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The Affective Unconscious and the Cognitive Unconscious

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TO BEGIN WITH I WOULD VERY MUCH LIKE to thank the American psychoanalysts for the great honor they do me, and the great pleasure they give me in inviting me to speak to you at the general congress of your celebrated association. In fact I consider this invitation as having a scientific significance which it pleases me to be able to underscore. There was a time when the relations between psychoanalysis and what your predecessors referred to (with some contempt) as academic psychology were complete misunderstandings arising from mutual neglect (to be euphemistic). Since then, the representatives of scientific psychology, who have the advantage over you of not being bound to any school, have come, with varying speed, to understand the importance of the central ideas of Freudian psychoanalysis, and have incorporated them into their general theories of conduct, again, with varying degrees of modification. But apart from some exceptions, notably Rapaport, his pupil P. Wolff, Spitz, Cobliner, and others, psychoanalysts have rarely referred to experimental work. Today, in contrast, you have as a topic a subject which bridges psychoanalytic theories and theories of intelligence, and you have invited a man who, although he has experienced a didactic analysis (since he believes in knowing something of the questions about which he might be called upon to speak), has always adopted the attitude of a rather impertinent heretic when it comes to the "truths of the schools." For all this I thank you warmly, fully appreciating the significance of your invitation.

With that said, I would like to approach the problems of consciousness and unconsciousness as they are encountered in the study of intelligence, of representation, and of cognitive functions, because I think that these questions, relating to the area of the cognitive unconscious, are parallel to those that psychoanalysis raises with respect to the affective unconscious. Naturally, my goal is not to introduce anything new into psychoanalytic theory, or to criticize it, because, if I am somewhat heretic about my point of view, this is not the place to explain why that is so. On the contrary, I am persuaded that a day will come when the psychology of cognitive functions and psychoanalysis will have to fuse in a general theory which will improve both, through mutual correction, and starting right now we should be preparing for that prospect by showing the relations which could exist between them.

I. The Problem Of Structures

Affectivity is characterized by its energic composition, with charges distributed over one object or another (cathexis), positively or negatively. The cognitive aspect of conduct, on the contrary, is characterized by its structure, whether it be elementary action schemata, concrete classification, operations seriation, etc., or the logic of propositions with their different "functors" (implications, etc.). In the case of the affective or energic

processes, the end result is relatively conscious; it takes the form of feelings which are experienced more or less clearly by the subject. On the other hand, the deep mechanism of these processes remains unconscious, that is, the subject knows neither the reason for his feelings, nor their source (i.e., all the various connections with his past), nor the reason for their degree of intensity, nor their possible ambivalences, etc. It is this deep and hidden functioning of the energic processes that psychoanalysis seeks to understand, and it is not for me to recall to your minds the complexities in the richness of the contents and in the dynamic entanglements of the affective unconscious.

My role today is to point out to you that in the case of cognitive structures, the situation is remarkably comparable: relative consciousness (though it, too, is impoverished) of the result, along with what must be practically a complete (or initially complete) unconsciousness of the innermost mechanisms which produce their end products. The end products themselves are more or less conscious, in the sense that the subject knows something close to what he thinks of an object or of a problem and that he knows something close to his real opinions and beliefs, in particular to the extent that he can formulate them verbally in order to communicate to others or to oppose differing judgements. But this concerns only the results; the deepest functioning of the intelligence remains entirely unknown to the subject until we reach some rather high level where reflection on this problem of structures becomes possible. Until then, the thoughts of the subject are directed by structures whose existence is unknown to him, and which determine, not only what he is capable or incapable of doing (that is, the extent and the limits of his ability to resolve problems), but also what he is "obliged" to do (that is, the necessary logical connections which impose themselves on his thought). In a word, the cognitive structure is the system of connections that the individual can and must use, and can by no means be reduced to the contents of conscious thought. It imposes certain forms rather than others, depending on successive levels of development whose unconscious sources go back to neurological and organic coordinations.

The cognitive unconscious thus consists in an ensemble of structures and of functions unknown by the subject except in their results. There was profound truth in Binet's whimsical expression: "Thought is an unconscious activity of the mind." By which he meant that though the ego is conscious of the contents of its thought, it knows nothing of the structural and functional reasons which force it to think in such and such a manner, that is, it knows nothing of the innermost mechanism which directs its thought.

This is in no way special to the thought of children, and will be found not only in all adults but also in the course of development of scientific thought. Mathematicians have reasoned this way since time immemorial, obeying (without knowing it) the laws of certain structures. The most exacting of these is the "group" structure, which is easy to observe at work in the Fundamentals of Euclid, for example. But nothing was known about this structure until the beginning of the nineteenth century when Galois "became conscious" of the existence of such a structure, which today is recognized by everyone as fundamental. Similarly Aristotle, in creating and his contemporaries reasoned, "became conscious" of some of the simplest structures of the logic of classes and of syllogisms. But what is interesting is that he did not at the same time become conscious of another whole ensemble of structures that he himself used—the logic of relations. This awareness, too, came only in the nineteenth century, with the works of Morgan, and others.

It goes without saying that in scientific thought, where one of the objectives is precisely the study of structures, one finds this same sort of unconsciousness. It is more obvious still in all the other forms of thought: in the "natural" thought of the normal adult with no special training in science, and a fortiori in the spontaneous and always creative thinking which characterizes the child at different stages of his development.

Let us mention but a single example from childhood: that of transitivity structures. If we show a five- or 6-year-old two sticks, A and B, such that A is smaller than B, and then B with a third, C, such that B is smaller than C, while hiding A, he cannot deduce the relationship that A is smaller than C, since he does not see A and C simultaneously. But between six and seven years of age the structure of transitivity is constructed, and it is successfully applied to a large number of different problems, which might be causal as well as mathematical or logical. But the subject himself has no idea that he has constructed such a structure, and he thinks he has always reasoned in the same manner. He knows even less about the basis of the structure ("grouping" of relations) and about how or why it became necessary for him. In a word, he is conscious of the results, but not at all of the innermost mechanisms which transformed his thought, the structures of which remain unconscious. It is those mechanisms, in their structures and in their functioning, which we globally refer to as the cognitive unconscious.

II. Consciousness of One's Own Actions and Cognitive Repression

Let us examine now several actions in particular, this time not from the point of view of the underlying structures which decide them, but from the point of view of "manifest contents" (to employ a Freudian vocabulary). These actions should all be conscious, since they are the result, rather than a portion, of the hidden functioning. But we will see that even here, though conscious awareness is easy in most instances, there are cases where it is opposed by an inhibiting mechanism that we could compare to affective repression (a notion which is one of the great discoveries of Freudian psychoanalysis).

One example of action which it is easy to become consciously aware of is simply throwing an object into a box at a certain distance. The youngest subjects one can interview (around 4 years) say that they stood right in front of the box and threw it. If we move them to one side of the box, they promptly turn themselves around so as to face the target. Let us look now at what happens in the following experiment (and naturally without first raising the above questions, thus excluding any possible suggestive influence). We give the child a sling of the simplest form: a ball attached to a string which he can swing around and release in the direction of some goal.[1] We start by not giving the child any goal, and he amuses himself by swinging the ball and letting it go, noticing that it goes off to one side (and usually even noticing that it goes off in the direction in which it is swinging). After which, we place a box about 30-50 cm. from there, and the child manages quickly enough (even many five-year-olds) to get the ball into the box by releasing the ball at one side (toward 9 o'clock if one considers the surface of rotation as a clock-face, the box itself being at 12 o'clock). That done, we rejoice with the child and let him do it several times—and then ask him where he let go of the ball.

This is where the curious part comes in. The youngest subjects claim that they released the ball right in front of them (6 o'clock) and that the ball traveled in a straight line from 6 o'clock to 12 o'clock (the diameter of the circle of rotation) and from 12 o'clock into the box. Subsequently (around seven to eight years) the subject says that he released the ball at 12 o'clock, that is to say, directly at the box. Around nine to ten years one frequently observes some compromises: he let go of the ball around 11 or 10:30 o'clock, and it is only around 11-12 years that the child responds immediately that he let the ball go around 9 o'clock. That is, that the ball went off at a tangent and not directly in front of the goal! In other words, even a very young child knows how to

[1] Research conducted with M. Fluckiger

carry out the action, but it takes years before he becomes conscious of it, as if some factor opposed that consciousness and kept unconscious certain movements or even certain intentional aspects of the action, even though it was successful.

This inhibiting factor is easy to uncover. The child represents his own action to himself as divided into two parts: "swinging the ball" and then "throwing it into the box," since without that goal he lets go of it in any direction. But, for him, "throwing" to arrive at a goal means a straight path from him to the box, that is, it means a point of departure just opposite the box. When we ask him to describe his action he reconstructs it logically according to this preconceived idea and does not see that in reality he has done something else. So he distorts or even ignores an observable, because of the idea that he has of it—an idea which seems to him the only right one.

One could well cite other analogous examples. When a child manages (on his own or by imitation) to use one or two fingers to send off a ping pong ball on a horizontal surface in such a way that it starts backwards by itself, he does not see that he made it turn backward from the start. He believes that first it was rolling forward and then it changed direction by itself. Or again, when a young child pushes an object with a stick touching it on its side, he does not see that he has imparted the movements of rotation and of forward motion simultaneously. There are many other examples.

To explain the lacunae or the distortions in the conscious awareness, one would be tempted to resort to a seemingly obvious reason—that is, that the child simply does not "understand" what he did, and so all he can remember is that which is intelligible to him. But we believe that this interpretation is inadequate. It is not true that the child has not understood anything of his successful actions (tangential movements of the ball cast by the sling, reverse rotation of the ping-pong ball, etc.). He did understand the essentials, but in action, and not by thought; that is, by sensorimotor and not representational schemes. In other words, he "knows" how to cast the projectiles, etc., and he knows it as a function of a certain perceptual-motor learning (and by no means innately).

This being the case, the problem remains: why do certain sensorimotor schema become conscious (by a translation into representative concepts or even verbal ones), while others remain unconscious? It is that the latter are in conflict with certain previous conscious ideas (for example, that one must be facing a box to cast a ball into it, or that a ball does not go forward by turning backward, etc.) and that the sensorimotor schema used and the already conscious idea are thus incompatible. In this case, the schema naturally cannot be integrated into the system of conscious concepts, and it is thus eliminated since those concepts, inasmuch as they have already been conscious and accepted for some time, rank higher than the action schema.

So we find ourselves in a situation very comparable to that of affective repression: when a feeling or an impulse finds itself in contradiction with feelings or tendencies of a higher rank (emanating from the superego, etc.) they are then eliminated, through one of two processes, a conscious suppression or an unconscious repression. In the cognitive field we now observe an analogous mechanism, and it is indeed unconscious repression that we are dealing with. In effect, the child has not first constructed a conscious hypothesis and then set it aside. He has, on the contrary, avoided a conscious awareness of the schema. That is, he had repressed it from conscious territory before it penetrated there in any conceptualized form (and we will see in time that there is no other possible form in which it might penetrate, since even a mental image refers to a concept).

This mechanism of cognitive repression, moreover, is without doubt more general than the area of becoming conscious of actions (that is of sensorimotor schemes). On the neurological level, Pribram, for example, has

shown that when there are several inputs, a mechanism of cortical regulation retains some of them, which then become stimuli, and discards the others, which then cannot operate.

III. The Mechanism of Becoming Conscious

Common sense gives a completely insufficient (not to say erroneous) idea of how we become consciously aware, in representing this as a kind of illumination, simply shedding light on what is already there in the dark—just as a flashlight light illuminates dark corners without changing anything about the positions or relationships of the objects there. But it is far more than that, since it consists of transferring certain elements from a lower, unconscious, level to a higher, conscious one, and those two levels are very different. Otherwise there would be no problem and this transfer would be a simple matter, which it is not. Becoming conscious consists of a reconstruction on a higher level of something that is already organized, but differently, on a lower level, so we have to consider, on the one hand, the question of the functional utility of that reconstruction and, on the other hand, the question of its structural process.

From the point of view of the functional utility, Claparede has already stated that we become conscious when there is a maladaption since, when any conduct is adaptive and functioning without difficulties, there is no reason to make a conscious analysis of its mechanisms. We can go rapidly down a set of stairs without representing to ourselves every movement of our legs and feet; and indeed, if we try to do that we risk the very success of the action. In one of our researches, A. Papert asked some children to crawl on all fours and then asked them to describe their movements. Young subjects give a completely unrealizable model—the two hands are moved at the same time, then the two feet, etc. Older subjects gave a model which is possible but not in fact used—the two left limbs are moved forward, then the two right ones, etc. At 10-11 years of age only two-thirds of them correctly describe what they in fact did. Madame Papert, before presenting her results to us at one of our symposia, asked our distinguished colleagues to lend themselves to the experiment, dropping for a few moments the adult dignity of their usual upright stance. The physicians and the psychologists analyzed their movements correctly, but the logicians and mathematicians reconstructed their movements deductively and came up with the second model.

Now, if an adaptive action does not need to be made conscious,

it is because it is directed by adequate sensorimotor regulations which can be automatized. But when some active choice becomes necessary between two or more possibilities, we become conscious of them, and this is what we see in the research examples previously cited.

As to the structural process, the reconstruction involved in becoming consciously aware consists of a conceptualization. The cognitive unconscious does not, in fact, have any concepts in the sense of representations, and the very idea of "unconscious representations" appears to me contradictory, even though one hears the phrase often. The unconscious is furnished with sensorimotor or operational schemata, organized into structures, alright, but expressing what the subject can "do" and not what he thinks. In just the same way, the affective subconscious is furnished with tendencies, with energic charges, etc., or, in other words, with affective schemata or characteristics.

The conceptualized reconstruction that characterizes "becoming conscious" may be adequate right from the start when it is not inhibited by any contradictions. But if it conflicts with some already established

conceptualization, it is at first distorted and incomplete, and then becomes complete little by little as new conceptual systems emerge which encompass the seeming contradictions and integrate them (see II).

IV. Catharsis and Memory

This process of becoming conscious cognitively recalls what psychoanalysts have described under the name of catharsis—simultaneously a "becoming conscious" of affective conflicts and a reorganization which permits them to be overcome. I am not competent in psychoanalytic theory and do not wish to be imprudent, but it seems to me that catharsis is something quite different from a simple illumination, or else we could not account for its therapeutic effect. It is a reintegration, a removal of conflicts through a new organization. But where does this new organization come from?

In this respect, Erikson has proposed a thesis of great interest: an individual's affective present is indeed determined, as Freud showed, by his past, but the past itself is constantly reconstructed by the present. Now, that is profoundly true of cognitive systems, and that is why "becoming conscious" is always in part a reorganization and not simply a translation or an evocation.

But Erikson's thesis then presents a choice between the two possible interpretations of memory or, more precisely, it points to the second. The first consists of considering memories as stocked, safe from tampering, in the unconscious, where the act of recall would go to get them at will, without modifying them or reorganizing them. The second interpretation considers that all acts of recall involve a reorganization; in other words, that the memory works like a historian who reconstructs the past, in part deductively, on the basis of documents which are always to some extent incomplete.

Now, the existence of false memories is already sufficient to justify this second theory, since they present themselves to consciousness with the same characteristics of vividness or of apparent reality as exact memories. I myself have, for example, a visual memory which is very precise, very detailed, and vividly alive, of having been the object of an attempted abduction when I was still a baby in my carriage. I still see a series of precise details of the locale of the adventure, of the struggle between my nurse and the kidnapper, of the arrival of passers-by and the police, etc. Now, when I was 15 years old my nurse wrote to my parents that the whole story was invented by her, that the scratches on her face were self-inflicted, etc. In other words, when I was about 5 or 6 years of age I must have heard the account of this abduction, in which my parents still believed, and on the basis of that account I must have manufactured a visual memory which persists until today. In this case it is clearly a reconstruction, though a false one, and if the event had been real and the memory therefore true, it is very probable that I would have also reconstructed it in the same manner, since infants do not yet have recall memory (only recognition memory).

With B. Inhelder and H. Sinclair, we have tried to analyze the mechanism of memory in the course of a child's development, and we have found facts like the following, which distinctly speak in favor of reconstruction. One shows a child an ordered series of 10 sticks of decreasing length, which he simply looks at for a few moments. After a week one asks him what he saw, and one finds a certain number of levels of memory: (a) several sticks all equal; (b) coupled sticks composed of a large and a small one; (c) triads composed of large, medium, and small; (d) a correct series but too short, and (e) the entire series. One sees here already that what is registered in the memory is not the perceptual and objective given, (except in [e]), but the subject's own idea of it. But six months later 74 per cent of the subjects presented a slight progress compared to the first memories (and naturally without having been shown the model again): some subjects from (a) passed on into (b), some

of the (b) subjects into (c), etc. One can conclude that the memory-image is a symbol for a schema (in this case the schema of seriation); in six months, the schema has made some progress, and the symbol image which represents it conforms to its new form.

It goes without saying that not all memories get better like this, and that in the majority of cases there is a degradation. But in all cases one observes some schematization, and this can serve to remove certain cognitive conflicts. For example, in the following figure

Figure 1

the young child perceives the equality in the number of the top and bottom elements (4 and 4), from which he concludes that the length of the two lines should be the same. But, for him, two lines of the same length must have the same end points. In his memory, the figure

Figure 2

is often completed with new appendages so that the two extremities of the two figures coincide. This is one more example showing the part that reconstruction plays in memory.

All these facts should make us prudent about using childhood memories. If even in the cognitive domain, memory is a more or less adequate reconstruction, it is clear that with the intervention of affective processes of all kinds, conflicts, etc., the reconstruction will be all the more complex. A comparative study should be undertaken on the affective and cognitive transformations of memory.

V. The Problem Of Stages

A series of studies has already been undertaken on the relations between our analyses of cognitive development during the sensorimotor period and the works of Freud, including the stages he distinguished during the same period. I have already referred to D. Rapaport's analyses and to Wolff's fine study, as well as Cobliner's appendix to Spitz's last work.

But with respect to Freudian stages and mine, a result of some importance was obtained by Th. Gouin Décarie in Montreal on the relationship between the cognitive development of the schema of the permanent object and the evolution of the "object relations" in the Freudian sense of the term. Some time ago I showed that an object which disappears from a baby's perceptual field is not conceived as permanent and is not sought behind the screen where it just disappeared; the object is, so to speak, absorbed by the screen instead of continuing to occupy a position in space. Toward the end of the first year, the child starts to search for the disappearing object, as a function of its successive moves. Now, Th. Gouin Décarie was able to show that this new reaction was related to the constitution of the object relationship and that, in a general way, there is a correlation between these two forms of development. I also suggested, on the basis of a single subject, that the first object endowed with permanence (cognitive) was another person, and not an indifferent, inanimate object. Th. Gouin Décarie has since verified this hypothesis as well.

Other correlations can be observed between cognitive and affective stages. For example around 7–8 years of age, new relations of reciprocity (in the logical sense of the term) are developed in connection with the formation of reversible operations. In the domain of moral feelings, one finds, at that same age, a weakening

of the effects of the superego and of authority and a strengthening of the sense of justice and other aspects of moral and affective reciprocity. Similarly, at the level of adolescence, when an individual enters into the social life of adults, there exist relationships between the affective and cognitive changes.

From these multiple convergences, naturally one would not conclude that the cognitive constructions engender the affective modifications. But neither do I believe that the latter determine the former, as psychoanalysts could at first be tempted to believe (see the old researches of Odier in this regard). Certainly, affectivity or its deprivations may be the cause of acceleration or retardation in cognitive development. Spitz has demonstrated just that in his celebrated analyses. But this does not mean that affect engenders, or even modifies, the cognitive structures, whose necessity remains intrinsic. In fact, the affective and cognitive mechanisms always remain interrelated though distinct, which goes without saying if the first are based on energies and the second on structures.

But the conclusion of all this is that multiple problems still remain to be resolved, and today is not too soon to start thinking of formulating a general psychology which would bear simultaneously upon the mechanisms discovered by psychoanalysis and upon the cognitive processes; the kinds of comparison which we have made here are but a beginning and appear to be rich with promise.

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