SCIENCE

VOL. 87 FRIDAY, MARCH 18, 1938 No. 2255

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. MCKEEN CATTELL and published every Friday by

THE SCIENCE PRESS

New York City: Grand Central Terminal
Lancaster, Pa. Garrison, N. Y.

Annual Subscription, $6.00 Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

THE PRESENT STATUS OF ANTHROPOLOGY[1]

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THE anthropologist modestly delimits his field as the study of man and his works; the most ambitious claim ever staked by any scientific investigator. Under such a definition there is no branch of human knowledge or activity which does not fall within the scope of his interest. Even astronomy or atomic physics can be included on the basis that, although the phenomena with which they deal are extra-human, the technique for investigating these phenomena and all knowledge which has been acquired regarding them are parts of man's culture. However, there is a wide divergence between the high hopes embodied in the anthropologist's delimitation of his subject-matter and the actual content of the science as it exists to-day. Anthropology was one of the last sciences to take form, and by the time it appeared it found the center of its hypothetical field already occupied by a series of other disciplines with well-developed techniques and extensive bodies of knowledge and theory. Whatever its ambitions, anthropology was compelled to find a place for itself in those areas which had not already been preempted. It became a sort of peripheral science working in the corners and interstices not covered by the older disciplines. Thus in the study of physical man it found itself confronted by the vested interests of anatomy, physiology and more recently genetics and turned its attention to the study of human variations and the classification of human types. In the study of individual behavior it has encountered the vested interest of psychology, while in the study of group behavior it has been confronted by history, sociology and economics. Its response to the challenge of the last three has been characteristic of its whole course of development. With history it evaded the issue by turning its attention to the great stretch of

[1] Address of the retiring vice-president and chairman of the Section on Anthropology, Indianapolis, December 30, 1937.

human existence which lay before the development of written records. With sociology and economics it compounded by ignoring the Western European culture which they had taken as their frame of reference and devoting itself to the analysis of the same orders of phenomena when they occurred in so-called primitive cultures. As a result of such hedging, anthropology as it exists to-day is not a well-rounded, systematically organized science but a series of discrete and limited fields of investigation which, although they all relate to man, are related to each other mainly through the media of other disciplines whose content is rather imperfectly known to the average anthropologist. For this reason it is extremely difficult to survey the present status of anthropology as a whole. The problem can be approached only through an evaluation of the advances which have been made by each of its several parts.

Within the body of the science itself the broadest hiatus lies between the divisions of physical and of cultural anthropology. Each of these is, in both its interests and its techniques, more closely related to certain other sciences than to its anthropological bedfellow. The study of man's origins and varieties is a branch of the natural sciences, and any attempt to isolate it from them merely results in cutting off the worker in this field from a rapidly developing body of new knowledge and techniques. I hasten to add that in one of its aspects, the study of human origins, such isolation has never occurred. Here the findings of paleontologists and of workers in the field of evolution have found ready acceptance. As a result this branch of anthropology has progressed and is progressing rapidly. Man's position as a primate and a derivative of some sub-human form has been established beyond question, and it remains only for the paleontologist to bring to light the fossils which will establish the exact line of human descent. In spite of a few dissenting opinions it appears fairly certain that the Hominoid stem began to separate from the other primate lines by at least the close of the Miocene, that in the course of its evolution it produced numerous genera and species and that none of the fossils so far brought to light are in the direct line of ancestry of modern man. No field of anthropological research is more live at the present time, and new discoveries necessitate the almost yearly revision of books on the subject. It seems probable that the main problems will be solved within another ten or fifteen years.

The study of human varieties, that is, of race, has not been equally successful in keeping pace with the developments in related sciences. This is the oldest branch of anthropological study, a direct outgrowth of the systematic, classificatory activities of the eighteenth century naturalists. By the time that the principles of evolution achieved recognition, racial studies had already accumulated a mass of data and with this certain dogmas. The most important of these was that the various human varieties were static entities, subject to modification only through the agency of race mixture. This dogma persisted and in fact still persists in certain quarters in spite of a recognition of the evolution of our species as a whole from some lower form and of the mutability of other species. Such inconsistency can be explained in part by the historical situation. Europeans have established themselves as rulers over many groups whose physical type is markedly different from their own, and race has become a simple and obvious indication of social status. Moreover, the dominant European has been quick to seek in such racial differences the justification for rule and exploitation which he can no longer derive from religious sanctions. To question the existence of primary racial divisions of mankind with differences in evolutionary status and innate abilities is to question one of the most elaborate rationalizations of the *status quo*. Until comparatively recent times most physical anthropologists have been willing to accept the doctrine of the fixity of human varieties and to devote their time and energy to more and more minute differentiation of these varieties, increasingly elaborate racial classifications and speculations as to racial movements. Unfortunately, or perhaps fortunately, most of these speculations will never be susceptible of proof or disproof, since most of the characteristics on which racial classifications are based are of a superficial sort and not ascertainable from skeletal remains. Even the most extreme advocates of racial fixity must admit that there is a whole series of European Neolithic and Bronze Age remains whose ascription to either the glorious Nordics or the despised Mediterraneans depends mainly on the special interests of the observer.

Although old style racial studies have received a powerful impetus in at least one European country, many of the younger physical anthropologists are beginning to recognize this approach as a cul de sac and to turn elsewhere. A new concept of race is appearing; one that treats human varieties as dynamic rather than static phenomena. It has already been proved that the physical type of an approximately pure racial group may change when that group moves into a new environment. Why such changes occur is still unknown, as are the limitations which may be imposed upon such changes by the heredity of various racial groups. When these problems have been solved, investigators can turn again to the old questions of classification and relationships with a new and sounder approach.

Hand in hand with this change in the attitude toward race there has gone an extension of the study of racial

differences. The anthropologist is no longer content with superficial measurements but investigates blood types and is beginning to be conscious of differences in such things as growth rates, metabolism, hormone balance and specific disease resistance. In following all these new leads physical anthropology must lean heavily on the results and techniques of related sciences, but it seems that its contribution to them may, in the long run, prove quite as important as their immediate contributions to it. Thanks to such cross-fertilization a discipline which was becoming moribund is taking on a new lease of life. Where the physical anthropologist of twenty years ago must have felt that the main problems of his science had been solved the one of to-day realizes that many of these problems have barely been perceived.

This current tendency to bring physical anthropology into closer liaison with a whole series of natural sciences may widen still further the gap between it and cultural anthropology. The connection is already so tenuous that a complete break between the two seems well within the bounds of possibility. The phenomena with which the two disciplines deal are of different orders and the question is whether there is any real link between these orders. In the early days of anthropology the existence of an integral relationship between race and culture was taken for granted. It is obvious that every culture is always associated with a particular society. Morever, most societies, especially those at the so-called primitive level, are inbred groups with their own characteristic norms of physical type. The assumption that the particular qualities of various cultures were in some way correlated with the distinctive physical qualities of their bearers was therefore a natural one. It was the cultural anthropologists who first brought the real nature of this observed correlation of culture and physical type into question. They were able to show that culture elements have been transferred repeatedly from one racial group to another without any important changes in form. They also showed that individuals have frequently assumed the culture of the society in which they were reared when they were of different racial affiliations. The fact that some individuals seem to have a good deal of difficulty in doing so or accept the alien culture only in part was explained as due to a late commencement of the conditioning process or to the social disabilities from which an individual of markedly different physical type suffers in most societies.

At present, one group of anthropologists, mainly European, are still strong proponents of an interrelation between race and culture, while another and equally dogmatic group claim that all the existing correlations are purely fortuitous and explainable on historic grounds. Actually, it would seem that the question is still an open one and offers a promising field for further research. The first step in such an investigation will have to be a clearer definition of the term race. If this is taken to mean one of the great divisions of mankind, as Negro or Caucasian, it seems unlikely that the members of any one of these divisions, taken as a whole, differ from the members of any other division in ways that might have a significant influence on culture. The various human breeds which have been assigned to each of these great divisions differ too much among themselves. However, if we apply the term race to small inbred groups all of whose members have a common recent heredity, it seems that there may very well be differences which would be of significance. Without attempting to go into the complicated problem of nature versus nurture, there seems to be steadily accumulating evidence that intelligence and those elements within the personality which are responsible for what we rather vaguely call temperament have some physiological foundation. If so, the majority of the members of any inbred group might well have inherited characteristics which would make certain patterns of behavior congenial to them and others uncongenial. Such factors might be of considerable importance in determining both the direction of internal development in the group's culture and the group's reaction to new elements of culture made available to them by the processes of diffusion. It seems unlikely that even if the cultural and physical anthropologist work together they will be able to solve this problem without assistance from such outside sciences as physiology, genetics and especially psychology.

The main contributions of physical anthropology to date have been to establish man firmly in his place among the other mammals, indicate the probable line of his evolution, and, through classification, to bring some order into the confused field of his variations. These are worthy accomplishments, but much more remains to be done than has been done. Let us turn now to the field of cultural anthropology.

Cultural anthropology falls at once into two great divisions; archeology, which is the study of past cultures or phases of culture, and ethnology, which is the study of living cultures. These two are bound together by a common interest in culture origins and the processes of culture change. In those parts of the world for which written records are available the zones with which these two disciplines deal are separated by short sections of the culture continuum whose study has been preempted by the historian. However, in most cases this section is so short and the material with which the historian deals so little germane to the anthropologist's problems that ethnology and archeology

have to join hands over his head. From the very inception of writing monuments and inscriptions have been designed mainly for propaganda purposes and scribes have written largely for the glory of their employers. Even in well-documented cultures such as those of Greece or Rome innumerable details of daily life and changing custom can only be established by excavation. Note the contributions to knowledge which have come from the digging up of Pompeii and Herculaneum. In many parts of the world, North America, for example, the field of archeology passes into that of ethnology practically without a hiatus.

In spite of this there has been a regrettable tendency, especially in North America, to try to keep the archeological and ethnological disciplines distinct. Historically the reason for this may be traceable to the white pioneers' underestimation of the Indian's cultural accomplishment and the early development of the romantic Mound Builder myth. Actually, the lack of cooperation between the two disciplines has done much to retard the development of both. Again and again the ethnologist can offer data which will help the archeologist to understand his findings. Thus the ethnologist's record of historic Indian mortuary practices has removed the battle and pestilence explanations once invoked to explain the phenomena of mass burial. Again, the recently discovered culture pattern of the honored child, wide-spread in the Plains during the historic period, suggests a new explanation for certain child burials which have puzzled archeologists for generations. The erection of a mound over a single infant or the placing of rich offerings with small children, often taken as an indication of human sacrifice, now becomes comprehensible. Conversely, the ethnologist can only verify legends of tribal movements from the archeologist's findings. The recent tendency to work in historic or proto-historic sites, thus connecting archeologically known cultures with ethnologically known ones, is a long step toward the necessary synthesis of the two approaches.

If we turn to a survey of the present status of these two branches of cultural anthropology we must admit at the outset that archeology can show the larger record of accomplishment. Against this must be set the greater clarity of its aims and the more obvious nature of the techniques to which it owes its advance. The archeologist is seeking specifically to recover the past of culture while the ravages of time have limited the materials with which he can work to a small sector of culture as a whole. Although he may obtain hints of the beliefs and practices of ancient peoples, his main concern must be with their technology. These limitations give him a frame of reference at the very outset, and each new find helps to delimit his problems more clearly. His task is much like the reconstruction of a three-dimensional puzzle of many pieces. Each new object and each established time horizon suggests where the pieces already in hand should go. A single new item of knowledge may bring into order a whole series of previously disassociated facts. This search for culture origins has much in common with the search for human origins. In both there is a relentless narrowing of the field for speculation as the facts come in. The most elaborate theoretical structure can be demolished over night by a fossil from a particular geological period or the presence of a certain implement type between such and such levels in a cave deposit. Moreover, the evidence in both cases is concrete and tangible, something that can be worked over with the aid of the techniques which have already proved their worth in the natural and physical sciences. The wise archeologist must keep close to the ground, a fact which makes the ethnologist regard him with either envy or contempt, depending on the personality involved.

The accomplishments of archeology to date are far too numerous to be listed here and are, in any case, familiar to most anthropologists and to a large and ever-increasing section of the reading public. Every new find tends to be well, if often not too wisely, publicized. We will not trouble, therefore, with the resurrection of specific cultures, dealing only with discoveries of wide implication. First of all, the beginnings of culture have been pushed back to a period so remote that it appears highly probable that the use of tools and fire, once considered an exclusively human trait, was actually shared by several species and perhaps even genera of highly evolved primates. Second, it has become possible to differentiate a number of distinct streams of evolving culture and to trace their development and interrelations. Lastly, much light has been thrown on the process of culture evolution itself. It has become plain that all cultures have not adhered to the same evolutionary sequences. Thus the order of technological advance from stone through copper and bronze to iron, once taken to be universal, is now recognized as a characteristic of only certain lines of evolution. There are numerous areas in which the transition from stone to iron was direct. Much light has also been thrown upon rates of culture evolution. The old theory of a steady, progressive acceleration of cultural development from the earliest period to the present can no longer be accepted. In at least some culture streams periods of amazingly rapid growth seem to have alternated with long periods of comparative quiescence. Thus the history of our own Southwestern culture, as revealed by tree ring dating, shows a flare-up which carried it from a relatively simple condition to a complexity as great as that of the historic period in an interval of about three hun-

dred years. Again, finds in the Near East seem to indicate that the domestication of plants and animals in that region was followed by an extraordinary flowering of culture. During the first thousand years of food-raising there were such basic advances as the development of metal working, writing, the wheel, the plow and the loom and a host of minor items. Although later times produced a long series of minor improvements and all sorts of changes were rung on the original themes, there was no comparable period of rapid development until the recent rise of scientific techniques. We must now picture the evolution of culture as a process in which sudden mutations have paid quite as large a part as slow, continuous changes.

This irregular rate of culture advance makes the development of more exact techniques for dating finds a matter of pressing importance. Two levels in the same culture continuum which show marked differences in content may be separated in time by only centuries instead of millennia. Tree ring dating marks a great advance, but it has numerous limitations. It depends upon the preservation of wood and on the establishment of a continuous series running back from some known date. Moreover, there is no proof as yet that it can be trusted in regions where there are no marked fluctuations in rainfall. Even under optimum conditions it can help us with only a short upper bracket of culture history. At the lower end of the American archeologist's time-scale the geologist's work with glacial varves has already proved its value, but the dating methods of the geologist are better suited to his work than to ours. A thousand years means little in the earth's history, but a century may be crucial in the development of a culture. Our dating problem is still unsolved, and if it is solved we may be sure that the technique will come from some other science, as tree ring dating has.

Hardly less pressing than the need for better dating is the need for more objective and exact methods in the study of specimens for the establishment of relationships. Here certain lines of approach are obvious and progress is already being made. Pottery is being attacked by microscopic techniques and experimental methods, and although the study is still in its infancy there have been some rather surprising results. Thus the discovery that Yucatan pottery is tempered with volcanic tufa, although no deposits of this material exist on the peninsula, raises some interesting problems. Again, the discovery through firing experiments that most of the clays from which Woodland wares are made require no tempering, although such wares are uniformly tempered, reinforces the theory that pottery making was introduced into this region as a developed technique. Microscopic studies of aboriginal copper implements from the Great Lakes region prove that their makers employed the annealing process, showing a hitherto unsuspected skill in metallurgy and suggesting cultural connections with the more advanced groups to the south. It is evident that there is a rich field here which has barely been scratched.

Lastly, a point which I mention with some hesitation in this company, there is a real need for more and better trained amateur archeologists. There is a widespread feeling among professionals that an amateur is merely some one who gets to a good site before you do and spoils it. Unfortunately this has frequently been the case, but it need not be so. There can be no truce between the scientist and the pot hunter, but the serious local amateur can make important contributions to knowledge. He can learn sound scientific techniques, which after all are not particularly esoteric, and is usually eager to do so if the professional will give him a little encouragement. He is in a position to learn all about a certain limited territory and, above all, he is on the spot to take care of accidental finds which may prove of the greatest value. The earliest cultures on this continent were so simple and the populations which carried them so sparse that the discovery of their remains must always be largely a matter of chance. If really ancient man is ever found in America the chances are ten to one that the find will be made by some non-professional who is watching work at a gravel pit or road excavation.

When we turn from archeology to ethnology we find that an enormous amount of descriptive factual material has already been accumulated and that techniques for observing and recording cultural phenomena have undergone a steady improvement. Ethnology began with travelers' tales about the curious customs of alien peoples, just as archeology began with the antiquarians' search for art objects. To-day both sciences have come to realize the importance of the usual and commonplace. It is now the avowed intention of the ethnologist to record cultures as wholes, although he always falls short of this in practice. The practical difficulties of producing a complete factual account of the content of any culture and the complex interrelations of its elements are nearly insurmountable. The study itself would require several years, while the final report would be of such vast dimensions and of such deadly dullness throughout much of its length that the publication would be impossible without heavy subsidies. What actually happens is that the observer, consciously or unconsciously, selects certain aspects of the total culture for intensive description and deals with the rest in summary fashion. This is a great improvement over the picking up of scattered curios, but it leads to much recrimination between ethnologists. Every report is silent upon some point or other which some particular

worker or school of workers considers of paramount importance. Thus the members of the recently emerged functional school have been particularly vociferous about the shortcomings of the current ethnological literature, yet their own reports are equally disappointing to students interested in trait distribution or technology or the dynamics of culture change. These lacks are the more striking, since this school is particularly insistent on the necessity of studying and recording cultures as integrated wholes.

In spite of these shortcomings, the main difficulty of ethnology to-day lies not in a lack of data but in its uncertainty as to what to do with the material already in hand. The science has plenty of limited objectives, but is weak in its conceptual framework and vague as to its ultimate aims. Proof of this is afforded by the existence of a whole series of schools of ethnology each of which is pursuing its own special line of attack on culture problems with indifference or even active hostility to the work of the rest. The same condition has marked the youth of all sciences, and all of them have followed much the same course. As soon as a science becomes sure of its aims and the limitations inherent in its materials, its conflicting schools dissolve, leaving a residue of particular techniques for attacking particular problems. Unless this sort of synthesis begins soon, we will have to regard ethnology as in a state of arrested development.

If ethnology is to be rated as a descriptive science, it can show a good record of accomplishment. If it wishes to be rated as a dynamic science, its work has barely begun. The ultimate aim of all dynamic sciences is to give man the power to control or at least predict the phenomena with which they deal, and an intensive study of process is the first step toward this. The first systematic approach to the study of culture, that of the evolutionists, was based on the assumption of a definite, uniform sequence of stages in culture development, a particular process of culture growth. The recognition that this assumption did not check with the facts led to a study of growth processes as they occurred, and from this study there emerged the general principle of diffusion. That this principle, once recognized, was turned to the often questionable uses of historic reconstruction does not diminish its validity. It is a current fashion to underrate the importance of the discovery of diffusion and to deprecate the work of those who have investigated it intensively, yet it was the first step toward a real understanding not only of culture processes but of the nature of culture. The fact that single culture elements or complexes of interrelated elements can be transferred from one culture continuum to another simply by contact has tremendous implications. It introduces an irreducible element of chance into the processes of culture growth, making accidents of contact as important as internal factors in determining the content of a culture continuum at any given point in its length. It means that a given society may step from a hunting economy to an agricultural one, or from the use of stone to highly developed iron working, in a single generation. The general principles of culture evolution thus lose most of their validity when applied to specific cultures. Furthermore, the ability of cultures to accept and assimilate elements of foreign origin indicates that the organization of cultures must be of a singularly loose and flexible sort. If the integration of cultures was a matter of rigid, exact adjustments, new elements could not be fitted in or old elements discarded with such ease. The fact of diffusion thus disposes once for all of the possibility of understanding culture phenomena by reasoning from biological analogies. It proves that these phenomena are of a different order from those exhibited by even the most complex forms of life and must be approached by different methods.

Not only has the fact of diffusion been proved, but we have also gained important knowledge of how it works. It appears that, other things being equal, the first elements to be diffused from any center will have spread farther at any point in time than elements diffused subsequently. It is further possible to point to numerous cases in which an element is still alive and spreading about the margins of an area in which it once existed long after it has died out in the intervening regions. The concept of marginal survivals, which has been based upon this, is the mainstay of historic reconstructionists.

Unfortunately for these reconstructionists and for systematizers in general, the exceptions to the rule of systematic spread of elements in space and time seem to be at least as numerous as the agreements. It can be shown that many traits have spread irregularly, traveling fast and far in certain directions and slowly if at all in others. It can also be shown that some traits have diffused much more rapidly than others. Thus the use of tobacco spread over the whole of the Old World in about two centuries, while the use of writing, intrinsically much more valuable, required at least three thousand years to spread from its point of origin in the Near East to northwestern Europe. It is only recently that it has come to be realized that the key to these irregularities of diffusion must be sought less in the qualities of the diffused elements themselves than in those of the cultures which are exposed to them. It would seem obvious that in the consummation of the diffusion process the receiving group is of extreme importance, yet this part of it has hardly been studied at all. The recent increase of interest in Acculturation, aside from that in its psychological aspects, represents a shift of attention from the wanderings of culture

elements to what happens when new elements are presented to a society. We know the society's response may range all the way from complete rejection through acceptance with varying degrees of modification and reinterpretation to complete acceptance, and we believe that the nature of the response is determined primarily by the nature of the preexisting culture, the matrix into which the new element must be fitted. This aspect of culture dynamics is still almost unexplored and offers one of the most promising fields for further research.

In their enthusiasm at discovering that elements of culture can travel independently and that most cultures owe the bulk of their content to borrowing from many sources, the diffusionists have tended to overlook another and equally important aspect of the total problem. At least one member of this school has gone so far as to refer to culture as a thing of shreds and patches. It might be countered that so is a newly completed rag rug. Irrespective of their origins, the elements which have been brought together to form any culture constitute a fabric, not a disorganized heap. Cultures are patterned wholes whose component items are always to some degree mutually adjusted. This integration of culture has become the focal point for the studies of the recently developed functional school of ethnologists. Their work has already thrown important light on the structure of cultures, the interrelations of their parts and the relation of culture elements to the needs of the individual and group. However, enthusiasm for this new line of approach and a desire to sever all ties with the older schools have betrayed the functionalists into taking certain extreme positions. They seem to ignore the fact that although cultures may be integrated wholes, they show all degrees of integration between their various elements and may, at any point in time, include unresolved conflicts. Members of one division of the functionalists have, furthermore, avowedly limited themselves to the study of the synchronic relations of culture elements, *i.e.*, those existing at a single point in time. This position, if consistently maintained, permits the study of the structure of cultures but completely rules out the study of all dynamic processes. Even the complex interactions of culture elements take place in a time dimension. In the very nature of things cause must precede effect.

Actually, even members of this group of functionalists do not adhere too rigidly to their self-imposed limitations and probably will adhere to them less and less as time goes on. It must be plain to any one familiar with cultural phenomena that every culture is a continuum existing in time as well as space and that this continuum is in constant process of simultaneous integration and disintegration. New elements are always coming in and old ones dropping out with accompanying readjustments. Such changes are never instantaneous and a cross section of the culture continuum taken at any point in its length inevitably catches and artificially fixes some conditions which must, in their very nature, be transitory. It bears very much the same relation to the continuum that a single picture clipped from the middle of a cinema reel bears to the total action which the reel records. Such a picture may show an actor hanging in air, caught in the middle of a leap, but this does not prove that he can continue hanging there. Neither does it contribute to our understanding of the laws of gravitation.

In spite of the diverse aims and claims of the various schools the study of culture has now progressed far enough to enable us to get some picture of the problems with which students of culture dynamics have to deal. The processes relating to culture can be grouped under two main headings: those relating to culture growth and those relating to culture performance. Both have to be observed in time, but the processes of the second group operate over much shorter intervals, and their observation does not require use of the historic approach. The processes of culture growth can be further subdivided into those by which new elements are introduced into culture, those by which superseded elements are eliminated and those by which new elements are integrated with the preexisting configuration. Thanks to studies of invention and diffusion we already have some understanding of the introductory processes, but we know very little about those of elimination or integration. It would seem that the present world-wide condition of rapid cultural change offers a particularly good opportunity for investigations of this sort. The processes relating to culture performance can be divided into those deriving from the interaction of culture elements and those deriving from the relations of culture elements to the needs of the individual and the society. In this field we have hardly progressed beyond a realization of the extraordinary complexity of the material with which we have to deal. The interrelations of various culture elements in action are so intricate as almost to defy analysis. Perhaps the best clue to such interrelations can be obtained through the study of situations of culture change. The extent and nature of the readjustments which follow the introduction of a new element or the loss of an old one are an indication of the extent of this element's functional relationships. The relations of culture elements to the needs of the individual and of society are, if possible, even more complex. Even the needs, the logical starting point for such a study, are extremely hard to define in terms exact enough for purposes of culture analysis. A few fundamental needs of society and the physiological needs of the indi-

vidual can be discerned, but these are certainly inadequate as a basis for the study of culture. All cultures have a vastly richer content than that which would suffice to insure the survival of the societies which bear them. It is clear that the individual has psychological and emotional needs as well as physiological ones and that part of the function of culture is to provide satisfaction for these, but we must wait for the psychologist to tell us exactly what these needs are.

It will be many years before ethnologists obtain a clear understanding of these processes, and even when they do their work will not be finished. Everything that the ethnologist can observe, record or analyze is a product of the interaction of three elements—culture, society and the individual. The interrelation of these elements may be made clearer if we liken the culture to a symphony, the society to an orchestra and the individual to a musician playing his prescribed part but always playing it a little off key. Society, through the medium of its component individuals, is responsible for the overt expression of culture and for its perpetuation. No culture can exist without a society. Conversely, no society can exist without a culture. It is culture which provides the techniques for group living and the stereotypes which make the behavior of individuals sufficiently predictable for them to be able to work together. It transforms what would otherwise be a mere aggregate of persons into an integrated, functional whole. Lastly, it is the individual who is responsible, in the last analysis, for all additions to culture. Every new idea must originate with some person. Nevertheless, culture and society together shape the individual, changing his general needs to concrete desires and making his adult personality a compromise between his demands and theirs. In every situation culture, society and the individual are so interdependent and in a state of such constant interaction that an attempt to study any one of the three without constant reference to the other two can lead to only meager and mutilated conclusions. Even in the study of the individual, which psychology has made its special province, it is becoming clear that any approach to personality which fails to take culture and society into account soon reaches a dead end. Just as the various schools of ethnology, with their limited aims and approaches, must ultimately fuse into a single science of culture, so we may expect this science of culture to finally fuse and disappear into a larger science of human behavior. This will be the authentic Anthropology, the study of man.

SCIENTIFIC EVENTS

THE SPREAD OF ELM DISEASE IN ENGLAND

ACCORDING to an article in the London *Times* ten years have now passed since the first case in England of elm disease was identified by Dr. Malcolm Wilson, of the University of Edinburgh. This was a tree growing at Totteridge, Herts, and although the first recorded case, there is reason to believe that the disease had already been present for some years without attracting notice. During the past decade the disease has either spread or been found to occur over the whole of England and a large part of Wales, though it has not crossed the border into Scotland nor is it yet known in Ireland.

From a report received by the forestry commissioners it appears that the disease spreads slowly in some localities and quickly in others, but taking the country as a whole the progress is not very perceptible. In many of the districts visited there were actually fewer trees infected in 1937 than in 1936; on the other hand, those trees that were attacked showed a more pronounced form of die-back. Even in the most severely affected areas, where up to nearly 50 per cent. of the elms have been killed, there remains a residue of healthy trees which, it is to be hoped, will continue to survive and prove resistant to the fungus.

The *Times* states that the American investigators who have been studying the disease in England have demonstrated by inoculation tests that the different species and varieties of elm show varying degrees of resistance to attack. It seems that the American elm (*Ulmus americana*) is much more susceptible than the common forms of elm grown in England; hence, possibly, the very rapid death of attacked elms which is a feature of the disease in the United States. Of the British elms tested, the least susceptible variety commonly grown appears to be the Wheatley elm (*Ulmus stricta Wheatleyi*). In view of the ease with which elms can be propagated from suckers or layers, the most hopeful line of work for the future is the discovery of resistant individuals from which to raise stocks to take the place of trees that have fallen victim to the disease. Work along these lines is proceeding.

THE CANADIAN DEPARTMENT OF MINES AND RESOURCES

A COMPREHENSIVE account of its principal activities during the year is presented by the Department of Mines and Resources, Ottawa, in its report for the fiscal year ending March 31, 1937. The report covers the work of the former Departments of Mines, Interior, Indian Affairs and Immigration from March to December, 1936, when these departments were amalgamated to form the present department, and of the new department from December to the end of the fiscal year.