

THE GREAT IDEAS ONLINE

Oct '07

Nº 444



THE DIFFERENCE OF MAN AND THE DIFFERENCE IT MAKES

A lecture delivered by Mortimer J. Adler
at the
Aspen Institute for Humanistic Studies
August 8, 1967

(Part I of 2)

I hope you will forgive a few autobiographical references that I may provide some background for what I have to say. Let me tell you briefly the story of the growth and change that has taken place in my mind over many years of thinking about the nature of man and man's place in nature.

In June, 1950, I gave the opening lecture of the Aspen Institute for Humanistic Studies. The title of that lecture was "The Nature of Man". Shortly thereafter, in June of 1952, as I was leaving to go to San Francisco to found the Institute for Philosophical Research, I gave a farewell lecture at the University of Chicago, the title of which was "The Defense of Man Against Darwin". Both of these lectures reflected my adherence at the time to a long tradition in Western philosophy from Plato and Aristotle to the present day, a tradition in which the view of man involved the following cardinal points: (1) that man and man alone is a rational animal; (2) that man alone has an intellect with the power of conceptual thought; (3) that, therefore, man is distinct in kind from all other animals. In addition, (4) man's rationality or intellectuality involves an immaterial factor in his nature, thus making him (5) not only different in kind, but *radically* different in kind from other animals, and (6) the only being on earth with the dignity of a person, all else being things not persons; which means (7) that man is the only being with free will, with moral responsibility, and with a capacity for the pursuit of happiness. Viewed theologically, he is the only one of God's creatures that is made in the image of God because he is the only one that is a person as God is.

Obviously one could not hold such a view of man and also accept the hypothesis of man's evolutionary origin. Whatever man's origin, it cannot be the same as that of other animals, *if this view is true*.

Since 1952 I have continued to think about this problem. I have re-examined every aspect of it in detail and gradually I have come to conclusions that are very different from the ones that I held in 1952. This change in my mind has resulted from a very close study of all the relevant scientific findings in recent years, especially the last thirty or forty years—findings in paleoanthropology, experimental psychology; findings in ethology and in comparative psychology; findings in clinical and experimental neurology; most important of all, recent work with dolphins and other higher mammals in the field in communication; and, above all, the creation of computers and especially of robots, mechanical devices, that simulate many of the processes of the human mind. We are promised by the computer technologists that, in the very near future, these ro-

bots, these mechanical devices, will be able to do, so far as intellect is concerned, everything that man can now do. Machines will manifest every aspect of the human intelligence.

When I returned from San Francisco to Chicago in 1962, I began to give the Encyclopedia Britannica lectures at the University, and I decided to make this problem about man the subject of my second series of lectures there. I had already begun to prepare my notes for these lectures when I was invited to give the Memorial Day Address here in Aspen for the Board of Trustees of the Aspen Institute in May of 1965. The subject of that lecture was what man will make of man in 1980. After another year of study and thought, I gave six lectures at the University of Chicago in the spring of 1966, under the title "The Difference of Man and the Difference it Makes". Finally, last summer here in Aspen, I wrote the book based on those lectures, transforming and expanding them. That book, under the same title, will be published next October by Holt, Rinehart and Winston.

Tonight, I am going to try to summarize all six lectures and a 400-page book in just a little more than an hour by giving you the nerve of the argument concerning the answers that we must give to two questions, and only two.

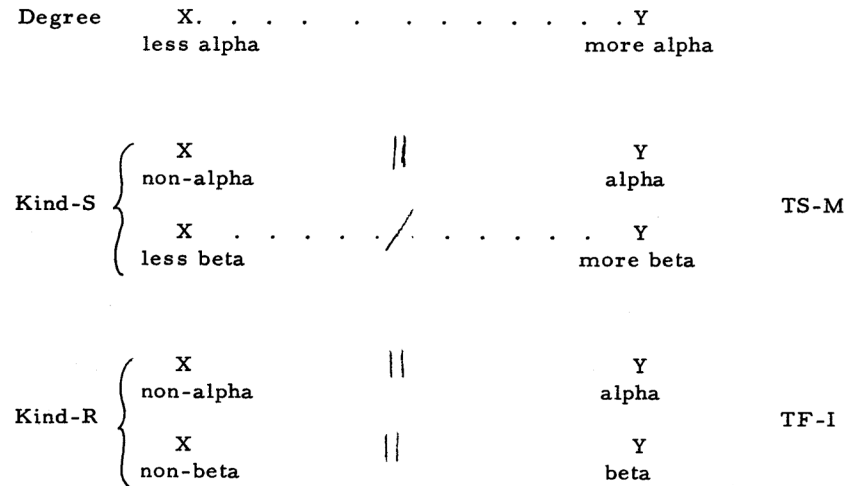
The first part of this lecture will be an attempt to say where we now stand on the question, How does man differ from everything else on earth?

The second part deals with the question, What difference does it make which answer we give to the first question?

I.

Until the middle of the nineteenth century, until the development of the evolutionary hypothesis and until, in the line with Darwin's theory of the descent of man, work in comparative psychology began, that first question was answered only by philosophers, and answered without the evidence that science now gives us. We now know that the question is not a purely philosophical question. This fact by itself indicates a remarkable change. The question about man has become a mixed question. It cannot be answered either by philosophers *alone* or by scientists *alone*. It has become a borderline question that requires the mind to consider all the relevant scientific evidence and, at the same time, to bring to bear upon that scientific evidence the apparatus of philosophical analysis and philosophical criticism.

Let me illustrate this at once. Most scientists do not have the analytical apparatus for properly interpreting and evaluating the evidence that they turn up. To do so requires a number of distinctions that I am now going to ask you to pay close attention to. The only difficult part of this lecture consists of the diagram on the black-board. If you understand that, the rest of what I have to say will be clear.



When anyone is asked how two things differ, their usual answer is that they differ in degree or that they differ in kind. They often say this without knowing what they mean by those words. I am, first, going to explain what they *should* mean by saying “differ in degree” or “differ in kind”. And, then I am going to show you that that distinction in modes of difference is insufficient; that, in addition, to the distinction between difference in degree and difference in kind, we must make a further distinction between two ways in which things can differ in kind. The resultant threefold distinction is indispensable to understanding the scientific evidence about how man differs.

Let us consider, first, difference in degree. Let X and Y stand for any two things that we are comparing. They differ in degree if they both have the same trait, *alpha*, and one has *more* alpha and the other *less*. When two things have the same trait, or property, or attribute, and one has more of it and the other has less of it, they differ in degree. More and less is what makes a difference in degree. For example, a four-foot line and a two-foot line both have length and one has more length than the other; they differ in degree.

A second property of difference in degree is this. Whenever two

things differ in degree, by virtue of one's having more and the other less of the same characteristic, there can always be intermediates between them—something that has more alpha than X and less alpha than Y. There can be an infinite number of such intermediates. That is why we say that when things differ in degree, there is continuous variation between them.

Two things differ in kind if one has a property that the other totally lacks. Let me take a simple case. There are animals that are able to fly, and other animals that are not able to fly at all; animals that are able to swim and other animals that are not able to swim at all. One has a property that is totally lacked by the other. Take geometrical objects; a plain circular figure has neither angles nor sides, it has a periphery; a plain rectilinear figure has both angles and sides. The difference between a rectilinear and a circular figure is a difference in kind, because each has a property totally lacked by the other.

Two things differ in kind, then, when one has a property totally lacked by the other. Now, then, let me now add a further point that is of the utmost importance. When two things differ in kind, no intermediate between the two is possible. There is nothing intermediate between having and lacking alpha. This absence of intermediates results in discontinuity; just as continuity accompanies difference in degree, so discontinuity separates things that differ in kind.

I turn now to the distinction between what I call a *superficial* and a *radical* difference in kind. (That is what Kind-S and Kind-R stand for in the diagram.) I will give you examples of these two modes of difference and then I will apply the distinction to the evidence about man.

Two things differ *superficially in kind* if (a) one lacks a property possessed by the other, and if (b) we can explain this difference by finding that the reason why X lacks alpha is that it has less beta than Y. In other words, below the level of the surface characteristic alpha, there are other characteristics in respect to which X and Y differ in degree. Both have the characteristic beta, but X has less beta and Y has more beta and there is a critical threshold above which having more beta produces the attribute alpha. Below this critical threshold, having less beta produces the absence of alpha. Hence here we have an observable difference in kind with respect to alpha, but underlying it, there is a difference in degree with respect to beta that accounts for it.

Let me give you an obvious example from physics. Water, ice, and

steam have different properties. You cannot walk on water; you can walk on ice. You cannot float in steam; you can float in water. Water has buoyancy that steam does not have. The properties of these three states of matter—the gaseous, the liquid, and the solid state—are all or none properties—present or absent. The same material passes from the solid to the liquid to the gaseous state by a change in rapidity of molecular motion, which is a change in degree. Hence the observable difference in kind between ice and water, or water and steam is explained by an underlying difference in degree, with a critical threshold below which matter is in one state, above which it is in another.

Understanding this is of the utmost importance. Scientists often deny the existence of a difference in kind when all that they mean to be saying is that observable differences in kind can be explained by underlying differences in degree with critical thresholds. Therefore, the difference in kind is *only superficial*.

As contrasted with a superficial difference in kind, a radical difference in kind would be constituted as follows. Let us again consider X and Y and observe that X lacks alpha and Y has alpha. Now, if the reason why X lacks alpha is explained by its lacking beta, and if the reason why Y has alpha is explained by Y's having beta, then it is an *underlying difference in kind* that explains the observed difference in kind. The observed difference in kind is *rooted* in an underlying difference in kind. I, therefore, call this a *radical* difference in kind.

Let us now return to the question, How does man differ from everything else on earth—other living things and machines? There are only three possible answers. These three answers are (1) that man differs only in degree from everything else, (2) that, in addition to differing in degree, he differs superficially in kind, and (3) that, in addition to both modes of difference, he also differs radically in kind.

On the basis of all the scientific evidence that we have at present, it is clear that man differs in kind. The only question is: superficially or radically? Considering the findings of paleoanthropologists who study the traces of human life beginning with the protohominids two million years ago, and considering all the evidence so far turned in by ethology and by comparative and experimental psychology, we find complete agreement on one point, but that one is quite sufficient for the purpose of answering the question whether man differs only in degree or in kind as well. There is unanimous agreement on the point that man and man alone possesses a pro-

positional language. Please note that I did not say that man and man alone communicate. Other animals communicate, instinctively for the most part; but some animals learn to respond to signals and even to imitate signals. I did not say that only man communicates, for that would not be true. I said that only man has a propositional language: *only man makes sentences*.

There are other things that the paleoanthropologists and the psychologists say about man. They often say that only man makes tools; other animals may improvise implements, but only man fashions a tool today that he will use weeks later. Nevertheless, some scientists question whether the line between improvisation and making tools is a difference in degree or a difference in kind. Again, scientists often say that only man is capable of cumulative cultural transmission, which is another way of saying that only man makes history; they often say that only man makes laws, or that only man decorates his possessions for aesthetic or non-utilitarian purposes. Yet each of these statements is questioned by other scientists. The one piece of evidence that is accorded unanimity at the moment is that only man makes sentences. And if that were the only piece of evidence ever completely agreed on, it would mean that man differs in kind from all other animals. He may also differ in degree in other respects; in fact, in all other respects; still that would be enough to establish his difference in kind. But that does not solve our problem because we must still face the question we now face: whether man's difference in kind is superficial or radical.

Before I attempt to answer that question, I want you to understand what necessarily follows from the alternative answers. If the difference in kind turns out to be superficial, there is an underlying continuity between man and other things. If the difference in kind between man and other animals is based upon an underlying difference in the degree of the same psychological or the same neurological processes, then the continuity of nature is not interrupted by this superficial difference in kind. What is most important of all, the principle of phylogenetic continuity, which is the underlying principle of evolution, would not be violated. But if man differs radically in kind from other animals; if the difference between having and not having propositional speech cannot be explained by an underlying difference in degree and must be explained by an underlying difference in kind, then the continuity of nature is interrupted and the principle of phylogenetic continuity does not apply to the emergence of man on earth, and the problem of man's origin is an open question.

Now let us turn to the evidence. I must report to you that most of the American behaviorist psychologists, almost without exception, while admitting along with the paleoanthropologists that only man has propositional speech, would say that man's having, and other animals' lacking propositional speech, is explained by their both having exactly the same psychological processes—the same processes of perception and conception—in differing degrees. Man has these processes to a higher degree; the other animals, to a lower degree; and in the continuum of degrees; there is a critical threshold above which propositional speech occurs and below which it does not occur.

If the psychologists were right, the question would be answered, and and we could stop right here. If the underlying psychological processes were exactly the same in man and the higher mammals, differing by degree in a continuum with a critical threshold; and if you could explain the presence of propositional speech in man and the absence of it in animals by that critical threshold in the continuum of degrees, we would then know at once that man's difference in kind is *superficial only*.

However, the behavioristic psychologists are in error. To understand their error, you must understand that they cannot give a satisfactory account of the meaning of words; the meaning of words is, of course, involved in man's having propositional speech. When we examine what is involved in the simplest process of designative naming in a child's calling an object a dog or cat, an airplane or truck, we can see the difference between designating or naming and mere signalling. Animals can signal, but they cannot designate. We also signal. We respond to fire bells and dinner bells as signals, but we also name or designate things. The fact that only man uses designators or names leads to the conclusion that *only man has conceptual thought*. Animals have the power of perceptual thought—of perceptual generalization or abstraction. Rats, for example, can learn to discriminate perceptually between squares and triangles, but only man can use the word "triangle" to name a triangle, and he can do that only by understanding what kind of thing triangle is. In other words, only man forms *the concept of triangularity*. If he did not have the concept of triangularity, he could not use the word "triangle" significantly, both when triangles are present and when they are absent. In contrast, the animal is only able to respond perceptually to present stimuli.

What supports this point is the general observation that animals, however elaborate their field of perceptual thought is, are *bound by the immediate present*. The time span in which they live is very

short, indeed, and all their thinking or problem-solving is limited to the present situation. So far at least, we have seen that the difference in kind between man and other animals is not superficial; for the reason why man has propositional speech and other animals lack propositional speech is that man has the power of conceptual thought and other animals lack it, having only the power of perceptual thought.

In all scientific and philosophical reasoning, the controlling principle of parsimony can be expressed in the following simple rule: one is entitled to appeal to theoretical constructs only if they are necessary to explain the phenomena.

If you can explain the phenomena without using a certain theoretical construct, the principle of parsimony requires that you dispense with it. I am entitled to introduce the theoretical construct of conceptual thought only if I cannot explain propositional speech without it. If I can explain animal behavior without using this theoretical construct, then the principle of parsimony says that I must not use it. Applying the principle of parsimony to the psychological explanation of human and animal behavior, we are forced to conclude that linguistic behavior requires us to attribute conceptual thought to man; we need not attribute it to animals in view of their totally lacking linguistic behavior. However, that does not settle the question. It could very well be that the reason why man has conceptual thought and the power of propositional speech is that he has a much larger brain relative to the weight of his body, a much more complicated nervous system, and that there is a series of degrees of magnitude and complexity in the central nervous system, with a critical threshold above which conceptual thought and propositional speech occur, and below which there is neither conceptual thought nor propositional speech.

We are thus still faced with the problem: Does man differ superficially or radically in kind? The next step in the argument is the crucial one. The question we must answer can be most precisely formulated in the following fashion: Is the human brain *only* a necessary condition of conceptual thought, or is it *also* the sufficient condition? Let me explain necessary and sufficient conditions. If one says that the brain is *only* a necessary condition of conceptual thought, one is saying that one cannot think without a brain, but that brain action by itself does not adequately explain thinking. If one says that the brain is the sufficient condition, not just a necessary condition, of conceptual thought, one is saying that one need go no further than the neurophysiological processes in the brain to explain conceptual thought adequately.

The reason why I phrase the question in this way is that if the brain is the sufficient condition of conceptual thought, then we may be able to conclude that the difference between animals that have the power of conceptual thought and propositional speech and animals that lack these two properties is only a superficial difference in kind. But if the brain is not the sufficient, but only a necessary, condition of conceptual thought in man, then we know at once that some other, *non-neurological* factor must be present to explain conceptual thought, in which case, man's difference in kind may turn out to be radical, not superficial.

I have just summarized for you the mind-body problem that has agitated philosophers for the last two thousand years. I have studied the literature of this problem very carefully—both the great traditional writings and the contemporary discussion in the philosophical journals—and I must report to you that if we looked to the philosophers for a decisive resolution of this problem, we would have to wait until the end of time. The reason why this is so is that each side advances arguments that are very strong, but neither side will ever be able fully to understand the other side's arguments. Each makes certain assumptions that the other will not grant. There are very persuasive arguments that the brain *cannot be the sufficient condition of conceptual thought*. And there are equally persuasive arguments that the brain *is the sufficient condition of conceptual thought*. Both sides agree that the brain is a necessary condition; the issue is whether, in addition, it is the sufficient condition. Please take my word for the moment that the philosophical debate can go on and on and on without our ever reaching a resolution of this issue by one side's arguments prevailing over the arguments advanced by the other side. If that were the only way in which the issue could be resolved, all that you and I could do is to hold on to our prejudices. If we wanted to believe in man's evolutionary origin, because for one reason or another that satisfied us, we would tend to think that the philosophers who said that the brain is the sufficient condition, were right. If we did not want to believe this, for one reason or another, we would tend to take the opposite philosophical position. But we would be thinking with our hips, not with our heads.

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THE GREAT IDEAS ONLINE

published weekly for its members by the

CENTER FOR THE STUDY OF THE GREAT IDEAS

Founded in 1990 by Mortimer J. Adler & Max Weismann

Max Weismann, Publisher and Editor

Marie E. Cotter, Editorial Assistant

A not-for-profit (501)(c)(3) educational organization.

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