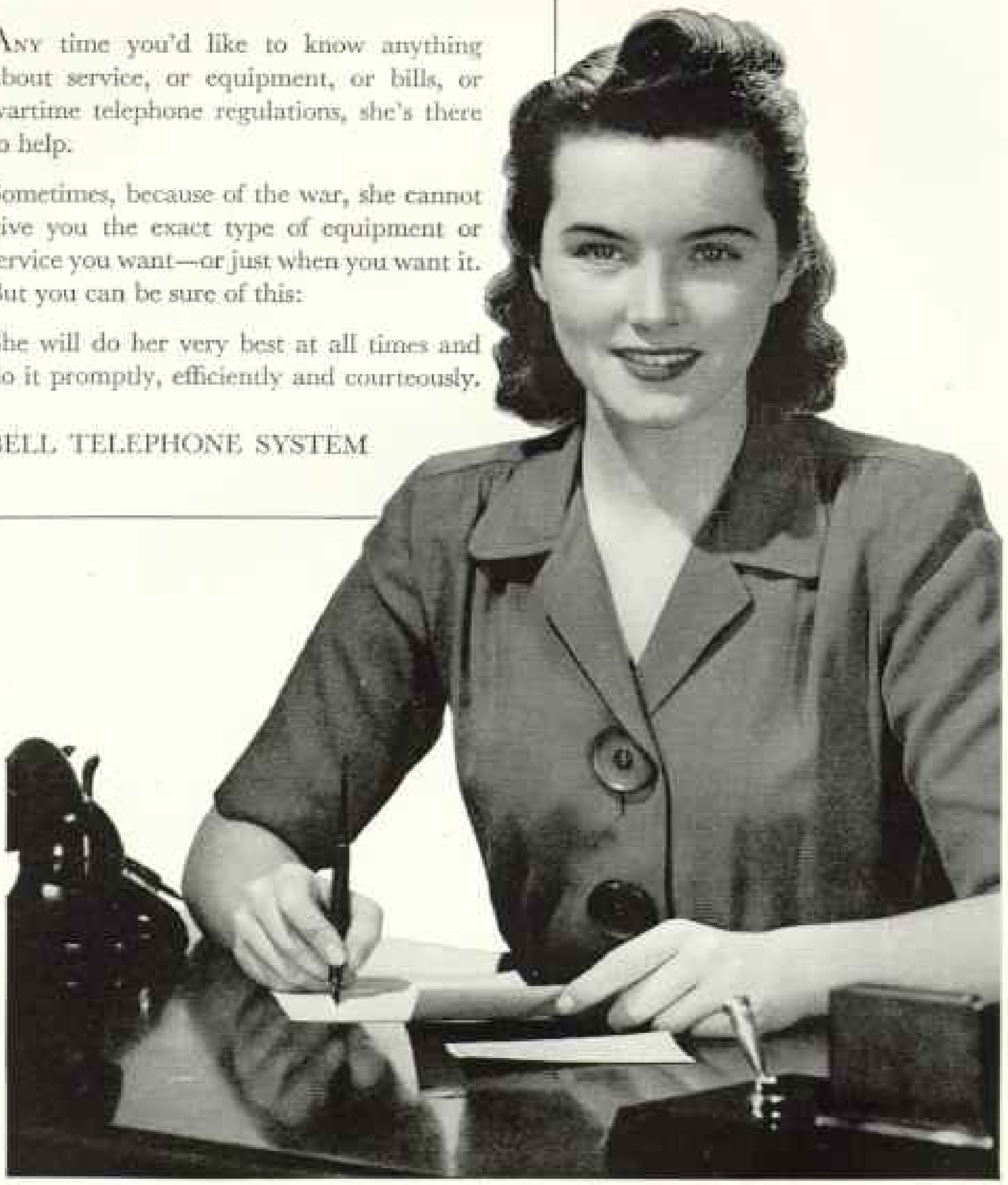
She's your personal representative at the telephone company—the girl in the Business Office

Any time you'd like to know anything about service, or equipment, or bills, or wartime telephone regulations, she's there to help.

Sometimes, because of the war, she cannot give you the exact type of equipment or service you want—or just when you want it. But you can be sure of this:

She will do her very best at all times and do it promptly, efficiently and courteously.

BELL TELEPHONE SYSTEM



When you are calling over war-busy Long Distance wires, the operator may ask you to "please limit your call to 5 minutes." That's to help more calls get through during rush periods.

Hands that Command the Nation

THE TECHNICAL KNOWLEDGE, the ingenuity and the resources of America are at the disposal of our skilled medical officers on the fighting fronts of the world. They command every aid the nation can supply. That is one reason why a wounded man's chances of survival are greater today than they have been in any other war.

Among the materials that are helping medical men in their fight to save lives are the *stainless steels*. Used in operating tables, surgical instruments and in other medical equipment, stainless steels are serving in hospitals in this country and overseas.

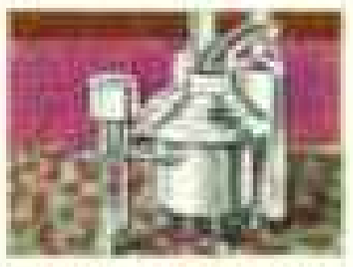
Frequent sterilization with high temperature steam or strong disinfectants will not injure stainless steels. Their smooth, hard surface is easily kept free from germs that can cause fatal infection. Even in the damp tropics, stainless steels do not rust. Tough and durable, free from the possibility of chipping, stainless steels can withstand the rigors of wartime use.

On the home front, too, stainless steels are making their contribution to the health of the nation. Because they are easier to clean and keep clean than other metals, they are widely used in equipment necessary to the processing, preparing and serving of foods. They keep their bright finish, impart no flavor to food, and resist food chemicals. They will be used increasingly in restaurants, in the home, and in many industries where their unique properties are so desirable.

Stainless steels are "stainless" because they contain more than 12 per cent chromium. Low-carbon ferrochromium, a research development of ELECTRO METALLURGICAL COMPANY, a Unit of UCC, is the essential ingredient in the large-scale production of stainless steel. Units of UCC do not make steel of any kind. They do make available to steelmakers many alloys which, like ferrochromium, improve the quality of steel. The basic research of these Units means useful new metallurgical information—and better metals to supply the needs and improve the welfare of mankind.

▼

Members of the medical profession, architects and designers are invited to send for booklet E-3, "THE USE OF STAINLESS STEELS IN HOSPITALS." There is no obligation.



CARBON FOR HEALTH. Research by a UCC Unit has resulted in different forms of carbon used in milk irradiators, "sun" lamps, gas masks—and in air conditioning installations.

GASES FOR HEALTH. LINDE oxygen U. S. P. made by a Unit of UCC is used by the sick in hospitals and at home—and it contributes to the safety of our high flying aviators.

CHEMICALS FOR HEALTH. Synthetic organic chemicals, developed by a Unit of UCC, mean better anesthetics, more plentiful sulfa drugs, vitamins and other pharmaceuticals.

PLASTICS FOR HEALTH. BAKELITE and VINYLITE plastics, produced by UCC Units, mean sanitary paints, floor coverings, sheeting, "horn sleeves" and other essentials.

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The Prest-O-Lite Company, Inc.

PLASTICS
Bakelite Corporation
Plastics Division of Carbide and Carbon Chemicals Corporation