

LECTURE III

THE SOCIAL ORIGIN OF THE REASONING PROCESS.

In the foregoing lectures of this course I have tried to show some of the ways in which the process of thinking, the life of the intellect is determined from the beginning by social influences. Thinking I have maintained means conscious imitation. Conscious imitation first appears principally as a social activity. The infant in the first year of life begins to show somewhere between the sixth and the ninth month a tendency to imitate the doings of those about him. This tendency has a very complex origin in the child's inherited tendencies; but it arises only upon the basis of a great deal of experience. When the child begins to imitate, he is already a very highly intelligent animal; but he is not yet rational, in any conscious sense of that word. Reason comes to him as he learns to imitate. It comes to him, first because, as he imitates, he constantly contrasts his acts and their modals, in a way which makes him conscious of the relations of things. Furthermore, imitation is a constantly complicating activity, which enables the child to use every form of conscious control over actions which is once acquired, as a basis for new acquisitions. The most important of all the early products of imitation is language, the most frequent vehicle of reason. In imitating words, and later sentences, formulas, and stories, the child both complicates indefinitely his own imitative skill, and acquires a constantly increasing clearness as to

what this skill implies, and as to what is the nature of the things with which he deals when he speaks of objects, or tells what he knows about them. A constant comparison of the meaning of the various sayings and doings of people forms the basis for further development of all the intellectual life of the child, for his conscience as well as for his insight into truth. In consequence what kind of intellectual life the child develops is for him, as for the mature individual later dependent upon the sort of social guidance that the learner gets, and so upon the nature of the social order in which he is brought up. And that as we saw is the reason why men of different callings, not only know different things, but develop different intellectual types.

All this has been illustrated at considerable length in our two former lectures. We now have to trace the same considerations, namely our considerations as to the influence of social factors upon the intellect, into a new field. We have to consider the relation of social training to the nature and growth of the power to reason. What is called reasoning is for most people the most mysterious portion of the intellectual life. If you ask a man to tell you what his thoughts are, he is likely to respond by giving you his opinions, that is, if you ask him for an example of a thinking process, he is likely first to mention an example of what we call an individual judgement. He says perhaps, "I think that the earth is round." That is my example of one of my thoughts." A man is less likely if you ask him to give an example of a thinking process to mention a case of a definite reasoning process. A judgement such as "the earth is round" is a comparatively simple mental act. We all recognize in a way that there are such acts as that in our minds. We all recognize in a way, what such acts are. When I tell you that any such act is an imitative act, namely a putting together

er of words in such wise that the accompanying ideas shall depict or imitate in some fashion the structure or the relations of the object about which you think, you can see on the whole what I mean. But it is much harder to understand what goes on in the mind when we not merely form and express opinions without reasoning but when we reason, that is when we get an opinion as a definite and a reasonable result of our former opinions. And when a man is asked to give an example of a thinking process, he is much less likely to choose as such example a process of reasoning, unless he is by profession a reasoner. As a fact conscious reasoning, reasoning that knows what it is about, plays an unhappily small part in the life of most of us. We think very much more frequently than we reason. If you were to go through the books in the library and to make a statistical record of the number of real or fictitious statements which appear in those books without any reason being given why those statements are made, and if you compared that number with the number statements that are made with a reason given why they are made or why they are believed to be true, you would find the former number to be very greatly in the majority. For instance, most lively narratives, unless they are detective stories or are of some similarly abnormal type, express thought in every sentence, but comparatively infrequently express reasoning processes, or assertions for which even a fictitious reason is expressly given by the narrator. Poetry, if you omit such poetry as Browning's, may proceed for long series of lines without giving expression to reasoning processes. Yet the poet of course is thinking and is expressing thought in every line. Even in science, descriptive accounts of objects, statements of facts of any sort, or expressions of opinion may appear in considerable numbers without any express reasoning being introduced. Thus a text book of Geography, or of Grammar may contain long passages in which no express

reasoning occurs. To be sure many indications may exist, in the form of such words as "probably", "accordingly", or the like that the writer has in mind reasons for his views at which he merely desires to hint. But I am now speaking of explicit reasoning processes. Such of course are very common, or even constant in books of an explicitly controversial, argumentative, or mathematical character. But in narrative, in description, in history, in poetry, in the literature of counsel and of exhortation, the expressed reasoning processes may be in a decided minority.

It appears therefore that by reasoning we mean a thinking process of a somewhat specialized type. We also mean a thinking process whose nature is somehow more puzzling and recondite than is the nature of that portion of our thought which is not explicitly a reasoning process. Having made this distinction, I must at once add that it holds true for the most part in regard to conscious and explicit reasoning processes. There is a sense in which the essential features of the reasoning process are present in a hidden way, even in the simplest kind of thinking, but it is hard to become clearly conscious of much of the reasoning that is latent from the beginning in our thinking process, and what I have said applies to express or explicit reasoning processes, overtly carried on, and made an end in themselves. All men think. By implication all men somewhat unconsciously reason. But it is easier for them to know that they think than to give any definite voice and embodiment to their reasoning processes. Or to put the matter in a familiar way: it is easy to hold opinions; it is hard to know precisely why you hold them. To hold opinions is to think; to make clear to yourself why you hold them is to reason.

In saying this I have already defined in a general way what

it is to reason. I must now exemplify the reasoning process in a few cases, and must then give a somewhat more exact statement of what I mean by it. Suppose that I am travelling and that the train is delayed for a considerable time at the station. I look out of the car window, and see the familiar sight of a group of people standing near one of the wheels, and looking curiously at a workman who bends over the wheel-box. Without looking further I at once say, "Oh, hot box". The cause of the delay is explained, and I am ready, in imitation of the fact to report as much to an enquiring fellow passenger. This is a case of a reasoning process. Its a process that may be very imperfectly conscious; but if I am asked by my fellow passenger how I know that that is the cause of the delay I can give my reason. That is I can say, I know this to be true because I saw such and such signs of the fact. If he asks why those signs prove the fact I may answer, "I have seen such things before; and that is the way it always looks when there is a hot box. My reasoning is fallible, because my principle is not absolutely certain. Some other accident may be the real one; and appearances may be deceiving me. But I reason, just in so far as I am aware of a general principle based upon former experience, and in so far as I apply that principle to that case, and am conscious of how I can do so, or of what warrants the application, namely the agreement of the fact with the principle. So far then I reason about present facts, when I interpret them by applying to them already known principles. In order that the reasoning may be good, the principle must be one that fairly applies to this fact. In other words the facts must agree with the sort of facts about which my principle is asserted. In order that the result should be infallible my principle would have to be something quite certain. In ordinary life the principles that I use as I reason usual

ly have a greater or less uncertainty. Accordingly in ordinary life my results are more or less fallible. You will notice that I do not yet say that the kind of reasoning now exemplified is the only possible. I simply say "this is a case of reasoning, namely that to apply a principle to a fact which agrees with the kind of fact about which that principle asserts something and to get a result from such application is to reason, so long as you are conscious of what it is that you are doing. Other examples of such reasoning processes as this, are easy to give. An astronomer sees a new comet, which rapidly changes its place in the heavens. He knows in advance of further observation that that comet is revolving about the sun. He knows this because he is sure of the general principle that this is true of any and all comets. A stranger in a city recognizes a given man as a policeman, because he observes the man's uniform. A passenger about to wait for a car crosses the street in order to be near the right track. In both cases the people in question apply principles to facts. If they know what principles they are applying, and recognize why the principles agree with and apply to the facts, they are consciously reasoning

But now as I have repeatedly said everything here turns upon being conscious of what you are doing. I may act according to general principles without knowing that I do so. In that case my act may be what we call reasonable, but I shall not be myself reasoning. Any intelligent animal that acts out its habits behaves in a way that could be expressed in terms of a reasoning process. But the animal does not on that account reason. When a dog sees a stranger, he barks, on seeing his master, the dog wags his tail; on seeing the dog, the cat assumes appropriate attitudes. Were these animals conscious not only of their behavior, but of its meaning, they would regard themselves as

applying principles to facts. They would then use what we technically call syllogisms. The dog would say, "All strangers are to be barked at. This is a stranger." "Whenever I see my master; I wag my tail. I see my master, therefore." The cat would say, "All dogs are to be treated with this particular show of sentiment; now this is a dog, therefore-." In other words all such actions are in their various ways reasonable. We who look on can consciously comment upon them as expressions of latent principles of actions. But the animal does not reason in such cases. That is the animal does not consciously know why. Precisely so we may act reasonably without reasoning. I may form the judgement, "Hot box," after looking out of the car window, and without any conscious process of reasoning. In such a case I shall say, very likely that I saw that the box was hot. That of course is inaccurate. I did not see that; I gathered it from the facts. But I may remain unconscious of my reasoning process. And that is why as I said before there is a great deal of thinking done, which implies reasoning, but which is not itself explicit reasoning. And that is the sort of thinking which fills up so much of our narrative, poetical, descriptive, and even didactic literature. Reasoning as such is then a process dependent upon and inseparable from a certain kind of consciousness. Reasoning is knowing why you think and believe as you do.

The conscious application of principles to facts is by no means the only sort of reasoning that goes on in our minds. In argument and controversy other forms of reasoning may and often do occur, - forms which can be reduced to the application of principles to facts only by a decidedly unnatural process. Thus a familiar form of controversial reasoning consists in showing that an opponents views if true would lead to some sort of absurdity and must therefore be rejected. Such

reasoning runs therefore in substance thus," If your opinion were true this or that result would also be true. But that result is known to be false. Therefore your opinion, from which that false result would follow, is also false." The form of this reasoning differs somewhat from the form used when we directly apply principles to proven something about given facts. I mention this other form of reasoning, only to show that reasoning is a various and somewhat complex process which takes more forms than one. As a fact the forms that a given reasoning process can take are very numerous. If three people sit before me, and I observe that B sits to the right of A, and that C sits to the right of B, I can at once reason that C must be sitting to the right of A. If I know of these three people that B is older than A and that C is older than B I can reason that C is older than A. If in a mob of men I know beforehand that most of them are armed, and if I then observe that most of them are angry, I can reason that in this mob there are at least some men who are both armed and angry. If a navigator comes from an unknown land, and first takes note of a prominent point of the coast line, if he then sails along the coast keeping it on the same side of his vessel if he thereupon sails on gradually changing his course until he has gone clear around the compass, and if he then sights once more the same point of land, he reasons unhesitatingly that the unknown land is an island. All these are cases of reasoning processes. They vary greatly in form; and as a fact there seems to be no limit to the number of forms of reasoning of which the human mind can make use. But all these forms agree in one great feature. They all imply that you collect certain facts, or make use of certain principles, that you then put these facts and principles and facts together, and that you get as it were some result from the whole of them, some result that must be true if your facts and principles are true; and finally that you consciously,

see why the result thus follows. Whenever the foregoing conditions are fulfilled you explicitly reason. Whenever the conditions are not fulfilled what then happens is something less than the reasoning process.

But now if with this observation in mind we run through our beliefs we shall find that we all of us hold a great many opinions for which we can give no reason whatever. We have heard that these opinions are true. In many cases they are true. But we have not reasoned about them. Few men belong to a political party for reasons which they have made perfectly articulate to themselves. Few persons can give reasons for the greater number of their concrete practical judgements about what it is best to do. It is customary to say, somewhat hastily, that women act upon intuition, and men upon explicit reasoning. It is fairer to say that most things done, whether by men or by women, in practical life, are done for no reason that the actors in life's drama have ever made explicitly clear to themselves. This is true even of professional reasoners, so soon as they leave their technical professional work. Good judgement, in practical matters, is something very different from clear reasoning power. We very rightly prefer the skillful judge of a situation, to the shallow reasoner who has poor judgement. Nor is this anything against our reasoning powers, in case they are properly applied. It is simply the fact that our world being as complex as it is, we have to be guided by instinct and by custom, except in those few regions where we have a right to reason, and leisure to devote ourselves to the reasoning process. On the other hand, when men undertake to reason, and desire to reason, it is curious to observe what a variety of vague processes pass for reasoning amongst people who never become clearly conscious why they believe what they do believe. Every logic teacher knows the puzzled student who can worry for hours over some traditional fallacy, some comparatively simple logical puzzle

that has come down to us from past ages, as an exercise for young intellects, - can worry and flounder helplessly without seeing the way out, no matter how much you try to help him. He brings you the ancient problem, hoary as it is, with age, and asks you to solve it. The problem may be that famous argument which runs, "You have what you have not lost; you have not a million dollars; you have a million dollars." The student is troubled. He sees that the result does not follow, and sees it because he is no richer than before. But why does it not follow. There is the rub. You explain, you draw certain diagrams familiar to all logicians; you believe yourself to be making the matter as clear as day. The student accepts the result for the time, but goes away convinced against his will, and ready to fall prey to every fresh case of the same puzzle." It seems, such a good argument," he says. "What is the matter?" Such instances show us how hard it is to become clear, not merely as to the facts, but as to our reasons for them. Outside of the logic puzzles one meets with practically important cases of the same difficulties. Kindly people listen to debate between skillful disputants. The first disputant states his case. He reasons so well; he makes the matter so clear. One seems to see why he is right so very surely. But alas there is that terrible other side. The opponent rises. He reasons too. If he did not reason, all would be well. One is prepared to scorn his mere assertions. One is forearmed against him. But alas he too reasons with irresistible cogency. He convinces just as his opponent had done. Where is the candid listener? It is a scandal to the human reason; but unfortunately two opposing opinions have become equally clear to him. He can only wish now, in his bitterness that nobody ever reasoned at all; for then we should not try to agree. We should then remain like the cats and dogs, always sure what attitude to take towards our opponents.

But now such cases as this show us simply how imperfect must be the substitutes for reasoning which in our ordinary arguments take the place of actual reasoning. As a fact few of us know what it is to reason at all outside of a limited range of matters that we have thought out. What we ordinarily take for reasoning, is social persuasiveness, reiteration of statements until we believe them, argument that simulates reasoning by its mere external shape. There is a persistent fallacy of the human mind which takes the form of believing that if a man says that he is reasoning, and particularly if he uses such words as therefore, since, because and the like, and if he introduces a new statement with either or, and uses other similar forms of exactness, then he must know what he means, even if we do not. Accordingly what commonly passes with us for reasoning, in matters which we do not understand by direct personal knowledge, is whatever sounds as if it had a precise meaning and a pretty rigid form, in the mind of the person addressing us. How many otherwise fairly critical people there are to whom certain forms of gossip seem overwhelming proofs of the facts that happen to be reported; so that one says; "I believe so and so", when if you ask him why he believes it, he can only say, "Because it was thus or thus reported to me as currently known". If you ask such a person whether he has ever found reports of that kind precisely true when they chance to be gossip relating to his own personal affairs, which were known to him directly, he will often have to reply that just such gossip, whenever reported about himself has been observed by him to be unfaillingly inaccurate. He has never found it true where he could best verify it; and yet it seems to have to him a certain sacred assurance to him whenever it is reported to him in a case in which he cannot verify it, namely when it relates to some other man

Such is the unfortunate infallibility of some of our most natural and most ordinary reasoning processes.

I have necessarily wearied you with this dry collection of examples of perfect and imperfect reasoning processes. I did not come to lecture on Logic, but to illustrate human nature; yet I must still ask you to observe on the basis of the foregoing just what it is that constitutes a real reasoning process in the case where we do not merely take something else for reasoning, but actually reason with our eyes open. And the essential nature of a reasoning process is not at all hard to state. What happens when we reason, when we reason consciously explicitly, clearly and assuredly has no mystery about it. Common language has already expressed the essence of the matter in a very familiar phrase. When one understands a bit of reasoning, one says, "Yes I see that," Well reasoning is simply a kind of seeing. Reasoning is observing a fact, but a fact of a peculiar kind. Reasoning is observing a present fact which happens to exist not outside the mind, in the world yonder, but inside the mind, namely in the world of your ideas. And this fact is simply a fact about one or more of your own ideas, or to speak more explicitly, a fact about the meaning of your ideas. When I observe facts in the world outside of my mind, I do not yet reason. When I first think about those outer facts, I make ideas about those facts. These ideas, as we have seen all along are imitations of the facts, are conscious inner pictures, or other mental structures, made by us to resemble the facts. These inner structures may consist of groups of words, or of groups of images, or of mental diagrams of any sort. The ideas as we saw at the last time are always constructions of our own. They involve, as it were plans of action. whereby we imitate the structure of things. When I grasp the fact that yonder in the world

there is somebody, say D, who sits to the right of somebody else, namely A, I imitate this relation by some sort of inner mental structure, in terms of which I can depict this fact and carry it away with me. The mental structure may be in the form of words, or of pictures, or of imitative movements, or of any other controllable mental material. We'll suppose that I have formed such an idea of the fact that B sits to the right of A. If I have the idea clearly in mind, I can express it at any moment by an imitative act. Were I a witness in court and did somebody say, "Show us how A and B sat," I could show by pointing, by diagram, or by form of words how the fact was. Now suppose that I have a second idea, equally imitative, equally a mental diagram, an inner construction of my own, which depicts in images, in movements, or in words, the fact that C sits to the right of B. Now suppose that with these two ideas in mind I go away. Suppose that I no longer observe the real persons but that it occurs to me to put together my ideas, to make a combined picture about both pictures, a combined diagram out of both diagrams, a combined idea out of both ideas. Then suppose that it occurs to me to ask how in the combined diagram or picture thus produced C sits in relation to A. I can now read off the ideal facts just as if they were real facts. I can say of course, "If B sits to the right of A and C to the right of B, C sits to the right of A. This is reasoning. It differs from observing outer facts merely in so far as the facts that I am now observing are facts about my own ideas. I read my ideas in a new way, I treat that them as if they were facts. I watch them to see what they involve.

Now it is of course tiresome to study minutely so simple a case of reasoning as this. I do so merely because I want to point out that this is what happens whenever you reason. The ideas of which your

thought consists are all of them conscious imitations of real or of imaginary facts. If without further consulting the original facts, you consult your ideas themselves, treat them as original, and read off what they contain, what you observe in the world of your ideas is now called the result of a reasoning process. You make a diagram supposed to be like the facts, a picture supposed to be a good model of the original. Now you read off your picture or your diagram in a new way. You see what was involved in making it. You observe what it has in it. If the diagram is good, this observation must of course hold true of the original object. And that is the whole story of reasoning. This is what mathematicians do with great clearness and assurance, merely because their ideas are so sharp and definite that they can read a great deal as they observe them. But this is also what any business man does when he schemes out a transaction and then considerably observes what his plan, viewed as an idea, contains. In those countless cases where we do not reason at all, that is because we can form ideas, but cannot hold on to them definitely enough or consciously enough or long enough to see them anew, or to read them off in new fashions. In those countless cases where we reason ill, that again is because our ideas change even while we try to read them, like mist clouds in the winds in the mountains, or are very dim like fine print seen in a faint light. Good reasoning is seeing what our ideas contain. The failure to reason is the failure to see. Bad reasoning is the misreading of shifting ideas which unconsciously change as we try to view them. Our power to read in our ideas many things that we can only discover in this way and cannot discover by a direct study of the facts outside of us, depends upon the now lengthily illustrated that our ideas are expressions

of a constructive process, and are under our own control, so that if we hold them fast, and can get our mental eye on them we can see in them what the uncontrollable facts forbid us directly to observe. The ideas are diagrams, or something of the sort; and in the diagrams you can read what you cannot see in the original, as on the map of Europe you can find what many journeys would be needed to verify. But the strength of our ideas, namely their inner or controllable character, the fact that they are ours, is often also the source of their weakness, Unless we can hold them, and unless we are clearly self-conscious of what they mean, we fail to read or misread them, just because they have not the hard and fast fixity of external nature. Thus reasoning involves and depends upon knowing what we do as we make our ideas. Reasoning is thus a form of self-consciousness.

I learn to