

## Anthropology (H)

The Arctic and Subarctic Archeology and Ethnology Symposium (29–30 December) had as its theme “culture contacts and consequences.” It treated the contacts of native Indian and Eskimo populations and various European and American-Canadian agents and agencies, as they occurred in time, beginning with the prehistoric period. The underlying basis for this interdisciplinary symposium was the impression that various important contact situations between prehistoric Eskimo and Indian groups, and, between missionaries, miners, trappers, and government agents and agencies and native groups, have not been sufficiently studied in order to describe in adequate terms the resulting impact they had on each other.

One of the valuable results of the symposium was the challenge of archeologists to attempt to relate their analyses of site reports to broader issues concerning which Arctic peoples actually produced the artifacts, and to investigate cultural processes in the past by using ethnological theory and method. Historical-minded ethnologists suggested that archeologists work backward from the early historic contact period for which records describing native culture are available to the prehistoric periods that preceded the contact situation. Thus, collaboration between ethnologists and archeologists became an important issue during the discussions.

In the second session, the historical period, ethnologists and geographers predominated, and observers were impressed by the rich potentialities for research that existed in missionary, fur trading, and whaling records that, as yet, have hardly been properly examined. The possibilities of reconstructing the contact process were shown in the pioneer papers used to illustrate this point.

In the third session, the recent period, new ground was broken (i) in the study of urban phenomena as it affects native ecological adaptations, (ii) in the study of the missionary as a culture agent, and (iii) in the identification of a new group of Metis population in the Canadian north, an extremely important group that has hardly been mentioned in recent research reports.

One of the concrete achievements of the symposium was the organization of

a special committee on historical records, with the purpose of discovering where such records are to be found and how they can be made available to scholars. The committee members are: Katherine McClellan (University of Wisconsin), James W. Van Stone (University of Toronto), and Don C. Foote (McGill University).

It is planned to publish these papers shortly. Two journals have already expressed interest in them—*Anthropologica* and *Arctic America*.

JACOB FRIED, *Program Arranger*

## Psychology (I)

**Early Experiential Deprivation and Enrichment and Later Development.** A symposium of Section I, cosponsored by the Society for Research in Child Development, was held in Montreal, 29 December 1964.

In the words of one of the participants, Susan W. Gray (George Peabody College for Teachers) “one of the greatest problems facing society today is the progressive retardation in intellectual ability and in school performance shown by culturally deprived children as they go through the years of public education. They begin first grade at a disadvantage, and by the eighth grade are usually two to three years behind in school achievement.” The symposium approached this problem on a broader basis than school achievement, and phylogenetically as well as ontogenetically, because developmental issues in the human organism are not always susceptible to precise laboratory control, and because comparative studies often indicate fruitful questions to be raised at higher phyletic levels.

J. M. Warren (Pennsylvania State University) pointed out that both rats and kittens handled by humans during infancy are later less fearful of new and strange situations and take longer to learn avoidance responses. They are less fearful and more positively oriented to their environment than nonhandled animals. Kittens subjected to enriched conditions of movement, exploration, and manipulation of objects are later more active and perform in a superior manner on the Hebb-Williams maze.

Rhesus monkeys, studied by Ugene Sackett (University of Wisconsin Primate Laboratory), show that stimulus

deprivation in infancy produces an adult animal that is inactive, prefers visual stimulation and manipulatory opportunities of low complexity, shows little exploration of his environment, and withdraws from social contact. The reverse is true of animals reared under conditions of complex stimulation.

Gray used special summer nursery school training for children from culturally meager homes in the cognitive skills of identifying, naming, making comparisons, and in manipulating toys, puzzles, and construction materials. She also trained their mothers to help them use pictures, books, crayons, and simple construction materials at home. Two years of such effort produces children who start school with intellectual and cognitive skills well above those predicted from tests at age three. Moreover, control children from the same backgrounds, without such special preschool experiences start school at a level below that predicted from their status at age three. They have thus actually lost ground in the two and a half years preceding school entrance, while the experimental children have gained significantly above expectation and approach levels expected of the average American child.

Robert Hess (University of Chicago) is investigating the typical dimensions of family linguistic and training factors which may account for cognitive and intellectual skill differences. Comparisons of the speech behavior of mothers and of the psychological characteristics of mother-child interactions in “teaching” situations show middle class mothers to be well ahead of lower class mothers in number of words used, in use of abstract or classificatory in relation to concrete or naming words, in the use of a language of classes and categories, and in complexity of language structure. Thus they provide more elaborate codes by which their children may treat their experiences. Such differences are also reflected in tests of concept utilization, wherein middle class mothers clearly use more objective and detached, more general and abstract terms than lower class mothers, who prefer statements of simple relational descriptions.

Clearly, a new and vigorous attack is being made on identifying the nature of “intelligence” at various phyletic levels. While it is much too early

to state general principles, there is a strong suggestion that at different phylogenetic levels a dimension which may be called "complexity" of experience, provided early, orients the young organism preferentially to greater environmental complexity later, and may also encourage the development of skills for more effective adaptation to complexity.

DALE B. HARRIS, *Program Chairman*

**Activation.** The participants in the symposium on activation presented new experimental data contributing to the development of this interpretation of behavior. It was shown that the two projection systems deriving from the reticular formation at the level of the pontomesencephalic junction have two independent functions—behavioral arousal and electrocortical desynchronization. While these two phenomena are normally correlated, it is possible to dissociate the systems responsible for wakefulness or arousal from those responsible for electrocortical "tone." Therefore, electrocortical tone, as such, is in no way a "mirror" of wakefulness.

Additional information on the central mechanism of activation comes from the study of the variations of the electrocortical baseline potential on which modifications of the brainwave frequencies are superimposed. This variation or shift of the d.c. potential is quantitatively correlated with the conventional oscillating brain wave measure of activation and with behavioral arousal. But these baseline shifts also occur in varying patterns in the different parts of the cerebral cortex. It seems that these differences are dependent on the quality of activation, whether it may relate to alerting to danger, or to anticipation of food, or to another stimulus.

The peripheral activation systems also provide new information on the relations between behavior and activation. BRL and GSR measures in the rat are apparently correlated with arousal under certain conditions. However, there are reasons to question the classical theory of the thermoregulatory function of these systems. Several facts also indicate that appropriate activity on the part of the animal may contribute in lowering the level of activation as reflected, for instance, in the HR. It is furthermore evident that the effects of activation

and inattention can be clearly dissociated.

Finally, some experiments with human subjects point to the possibility of studying arousal as a factor of reinforcement. It can be concluded that, as our understanding of the specific mechanisms contributing to activation and arousal develop, these concepts will provide information on both the intensive and directive dimensions of behavior.

DAVID BELANGER, *Program Chairman*

**Bilingualism** was a topic particularly appropriate for a Montreal meeting. In the session chaired by F. R. Wake, it was noted that many prominent figures in history have been bilingual or multilingual. That this is more of an asset than a liability tends to be confirmed by Elizabeth Anisfeld's findings that bilingualism may result "in either a fuller development of the individual's intellectual potential or the development of a different pattern of mental abilities." Wilder Penfield hypothesized a "switch mechanism" that, when perfected in the first decade of life, permits the individual to shift languages appropriately in response to a single stimulus word, and to "think" in the second language without the intermediate step of translation. W. F. Mackey outlined a quantitative technique for analyzing the distribution of the two languages throughout the entire behavior of the bilingual.

The vice-presidential address by Lorrin A. Riggs included a description of electrical records taken from the human eye, with the contact-lens technique, in response to various patterns and colors of stimulus. The symposium on vertebrate color vision was chaired by Clarence H. Graham. The participants (P. A. Liebman, Edward MacNichol, David Hubel, and George Wald) discussed normal and abnormal functioning of the human visual system with particular reference to the spectrophotometry of individual cones, the electrical responses of single retinal and geniculate cells, and recent data on selective color adaptation. The preponderance of evidence still points to a three-receptor mechanism of human color vision.

In the symposium on Activation (Robert Malmø, presiding officer) new data were presented which may lead to a more precise interpretation of the relationship between cortical and peripheral

activation and behavioral arousal. Experimental evidence on the existence of two independent neural pathways, for behavioral arousal and electrocortical desynchronization respectively, points to the necessity of reassessing the role of the reticular formation in activation (S. M. Feldman). The use of the d-c potential shift as a measure of activation opens new possibilities and may even provide sought-for information for the comparison of general versus localized activation (Vernon Rowland). The first results deriving from a new technique for the recording of BRL and GSR in the rat show that, while this measure is apparently correlated with arousal, there are reasons to question the classical interpretation of these phenomena as being related to sweat gland activity (E. L. Walker). Heat rate, on the other hand, has proven to be a very reliable indicator of activation. There is considerable evidence pointing out that muscular activity as such does not result in cardiac acceleration but may, on the contrary, under proper circumstances form part of a deactivating mechanism (David Bélanger). These various data, as well as other experiments at the human level, permit the conclusion that the concepts of activation and arousal may help us understand the directive as well as the intensive aspects of behavior (D. E. Berlyne).

The section chairman and Association vice president for 1965 is Benton J. Underwood (Northwestern University) and the new member-at-large of the Committee is Robert M. Gagné (American Institute for Research). The 1965 meeting in Berkeley will be merged with an extraordinary session of the Western Psychological Association.

FRANK W. FINGER, *Secretary*

## **American Political Science Association (K2)**

The symposium sponsored by the American Political Science Association at the 1964 AAAS convention in Montreal was on science and international relations (27 December 1964). Contrary to usual treatments of this subject that concentrate on the international activities of science, this meeting had as its focus the scientific and technical aspects of central issues of foreign policy. In particular, the needs and op-

# Science

## Psychology (I)

Dale B. Harris

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