

## LECTURE XI. GENERAL IDEAS AND THOUGHT

It is said to be one of the merits of the human mind that it is capable of framing abstract ideas, and of conducting nonsensational thought. In this it is supposed to differ from the mind of animals. From Plato onward the "idea" has played a great part in the systems of idealizing philosophers. The "idea" has been, in their hands, always something noble and abstract, the apprehension and use of which by man confers upon him a quite special dignity.

The thing we have to consider to-day is this: seeing that there certainly are words of which the meaning is abstract, and seeing that we can use these words intelligently, what must be assumed or inferred, or what can be discovered by observation, in the way of mental content to account for the intelligent use of abstract words?

Taken as a problem in logic, the answer is, of course, that absolutely nothing in the way of abstract mental content is inferable from the mere fact that we can use intelligently words of which the meaning is abstract. It is clear that a sufficiently ingenious person could manufacture a machine moved by olfactory stimuli which, whenever a dog appeared in its neighbourhood, would say, "There is a dog," and when a cat appeared would throw stones at it. The act of saying "There is a dog," and the act of throwing stones, would in such a case be equally mechanical. Correct speech does not of itself afford any better evidence of mental content than the performance of any other set of biologically

useful movements, such as those of flight or combat. All that is inferable from language is that two instances of a universal, even when they differ very greatly, may cause the utterance of two instances of the same word which only differ very slightly. As we saw in the preceding lecture, the word "dog" is useful, partly, because two

instances of this word are much more similar than (say) a pug and a great dane. The use of words is thus a method of substituting for two particulars which differ widely, in spite of being instances of the same universal, two other particulars which differ very little, and which are also instances of a universal, namely the name of the previous universal. Thus, so far as logic is concerned, we are entirely free to adopt any theory as to general ideas which empirical observation may recommend.

Berkeley and Hume made a vigorous onslaught on "abstract ideas." They meant by an idea approximately what we should call an image. Locke having maintained that he could form an idea of triangle in general, without deciding what sort of triangle it was to be, Berkeley contended that this was impossible. He says:

"Whether others, have this wonderful faculty of abstracting their ideas, they best can tell: for myself, I dare be confident I have it not. I find, indeed, I have indeed a faculty of imagining, or representing to myself, the ideas of those particular things I have perceived, and of variously compounding and dividing them. I can imagine a man with two

heads, or the upper parts of a man joined to the body of a horse. I can consider the hand, the eye, the nose, each by itself abstracted or separated from the rest of the body. But, then, whatever hand or eye I imagine, it must have some particular shape and colour. Likewise the idea of a man that I frame to myself must be either of a white, or a black, or a tawny, a straight, or a crooked, a tall, or a low, or a middle-sized man. I cannot by any effort of thought conceive the abstract idea above described. And it is equally impossible for me to form the abstract idea of motion distinct from the body moving, and which is neither swift nor slow, curvilinear nor rectilinear; and the like may be said of all other abstract general ideas whatsoever. To be plain, I own myself able to abstract in one sense, as when I consider some particular parts of qualities separated from others, with which, though they are united in some object, yet it is possible they may really exist without them. But I deny that I can abstract from one another, or conceive separately, those qualities which it is impossible should exist so separated; or that I can frame a general notion, by abstracting from particulars in the manner aforesaid--which last are the two proper acceptations of ABSTRACTION. And there is ground to think most men will acknowledge themselves to be in my case. The generality of men which are simple and illiterate never pretend to ABSTRACT NOTIONS. It is said they are difficult and not to be attained without pains and study; we may therefore reasonably conclude that, if such there be, they are confined only to the learned.

"I proceed to examine what can be alleged in defence of the doctrine of

abstraction, and try if I can discover what it is that inclines the men of speculation to embrace an opinion so remote from common sense as that seems to be. There has been a late excellent and deservedly esteemed philosopher who, no doubt, has given it very much countenance, by seeming to think the having abstract general ideas is what puts the widest difference in point of understanding betwixt man and beast. 'The having of general ideas,' saith he, 'is that which puts a perfect distinction betwixt man and brutes, and is an excellency which the faculties of brutes do by no means attain unto. For, it is evident we observe no footsteps in them of making use of general signs for universal ideas; from which we have reason to imagine that they have not the faculty of abstracting, or making general ideas, since they have no use of words or any other general signs.' And a little after: 'Therefore, I think, we may suppose that it is in this that the species of brutes are discriminated from men, and it is that proper difference wherein they are wholly separated, and which at last widens to so wide a distance. For, if they have any ideas at all, and are not bare machines (as some would have them), we cannot deny them to have some reason. It seems as evident to me that they do, some of them, in certain instances reason as that they have sense; but it is only in particular ideas, just as they receive them from their senses. They are the best of them tied up within those narrow bounds, and have not (as I think) the faculty to enlarge them by any kind of abstraction.\* ("Essay on Human Understanding," Bk. II, chap. xi, paragraphs 10 and 11.) I readily agree with this learned author, that the faculties of brutes can by no means attain to abstraction. But, then, if this be made the distinguishing

property of that sort of animals, I fear a great many of those that pass for men must be reckoned into their number. The reason that is here assigned why we have no grounds to think brutes have abstract general ideas is, that we observe in them no use of words or any other general signs; which is built on this supposition-that the making use of words implies the having general ideas. From which it follows that men who use language are able to abstract or generalize their ideas. That this is the sense and arguing of the author will further appear by his answering the question he in another place puts: 'Since all things that exist are only particulars, how come we by general terms?' His answer is: 'Words become general by being made the signs of general ideas.' ("Essay on Human Understanding," Bk. III, chap. III, paragraph 6.) But it seems that a word becomes general by being made the sign, not of an abstract general idea, but of several particular ideas, any one of which it indifferently suggests to the mind. For example, when it is said 'the change of motion is proportional to the impressed force,' or that 'whatever has extension is divisible,' these propositions are to be understood of motion and extension in general; and nevertheless it will not follow that they suggest to my thoughts an idea of motion without a body moved, or any determinate direction and velocity, or that I must conceive an abstract general idea of extension, which is neither line, surface, nor solid, neither great nor small, black, white, nor red, nor of any other determinate colour. It is only implied that whatever particular motion I consider, whether it be swift or slow, perpendicular, horizontal, or oblique, or in whatever object, the axiom concerning it holds equally true. As does the other of every particular

extension, it matters not whether line, surface, or solid, whether of this or that magnitude or figure.

"By observing how ideas become general, we may the better judge how words are made so. And here it is to be noted that I do not deny absolutely there are general ideas, but only that there are any ABSTRACT general ideas; for, in the passages we have quoted wherein there is mention of general ideas, it is always supposed that they are formed by abstraction, after the manner set forth in sections 8 and 9. Now, if we will annex a meaning to our words, and speak only of what we can conceive, I believe we shall acknowledge that an idea which, considered in itself, is particular, becomes general by being made to represent or stand for all other particular ideas of the same sort. To make this plain by an example, suppose a geometrician is demonstrating the method of cutting a line in two equal parts. He draws, for instance, a black line of an inch in length: this, which in itself is a particular line, is nevertheless with regard to its signification general, since, as it is there used, it represents all particular lines whatsoever; so that what is demonstrated of it is demonstrated of all lines, or, in other words, of a line in general. And, as THAT PARTICULAR LINE becomes general by being made a sign, so the NAME 'line,' which taken absolutely is particular, by being a sign is made general. And as the former owes its generality not to its being the sign of an abstract or general line, but of all particular right lines that may possibly exist, so the latter must be thought to derive its generality from the same cause, namely, the various particular lines which it indifferently denotes." \*

\* Introduction to "A Treatise concerning the Principles of Human Knowledge," paragraphs 10, 11, and 12.

Berkeley's view in the above passage, which is essentially the same as Hume's, does not wholly agree with modern psychology, although it comes nearer to agreement than does the view of those who believe that there are in the mind single contents which can be called abstract ideas. The way in which Berkeley's view is inadequate is chiefly in the fact that images are as a rule not of one definite prototype, but of a number of related similar prototypes. On this subject Semon has written well. In "Die Mneme," pp. 217 ff., discussing the effect of repeated similar stimuli in producing and modifying our images, he says: "We choose a case of mnemonic excitement whose existence we can perceive for ourselves by introspection, and seek to evoke the bodily picture of our nearest relation in his absence, and have thus a pure mnemonic excitement before us. At first it may seem to us that a determinate quite concrete picture becomes manifest in us, but just when we are concerned with a person with whom we are in constant contact, we shall find that the evoked picture has something so to speak generalized. It is something like those American photographs which seek to display what is general about a type by combining a great number of photographs of different heads over each other on one plate. In our opinion, the generalizations happen by the homophonic working of different pictures of the same face which we have come across in the most different conditions and situations, once pale, once reddened, once cheerful, once earnest, once in this

light, and once in that. As soon as we do not let the whole series of repetitions resound in us uniformly, but give our attention to one particular moment out of the many... this particular mnemonic stimulus at once overbalances its simultaneously roused predecessors and successors, and we perceive the face in question with concrete definiteness in that particular situation." A little later he says: "The result is--at least in man, but probably also in the higher animals--the development of a sort of PHYSIOLOGICAL abstraction. Mnemonic homophony gives us, without the addition of other processes of thought, a picture of our friend X which is in a certain sense abstract, not the concrete in any one situation, but X cut loose from any particular point of time. If the circle of ekphored engrams is drawn even more widely, abstract pictures of a higher order appear: for instance, a white man or a negro. In my opinion, the first form of abstract concepts in general is based upon such abstract pictures. The physiological abstraction which takes place in the above described manner is a predecessor of purely logical abstraction. It is by no means a monopoly of the human race, but shows itself in various ways also among the more highly organized animals." The same subject is treated in more detail in Chapter xvi of "Die mnemischen Empfindungen," but what is said there adds nothing vital to what is contained in the above quotations.

It is necessary, however, to distinguish between the vague and the general. So long as we are content with Semon's composite image, we MAY get no farther than the vague. The question whether this image takes us to the general or not depends, I think, upon the question whether, in



addition to the generalized image, we have also particular images of some of the instances out of which it is compounded. Suppose, for example, that on a number of occasions you had seen one negro, and that you did not know whether this one was the same or different on the different occasions. Suppose that in the end you had an abstract memory-image of the different appearances presented by the negro on different occasions, but no memory-image of any one of the single appearances. In that case your image would be vague. If, on the other hand, you have, in addition to the generalized image, particular images of the several appearances, sufficiently clear to be recognized as different, and as instances of the generalized picture, you will then not feel the generalized picture to be adequate to any one particular appearance, and you will be able to make it function as a general idea rather than a vague idea. If this view is correct, no new general content needs to be added to the generalized image. What needs to be added is particular images compared and contrasted with the generalized image. So far as I can judge by introspection, this does occur in practice. Take for example Semon's instance of a friend's face. Unless we make some special effort of recollection, the face is likely to come before us with an average expression, very blurred and vague, but we can at will recall how our friend looked on some special occasion when he was pleased or angry or unhappy, and this enables us to realize the generalized character of the vague image.

There is, however, another way of distinguishing between the vague, the particular and the general, and this is not by their content, but by

the reaction which they produce. A word, for example, may be said to be vague when it is applicable to a number of different individuals, but to each as individuals; the name Smith, for example, is vague: it is always meant to apply to one man, but there are many men to each of whom it applies.\* The word "man," on the other hand, is general. We say, "This is Smith," but we do not say "This is man," but "This is a man." Thus we may say that a word embodies a vague idea when its effects are appropriate to an individual, but are the same for various similar individuals, while a word embodies a general idea when its effects are different from those appropriate to individuals. In what this difference consists it is, however, not easy to say. I am inclined to think that it consists merely in the knowledge that no one individual is represented, so that what distinguishes a general idea from a vague idea is merely the presence of a certain accompanying belief. If this view is correct, a general idea differs from a vague one in a way analogous to that in which a memory-image differs from an imagination-image. There also we found that the difference consists merely of the fact that a memory-image is accompanied by a belief, in this case as to the past.

\* "Smith" would only be a quite satisfactory representation of vague words if we failed to discriminate between different people called Smith.

It should also be said that our images even of quite particular occurrences have always a greater or a less degree of vagueness. That is to say, the occurrence might have varied within certain limits without

causing our image to vary recognizably. To arrive at the general it is necessary that we should be able to contrast it with a number of relatively precise images or words for particular occurrences; so long as all our images and words are vague, we cannot arrive at the contrast by which the general is defined. This is the justification for the view which I quoted on p. 184 from Ribot (*op. cit.*, p. 32), viz. that intelligence progresses from the indefinite to the definite, and that the vague appears earlier than either the particular or the general.

I think the view which I have been advocating, to the effect that a general idea is distinguished from a vague one by the presence of a judgment, is also that intended by Ribot when he says (*op. cit.*, p. 92): "The generic image is never, the concept is always, a judgment. We know that for logicians (formerly at any rate) the concept is the simple and primitive element; next comes the judgment, uniting two or several concepts; then ratiocination, combining two or several judgments. For the psychologists, on the contrary, affirmation is the fundamental act; the concept is the result of judgment (explicit or implicit), of similarities with exclusion of differences."

A great deal of work professing to be experimental has been done in recent years on the psychology of thought. A good summary of such work up to the year ago is contained in Titchener's "Lectures on the Experimental Psychology of the Thought Processes" (1909). Three articles in the "Archiv für die gesammte Psychologie" by Watt,\* Messer\*\* and Buhler\*\*\* contain a great deal of the material amassed by the methods

which Titchener calls experimental.

\* Henry J. Watt, "Experimentelle Beitrage zu einer Theorie des Denkens," vol. iv (1905) pp. 289-436.

\*\* August Messer, "Experimentell-psychologische Untersuchungen uber das Denken," vol. iii (1906), pp. 1-224.

\*\*\* Karl Buhler, "Uber Gedanken," vol. ix (1907), pp. 297-365.

For my part I am unable to attach as much importance to this work as many psychologists do. The method employed appears to me hardly to fulfil the conditions of scientific experiment. Broadly speaking, what is done is, that a set of questions are asked of various people, their answers are recorded, and likewise their own accounts, based upon introspection, of the processes of thought which led them to give those answers. Much too much reliance seems to me to be placed upon the correctness of their introspection. On introspection as a method I have spoken earlier (Lecture VI). I am not prepared, like Professor Watson, to reject it wholly, but I do consider that it is exceedingly fallible and quite peculiarly liable to falsification in accordance with preconceived theory. It is like depending upon the report of a shortsighted person as to whom he sees coming along the road at a moment when he is firmly convinced that Jones is sure to come. If everybody were shortsighted and obsessed with beliefs as to what was going to be visible, we might have to make the best of such testimony, but we should

need to correct its errors by taking care to collect the simultaneous evidence of people with the most divergent expectations. There is no evidence that this was done in the experiments in question, nor indeed that the influence of theory in falsifying the introspection was at all adequately recognized. I feel convinced that if Professor Watson had been one of the subjects of the questionnaires, he would have given answers totally different from those recorded in the articles in question. Titchener quotes an opinion of Wundt on these investigations, which appears to me thoroughly justified. "These experiments," he says, "are not experiments at all in the sense of a scientific methodology; they are counterfeit experiments, that seem methodical simply because they are ordinarily performed in a psychological laboratory, and involve the co-operation of two persons, who purport to be experimenter and observer. In reality, they are as unmethodical as possible; they possess none of the special features by which we distinguish the introspections of experimental psychology from the casual introspections of everyday life."\* Titchener, of course, dissents from this opinion, but I cannot see that his reasons for dissent are adequate. My doubts are only increased by the fact that Buhler at any rate used trained psychologists as his subjects. A trained psychologist is, of course, supposed to have acquired the habit of observation, but he is at least equally likely to have acquired a habit of seeing what his theories require. We may take Buhler's "Uber Gedanken" to illustrate the kind of results arrived at by such methods. Buhler says (p. 303): "We ask ourselves the general question: 'WHAT DO WE EXPERIENCE WHEN WE THINK?' Then we do not at all attempt a preliminary determination of the concept 'thought,' but choose

for analysis only such processes as everyone would describe as processes of thought." The most important thing in thinking, he says, is "awareness that..." (Bewusstheit dass), which he calls a thought. It is, he says, thoughts in this sense that are essential to thinking. Thinking, he maintains, does not need language or sensuous presentations. "I assert rather that in principle every object can be thought (meant) distinctly, without any help from sensuous presentation (Anschauungshilfen). Every individual shade of blue colour on the picture that hangs in my room I can think with complete distinctness unsensuously (unanschaulich), provided it is possible that the object should be given to me in another manner than by the help of sensations. How that is possible we shall see later." What he calls a thought (Gedanke) cannot be reduced, according to him, to other psychic occurrences. He maintains that thoughts consist for the most part of known rules (p. 342). It is clearly essential to the interest of this theory that the thought or rule alluded to by Buhler should not need to be expressed in words, for if it is expressed in words it is immediately capable of being dealt with on the lines with which the behaviourists have familiarized us. It is clear also that the supposed absence of words rests solely upon the introspective testimony of the persons experimented upon. I cannot think that there is sufficient certainty of their reliability in this negative observation to make us accept a difficult and revolutionary view of thought, merely because they have failed to observe the presence of words or their equivalent in their thinking. I think it far more likely, especially in view of the fact that the persons concerned were highly educated, that we are concerned

with telescoped processes, in which habit has caused a great many intermediate terms to be elided or to be passed over so quickly as to escape observation.

\* Titchener, *op. cit.*, p. 79.

I am inclined to think that similar remarks apply to the general idea of "imageless thinking," concerning which there has been much controversy. The advocates of imageless thinking are not contending merely that there can be thinking which is purely verbal; they are contending that there can be thinking which proceeds neither in words nor in images. My own feeling is that they have rashly assumed the presence of thinking in cases where habit has rendered thinking unnecessary. When Thorndike experimented with animals in cages, he found that the associations established were between a sensory stimulus and a bodily movement (not the idea of it), without the need of supposing any non-physiological intermediary (*op. cit.*, p. 100 ff.). The same thing, it seems to me, applies to ourselves. A certain sensory situation produces in us a certain bodily movement. Sometimes this movement consists in uttering words. Prejudice leads us to suppose that between the sensory stimulus and the utterance of the words a process of thought must have intervened, but there seems no good reason for such a supposition. Any habitual action, such as eating or dressing, may be performed on the appropriate occasion, without any need of thought, and the same seems to be true of a painfully large proportion of our talk. What applies to uttered speech applies of course equally to the internal speech which is

not uttered. I remain, therefore, entirely unconvinced that there is any such phenomenon as thinking which consists neither of images nor of words, or that "ideas" have to be added to sensations and images as part of the material out of which mental phenomena are built.

The question of the nature of our consciousness of the universal is much affected by our view as to the general nature of the relation of consciousness to its object. If we adopt the view of Brentano, according to which all mental content has essential reference to an object, it is then natural to suppose that there is some peculiar kind of mental content of which the object is a universal, as oppose to a particular. According to this view, a particular cat can be PERceived or imagined, while the universal "cat" is CONceived. But this whole manner of viewing our dealings with universals has to be abandoned when the relation of a mental occurrence to its "object" is regarded as merely indirect and causal, which is the view that we have adopted. The mental content is, of course, always particular, and the question as to what it "means" (in case it means anything) is one which cannot be settled by merely examining the intrinsic character of the mental content, but only by knowing its causal connections in the case of the person concerned. To say that a certain thought "means" a universal as opposed to either a vague or a particular, is to say something exceedingly complex. A horse will behave in a certain manner whenever he smells a bear, even if the smell is derived from a bearskin. That is to say, any environment containing an instance of the universal "smell of a bear" produces closely similar behaviour in the horse, but we do not say that the horse



is conscious of this universal. There is equally little reason to regard a man as conscious of the same universal, because under the same circumstances he can react by saying, "I smell a bear." This reaction, like that of the horse, is merely closely similar on different occasions where the environment affords instances of the same universal. Words of which the logical meaning is universal can therefore be employed correctly, without anything that could be called consciousness of universals. Such consciousness in the only sense in which it can be said to exist is a matter of reflective judgment consisting in the observation of similarities and differences. A universal never appears before the mind as a single object in the sort of way in which something perceived appears. I THINK a logical argument could be produced to show that universals are part of the structure of the world, but they are an inferred part, not a part of our data. What exists in us consists of various factors, some open to external observation, others only visible to introspection. The factors open to external observation are primarily habits, having the peculiarity that very similar reactions are produced by stimuli which are in many respects very different from each other. Of this the reaction of the horse to the smell of the bear is an instance, and so is the reaction of the man who says "bear" under the same circumstances. The verbal reaction is, of course, the most important from the point of view of what may be called knowledge of universals. A man who can always use the word "dog" when he sees a dog may be said, in a certain sense, to know the meaning of the word "dog," and IN THAT SENSE to have knowledge of the universal "dog." But there is, of course, a further stage reached by the logician in which he not merely reacts

with the word "dog," but sets to work to discover what it is in the environment that causes in him this almost identical reaction on different occasions. This further stage consists in knowledge of similarities and differences: similarities which are necessary to the applicability of the word "dog," and differences which are compatible with it. Our knowledge of these similarities and differences is never exhaustive, and therefore our knowledge of the meaning of a universal is never complete.

In addition to external observable habits (including the habit of words), there is also the generic image produced by the superposition, or, in Semon's phrase, homophony, of a number of similar perceptions. This image is vague so long as the multiplicity of its prototypes is not recognized, but becomes universal when it exists alongside of the more specific images of its instances, and is knowingly contrasted with them. In this case we find again, as we found when we were discussing words in general in the preceding lecture, that images are not logically necessary in order to account for observable behaviour, i.e. in this case intelligent speech. Intelligent speech could exist as a motor habit, without any accompaniment of images, and this conclusion applies to words of which the meaning is universal, just as much as to words of which the meaning is relatively particular. If this conclusion is valid, it follows that behaviourist psychology, which eschews introspective data, is capable of being an independent science, and of accounting for all that part of the behaviour of other people which is commonly regarded as evidence that they think. It must be admitted that this

conclusion considerably weakens the reliance which can be placed upon introspective data. They must be accepted simply on account of the fact that we seem to perceive them, not on account of their supposed necessity for explaining the data of external observation.

This, at any rate, is the conclusion to which we are forced, so long as, with the behaviourists, we accept common-sense views of the physical world. But if, as I have urged, the physical world itself, as known, is infected through and through with subjectivity, if, as the theory of relativity suggests, the physical universe contains the diversity of points of view which we have been accustomed to regard as distinctively psychological, then we are brought back by this different road to the necessity for trusting observations which are in an important sense private. And it is the privacy of introspective data which causes much of the behaviourists' objection to them.

This is an example of the difficulty of constructing an adequate philosophy of any one science without taking account of other sciences. The behaviourist philosophy of psychology, though in many respects admirable from the point of view of method, appears to me to fail in the last analysis because it is based upon an inadequate philosophy of physics. In spite, therefore, of the fact that the evidence for images, whether generic or particular, is merely introspective, I cannot admit that images should be rejected, or that we should minimize their function in our knowledge of what is remote in time or space.