phorical. By combination with other factors, hunger can assume the most varied forms. Originally simple, it can appear transformed into pure greed, or into many aspects of boundless desire or insatiability, as for example, the lust for gain or inordinate ambition.

"Hunger, as the characteristic expression of the urge of self-preservation, is without doubt one of the primary and most powerful factors influencing behavior," declared Prof. Jung. "In fact, the lives of primitives are more affected by it and more powerfully, than by sexuality. At this level of existence, hunger means the alpha and omega—existence itself."

Sexuality, like hunger, undergoes a radical "psychification" Prof. Jung said. This makes it possible for the primary purely instinctive energy to be diverted into new channels.

Third among the instinctive factors controlling human behavior is the drive to activity. Under this grouping comes restlessness, love of change, wanderlust, and the play-instinct.

The urge for reflection was listed fourth among these instinctive groups by Prof. Jung. This means an interruption by mental processes to the otherwise automatic impulse-to-action circle. Thus, in place of the compulsive act, there appears a certain amount of freedom, and in place of the predictability a relative unpredictability as to the effect of the impulse, Prof. Jung explained.

Creative Urge

Finally, among these instinctive control groups, Prof. Jung places the creative urge, which is not precisely an instinct but closely allied with them.

"Like instinct it is compulsive, but it is not common, and it is not a fixed and invariably inherited organization. Therefore I prefer to designate the creative impulse as a psychic factor similar in nature to instinct, having indeed a very close relationship to the instincts, but without being identical with any one of them. Its connections with sexuality are a much discussed problem, and, furthermore, it has much in common with the activity-urge as well as with the reflection-urge. Still it can repress all of these instincts, or make them serve it to the point of the self-destruction of the individual. Creation is as much destruction as construction."

Besides these dynamic factors, human behavior is influenced by "modalities" including the age, sex, and hereditary disposition of the individual, which are semi-physiological but not, by any means, wholly so. Then there are three others which are entirely psychological. First among these is the degree to which a person functions consciously or the extent to which he is dominated by compulsive instinctive processes. Next is the extent to which the individual is an extravert or introvert; the extent to which his life is directed outward toward other persons or material things or the extent to which it is turned inward toward his own feelings and experiences. Prof. Jung is the author of this extraversion-introversion conception.

"The third modality points, to use a metaphor, upward and downward, because it has to do with spirit and matter," Prof. Jung thus described the last of the "modalities." "From the existence of these two categories, ethical, esthetic, intellectual, social and religious systems of values eventuate, which on occasion determine how the dynamic factors in the psyche are to be finally used.

"Perhaps it would not be too much to say, that the most crucial problems of the individual and of society turn upon the way the psyche functions towards spirit and matter."

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PSYCHOLOGY

Prof. Jean Piaget— A Moving Picture World

A GLIMPSE into the mental world of the baby and small child was afforded the scientists at the Harvard Tercentenary Celebration when Prof. Jean Piaget, professor of the history of scientific thought at the University of Geneva, described a child's way of thinking.

The little baby lives in a sort of moving picture world, Prof. Piaget's report indicated. He sees his surroundings as a series of pictures that have no permanence, no reality when they pass out of his sight. Almost to the end of his first

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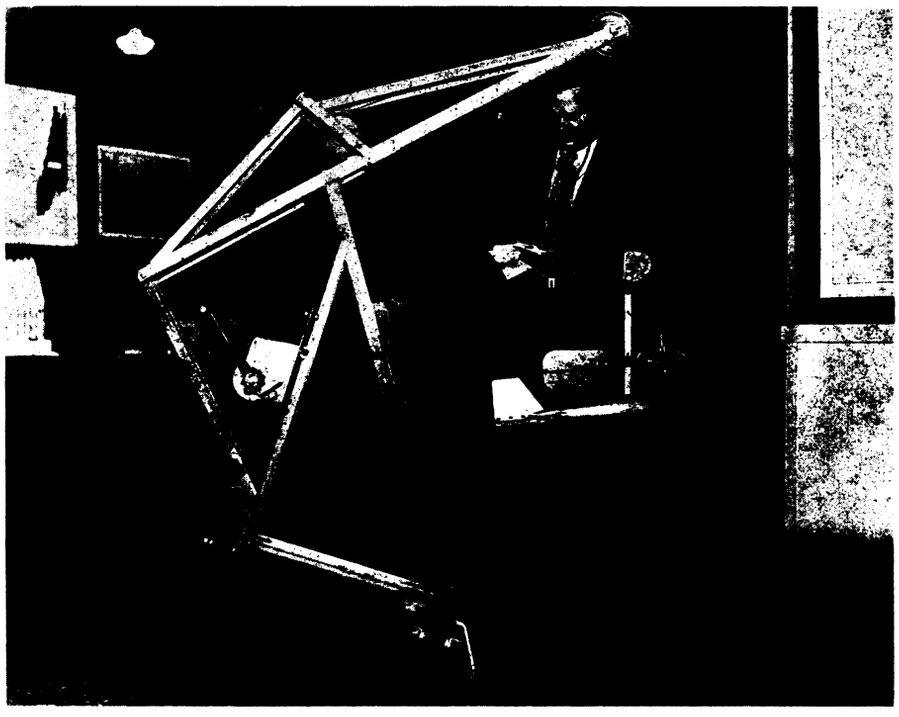

MEASURES FLOW

This object is neither a model seaplane nor a midget torpedo. It is the newest stream flow gaging apparatus on exhibit at the Third World Power Conference in Washington this week. J. G. Bloise, Puerto Rican expert of the Division of Water Utilization, Dept. of Interior, at Guayama, P. R., records the electrical clicks in his earphones as the ring of cups makes one revolution. The torpedo-shaped heavy base of the equipment points in the direction of current flow when placed in the water, while the whirling cups above measure the speed of the stream's flow. The small derrick on wheels rolls along a bridge, in actual use. To fix accurately the stream flow, scientists must not only know the contour of the bottom but also the speed of the current flow at many points so that the "volume" of water can be calculated.

"farm to market" highway and its use increases construction costs about $1,000 per mile. A year or more will be required for an adequate test.

The rolls of cotton fabric as they come from the mill are 82 inches wide, three rolls being required after allowing for lapping to cover 20 feet of the usual 22-foot roadway. It is laid on a coating of hot tar, then more tar applied, with other layers of slag and asphalt coming on top.

Alabama proposes to build 119 miles of cotton fabric highways using 1,260,-094 square yards of the material or more than any other state. North Carolina comes next with plans for 105 miles. Twenty-two other states will use varying amounts.

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year he behaves as though when objects disappeared from his field of perception, they simply ceased to be.

"Between the ages of five and eight months," said Prof. Piaget, "when the child already knows well enough to seize any solid objects which he sees, one has only to cover them with a cloth, or place a screen in front of them at the moment when the baby's hand is directed towards them, and he will give up looking for them, and immediately lose his interest.

"I have even observed this in systematically hiding the bottle when my six-months-old son was about to take it.

"But one can see a still more curious reaction around nine or ten months, when the child is capable of seeking the object behind the screen, and the notion of real exterior permanence begins to put in an appearance. For example, when the baby is placed between two pillows and he has succeeded in finding an object hidden under the right one, the object can be taken from his hands and placed under the left pillow before his very eyes, but he will look for it under the right pillow where he has already found it once before, as if the permanence of the objective was connected with the success of the former action, and not with a system of external displacements in space."

In short, Prof. Piaget summed up, the primitive world of the child is not made up of permanent objects, but of moving pictures which return periodically into non-existence and come back again as the result of the proper action.

The baby, in handling his toy will turn it until he finally gets a notion of a "wrong side" of objects. But this does not come right away. Hand a five or six months old baby his bottle and turn it around before his eyes. If the child can see a bit of the rubber nipple at the other end of the bottle, he immediately turns the bottle around, Prof. Piaget explained. If he doesn't see the nipple, he doesn't even attempt to turn it, but sucks the wrong end.

When at last the baby has built up a more correct idea of the world and the objects about him, he has still to master the problem of perspective. Even the child of five or six will feel that a mountain changes in size as he approaches it. Prof. Piaget has noted this in travelling with his own little children among the mountains of his home land.

Finally comes the problem of comprehending the perspective of other individuals. Right and left to the young child are absolute; he cannot realize that what is right to him might be left to another. Then he must get the idea of the permanence of quantity; that a row of ten beads, for example, remains just ten even though they are placed in a longer row or gathered up into a heap. And the permanence of weight, that a paste ball is just as heavy when it is squeezed out into a cylindrical shape. This development of the thought of the child parallels in a way the development of science.

"The effort by which the child escapes from his egocentricity to form a world with this social and rational instrument which the logic of relationships gives him," concluded Prof. Piaget, "is at the basis of the ever-present gigantic effort of science to free man from himself by making him realize objectively the relativity of all things."

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PHYSICS-PHYSIOLOGY

Eye Can See One Millionth of an Inch

NEXT time you see a film of oil on a rain puddle in the pavement look for the colored light fringes. Pretty? Yes. But, more important, they indicate that your eye can detect a difference of one-millionth of an inch. That is the thickness of the oil films which produce those colors by interference. The beautiful coloring of some butterfly wings is a similar phenomenon of thin films. The best micrometer gages now in use will detect differences of only one ten-thousandth of an inch.

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