

The LIMITS of the EARTH

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THE LIMITS OF THE EARTH

I. THE REACHES OF TIME AND SPACE

The shadows of coming events

WE LIVE in the hour of glory and of fear. The triumphs and tragedies of past ages are being joined as the present century runs its course.

Man is becoming aware of the limits of his earth. The isolation of a nation, or even a tribe, is a condition of an age gone by. No longer is Lhasa a sanctuary — no longer is any community or country immune from the influences and pressures that pervade the entire world. For better or for worse, the people of New York and of Novo Redondo, of Delhi and of Danzig, are linked to a common future. Empires dissolve or struggle to survive in changing form under the impact of forces that are both physical and social. These forces stem from a common cause — the unfilled need of rapidly increasing numbers of people for the essentialities of life.

The fierce and dreadful conflict now dividing the East and the West is more than a clash of ideologies. It is a battle not only for the minds of men but for the

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resources of the earth — the inadequate resources — the resources of which there are fewer for each person the world over each day. Communism has become the social and political manifestation of need or want. Democracy, mother of individual liberty, flourishes best upon the well-being of people.

The strength of any political system will, in the long run, depend upon its capacity to protect people against conditions of want that are now becoming increasingly intolerable. The answer cannot be found through war, for the problem will still remain. Social and moral points of view, as well as spiritual concepts, are, as ever, profoundly involved.

More than a billion people are in want, hundreds of millions are balanced on the starvation line. They hear and dream of the magic that is freedom or liberty. They are well aware of the material resources that are required to nurture it. The determining question in the future of civilization is whether the supply of resources to be gained from the earth can prove adequate not only to meet the basic needs of people but to support the complex requirements of modern culture and economy. What we call the "free world" has it in its power to find the answer to this primal question. The effort to accomplish this cannot be measured in days or in years but at best in terms of a generation. To succeed, we must clearly understand the facts regarding existing and potential resources. Equally, the facts regard-

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ing populations, their growths and pressures, must be recognized and dealt with deliberately and fearlessly. It is needless to try to measure which of these two problems is the more immediate, or the more critical. The destiny of man depends upon the resolving of both.

Sometimes, in faraway moments, our thoughts turn to the meaning of mankind's life on this earth—the millenniums from animalism to the atomic age.

There is no central theme. We cling to the conviction of evolution and progress—and hold before us the radiant grail of intellectual and spiritual growth. Achievements and failures merge and dissolve as we contemplate the hundred or more centuries since a human hand first placed form and color upon the cave walls of Altamira. The writings of history cannot give us the perspective for which we search. The story of human life, though similar through all ages, defies definition in totality. So it is that the historian, conscious of the inscrutable whole, perforce deals with definable parts—with the arts and sciences, with religion and philosophy, with trade and industry, and with the rise or fall of political power.

The purpose of this book is to stress the influence, both as regards past history and the present world situation, exerted by the relationship between people and the resources of the earth. This is indeed the eternal equation—the formula that holds the key to human life, then, now and tomorrow.

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When resources have proved adequate not only to meet the basic needs of peoples but also to support their economies, nations and cultures have flourished. The so-called "great periods" of history are intimately identified with this favorable relationship. Lacking it, apparently indestructible empires have dissolved.

The essential components within the total of natural resources available to man are those that are constantly being created and renewed by the vital processes of the earth itself. All of these are derived either from plant life or from animal life, whether of land or marine origin. These, in the full sense of the term, are *living resources*, not only because they themselves are alive, but also because they provide the foods and fibers which sustain man's own life, as well as a substantial part of his industry and economy.

While the great edifice of civilization has been built upon the development and use of a vast number of natural resources that are inanimate and nonreplenishable — a fact clearly evident as man progressed successively from the age of stone to the age of bronze and, finally, to the age of iron — the organic resources obtained from the soils, from the forests and from the sea are those that are of essential importance. They have been the primary factors in man's history in the past, responsible for his food supply and other physical needs as well as of immeasurable influence upon his cultural and social development.

We human beings are suspended in three-dimensional time: the past, the present and the future. We are apt to disregard the first and are quite uncertain about the last. Only of the present are we sure — but are we? A moment ago it was the future and in another it will be the past. In turn, we exist on the face of a small planet, under a dynamic canopy of life-sustaining atmosphere. Permeating the influences and conditions that surround us is distance, the measurer. We need to cast our gaze into the reaches of both time and space — into the past as into far places — for only so can we hope to gain perspective as to *now*, *here*, and, above all, as to *tomorrow*.

Any exploration into history becomes more revealing if we can discover the causes that led to the decline or disappearance of once great nations. Our interest may center principally upon birth and upon life itself, but all the while the enigma of death is a constant challenge to our curiosity. As in the individual, so in the nation, there is no single cause. The interplay of forces, physical and mental, that controls the destiny of human society is infinitely complex and indeed defies formulization. But there are clues, there are precedents and patterns; and these at least we can contemplate, although a complete understanding of cause and effect may elude us.

The glory that was Greece! What combination of circumstances brought twilight and eventual darkness

to that shining period in human history? The well-ordered and stable society of the age of Pericles seemingly contained the quality of permanence. Greece would not crumble, so it appeared, as had its neighbors to the east—those empires of Babylonia and of Assyria. They, too, in their day had the appearance of permanence—their riches accumulated from the fertility of their lands watered by the Tigris and the Euphrates, their peoples lived well, built flourishing cities, established governments, developed the arts and enjoyed a degree of welfare unknown to more primitive peoples. We cannot be sure of the various causes that led to the breakdown of the Near Eastern civilizations. But one fact stands clear—their land lost its productivity and their resources failed them. A cradle of civilization became a desert.

Likewise, centuries later, forces of dissolution were at work in Greece. The following observations tell a story:

At that period, however, with which we are dealing, when Attica was still intact, what are now her mountains were lofty, soil-clad hills; her so-called shingle plains of the present day were full of rich soil; and her mountains were heavily afforested—a fact of which there are still visible traces. There are mountains in Attica which can now keep nothing but bees, but which were clothed, not so very long ago, with fine trees producing timber suitable for roofing the largest buildings; and roofs hewn from this timber are

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still in existence. There were also many lofty cultivated trees, while the country produced boundless pasture for cattle. The annual supply of rainfall was not lost, as it is at present, through being allowed to flow over the denuded surface into the sea, but was received by the country, in all its abundance, into her bosom where she stored it in her impervious potter's earth and so was able to discharge the drainage of the heights into the hollows in the form of springs and rivers with an abundant volume and a wide territorial distribution. The shrines that survive to the present day on the sites of extinct water supplies are evidence for the correctness of my present hypothesis.*

This statement was not written by a modern observer. It was written by Plato and he wrote it over two thousand years ago. He recognized that forests, water supply, and fertile soils were related so intimately that they were in truth a unity, not independent elements. Yet his observations have an even deeper significance, for he sensed that land-illness and a deterioration of the physical environment would inevitably injure the continuity of his country's welfare. The dark shadow of resource failure was traveling westward from Assyria and the lands to the east. Unquestionably other deteriorating factors, not wholly unrelated, were at work, including the succession of exhausting wars be-

* Toynbee, Arnold J., *Greek Historical Thought* (From Homer to the Age of Heraclius). J. M. Dent, London, 1924, pp. 169-170. Translation taken from Plato: *Collected Works*, Oxford Text, Vol. IV.

tween the Grecian states, as well as suspected but not provable inroads upon the health and strength of the Grecian people from malaria and other epidemics. There were also purely economic causes. For instance, Athens had been assisted in gaining its eminence by the treasures of silver drawn from its mines at Laurium, where exploration has since exposed more than two thousand shafts and a hundred miles of underground workings. This wealth helped to bring the Athenian state to a condition where its culture could flower, and aided its rise to political power by making possible the hiring of mercenaries and the subsidizing of its co-members in the Panhellenic League. The exhaustion of the mines was one of the many factors that led to the decline of Athenian intellectual glory and political leadership.

Other theories endeavor to account for the end of that remarkable period in human history. One is that changes in climate occurred in both Asia Minor and the Mediterranean Basin and that these changes gradually undermined the fertility of the land. While it is true that many regions of the earth are subject to cyclical climatic change, it is highly implausible that those that may have occurred in the Mediterranean region during the centuries of ascendancy and decline of Grecian civilization could, either in character or extent, have had any substantial bearing upon the well-being of its peoples. As a matter of fact, any changes

in climate would equally have affected the Italian peninsula, lying only a few hundred miles to the west, whose people were at the dawn of their power.

The widespread deforestation so vividly described by Plato would, in itself, have robbed the country of its dependable water supply, the prime requisite for the stability of its agriculture. The resources of the country, as of those lands to the east upon which it had so long depended, were indeed showing signs of drying up, but the causes were man-made, not natural. One can sense, and yet not positively identify, a contemporaneous deterioration of environment and peoples.

We can reject the implications that lie behind Plato's observations if we will. They provide a clue, but how important a one we shall never know. The shining years were running out, and at the end Greece became just another colony of an emerging and vital force — the Roman Empire.

Now we can commence to see more clearly, to explore more intimately, this relationship between peoples and their resources, for the lives of the Romans stand vividly before us through the writings of their statesmen and philosophers. The mists that shroud so much of the history of earlier peoples are dissolved. The story of Rome, from the days of Camillus to those of Constantine, suspended in high light above the Dark Ages, assumes the character of a prologue to modern times. Assuredly there is an affinity between *then* and

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now, and, in this light, certain of the causes of the Roman Empire's decline may be considered.

The Romans themselves, even in the early days of the empire, became aware of the progressive disintegration of their country. Some expressed the view that *corruptio* was responsible for the constantly increasing troubles facing the empire: corruption in personal morals, graft in government and in the activities of wealthy people, corruption resulting from poverty, indeed an all-pervading decline in ethical standards. We do not know that the senate established any investigating committees, but it did formally complain, and called upon the Emperor Tiberius for action. He sent a message to the senate that read in part:

That these abuses are the subject of discussion at every table and the topic of conversation in all private circles, I know quite well. And yet, let a law be made with proper sanctions, and the very men who call for a reform will be the first to make objections. The public peace, they will say, is disturbed; illustrious families are in danger of ruin. . . .

Many, however, placed the blame upon the concentration of ownership of land into large estates known as latifundia, which drew from the elder Pliny the remark that "the latifundia were ruining Rome [*Italiam*] as well as its provinces." Seneca, although himself one of the richest landowners, gave public expression to his concern by asking, "How far will you extend the

bounds of your possessions? A large tract of land, sufficient heretofore for a whole nation, is scarce wide enough for a single lord." Cicero had earlier reported that the entire commonwealth could not muster two thousand property owners.

The poet Horace describes his reasons for his somber view of things by stating that the earlier great accomplishments of his people were due in large part to the deeds of a sturdy farmer race, now dispossessed by the growth of the *latifundia* system, demoralized, eking out a bare living on the land or moving to Rome as paupers dependent on government doles.

But was Horace not still dealing with effects rather than causes? For instance, if the large landed estates were at the bottom of the trouble, how did it happen that they came into existence?

There is a pretty clear trail of evidence that indicates that the initial movement to eliminate the small independent landowner, the bulwark of Roman society in the early days of the Republic, took place even as far back as 400 B.C. However, the body blow to Roman agriculture, as well as indeed to Roman society, followed upon the final triumph of the wars with Carthage almost three centuries later. In passing, Sicily, then so productive, was presumably one of the principal causes of the bitter conflict between Rome and Carthage. The great Carthaginian estates, operated by agent farmers and slave labor, became a model for the