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## The Birth of Psychology from the Spirit of Nietzsche

Kenneth Kaye

*The Psychology of the Child* by JEAN PIAGET and BARBEL INHELDER. Translated by HELEN WEAVER. (Routledge & Kegan Paul. 35s.)

*An Introduction to Piaget* by P. G. RICHMOND. (Routledge & Kegan Paul. 12s. paper.)

### I

On the cover of the American edition of *The Psychology of the Child*, its author is called 'the world's most renowned psychologist.' Jean Piaget is certainly not that. Perhaps he should be: his ideas have been as revolutionary and as productive as those of Freud. But to make the

comparison is to overlook the fact that Freud's name and ideas are household words. Piaget, compared to contemporaries of equal stature in other fields, is a virtual unknown. No doubt it is for this reason, and not for any lack of respect, that the cover of the British edition omits the phrase.

Why has Piaget failed to take his rightful place alongside Lorenz and Lévi-Strauss as a topic of sherry-party conversation? Perhaps bookstore browsers fear that beneath his complex prose must lurk a complex theory. His forty-odd major books in 40 years have been translated from wordy, Latinate, convoluted French into

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wordy, Latinate, convoluted English. There are elegant experiments and clever analogies; but few readers have the patience or the time to extract the simple, powerful notions that connect them. Until *The Psychology of the Child* Piaget and his collaborator, Bärbel Inhelder, have not had the patience or the time to attempt a synthesis. Others have tried to do so and failed. Some could not resist including everything and became as unreadable as the original. Some concentrated upon the details or the specific phenomena and ignored the broader biological and philosophical concepts. Some did not dare recast Piaget into clear, basic English. All failed to suggest the method and the madness, the excitement with which Piaget builds his investigations upon the subtlest features of behaviour we all have seen but never thought significant.

*The Psychology of the Child* fails for all of these reasons. It is a boring book; to get anything from it the reader would have to be so intensely interested that he could just as well plunge into *Play, Dreams and Imitation* or *The Moral Judgment of the Child* (why not plug my favourites?). For example, Piaget and Inhelder tell us that as the child loses his egocentricity he begins to see the world from different points of view:

The decentering of cognitive constructions necessary for the development of the operations is inseparable from the decentering of affective and social constructions.

Fortunately Piaget's British publishers have simultaneously brought out a book which makes the point more simply:

he begins to rearrange his representations to allow for the relativity and plurality of viewpoints which social interaction forces upon him.

This new potted Piaget by P. G. Richmond seems to have none of the flaws of previous attempts. Its best feature is that it is short and spare; an hour or two of initiation, and the reader is ready to move on to the hard stuff. The central ideas, especially the most general ones which have dominated Piaget's multiple lives as malacologist, epistemologist, psychologist, historian, and philosopher, are expressed as concisely as possible without oversimplification. Piaget and Inhelder, on the other hand, suggest that anyone who needs an introduction like *The Psychology of the Child* is incapable of grasping those central ideas. Their book is an account of the *hows* without the *whys*: of the stages through which the structure of the child's thought advances but not of the theoretical system that gives those stages meaning. The Richmond book devotes half its pages to the stages and half to the essence of Piaget's theory.

## II

Piaget's thesis is that intellectual growth is a form of biological adaptation. Just as an organism's physical growth is a matter of adaptation to its environment, human mental development ('cognitive growth' in current parlance) proceeds by the interaction of maturation

and experience. This interaction takes the form of two inseparable functions, assimilation and accommodation. Under the influence of the former the surrounding world is incorporated within existing structures, as a plant synthesizes the same compound from different kinds of soil. The infant, having learned to bring objects to his mouth, brings everything to his mouth. Imaginative play, in which, for example, anything from a broomstick to an adult's knee can become a horse, is the epitome of assimilation. Accommodation is the converse; structures change to correspond to features of the environment. The use of the word *structure*, which is defined loosely, makes an analogy between physical growth and the development of behaviour. Physical structures accommodate to the environment: a tree grows away from a wall. The structure of behaviour changes in a similar way, as when the infant handles objects differently according to their shapes. Imitation, when the form of an act is completely under the control of a model, is the epitome of accommodation.

Whenever one or the other function is dominant, the organism is said to be in disequilibrium. Because the system tends toward equilibrium, assimilation leads to accommodation, and vice versa. Some structures are accommodating when others are assimilating. Equilibrium is never achieved, but the process of equilibration becomes increasingly more stable as adaptation continues. With increasing stability come changes in the organization of the mental structures as a whole; these eventually possess the formal operational properties of adult logic. These properties include, for example, the inclusion of classes in a part-whole relation. The young child has no idea that the number of objects must stay the same when they are rearranged. The adult has operations of identity and reversibility which ensure the conservation of number. But the precursors of these operations are seen in the young child's active manipulation of number. Through successive stages he is able to predict transformations without actually performing the manipulations, to verbalize perceptual and conceptual properties of objects as distinct from the objects themselves, to perform mental operations on those concepts or classes in the absence of any specific objects, and ultimately to reason in the abstract.

The forces of equilibration are broadly extended to apply to structures at many different levels. Piaget is intentionally vague about the content of these structures. An American psychologist was recently sternly chastised at a conference by both Piaget and Inhelder for discussing languages as though there should be universal grammatical features. It is the functions like assimilation and accommodation, the operations like reversibility and the embedding of classes that are likely to be universal, not the classes themselves, not the grammatical constructions, not the beliefs and expectancies and skills. Piaget is interested in the stages of behavioural development only because they reveal a necessary sequence of acquisition of logical properties. The ages at which individual children reach particular stages—relative in-

telligence, in terms either of rate of development or of terminal level—are of no interest to Piaget.

One way of looking at a structure is as a set of things known about the world. What one knows about causality forms a structure, as does what one knows about space, or time. The structures overlap and are hierarchical, so that the number of structures is as unimportant as their content. What is important is the similarity among them, the developing logical properties of knowledge. That the child between four and seven learns that water poured from a fat beaker will reach a higher level in a thin beaker is merely an isolated fact. He also learns that ten small pieces of chocolate may be equivalent to one large piece: another isolated fact. Implicit in both is the notion of compensatory relations, and it is at this level of abstraction that Piaget's analysis is aimed.

A structure is really a set of specific correspondences between action and the environment. These substructures Piaget calls schemas. Any theoretical system in psychology must specify an essential unit of behaviour. In Piaget's model, this unit is the schema. Unlike the analytic units of some other systems, which are observable and measurable as pecks on a key or as choices on a questionnaire, the schema is not a 'piece' of behaviour but is the inferred relation among a set of environmental conditions, a set of movements, and a set of environmental outcomes. The schema is defined not for a particular response, but for a set of alternative equivalent responses in alternative equivalent situations. The infant is said to have a schema for bringing objects to his mouth. On a given occasion he may assimilate a new object to that schema. Or he may accommodate the schema to the characteristics of different objects. (It is worth mentioning that in Cambridge, where much work has been done on the counterparts of these phenomena in adults, the word *schema* has historically a different meaning, as a unit of memory. Here, the word *skill* is used in roughly the sense of Piaget's schema.)

In England, Piaget has been read primarily by pedagogues, but in America, where a considerable proportion of mainstream psychologists take the developmental approach, his impact has been felt more by theoretical than by applied psychologists. Among traditional behaviourists, words like *mental* and *thought* are anathema. But it is the schema that is most incompatible with behaviourism. At the heart of the notion of schema is the refusal to separate behaviour into input and output, or stimulus and response. Most of us tend to think of an external world to which we react: sensation goes in, and movement comes out. But Piagetians accept the doctrine that movement and perception are inseparable; the schema is neither one nor the other but the relation between them. How can one define an act except in terms of the contexts in which it occurs, and how define the perceived world except in terms of response to it? Thus Piaget rejects not only stimulus-response (S-R) psychology, but a central myth of behaviourism: that behaviour may be analyzed into discrete elements.

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Worse, a sacred cow is violated. The behaviourist prides himself on his recognition that the result of an action cannot logically be its cause. For him, a child does not reach for a toy in order to bring it to his mouth. He does so because of the consequences of having reached for other toys on other occasions. The teleology thus dodged by behaviourism is embraced by Piaget's schema, which as I have said relates not only contexts and movements but goal-outcomes as well. If the goal or outcome were seen as a discreet event following an act, it would indeed be teleological. But the intention is a part of the schema, without which the definition of an act could have no meaning. The schema bears the same relation to the act as the 'deep structure,' or inherent proposition, bears to the actual word order of a sentence.

Although the specifics of the model will not be clear from such a brief summary, its metaphysical aspect may perhaps have been conveyed. The explanatory system is not in terms of cells or genes, energy or physical events, but abstract forces which only exist if one accepts the model. Many therefore deny that Piaget explains anything. They would explain development by cell growth, by information storage, by biochemical reactions: in short, would reduce the phenomena of psychology and of development to other phenomena, no closer to final causes, but in someone else's research domain. The only difference between this kind of reductionism and Piaget's is that Piaget makes no pretence of having a closed and complete explanatory system. He has reduced the phenomena of intellectual growth to forces he believes to be the essence of biology: the adaptation of organized structures toward more and more stable states of equilibrium, through organism-environment interaction in the form of assimilation and accommodation.

### III

Piaget did not invent assimilation and accommodation. The Greeks did, according to Nietzsche, in the gods Apollo and Dionysos. Apollo fathered the illusion, exalted in the Doric column and the Platonic dialogue, that man could make sense of all things. Assimilation is the Apollonian *principium* that has preoccupied philosophers of art from Schopenhauer to Wallace Stevens. The child, who may categorize any new object within his existing structures, assimilating thumb and blanket to a sucking schema, relives the fictive need of his ancestors who constructed an ordered world in their minds and assimilated reality to that ordering. In his *Birth of Tragedy from the Spirit of Music* Nietzsche contrasts the Apollonian mode with the Dionysian. In music, dance, and tragedy the votives of Dionysos shaped themselves to the unexpected, uncontrolled forms of nature. In this accommodating mode man sacrifices the security of imposed structures for the thrill of a brush with reality itself. For Nietzsche, as for Piaget, the two modes are like swings of a pendulum which never comes to rest.

The duality is a metaphor, applicable at many levels

There are assimilation and accommodation of an infant's schemas, of a developing child's thought, of a developing theoretical system over generations, of a social structure over centuries. There are Apollonian and Dionysian modes within an individual, Apollonian and Dionysian artists within an age, Apollonian and Dionysian ages within a culture. Neither Nietzsche nor Piaget is aware of the weakness of a metaphorical model. The capacity for metaphor is boundless; who can say that the model is right or wrong?

The rules of the game of science suggest that theories are changed to accord with observations. As every scientist knows, however, he makes his observations through a veil of hypotheses; he can do no more than assimilate phenomena to his own theoretical structures, which change slowly and unreliably. Thus the scientist dedicates his life to Apollo under an illusion that he is nothing but a descriptive naturalist. The stuff of science is justifying theories; the occasional accommodation of theories is reaction to a surfeit of assimilation.

Piaget has served Apollo well. His ideas were conceived in a single stroke of brilliance nearly sixty years ago; and everything since has been assimilation. With the exception of the schema—a psychological concept—the model outlined above was inspired by the teenage Piaget's studies of the speciation of molluscs in the Swiss lakes. As he describes it, his childhood had torn him emotionally between an historian father with an absolute regard for facts and a neurotic, mystic mother. The religious instruction forced upon him by his mother put him off philosophy during his school years. Only the discovery that not all philosophers were theologians saved him from a lifetime of cataloguing shells. He achieved a philosophical system both dutifully logical and beautifully abstract, after which—with the security of knowing the Truth before he began—he could undertake investigations of the problems that intrigued him personally. He began with the problem of knowing, inherited from his mother but approached scientifically, in its historical context. The 'genetic epistemology' of the human race led him to its parallel development in the child of school age; only when his own children were born did he look at the beginnings of intellectual development in infancy.

Asked about his incredible productivity, Piaget once explained that he cannot help but write. After teaching or working with colleagues, he takes long walks each

day and then isolates himself for several hours:

It is this dissociation between myself as a social being and as a 'man of nature' (in whom Dionysian excitement ends in intellectual activity) which has enabled me to surmount a permanent fund of anxiety and transform it into a need for working.

The parentheses are Piaget's. It is a familiar image of the scholar, and especially of Freud. He, too, channeled a conflict between parents of different temperament into a drive to work, to lecture, to justify his own Vision. A comparative biography of the two men would be the *Genesis* of psychology. But more important than their similarity as men is the similarity of their models: Freud's, too, is a system of metaphor and not of mechanism. We judge Freudian psychology by its accomplishments, which have been prodigious. Freud and his students gambled that science would eventually be able to fill in the gaps in their metaphor with fact: that an expanding physiology would be assimilable to their model. They built in enough flexibility that particular insights have not had to be abandoned as the model grew.

We can judge Piaget's success in the same terms. To ask about the truth of the model is to miss the point. True or not, Piaget's teenage inspiration turned out to be right. Perhaps he was lucky; the world was ready to hear what he wanted to say. Cognitive psychology needed to be told that intelligence is a biological phenomenon. And beyond psychology, our conception of the child has been changing since Rousseau. Our society is ready to think of the child as Piaget pictures him: active, adapting to the environment, striving toward competence for its own sake. He is right, in short, because of what happened when others responded to his ideas. His students have produced a consistent body of observations, most of them replicable all over the world in different ways and in different languages. The behaviour he notices may be the behaviour most easily assimilated to the model. But it always seems to be non-trivial for reasons additional to Piaget's. The modern psycholinguists, for example, relate the course of language-acquisition to Piaget's accounts of sensory-motor development. Finally, there may be less rational forces at work. Perhaps we who have leaped onto the Piagetian stage are moved by Dionysos, playing to his Apollo. In any case, we shall never look back.