

years ago, after I had finished my studies I laid out a plan for my future work. The leading question for this plan was: Is it possible to apply the methods of natural science, more particularly of physics to psychology. This led me to researches on psychophysics and induced me to follow a certain method of ethnological researches. I believe the fundamental question is: How far does an influence of the surroundings exist? In studying this question I found it necessary to limit my inquiry to a study of the influence of geographical surroundings upon migrations and certain classes of ideas. Even these I found to be extremely complex, and began to inquire into their psychological elements. Studying the literature from this standpoint I found, that I could not understand the questions and facts without practical experience; I considered it necessary to study on the spot a people living in a wide area of uniform character.

I considered the Eskimos the best race for these studies and consequently went there. After my return I carried on my researches from the same point of view. The longer I studied the more I became convinced that the phenomena such as customs, traditions and migrations are far too complex in their origin, as to enable us to study their psychological causes without a thorough knowledge of their history. I concluded it necessary to see a people, among which historical facts are of greater influence than the surroundings and selected for this purpose Northwest America.

I write this in order to explain to you the special line of study which I pursue, and to show you, that my explorations were not made at random. This will also explain to you the foundation of my criticism of Prof. Mason's method, which will be set forth more fully in the next issue of "Science." In connection with these remarks it may be of interest to you to see some of my psychological papers, which I send along with this letter.

Yours, very truly,

DR. FRANZ BOAS



SELECTION 7

The Principles of Ethnological Classification

The leading idea of Otis T. Mason's writings on ethnology is his attempt to classify human inventions and other ethnological phenomena in the light of biological specimens. "They may be divided into families, genera, and species. They may be studied in their several ontogenies (that is, we may watch the unfolding of each individual thing from its raw material to its finished production). They may be regarded as the products of specific evolution out of natural objects serving human wants and up to the most delicate machine performing the same function. They may be modified by their relationship, one to another, in sets, outfits, apparatus, just as the insect and flower are co-ordinately transformed. They observe the law of change under environment and geographical distribution." This method of research is founded on the hypothesis that a connection of some kind exists between ethnological phenomena of people widely apart. Professor Mason is of this opinion, and expresses it as follows: "Anthropologists assign similar inventions observed in different parts of the world to one of the following causes: 1. The migration of a certain race of people who made the invention. 2. The migration of ideas—that is, an invention may be made by a certain race of people and taught or loaned to peoples far removed in time and place. 3. In human culture, as in nature elsewhere, like causes produce like effects. Under the same stress and resources the same inventions will arise." From this stand-point Professor Mason has arranged the ethnological collections of the national museum according to objects, not according to the tribes to whom they belong, in order to show the different species of throwing-sticks, basketry, bows, etc.

We cannot agree with the leading principles of Professor Mason's ethnological researches. In his enumeration of causes of similar inventions, one is omitted, which overthrows the whole system: unlike causes produce like effects. It is of very rare occurrence that the existence of like causes for similar inventions can be proved, as the elements affecting the human mind are so complicated; and their influence is so utterly

"The Occurrence of Similar Inventions in Areas Widely Apart," and "Museums of Ethnology and Their Classification," *Science* 9 (1887): 485-486, 587-589.

unknown, that an attempt to find like causes must fail, or will be a vague hypothesis. On the contrary, the development of similar ethnological phenomena from unlike causes is far more probable, and due to the intricacy of the acting causes. As far as inventions are concerned, the disposition of men to act suitably is the only general cause; but this is so general, that it cannot be made the foundation of a system of inventions.

But from still another point of view we cannot consider Professor Mason's method a progress of ethnological researches. In regarding the ethnological phenomenon as a biological specimen, and trying to classify it, he introduces the rigid abstractions species, genus, and family into ethnology, the true meaning of which it took so long to understand. It is only since the development of the evolutionary theory that it became clear that the object of study is the individual, not abstractions from the individual under observation. We have to study each ethnological specimen individually in its history and in its medium, and this is the important meaning of the 'geographical province' which is so frequently emphasized by A. Bastian. By regarding a single implement outside of its surroundings, outside of other inventions of the people to whom it belongs, and outside of other phenomena affecting that people and its productions, we cannot understand its meaning. The only fact that a collection of implements used for the same purpose, or made of the same material, teaches, is, that man in different parts of the earth has made similar inventions, while, on the other hand, a collection representing the life of one tribe enables us to understand the single specimen far better. Our objection to Mason's idea is, that classification is not explanation.

His method, as far as applied to objects which have a close connection with each other, is very good. The collection of moon-shaped Eskimo knives or labrets from North-west America has given us great pleasure, and enables us to trace the distribution of those implements; but even they do not fully answer the purpose of ethnological collections. Besides these, we want a collection arranged according to tribes, in order to teach the peculiar style of each group. The art and characteristic style of a people can be understood only by studying its productions as a whole. In the collections of the national museum the marked character of the North-west American tribes is almost lost, because the objects are scattered in different parts of the building, and are exhibited among those from other tribes.

Another instance will show that the arrangement of similar implements does not serve the purpose of ethnological collections. From a collection of string instruments, flutes, or drums of 'savage' tribes and the modern orchestra, we cannot derive any conclusion but that similar means have been applied by all peoples to make music. The character of their music, the only object worth studying, which determines the form of the instruments, cannot be understood from the single instrument, but requires a complete collection of the single tribe. Here, however, it can be seen that

each ethnological collection affords only very fragmentary instruction; that its real use is only to illustrate descriptions of the tribes. For a study of native art and its development, they are indispensable. For this purpose, duplicates, of which the superficial visitor of ethnological museums frequently complains, are absolutely necessary. They are the only means of determining what is characteristic of a tribe, and what is merely incidental.

Mason's method takes a place in ethnology similar to the former 'comparing method' in geography. A mere comparison of forms cannot lead to useful results, though it may be a successful method of *finding* problems that will further the progress of science. The thorough study must refer to the history and development of the individual form, and hence proceed to more general phenomena.

Prof. Otis T. Mason's reply to my remarks on his views of the methods of ethnology is mainly a justification of his plan of arranging the collections of the national museum. As this plan is the outcome of his philosophical view of the problems of ethnology, we must scrutinize these in order to judge as to the merits of his system.

His principle object is the study of each and every invention among peoples of all races and countries. I am well aware that this idea was and is shared by many scientists; and at this very moment I read with interest Mantegazza's proposal of erecting a 'psychological museum', i.e., a museum of ethnological objects arranged according to the ideas to which they belong. Professor Mason's rank among American ethnologists, however, and the weight he can give to his opinions by the arrangement of the large collections of the national museum according to his theories, induce me to criticise his views more particularly.

My view of the study of ethnology is this: the object of our science is to understand the phenomena called ethnological and anthropological, in the widest sense of those words,—in their historical development and geographical distribution, and in their physiological and psychological foundation. These two branches are opposed to each other in the same way as are biology and the so-called systematic 'organology', or, as I have called it in another place (*Science*, ix. No. 210), when treating on the study of geography, 'physical science and cosmography'; the former trying to deduce laws from phenomena, the latter having for its aim a description and explanation of phenomena. I tried to show that both branches are of equal scientific value.

Let us inquire which method must be applied to carry on ethnological researches of either kind. Ethnological phenomena are the result of the physical and psychical character of men, and of its development under the influence of the surroundings; therefore two problems must be studied for attaining scientific results. The preliminary study is that of the surroundings: the final aim of the researches is the knowledge of the

laws and history of the development of the physiological and psychological character of mankind. 'Surroundings' are the physical conditions of the country, and the sociological phenomena, i.e., the relation of man to man. Furthermore, the study of the present surroundings is insufficient: the history of the people, the influence of the regions through which it passed on its migrations, and the people with whom it came into contact, must be considered. All of these are phenomena which may directly be observed by a well-trained observer, or may be traced with greater or less accuracy by historical researches.

The second part of ethnological researches is far more difficult. The physical and psychical character of a people is in itself the result of the action of the surroundings, and of the way in which the present character was attained. Each stage in the development of a people leaves its stamp, which cannot be destroyed by future events. Thus it appears that the elements of the character of a people are extremely complex. There are two ways of treating this problem.

One of the remarkable features of such problems is the occurrence of similar inventions in regions widely apart, and without having a common origin. One method of studying them—and this is Professor Mason's method—is to compare the phenomena, and to draw conclusions by analogy. It is the deductive method. The other method is to study phenomena arising from a common psychical cause among all tribes and as influenced by their surroundings; i.e., by tracing the full history of the single phenomenon. This is the inductive method. For this method of study, the tribal arrangement of museum specimens is the only satisfactory one, as it represents the physical and ethnical surroundings.

I will explain these ideas by giving an example. It has frequently been proposed to establish a museum illustrating the adaptation of organisms to surroundings. The aim of this study is to find the physiological laws or the combination of causes which have the effect of causing these adaptations. The classification and arrangement must, of course, be made according to surroundings, in order to show their influence on different kinds of organisms.

An ethnological collection is analogous to this. The objects of study are researches on psychology. The method of researches is a study of the surroundings. The surroundings are physical and ethnical: therefore the arrangement must also be physical and ethnical, as this is the only way to show the single phenomenon in its peculiar character and surroundings.

It has been the tendency of science to confine the domain of deductive methods more and more, and not to be content with arguments from analogy, which are the foundation of most errors of the human mind, and to which may be traced the religious and other ideas of man in a primitive state of culture, and, to a certain degree, even in a state of advanced civilization. Science is constantly encroaching upon the domain of the argument from analogy, and demands inductive methods.

Nevertheless the psychological and scientific value of the argument from analogy cannot be overrated: it is the most effective method of finding problems. The active part it plays in the origin of philosophical systems and grand ideas which sometimes burst upon scientists is proof of this. But, as far as inductive methods can be applied,—and we believe that their domain will continue to increase,—induction must scrutinize the ideas found by deduction. Therefore I shall call Professor Mason's system a suggestive one, but not fit for scientific researches, as it does not allow the application of the inductive method.

But even this acknowledgment must be limited. The ethnological idea, which Professor Mason has made the leading one in the arrangement of the collection of the national museum, is only one side, and a very limited one, of the wide field of ideas which must be leading in a 'psychological museum,' as Mantegazza calls it.

The rattle, for instance, is not merely the outcome of the idea of making noise, and of the technical methods applied to reach this end: it is, besides this, the outcome of religious conceptions, as any noise may be applied to invoke or drive away spirits; or it may be the outcome of the pleasure children have in noise of any kind; and its form may be characteristic of the art of the people. Thus the same implement belongs to very different departments of a psychological museum.

Furthermore, let us inquire what is the psychological principle upon which Mason's system is founded. The leading idea is technology. The foundation of technics is the faculty of acting suitably: consequently the purpose of the implement must be made the principle of division. For instance, all kinds of cooking-pots and other arrangements for cooking would belong to one class. The mere fact that certain pots are made of clay would not justify the establishment of a pottery department. This quality of being made of clay is incidental, and does not agree with the psychological basis.

There is one point of view which justifies a classification according to inventions in a psychological museum. This is the extent to which each invention is used by a people: for instance, in what branches of life pottery is made use of, which may be limited in one tribe, very wide in another. But in this case the purpose of the object will not be the principle of division, but the principal invention applied in its manufacture; and thus the specimens would not be arranged according to Professor Mason's system, objects serving widely differing purposes belonging to one class. Therefore I cannot consider it justifiable to make technology, in the sense Professor Mason does, the basis of arranging ethnological collections.

One reason ought to make us very cautious in applying the argument from analogy in ethnology as well as in other sciences of similar character; biology, for instance. Former events, as I have already said, leave their stamp on the present character of a people. I consider it one of the

greatest achievements of Darwinism to have brought to light this fact, and thus to have made a physical treatment of biology and psychology possible. The fact may be expressed by the words, "the physiological and psychological state of an organism at a certain moment is a function of its whole history"; that is, the character and future development of a biological or ethnological phenomenon is not expressed by its appearance, by the state in which it is, but by its whole history. Physicists will understand the important meaning of this fact. The outward appearance of two phenomena may be identical, yet their immanent qualities may be altogether different: therefore arguments from analogies of the outward appearance, such as shown in Professor Mason's collections, are deceptive. These remarks show how the same phenomena may originate from unlike causes, and that my opinion does not at all strive against the axiom, 'Like effects spring from like causes,' which belongs to that class of axioms which cannot be converted. Though like causes have like effects, like effects have not like causes.

From my statement it will be understood that I cannot content myself with Mr. Dall's remark, in the letter contained in to-day's issue, that both standpoints contain part of the truth. I have expressed in another place (*Verh. Ges. für Erdkunde*, Berlin, 1886, No. 7) my opinion on Dall's ethnological method, and emphasized, as I have here also, the necessity of studying each ethnological phenomenon individually.

In conclusion I have to add a few words on the practical side of the question upon which Professor Mason and Mr. Dall touch. In regard to this question, I concur with Mr. Dall, and believe that the public will be much more benefited by the tribal arrangement of ethnological collections.

I cannot agree with Professor Mason's proposal of arranging the cases like a checker-board. In ethnology all is individuality. We should be compelled to leave long rows of cases empty, as certain phenomena occur but in very few tribes. It would be almost impossible to show in this way all important ethnological phenomena, the historical development of tribes, the influence of neighbors and surroundings, etc. It is my opinion that the main object of ethnological collections should be the dissemination of the fact that civilization is not something absolute, but that it is relative, and that our ideas and conceptions are true only so far as our civilization goes. I believe that this object can be accomplished only by the tribal arrangement of collections. The second object, which is subordinate to the other, is to show how far each and every civilization is the outcome of its geographical and historical surroundings. Here the line of tribal arrangement may sometimes be broken, in order to show an historical series of specimens; but I consider this latter point of view subordinate to the former, and should choose to arrange collections of duplicates for illustrating those ideas, as it were, as an explanation of the facts contained in the tribal series. Of course, it is generally impossible to do

this, on account of the lack of specimens, or, more frequently, on account of the lack of our knowledge; but it is my ideal of an ethnological museum. I wish to state here again that I am not at all opposed to Mantegazza's psychological museum, which will be very suggestive and important for the development of science, but I consider the ethnological museum indispensable for controlling the ideas suggested by the analogies shown in the psychological collection, and as the only means of showing the state of culture of man.



SELECTION 8

The Aims of Ethnology

The development of our science itself has only become possible due to the general recognition the principle of the theory of evolution has attained in recent decades. It is a common characteristic of all forms of evolutionary theory that every living being is considered as the product of an historical development. The fate of an individual influences not only the individual himself, but his successors as well; and in order to understand an organism it is therefore necessary not only to know its own history but also that of its forbears. This perspective opens the whole vast field of the natural sciences to the historical method, and has contributed fundamentally to its rapid advance. Ethnology has existed only since this perspective has found common acceptance, for it has taught us to understand that no occurrence in the life of a people disappears without a trace, but affects even the most distant generations. The myths which our ancestors told to each other and in which they believed, have left their impress upon the ways of thinking of their descendants who came under the spiritual domination of a foreign culture. Even the most brilliant genius is influenced by his age and his environment, which is itself a product of the past. Thus culture-history teaches the continuity of inventions and ideas from the levels at which we find primitive peoples today up to our own time. The history of the sciences, the history of

Die Ziele der Ethnologie (New York: Hermann Bartsch, 1889), pp. 17-24. For this translation (which dates from my tenure at the University of California, Berkeley) I am indebted to two research assistants, John Gillingham (who did the major work on the present version) and David Nicholas (who did an earlier version), and to Professor Reginald Zelnik, who checked the final version with me.

inventions, and above all the history of religions point to the study of their germinal forms among primitive peoples.¹

I have used throughout the expression "primitive people" without further clarification. I hope that in so doing I have not created the impression that we are dealing with peoples living in an original state of simplicity and naturalness as Rousseau conceived of them. On the contrary, we must keep in mind that even a primitive people has had a long history behind it. It may have gone through states of higher civilization and then, due to the gradual loss of inventions and ideas, have sunk down again to a lower state; or it may have climbed more slowly but surely up to its present level. None of these peoples is, however, free from conventional proscriptions and rules. On the contrary: the poorer in cultural achievements, the greater the number of ingrained rules and proscriptions which work to determine every action.

If, however, ethnology viewed as a purely historical science is already inextricably linked with culture-history, this connection stands out even more clearly when we turn to a consideration of the second great task of our science. A comparison of the phenomena of the lives of peoples shows that the foundations of their development are very similar to each other. From this we must conclude that human development follows certain laws, and to establish these is the second and indeed the more important goal of ethnology.

It must nonetheless be kept in mind that there is no basic distinction between the two purposes, since the general law is expressed just as clearly in the individual phenomenon as the individual phenomenon is expressed in the general law. However, the method used in discovering these laws is distinct from the historical method and casts an altogether new light on the individual case under consideration, since it shows which of its features are accidental or individual and which are of general applicability. For this reason the purely historical approach must always be considered incomplete without the illumination which derives from the comparative method. The detailed study of the individual phenomenon leads us directly to the comparative method, since the ways and means at our disposal for studying the history of peoples² soon fail us. Written records do not reach back into the distant past and relate only to peoples of a few culture-regions.³ Even the other methods which we have discussed often leave us in the lurch. In such cases we have no other choice but to compare the life phenomena of the peoples being studied in order to draw our conclusions from existing similarities and dissimilarities. In the pursuit of these studies we often encounter cases in which the same custom or the same idea is found among peoples so

¹ Cf. 1940, p. 633, where this paragraph is modified in a number of subtle ways, and its last phrase is simply "the study of the lives of primitive tribes."

² Cf. 1940, p. 634, "the actual history of cultures."

³ Cf. *ibid.*, "a few cultures." (The original German was *Kulturkreise*.)

widely separated that a common origin is completely precluded.⁴ It therefore becomes necessary for us to determine whether there are laws from which follow time and again the appearance of the same phenomenon independently in the lives of different peoples—in other words, whether the development of the human mind follows definite laws. Thus emerges the second great task of ethnology: the discovery of the laws of the lives of peoples—or, as it is usually called, the study of folk-psychology.

The first and most important question that must be clarified is whether there are any fixed laws at all according to which the development of peoples progresses, or whether this is just a matter of chance. We have already cited various examples of the occurrence of similar phenomena in widely separated areas. In these cases the ethnologist always perceives two contradictory and equally possible explanations: that both phenomena have sprung from common origins, or that both have developed independently of each other. Only with certain quite general phenomena is one never in doubt. For instance, the facts that there are no peoples without religion, that art and social organization exist everywhere, and that everywhere with the progress of civilization the individual becomes freer in that the innumerable proscriptions and rules governing his conduct tend to disappear—all these may from the outset be correctly derived from the mental capacities of mankind.

Let us through an example elucidate the method by which folk-psychologists draw their conclusions. It will be seen, then, that the facts collected by the ethnologist play a large, important role in these studies. The results of recent researches into the development of the family offer an excellent example.

According to the results of philological and historical researches dealing exclusively with the peoples of the Indo-European language group, it appeared as if the family comprises the foundation of society, and that the tribe, the people, and the state are outgrowths of it. From this point of view it seemed strange that among many peoples the father was not the unquestioned head of the family, but that often the higher authority is invested in the wife. Thus Herodotus says of the Lycians that the daughters inherited, not the sons. It is said of the Athenians that up to the time of Cecrops children were named after their mother; and according to Tacitus, the mother's brothers were owed particular respect among Germans. Above all, the numerous tales of Amazons should also be mentioned. So long as science sought to solve the question of the development of the family from the standpoint of our culture, these facts could not be explained. Only when we began to place ourselves in the realm of the thoughts and customs of foreign peoples whose development has

⁴ Cf. *ibid.*, "peoples for whom we cannot establish any historical connection, so that a common historical origin may not be assumed."

proceeded independently from our own or which have remained on more primitive levels did an understanding of the true development of the family begin to dawn.⁵ It was found that the development abstracted from our culture was nowhere to be observed. Wherever we looked we found primitive tribal configurations, but nowhere was the family their foundation. We observed everywhere that at the lowest levels of culture the tribes separated into hordes of men and women and that a communal marriage existed. We observe this condition for example in Australia, where both hordes regard each other with hostility, and each has its own sacred animals and plants. In such crass form this social condition has been observed only among a few peoples, but traces of it are widespread. Thus the men and women of the Arawaks in South America have different protective deities, and the inhabitants of the Sierra Leone coast have different secret societies for men and women.

Another frequently observed phenomenon is the division of the tribe according to age classes. In such cases the class of adult males takes possession of the women of the tribe, while the younger class raid the neighboring tribes and abduct their women. A further advance out of this condition is manifest in peoples among whom the wife must be secured from other tribes by purchase. This condition is widespread among the North American Indians. Among them the tribe is divided into a number of clans. No member of one clan may marry a member of the same clan, but instead must look for a wife in another clan. In all such cases children belong to the tribe of the wife. They have nothing to do with the father and just as little with the tribe among whom they live, since it is to the mother's tribe that they belong. In the case of war between the two tribes, therefore, they leave their father in order to fight against him.

Nowhere, however, does this condition seem to have been durable, and we see it superseded almost everywhere by the purchase of the children from the maternal tribe so that they thus become the property of the father. Until this happens they belong completely to the maternal tribe and remain under the protection of their maternal uncle, from whom they also inherit. This is the condition which is frequently called matrilarchy. The constitution of the family arises only with the purchase of the children by the paternal tribe. This tendency of a transition from matrilarchy to patriarchy manifests itself everywhere.

It is only since these facts have been recognized that the phenomena mentioned above regarding the Indo-European peoples have become comprehensible. They must be conceived as survivals from the far distant past in which the father was not yet the head of the family.

⁵ Cf. 1940, p. 635, where Boas made subtle modifications in the preceding sentences, substituted for the rest of this paragraph and the four succeeding paragraphs a parenthesis which bears at best a tenuous relationship to the material deleted, and added a footnote indicating he had done so because they contained the no longer tenable view "of a necessary precedence of matrilineal forms of family organization."

The phenomena just described recur in endless variations over the entire globe, so we must assume that this development is basically the same everywhere. Of course, this does not mean that the process of development has been exactly the same everywhere, but rather that its fundamental features have been similar everywhere.

Thus we see from this example that the facts ethnology teaches us imply an important advance for our knowledge of the development of human culture. One fact derived from these studies cannot be emphasized enough, namely, the *relative* correctness of emotions which seem so natural to us.⁶ It is difficult for us to conceive that the feeling the father bears toward his child should be altogether different among primitive peoples from what it is among ourselves. We learn from the data of ethnology that not only our ability and knowledge but also the manner and ways of our feeling and thinking is the result of our upbringing as individuals and our history as a people. To draw conclusions about the development of mankind as a whole we must try to divest ourselves of these influences, and this is only possible by immersing ourselves in the spirit of primitive peoples whose perspectives and development have almost nothing in common with our own. If we use our own feelings in an effort to establish how our ancestors behaved, we should not expect to achieve truthful results, since their feeling and thinking were different from our own. We must reject many presuppositions that seem self-evident to us because precisely such mental states were not self-evident in earlier times. It is indeed impossible to recognize *a priori* what in our feelings is common to all mankind and what is only the result of history⁷—except through the teachings of ethnology. It alone opens to us the possibility of judging our own culture objectively, in that it permits us to strip off the presumably self-evident manner of thinking and feeling which determines even the fundamental part of our culture. Only in this way can our intellect, instructed and formed under the influences of our culture, attain a correct judgment of this same culture.

⁶ Cf. *ibid.*, "It shows that emotional reactions which we feel as natural are in reality culturally determined."

⁷ Cf. 1940, p. 636, "is due to the culture in which we live."

to be resolved for eighteen months, and he was already feeling a severe financial pinch. On the other hand, the first eight years of his work in this country had just won him recognition as the presiding officer of what was then the only national organization in his profession—Section H of the American Association for the Advancement of Science—an honor that pleased Boas all the more because some still thought of him as a "foreigner." As topic for the customary annual address, Boas chose "Human Faculty as Determined by Race."

Much of the argument of *The Mind of Primitive Man* is contained here (and indeed, considerable portions of this essay were later incorporated into the latter volume). There is the same emphasis on the historical conditions of diffusion as a basis for rejecting traditional assumptions about racial achievements; on the overlapping of variations that made it impossible to draw sharp lines between racial groups; on the functional, environmental factors affecting presumably racial characters; and on the explanation of apparent racial mental differences in terms of differences in motivation. On the other hand, one is struck by the limits of Boas' critique in 1894. He expected that some mental differences between races would be found to exist; he accepted the inference his friend, the neurologist Henry Donaldson, made from apparent differences in "the capacity for education to the cessation of brain growth in the 'lower races'; and he was rather naively optimistic about the possibilities of psychological testing in the public schools. In short, he had not achieved a fully developed notion of the cultural determination of behavior as an alternative to the prevailing racial determinism. As I have argued elsewhere, this is reflected in his usage of the terms "culture" and "civilization," which changed in subtle ways between 1894 and 1911 (Stocking 1968a, p. 202).

Boas' thinking on cultural determinism was developed in three articles published in the first decade of this century, the last of which is reprinted here (no. 32 [cf. Boas 1901, 1904a]). It was given as a lecture in 1909 at the celebration of the twentieth anniversary of the founding of Clark University—an occasion attended by a number of international luminaries in the behavioral sciences, including Sigmund Freud. Drawing rather heavily on ideas developed in the course of his studies of language, Boas here offered a much more sophisticated view of the cultural determination of behavior, in which the "classification of concepts, the types of association, and the resistance to change of automatic acts" characteristic of different social groups were seen as developing unconsciously, only to be given rationalistic "secondary explanations" when they were somehow called into question. Boas developed this argument to explain the mental differences between primitive and civilized men, and he did not here speak specifically of different "cultures" determining different forms of behavior. But the clear implication was that the behavior of human beings everywhere, primitive or civilized, was determined, in ways that never came

fully to their consciousness, by the particular cultural tradition in which they experienced their "early bringing up." Boas always remained critic of Freudian theory, and his usage of "unconscious" was a far cry from the Freudian unconscious, but there is still a sense in which it was appropriate that they shared the same platform in 1909. In a way that has not always been adequately appreciated, Boas, too, was a major contributor to the intellectual revolution that destroyed the rationalist Victorian conception of man.



SELECTION 31

Human Faculty as Determined by Race

Proud of his wonderful achievements, civilized man look down upon the humbler members of mankind. He has conquered the forces of nature and compelled them to serve him. He has transformed inhospitable forests into fertile fields. The mountain fastnesses are yielding their treasures to his demands. The fierce animals which are obstructing his progress are being exterminated, while others which are useful to him are made to increase a thousand fold. The waves of the ocean carry him from land to land and towering mountain ranges set him no bound. His genius has moulded inert matter into powerful machines which wait a touch of his hand to serve his manifold demands.

What wonder when he pities a people that has not succeeded in suiting nature; who labor to eke a meagre existence out of the product of the wilderness; who hear with trembling the roar of the wild animal and see the products of their toils destroyed by them; who remain restricted by ocean, river or mountains; who strive to obtain the necessities of life with the help of few and simple instruments.

Such is the contrast that presents itself to the observer. What wonder if civilized man considers himself a being of higher order as compared to

Address as Vice-President of Section H before the Section of Anthropology of the American Association for the Advancement of Science at the Brooklyn Meeting August 1894; as published in the Association's *Proceedings* 43 (1894): 301-327 later reworked and incorporated in Boas 1911c.

primitive man; if it is claimed that the white race represents a higher type than all others.

When we analyze this assumption, it will soon be found that the superiority of the civilization of the white race alone is not a sufficient basis for this inference. As the civilization is higher, we assume that the aptitude for civilization is also higher; and as the aptitude for civilization presumably depends upon the perfection of the mechanism of body and mind, the inference is drawn that the white race represents the highest type of perfection. In this conclusion, which is reached through a comparison of the social status of civilized man and of primitive man, the achievement and the aptitude for an achievement have been confounded. Furthermore, as the white race is the civilized race, every deviation from the white type is considered a characteristic feature of a lower type. That these two errors underlie our judgments of races can be easily shown by the fact that, other conditions being equal, a race is always described as the lower the more fundamentally it differs from the white race. This becomes clearest by the tendency on the part of many anthropologists to look for anatomical peculiarities of primitive man which would characterize him as a being of lower order, and also by the endeavors of recent writers to prove that there exist hardly any anatomical features of the so-called lowest races which would stamp them as lower types of organisms. Both these facts show that the idea dwells in the minds of investigators that we should expect to find in the white race the highest type of man.

In judging social distinctions the same error is frequently committed. As the mental development of the white race is the highest, it is also supposed to have the highest aptitude in this direction, and therefore its mind is supposed to have the most subtle organization. As the ultimate psychical causes are not so apparent as anatomical characters, the judgment of the mental status of a people is generally guided by the difference between its social status and our own; the greater the difference between their intellectual, emotional and moral processes and those which are found in our civilization the harsher the judgment on the people. It is only when a Tacitus finds the virtues of past stages of the culture of his own people among foreign tribes, that their example is held up to the gaze of his fellow-citizens, who probably had a pitying smile for the dreamer who clung to the ideas of a time which they had left far behind.

It might be objected that although achievement is not necessarily a measure of aptitude, it seems admissible to judge the one by the other. Have not most races had the same chances for development? Why, then, did the white race alone develop a civilization which is sweeping the whole world and compared to which all other civilizations appear as feeble beginnings cut short in early childhood, or arrested and petrified in an early stage of development? Is it not, to say the least, probable that

the race which attained the highest stage of civilization was the most gifted one, and that those races which remained at the bottom of the scale were not capable of rising to higher levels?

It seems desirable to enter into these questions somewhat fully. Let our mind go back a few thousand years until it reaches the time when the civilizations of eastern and of western Asia were in their infancy. At the time passed on, these civilizations were transferred from one people to another, some of those who had represented the highest type of culture sinking back into obscurity, while others took their places. During the dawn of history we see civilization clinging to certain districts, in which it is taken up now by one people, now by the other. In the numerous conflicts of these times the more civilized people were often vanquished. The conqueror, however, learned the arts of life from the conquered and carried on the work of civilization. Thus the centres of civilization were shifting to and fro over a limited area and progress was slow and often interrupted. At the same period the ancestors of the races, who are now among the most highly civilized, were in no way superior to primitive man as we find him now in regions that have not come into contact with modern civilization.

Was the culture attained by the ancient civilized people of such character as to allow us to claim for them a genius superior to that of any other race? First of all, we must bear in mind that none of these civilizations was the product of the genius of a single people. Ideas and inventions were carried from one to the other; and, although intercommunication was slow, each people which participated in the ancient civilization added to the culture of the others. Proofs without number have been forthcoming which show that ideas have been disseminated as long as people have come into contact with each other and that neither race nor language nor distance limits their diffusion. As all have worked together in the development of the ancient civilizations, we must bow to the genius of all, whatever race they may represent: Hamitic, Semitic, Aryan or Mongol.

We may now ask, Did no other races develop a culture of equal value? It would seem that the civilizations of ancient Peru and of Central America may well be compared with the ancient civilization of the Old World. In both we find a high stage of political organization; we find division of labor and an elaborate ecclesiastical organization. Great architectural works were undertaken requiring the cooperation of many individuals. Animals and plants were domesticated and the art of writing had been invented. The inventions and knowledge of the peoples of the Old World seem to have been somewhat more numerous and extended than those of the races of the New World, but there can be no doubt that the general status of their culture was nearly equally high. This will suffice for our consideration and I will not enter upon the fact that a greater variety of peoples had contributed to the progress of civilization

in the Old World, and that nature had endowed their homes more abundantly with useful animals and plants than the homes of the peoples of the New World.

What then is the difference between the civilization of the Old World and that of the New World? It is only a difference in time. The one reached a certain stage three thousand or four thousand years sooner than the other. This difference in period does not justify us to assume that the race which developed more slowly was less gifted. Certainly the difference of a few thousand years is insignificant as compared to the age of the human race. The time required to develop the existing races is entirely a matter of conjecture, but we may be sure that it was long. We also know that man existed in the eastern and western hemispheres at a time which can be measured by geological standards only; and, if we assume arbitrarily no more than 20,000 years as the age of man, what would it mean that one group of mankind reached the same stage at the age of 20,000 years which was reached by the other at the age of 24,000 years? Would not the life history of the people and the vicissitudes of its history be fully sufficient to explain a delay of this character, without necessitating us to assume a difference in their aptitude to social development?

When admiring the high achievements of the white race we also ought to bear in mind that civilization originated among few of its members and by the help of other races, and that there is no evidence that the cognate tribes which have all developed under the influence of this ancient civilization would not, without its help, have required a much longer time to reach the high level which they now occupy.

But why did these tribes so easily assimilate the culture that was offered them, while at present we see primitive people dwindle away and become degraded before the approach of civilization, instead of being elevated by it? Is not this a proof of a higher organization of the inhabitants of Europe? I believe the reasons for this fact are not far to seek and do not necessarily lie in a greater ability of the races of Europe and Asia. First of all, these people were alike in appearance to civilized man of their times. Therefore the fundamental difficulty for the rise of primitive people, namely, that an individual which has risen to the level of the higher civilization is still looked upon as belonging to an inferior race, did not prevail. Thus it was possible that, in the colonies of ancient times, society could grow by accretion from among the more primitive people. Furthermore, the devastating influences of diseases which nowadays begin to ravage the inhabitants of territories newly opened to the whites were not so strong on account of the permanent contiguity of the people of the Old World who were always in contact with each other and therefore subject to the same influences. The invasion of America and Polynesia, on the other hand, was accompanied by the introduction

of new diseases among the natives of these countries. The suffering and devastation wrought by epidemics which followed the discovery are too well known to be described in full.

In addition to this it may be said that the contrast between the culture represented by the modern white and that of primitive man is far more fundamental than that between the ancients and the people with whom they come in contact. Particularly, the methods of manufacture have developed so enormously that the industries of the primitive people of our times are exterminated by the cheapness and large quantity of the products imported by the white trader; because primitive man is unable to compete with the power of production of the machines of the whites while in olden times the superior hand product rivalled with a hand product of a lower type. It must also be considered that in several regions, particularly in America and in parts of Siberia, the primitive tribes are swamped by the numbers of the immigrating race which is crowding them so rapidly out of their old haunts that no time for gradual assimilation is given. In olden times there was certainly no such immense inequality in numbers, as we observe in many regions nowadays.

We conclude, therefore, that the conditions for assimilation in ancient Europe were much more favorable than in those countries, where in our times primitive people come into contact with civilization. Therefore we do not need to assume that the ancient Europeans were more gifted than other races which have not become exposed to the influences of civilization until recent times.

This conclusion may be corroborated by other facts. In the middle ages the civilization of the Arabs had reached a stage which was undoubtedly superior to that of many European nations of that period. Both civilizations had sprung largely from the same sources and must be considered branches of one tree. The Arabs who were the carriers of civilization were by no means members of the same race as the Europeans, but nobody will dispute their high merits. It is of interest to see in what manner they influenced the negro races of the Soudan. At an early time principally between the second half of the eighth century and the eleventh century of our era, the Soudan was invaded by Hamitic tribes and Mohammedanism was spreading rapidly through the Sahara and the western Soudan. We see that, since that time, large empires were formed and disappeared again in struggles with neighboring states and that a relatively high degree of culture has been attained. The invaders intermarried with the natives, and the mixed races, some of which are almost purely negro, have risen high above the level of other African negroes. The history of Bornu is perhaps one of the best examples of this kind. Barth and Nachtigal have made us acquainted with the history of this state, which has played a most important part in the history of north Africa.

Why, then, have the Mohammedans been able to civilize these tribes and to raise them to nearly the same standard which they had attained, while the whites have not been capable of influencing the negro in Africa to any considerable extent? Evidently on account of the different method of introduction of culture. While the Mohammedans influence the people in the same manner in which the ancients civilized the tribes of Europe, the whites send only the products of their manufactures and a few of their representatives into the negro country. A real amalgamation between the higher types of the whites and the negroes has never taken place. The amalgamation of the negroes by the Mohammedans is facilitated particularly by the institution of polygamy, the conquerors taking native wives and raising their children as members of their own family.

The spread of the Chinese civilization in eastern Asia may be likened to that of the ancient civilization in Europe. Colonization and amalgamation of kindred tribes and, eventually, extermination of rebellious subjects with subsequent colonization, have led to a remarkable uniformity of culture over a large area.

When, finally, we consider the inferior position held by the negro race of the United States, who are in the closest contact with modern civilization, we must not forget that the old race-feeling of the inferiority of the colored race is as potent as ever and is a formidable obstacle to its advance and progress, notwithstanding that schools and universities are open to them. We might rather wonder how much has been accomplished in a short period against heavy odds. It is hardly possible to say what would become of the negro if he were able to live with the whites on absolutely equal terms.

Our conclusion drawn from the foregoing considerations is the following: Several races have developed a civilization of a type similar to the one from which our own had its origin. A number of favorable conditions facilitated the rapid spread of this civilization in Europe. Among these, common physical appearance, contiguity of habitat and moderate difference in the modes of manufacture were the most potent. When, later on, civilization began to spread over other continents the races with which modern civilization came into contact were not equally favorably situated. Striking differences of racial types, the preceding isolation which caused devastating epidemics in the newly discovered countries and the greater advance in civilization made assimilation much more difficult. The rapid dissemination of Europeans over the whole world cut short all promising beginnings which had arisen in various regions. Thus no race except that of eastern Asia was given a chance to develop an independent civilization. The spread of the European race cut short the growth of the existing independent germs without regard to the mental aptitude of the people among whom it was developing. On the other hand, we have seen that no great weight can be attributed to the earlier rise of civilization in the Old World, which is satisfactorily explained as a chance. In

short, historical events appear to have been much more potent in leading races to civilization than their faculty, and it follows that achievements of races do not warrant us to assume that one race is more highly gifted than the other.

We will next compare the physical and psychical characteristics of the various races with a view to the question of their mental ability.

There is no doubt that great differences exist in the physical characteristics of the races of man. But the question is not if differences exist, but if any one race is anatomically considered superior to others. It is clear that our answer cannot be based upon vague descriptions of travelers who remark upon the enormous digestive organs of primitive man, or on his small size, or on the lack of development of his limbs, or even upon his resemblance to apes, but upon serious studies of anatomical characteristics. A number of these differences are sufficiently fundamental to distinguish certain races clearly from others, although we must bear in mind that innumerable transitions exist between the races of man. The color of the skin, the form of the hair and the configuration of the lips and nose distinguish the African negro clearly from most other races. Nevertheless, it would be easy to find among members of the American race, for instance, lips and nose which might be mistaken for those of a negro. The same may be said of color, while no negro hair will be found among American aborigines. When studying any single anatomical characteristics of races, we find the same phenomenon which was observed in the cases here quoted: the variations inside any single race are such that they overlap the variations in another race so that a number of characteristics may be common to individuals of both races. Still, the single feature does not characterize the race and the differences are sufficiently numerous to permit a satisfactory definition of the characters of races.

The overlapping of variations is significant in so far as it shows that the existing differences are not fundamental. I will describe these phenomena somewhat more fully and enumerate at the same time a number of variations between races. In treating first the anthropometric characteristics I must call to mind the important fact, which is frequently overlooked in comparisons of races, that the proportions of the body show certain correlations which must be taken into consideration. The most obvious of these is the correlation between stature and sizes of parts of the body. For this reason tribes of different stature cannot be compared without a proper reduction of the observed figures. In our comparison it will be well to pay particular attention to those races which we are inclined to consider the lowest; to wit, the negroid races and the oldest prehistoric races.

The proportions of the body as found among various races show very slight differences only. We may say that the trunks of the Mongoloid races as compared to their statures are longer than those of Europeans

whose trunks in turn are longer than those of the negroes; that the lower limbs of the last-named race are longer than those of the white and Mongoloid races, and that the same is true in regard to the upper limbs. The head of the Mongoloid race is highest when compared to the stature; that of the negro is smallest. All these differences are slight and not in such a direction as to make one race more ape-like than the other. On the contrary, we find that the characteristic differences between man and ape are often more pronounced in the negro race than in the white race, and we may say with Ranke that many proportions of the lower races are to a higher degree human than those of the white.

In judging the value of these differences we must remember that the proportions of the body do not depend entirely upon descent, but just as much upon mode of life. Fritsch was the first to make it clear that between primitive man and civilized man differences are found which are quite in accord with the differences between wild animals and domesticated animals, and we all know how far-reaching the influence of domestication may become. He found that the skeletons of primitive races remain lighter while the bones are thinner and denser than those of civilized man. The secondary sexual characters are not clearly marked and effects of malnutrition or irregular nutrition are always present. The necessity of physical effort which applies to all the muscles of the body causes a different development from that observed in civilized man, in whom muscular effort is slighter or more specialized. These conclusions are borne out by the striking differences in the proportions of the body which develop among different occupations inside the same population.

The best authenticated fact, because it is based on the greatest number of observations, is the difference in type between sailors and soldiers who were measured during the war of the Rebellion. It was found that sailors had legs as long as those of the negroes and correspondingly a shorter trunk, while their arms were equally long as those of the soldiers of the army. We may also call to mind the investigations carried on in the gymnasias of our colleges which show that a series of measurements which depend largely upon the functions of groups of muscles change very rapidly under the influence of practice. It will be acknowledged at once that differences in the use of muscles during childhood and continued in later life must result in differences of structure. Such differences must, therefore, not be considered racial but cultural features. The differences which cannot be explained by functional causes are few in number and they are not of such a character as to stamp one race as lower than the other.

We will next consider a number of formations which have often been described as characterizing lower races or as theriomorphisms. One of these is a variation in the form of the temporal bone which, in man, is ordinarily separated from the frontal bone by the sphenoid and parietal

bones. It has been found that in some individuals the temporal bone encroaches upon the sphenoid and parietal and comes into contact with the frontal bone. This formation is the prevalent one among the apes. It has been proved that this variation is found among all races but with unequal frequency, and that it is probably connected with disturbances in the formation of the temporal region which depend upon malnutrition in early infancy. We must therefore not wonder that the phenomenon is found more frequently among primitive people than among civilized people.

The peculiar formation of the tibia known as platycnism, which has been observed on skeletons of the oldest remains of man in Europe and which was considered a proof of his lower stage of development, and the peculiar formation of the articular surfaces of tibia and femur, have been recognized as purely functional and as occurring among all races of the present times.

Certain other variations which were at one time considered as characteristics of races are also found to occur all over the world. Such are the *Os Incae* which occurs among all races but most frequently among the Peruvians and the inhabitants of the ancient pueblos; the smallness of the nasal bones and their synostosis with the maxilla; the so-called prenasal fossæ; the variations in the arrangement of arteries and of muscles. All these variable features are found to vary among all races, but the degree of variability is not everywhere the same. Presumably such variations may be considered human characteristics which have not yet had time to become stable and which in this sense may be considered as still in process of evolution. If this interpretation be correct, it might seem that we can consider those races in which the various features are more stable as those which are more highly organized.

This would refer, however, only to such features as are not caused by the influence of environment. But even this conclusion is subject to an important restriction. Numerous primitive tribes are very small in numbers or have had for long periods, during which they increased in numbers, little intercourse with foreign people. If, in such a group, any of the original families showed a certain peculiarity, it must now be found more frequently than in other tribes. A case of this kind is the frequency of supernumerary vertebrae among the Indians of Vancouver Island, and probably also the frequency of the *torus palatinus* among the Lapps. It may be left an open question, if the frequent occurrence of the *Os Incae* among the Pueblo Indians may be explained by the same consideration. Therefore, it may be that the greater variability of certain races, in regard to these phenomena, is not an expression of a lower degree of development of the whole group, but of the presence of a great number of members of a family which possessed the peculiar character. That is to say, in order to admit the conclusion that greater variability means lower

stage of development, it would be necessary first to prove that the variations appear spontaneously among any number of the group and do not belong to certain families in which the feature is hereditary.

While the consideration of the characters treated heretofore has not given any conclusive evidence of the superiority of certain races, the study of the form and size of the head seems to promise better results. We find that the face of the negro as compared to the skull is larger than that of the American, whose face is in turn larger than that of the white. The lower portion of the face assumes larger dimensions. The alveolar arch is pushed forward and thus gains an appearance which reminds us of the higher apes. There is no denying that this feature is a most constant character of the black races and that it represents a type slightly nearer the animal than the European type. The same may be said of the broadness and flatness of the nose of the negro and of the Mongol; but here again we must call to mind that prognathism and low, broad noses are not entirely absent among the white races, although the more strongly developed forms which are found among the negroes do not occur. The variations belonging to both races overlap. We find here at least a few indications which tend to show that the white race differs more from the higher apes than the negro. But does this anatomical difference prove that their mental capacity is lower than that of the white? The probability that this may be the case is suggested by the anatomical facts, but they by themselves are no proof that such is the case. I shall revert to this subject later on.

It has been stated that the individuals of certain races are arrested in their development earlier than others and that the latter races must therefore be considered as more highly developed. Among these phenomena I will mention the fact that the noses of children of various races are more alike than those of adults. The nose of the Mongols does not change so much during adolescence as that of the whites. According to Quatrefages the basin of the negro does not differ so much from the foetal forms as that of other races and resembles at the same time more that of higher apes than the basins of other races. On the other hand, the face of the negro child is less prognathous than that of the adult. In this case we find that the more energetic development tends to produce a type which is apparently lower than that of the white. We may even go a step farther and say that the ontogenetic development of the higher apes and of man is such that the young forms are more alike than the old ones. While in man the face develops moderately only, it grows considerably among the apes. The earlier arrest in this case is therefore an indication of higher type. Thus it will be seen that it is not the earlier arrest alone which determines the place of a race, but the direction of this development. For this reason we cannot assume that the earlier arrest of development of that portion of the face situated between the eyes, as is observed in the Mongol race, is an indication of a lower type, while the marked

increase of breadth and elevation of nose, as found among the whites indicates a higher type.

In a general review of these phenomena we find that the peculiarities of the various races develop in such a manner that some remain in one respect on earlier stages than others, while other features develop more strongly. Among instances of such development carried on to a higher degree may be mentioned the large size of the frontal sinuses among the Melanesians, the prognathism of the Negroes, the greater length of the limbs of the same race, the high and narrow nose of the whites. In judging the value of these facts we must also not forget that the female sex is in all the proportions and forms of its body more like the child than the male, and that the most specialized types appear among the male sex. But who would explain this earlier arrest of development of women as mark of a lower type?

In comparing human races in regard to the periods over which the development of certain parts of the bodies extend, we must always consider the functions of the organs in question. If we could prove that the brain of certain races ceases to develop at an earlier period than that of others, the inference of the inferiority of race would seem highly probable. At the present time no satisfactory basis for such comparisons exists. Growth during adolescence is always small, and extensive and accurate series of observations are required in order to establish any characteristic differences between races. It has been shown that among the white race growth of the whole body continues until after the thirty-fifth year. The same phenomenon has been observed among the negroes, while the Indians appear to have reached their highest stature before the thirtieth year. The growth of the head of Indians and whites seems to extend over an approximately equal period. It would be of great interest, if we could ascertain the growth of the head of other races with accuracy. Since it has been proved that the most gifted students of our colleges show a longer period of growth than those who form the average class, the period of head-growth has become of great importance in connection with our inquiry.

Unfortunately, data are lacking entirely at least for a comparison between the white race and those races which are considered the lowest. As we know that the laws of the general growth of the body of the Indian and of the white differ considerably, the inference is justified that such differences may be found in the growth of certain organs and that they will prevail among different races. It is true that in such comparisons mortality, nutrition, occupation, play an important part; but, nevertheless, racial differences may be expected to exist. In fact, the similarity of children of various races and the dissimilarity of the adult make it certain that they will be found and we anticipate that they will give us a better idea of the relation of the races than comparison of the adult stage alone can do.

with their uncivilized brethren. The power with which society holds us and does not give us a chance to step out of its limits cannot have acted as strongly upon them as upon us. On the other hand, the station obtained by many negroes in our civilization seems to me to have just as much weight as the few cases of release which have been collected with much care and diligence. I should place side by side with them the cases of white men who live alone among native tribes and who sink almost invariably to a semi-barbarous position, and the members of well-to-do families who prefer unbounded freedom to the fetters of society, and flee to the wilderness where many lead a life in no way superior to that of

~~primitive man.~~

We have now considered the question in how far human faculty is determined by race from three points of view. We have shown that the anatomical evidence is such, that we may expect to find the races not equally gifted. While we have no right to consider one more ape-like than the other, the differences are such that some have probably greater mental vigor than others. The variations are, however, such that we may expect many individuals of all races to be equally gifted, while the number of men and women of higher ability will differ. When considering the psychological evidence, we found that most of it is not a safe guide for our inquiry, because causes and effects are so closely interwoven that it is impossible to separate them in a satisfactory manner, and as we are always liable to interpret as racial character what is only an effect of social surroundings. We saw, however, that investigations based on physiological psychology and experimental psychology will allow us to treat the problem in a satisfactory manner. In these and in detailed studies of the anatomy of the central nervous system of the races we must look for a final solution of our problem.

Finally, we found that there is no satisfactory evidence that the effects of civilization are inherited beyond those which are incident to that domestication to which civilization corresponds. We know that these are hereditary to a limited degree only and that domestication requires only few generations. We did not find proof of cumulative increase of faculty caused by civilization.

Although, as I have tried to show, the distribution of faculty among the races of man is far from being known, we can say this much: the average faculty of the white race is found to the same degree in a large proportion of individuals of all other races, and although it is probable that some of these races may not produce as large a proportion of great men as our own race, there is no reason to suppose that they are unable to reach the level of civilization represented by the bulk of our own people.

we skip to the conclusions