

THE SCIENCE OF
MAN
IN THE
WORLD CRISIS

EDITED BY
RALPH LINTON

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Preface

THE PRESENT CRISIS in world affairs has resulted in a flood of books. Most of these are concerned with plans for world reorganization. The purpose of the present volume is much less ambitious. Everyone recognizes that such planning will require all the aid which science can give. At the same time, the problems involved are complex and many sided and can only be solved by collaboration between workers in many different fields of scientific research. It has been observed that it usually takes about a generation for the new discoveries and techniques of one science to become a part of the regular working equipment of other sciences. It takes considerably longer for such findings to become familiar to the layman and to exert any significant influence upon his thinking. The present book is an attempt to shorten this time interval. It is directed both to scientists and planners and to the general public without whose coöperation no plan can succeed.

The science of man is so new and its fund of knowledge has been increasing so rapidly that many of its findings have not yet reached scientific workers in other fields, let alone the man in the street. At the same time, some of these findings are of the utmost importance both for the intelligent planning of the new world order which now appears inevitable and for the implementation of any plans which may be made. The builders of such an order are foredoomed to failure unless they understand the potentialities and limitations of their human material. Scarcely less important is a knowledge of those trends which operate over long periods of time and of the problems which the specialist can foresee before they arise or can recognize before they become acute enough to call for drastic action. Lastly, even plans which take all these factors into account cannot succeed without the use of adequate techniques. At all these points the science of man can provide some aid.

In the preparation of the present volume the editor has been confronted with certain wartime limitations with regard to both space and personnel. A very large proportion of the younger scientists in this field are engaged in government service, many of them with the armed forces. After due consideration it was decided to make this book a

report from the frontiers of research, the outposts of science rather than its settled hinterland. This has resulted in the exclusion of various subjects which might well have been included under other circumstances. Facts which are all ready well known have been passed over lightly and various problems which are already widely recognized and discussed have been omitted. Thus it has been taken for granted that the average reader knows and accepts the basic facts of man's origin and evolution and no space has been devoted to them. However, since much of our most recent knowledge of race has not reached the layman, this has been dealt with at some length. Again, the problems of Jewish and Negro minorities have not been dealt with specifically. Everyone is conscious of the existence of these problems and the literature dealing with them is already voluminous. They have been passed over in favor of a presentation of our new knowledge regarding the problems of minority groups in general. On the other hand, the looming problem of how to deal with the American Indian has been given considerable space since most laymen scarcely realize that such a problem exists. While such selectivity is sure to arouse criticism in certain quarters it is hoped that the present book will be judged on the basis of what it includes, not what it omits.

The editor wishes to express his gratitude to the numerous contributors who have collaborated to make available the results of recent research in their special fields. He feels that particular thanks are due them for their willingness to coöperate in terms of the all-over plan of the volume and to assume the added work involved by their collaboration, especially at this time. Thanks are also due to Dr. Paul Fejos, Director of Research of the Viking Fund, with whom the idea of this symposium originated and to the President and Directors of the Viking Fund, whose generosity has made possible its preparation and publication.

RALPH LINTON

*Department of Anthropology
Columbia University
New York, N.Y.
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The Authors

JOHN DOLLARD is Professor of Social Anthropology and research worker in the Institute of Human Relations at Yale University. Since 1942 he has been Expert Consultant to the Secretary of War. His publications include: *Criteria for the Life History*, 1933; *Cast and Class in a Southern Town*, 1937; *Frustration and Aggression* (with L. W. Doob and others), 1939; *Children of Bondage* (with Allison Davis), 1940; *Victory over Fear*, 1942; *Fear in Battle*, 1943.

MANUEL GAMIO is Director of the Inter-American Indian Institute of Mexico and former Under Secretary of Education and Director of the Department of Rural Populations in the Ministry of Agriculture, Republic of Mexico. His most important publications are: *El Gobierno, el territorio, la poblacion*, 1917; *La Poblacion del Valle de Teotihuacan* (en colaboracion), 1921; *Mexican Immigration to the United States*, 1930; *Hacia un Mexico Nuevo, Problemas Sociales*, 1935.

A. IRVING HALLOWELL is Professor of Anthropology at Northwestern University. His publications include: *Bear Ceremonialism in the Northern Hemisphere*, 1926; *The Role of Conjuring in Saulteaux Society*, 1942; and numerous contributions to anthropological, psychological, and psychiatric journals.

MELVILLE J. HERSKOVITS is Professor of Anthropology at Northwestern University. His publications include: *The American Negro, a Study in Racial Crossing*, 1928; *Life in a Haitian Valley*, 1937; *Dahomey*, 1938; *Acculturation*, 1938; *The Economic Life of Primitive Peoples*, 1940; *The Myth of the Negro Past*, 1941.

ABRAM KARDINER is Assistant Professor in the Columbia University School of Medicine, Collaborator in the Department of Anthropology, Columbia University, and a practicing Psychoanalyst of long experience. His publications include: *The Individual and His Society*, 1939; *The Traumatic Neuroses of War*, 1941; *The Psychological Frontiers of Society* (in press).

FELIX M. KEESING is Professor of Anthropology at Stanford University. His publications include: *The Changing Maori*, 1928; *Modern*

Samoa, 1934; *Taming Philippine Headhunters*, 1934; *Education in Pacific Countries*, 1937; *The Menominee Indians of Wisconsin*, 1939; *The South Seas in the Modern World*, 1941.

WILLIAM H. KELLY is Instructor in Anthropology at Harvard University. His publications include articles in various anthropological journals.

RAYMOND KENNEDY is Associate Professor of Sociology at Yale University. His publications include: *The Ageless Indies*, 1942; *Islands and Peoples of the Indies*, 1943.

GRAYSON L. KIRK is Professor of Government at Columbia University, Research Associate in the Yale Institute of International Studies, and Research Secretary, Council of Foreign Relations. His publications include: *Philippine Independence*, 1936; *Contemporary International Politics* (with W. R. Sharp), 1940; *War and National Policy, a Syllabus* (with R. P. Stebbins), 1942.

OTTO L. KLINEBERG is Assistant Professor of Psychology at Columbia University. His publications include: *Experimental Study of Speed and Other Factors in "Racial" Differences*, 1928; *Race Differences*, 1935; *Social Psychology*, 1940.

CLYDE KLUCKHOHN is Associate Professor of Anthropology at Harvard University. His publications include: *Navaho Witchcraft*, 1943; *The Use of Personal Documents in Anthropological Science*, 1944; and numerous contributions to anthropological, psychological, and sociological journals.

GENEVIEVE KNUPFER is Research Analyst, Overseas Division OWI, and author of *The Measurement of Social Economic Status* (in press).

WILTON MARION KROGMAN is Associate Professor of Anatomy and Physical Anthropology at the University of Chicago and Research Associate in Physical Anthropology at the Chicago Natural History Museum. His publications include: *The Physical Anthropology of the Seminole Indians of Oklahoma*, 1935; *Bibliography of Human Morphology, 1914-1939*, 1941; *The Growth of Man*, 1941.

PAUL F. LAZARSFELD is Associate Professor of Sociology, at Columbia University, Director of Bureau of Applied Social Research. His

publications include: *The Family in the Depression* (with S. Stouffer) 1937; *Radio and the Printed Page*, 1940; *The Daily Newspaper and Its Competitors*, 1942; *Radio Research*, 1941, 1942, 1943; *Votes in the Making* (with Bernard Berelson and Hazel Guadet), 1944.

RALPH LINTON is Professor of Anthropology at Columbia University and Associate at the American Museum of Natural History. His publications include: *The Material Culture of the Marquesas Islands*, 1924; *The Tanala, a Hill Tribe of Madagascar*, 1933; *The Study of Man*, 1936.

HOWARD A. MEYERHOFF is Professor of Geology at Smith College. His publications include: *Geology of Puerto Rico* (with George W. Bain) 1933; *The Flow of Time in the Connecticut Valley*, 1942; and numerous contributions to scientific journals.

GEORGE PETER MURDOCK, now serving as Lieutenant Commander USNR, is in peacetimes Professor of Anthropology at Yale University. His publications include: *Our Primitive Contemporaries*, 1934; *Outline of Cultural Materials*, 1938; *Ethnographic Bibliography of North America*, 1941.

KARL SAX is Professor of Botany, Arnold Arboretum, Harvard University. His publications include: *Chromosome Relations in Wheat*, 1921; *The Nature of Size Inheritance*, 1924; *An Analysis of X-Ray Induced Chromosomal Aberrations in Tradescantia*, 1940.

HARRY L. SHAPIRO is Curator of Anthropology at the American Museum of Natural History and Professor of Anthropology at Columbia University. His publications include: *The Heritage of Bounty*, 1936; *Migrations and Environment*, 1939; and numerous articles in scientific journals.

JULIAN H. STEWARD is Director of the Institute of Social Anthropology in the Smithsonian Institution, and Editor of the Handbook of South American Indians. He is the author of papers and monographs on the Shoshonean Indians of the Western United States, the Carrier of British Columbia, and various South American tribes.

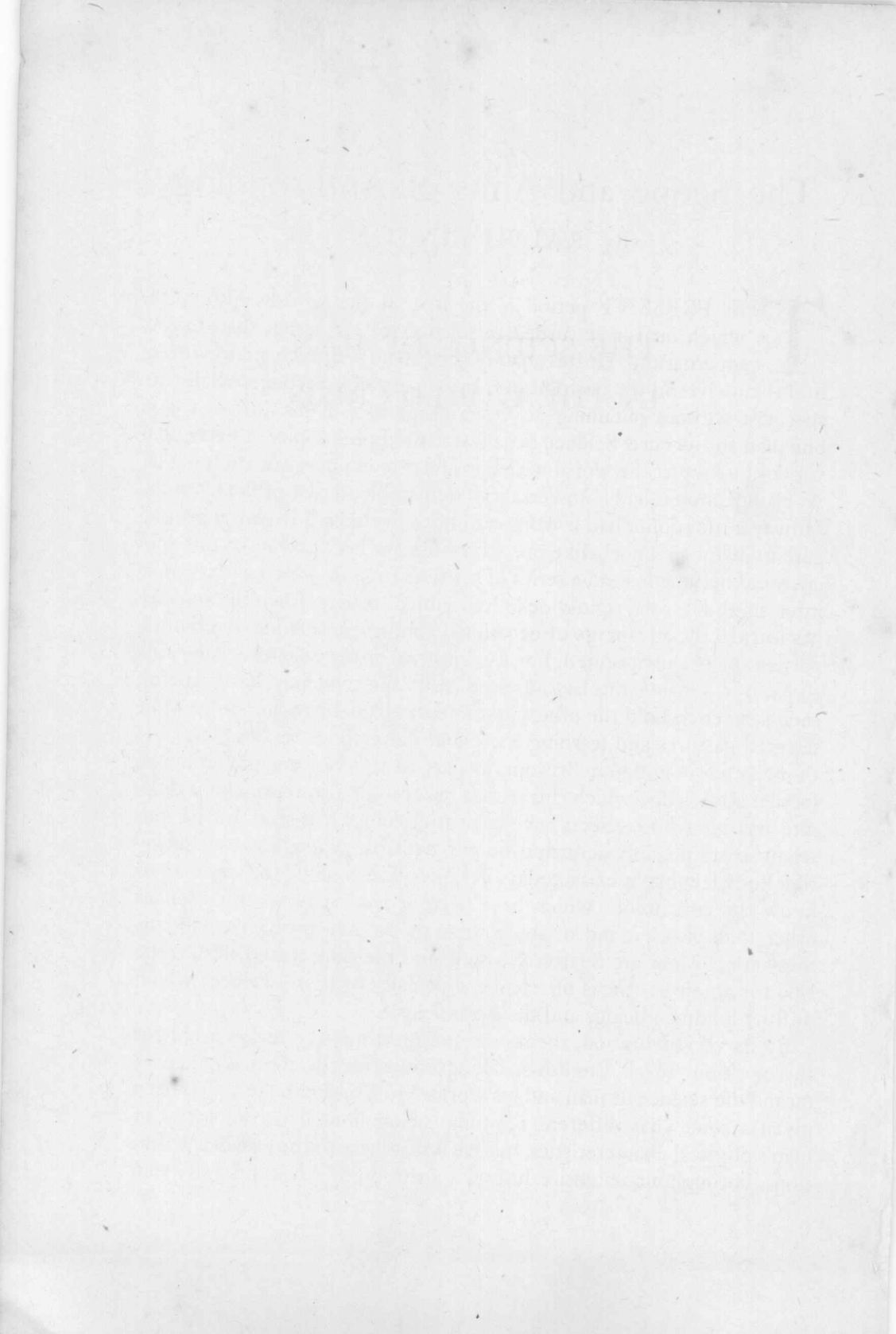
CARL C. TAYLOR is Head of the Division of Farm Population and Rural Welfare, Bureau of Agricultural Economics, U.S. Department of Agriculture. His publications include: *The Social Survey*, 1919; *Rural Sociology*, 1926; *Human Relations*, 1927; and numerous articles in sociological journals and agricultural periodicals.

LOUIS WIRTH is Professor of Sociology at the University of Chicago. His publications include: *The City* (with R. E. Park and others), 1925; *The Ghetto*, 1928; *Our Cities, Their Role in the National Economy* (with others), 1937; *Urban Planning and Land Policies* (with others), 1939.

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The Scope and Aims of Anthropology

By RALPH LINTON

THE PRESENT period is the first in the world's history in which men have turned to science for aid rather than to the supernatural. Unfortunately those who seek such aid too often find themselves in the position of a sick man shifted from specialist to specialist without obtaining any over-all picture of his illness or any one plan for its cure. Science began as natural philosophy, a particular way of looking at the world with particular techniques for studying it. At its inception it had a universality comparable to that of the Church. However, no sooner had it won its right to live than it began to propagate itself by an amoebalike process of fission. It ceased to be one science and became instead a series of sciences each of which had its own interests and its own rigidly delimited subject matter. Even the amoeba has learned the advantage of occasional conjugations from which both parties emerge invigorated, but it seems that many scientists have still to learn it. During the last hundred years the tendency has been for each science to hold the others at a safe distance, browsing on its own selected pastures and learning more and more about less and less. Although this is undoubtedly due in part to the vast accumulation of factual knowledge which this period has seen, it also represents a definite attitude whose effects have been stultifying. It is true that no one scientist can possibly acquaint himself with the whole range of scientific knowledge as it exists today, yet it is quite possible for any man to know the conclusions which have been arrived at in several sciences other than his own and to apply these to his own problems. Most of these conclusions are relatively simple and the time would seem to be ripe for a new synthesis of science, especially of those sciences which deal with human beings and their problems.

By its very definition, the science of anthropology makes a bid for this position. In all English-speaking countries the term is taken to mean "the science of man and his works." In Europe the term has been given a somewhat different meaning, being limited to the study of man's physical characteristics, but we will adhere to the broader definition. Throughout its entire history, anthropology has differed from

such familiar sciences as zoology or physiology or genetics in one important respect. Where these sciences have concentrated upon phenomena of certain limited sorts wherever they occurred in nature, anthropology has concentrated its interest upon a single organism, man, and has tried to understand all sorts of phenomena as they affected him. It has attempted to find out all that there was to be known about this curious biped and his still more curious behavior. This has not improved its standing among the sciences. Followers of the natural and physical sciences have tended to regard the anthropologist as an anachronism, the last survivor of that class of pleasant gentlemen who, in the eighteenth century, knew something about almost everything but not much about anything. However, it is equally possible to regard anthropology as the first of a series of synthesizing sciences the need for which is becoming ever more apparent. The writer feels that it is to the credit rather than the discredit of anthropologists that most of them have been willing to employ the techniques and conclusions of other sciences and to follow problems wherever they led without paying much attention to scientific borders and "No Trespassing" signs.

Even with the best intentions, anthropology has not been able to avoid the atomistic tendencies which have characterized science in general. The field which anthropology has attempted to cover is so vast and involves phenomena of so many different sorts that no one individual can be intimately acquainted with the whole of it. It has, therefore, followed the familiar pattern of fission and split into a number of subsiences each of which has developed its own group of specialists. It has even had its minor civil wars over the exact limits of such subsiences and their relative importance. However, the modern tendency is to pay less and less attention to these limits and to recognize that all these subsiences are parts of a whole, some useful for solving one problem and some useful for another, but all necessary to the understanding of human existence.

The sharpest split within anthropology has been that along the line laid down in the very definition of the science, the distinction between man and his works. The study of man as an animal, one of many mammalian species, leans almost exclusively upon the techniques and conclusions developed by the natural sciences. Actually, it can use only a small part of the techniques, since human beings do not take kindly to being made the subject of experiment. Again and again it has had to wait for the natural sciences to clear up some point by animal experi-

ment. Thus the controlled breeding of human beings presents great difficulties even in a totalitarian state. The understanding of human heredity and the clearing up of various problems connected with the human varieties which we call races was impossible until the geneticist's work with fruit flies and rats had provided the necessary information. On the other hand, the study of human behavior can receive little help from the findings of natural science. Although some of the simplest behavioral phenomena, such as learning processes, can be studied in animals and by experimental techniques most of them have no close parallel at the animal level. This is especially true with respect to the complex phenomena involved in organized social life. Although in this field anthropologists have been able to use some of the techniques developed by the social sciences, they have rarely had to wait upon the development of such techniques. In fact they have been able to contribute quite as much to the development of these sciences as they have received from them.

The two great divisions of anthropology which deal respectively with man and with his works are known as physical anthropology and cultural anthropology. This division dates back to the very beginnings of anthropology and each branch of the science has followed its own line of development and produced its own group of specialists. Very few individuals have been active in and familiar with both fields, with the result that the two have largely lost touch with each other. It seemed for a time that the separation might be a permanent one, with physical anthropology becoming completely aligned with the natural sciences and cultural anthropology with the social sciences. However, they are now beginning to be drawn together again as we become increasingly conscious of the influence of certain physiological factors upon culture and vice versa. This process is being reinforced by a sort of renaissance in the field of physical anthropology itself. After generations of preoccupation with bones, bodily measurements, and systems of racial classification, the physical anthropologists are beginning to turn to studies of a more dynamic sort and to recognize that in these cultural factors have to be taken into account.

Each of the main divisions of anthropology has undergone further differentiation. Physical anthropology has split into human paleontology and somatology; cultural anthropology into archeology, ethnology, and linguistics. The names of these subsiences are daunting, but the sciences themselves, or at least their more spectacular findings,

will be familiar to most readers. Human paleontology deals with the origins and evolution of our species, especially as these are revealed by fossils. Every time one reads of the finding of another fragment of some ancient half-human form, with a discussion of its relations to modern man, he is coming into contact with this branch of anthropology. This is, or was before the present war, one of the most rapidly developing areas in the science. Every year brought forth new finds and new disputes as to where even the old ones belonged in the human family tree. What the investigators in this field have lacked in numbers they have more than compensated for in enthusiasm. The exceedingly fragmentary nature of the finds, and the fact that many of them were one of a kind, have simply given the human paleontologists more room for maneuver on the field of battle. The only undisputed facts which have emerged from this work so far are that there were a number of ancient species which were more or less intermediate between men and apes and that one or more of these must have been the ancestors of modern man. Which one has the proud distinction is still an unsettled question. Since even the final establishment of the "missing link" will not be of much aid to his descendants in their present difficulties, the results of this branch of anthropology have been excluded from the present symposium.

Somatology deals with modern man in all his physical aspects. The general characteristics of our species as vertebrates and mammals are well taken care of by such general sciences as anatomy and physiology. The somatologists have, therefore, concentrated upon the study of human varieties, their differences and the probable causes of these differences. Until very recent times, most of their attention has been concentrated upon the classification of the various human varieties—that is, races—and their possible relationships. The classifications which they have developed still depend mainly upon simple, superficial characteristics such as skin color and hair form. In recent years attention has been turned to less obvious but intrinsically more important differences such as blood types, differences in musculature, and so on. Still more recently, somatologists have begun to study group differences in growth rates, time of sexual maturation, metabolic rates, and disease immunities. Here many of their findings may be of immediate practical value. The head shape of a particular human variety has little importance except in cases where it has been given social significance, but the adjustment of a particular variety to certain conditions of altitude

and temperature, or its inherited resistance to malaria, may be of great importance for any resettlement program.

The whole concept of race, so vigorously misused in certain quarters, lies within the field of somatology and we must look to it for the final settlement of those problems which are connected with race at the physiological as distinct from the social level. Unfortunately, such problems are in the minority. Aside from the demonstrable fact that certain races do better than others in certain environments, the main significance of racial differences in a modern world lies in the social values attached to them. Our present frictions arise not from anything inherent in racial differences but from the fact that such differences have come to be used as indicators of social status. The average individual in our own society is quite unable to say which of the various European racial types most of his friends belong to, since this is a matter of no social importance. At the same time he will be conscious of very small differences in physical type when these indicate that the individual belongs to some socially differentiated group such as the Jew or the Negro.

Turning to the field of cultural anthropology and its subsiences, we find that the subsience of linguistics is, at present, the most isolated and self-contained. The study of languages can be and largely has been carried on with little relation to other aspects of human activity. The great diversity of languages, especially among the so-called primitive peoples, and their curious and complex structures affords the investigator unlimited material for research. When presented with the results of such research the layman is likely to be reminded of Abe Martin's dictum: "It takes years to become a champeen checker player and what then?" However, the analysis and classification of languages, like the classification of human varieties, is only a first step. In language and its diversities the scientist has a tool which should ultimately prove of great value for understanding the deeper levels of both individual and group psychology. Although we are taught to regard language as primarily a means of communication, it is equally important as a tool for thinking. This is the area in which the wide range of existing linguistic forms is most significant. Any idea can be communicated in any language if the speaker will take time enough, but the concepts which are an integral part of all linguistic forms have a subtle influence upon the individual's ways of thinking. These concepts are even more compulsive because they are totally unconscious.

An example may help to make this clear. The lack of an inanimate gender in English gives an animistic slant to all our thinking. An inanimate gender is not to be confused with a neuter one. *It* in English can refer to inanimate objects, but it can also refer to animate ones such as ghosts or, at some risk of the parents' displeasure, babies. *He* and *She*, with their implicit ascription of sex, always imply animation. The result of this linguistic accident is that we cannot refer to anything, even the most abstract concept, without unconsciously endowing it with life and capacity for volition. We have to personify everything we talk or even think about. Those who try to work with abstractions find themselves in a constant battle with this tendency toward personification and no matter how careful they are it slips through occasionally to interfere with their clarity of thought. If English had an inanimate gender, as many other languages do, the words used for abstractions would, in themselves, provide a constant corrective for such a tendency.

Finally, it should be noted that the study of linguistics is not to be confused with the trick of learning languages. Understanding of the structure of a language may be an aid in learning it but it is by no means necessary. Note the experience of children and of those who "pick up" a foreign language without any knowledge of its grammar. There are plenty of people who can speak several languages while remaining blissfully unconscious of the structure of any of them. That linguistics ultimately will be of great value for the understanding of human behavior and especially of human thought processes can hardly be doubted. However, work along these lines has barely begun and linguistics is still unable to make any great contribution toward the solution of our current problems. For that reason it has been ignored in the present volume.

The two other subsciences in the field of cultural anthropology, namely archeology and ethnology, bear somewhat the same relation to each other that human paleontology bears to somatology in the field of physical anthropology. Archeology deals with the beginnings of culture and with those cultures or phases of culture which are now extinct. Ethnology deals with the living cultures of mankind in all their variety. Archeology is, perhaps, the most popular branch of anthropology and the one whose findings are best known to the average layman. The results of various "digs" are constantly noted in the newspapers so that, to cite a single case, the name of an obscure Egyptian

king, Tut-ank-amen, has become almost a household word. In general, archeologists try to discover and interpret that part of our past which is not revealed by written records. The study of the recorded past is assigned to the field of history. Since men have been writing for, at most, 6,000 years while our species has been in existence for at least 100,000 years, the archeologist has plenty of room for his operations. Moreover, it is only under exceptional conditions that written records tell us much about the life of the common man in any society. Ancient scribes usually wrote for and about kings and priests. Even our knowledge of such a well-documented civilization as that of the Romans has been tremendously enlarged by such excavations as those at Pompeii.

For the archeologist himself this science provides a happy combination of the thrills of research with those of treasure hunting, plus the added advantage of salary and expenses. For the wealthy backer it provides tangible, visible returns for the money invested, plus a complete absence of anything which might disturb the social *status quo*. It is not surprising, therefore, that archeological studies are usually easy to finance and that the science has progressed by leaps and bounds. The war has brought some interruption, but in spite of this it seems probable that another fifty years will give us a fairly clear picture of man's past in most parts of the world. This applies, of course, to those aspects of the past which are reflected in imperishable objects. We can discover what sort of tools an ancient society used, what its members ate, what sort of houses they lived in and how they disposed of their dead, but archeology cannot tell us whether they were addicted to wife beating.

Although the immediate and obvious purpose of archeological work is to fill out our factual knowledge of man's past, its ultimate purpose is to give us an understanding of the processes involved in the growth, flowering and collapse of civilizations and the factors which may be responsible for these. This is also the ultimate aim of history, but in the absence of written records the archeologist has developed new techniques, borrowing from other sciences in the process. He can deduce the opening of new trade routes from the chemical analysis of fragments of metal or pottery and, with the aid of dendrochronology, date the sack of a city from a few bits of charred timber. Moreover, the vast periods with which he deals make it possible for him to discern the working of trends and cycles which operate in terms of millennia. He can trace the effects of climatic change or soil exhaustion in a way impossible to the historian and map the path of civilization on a wider