

SCIENTIFIC BOOKS

INFANT BEHAVIOR

Atlas of Infant Behavior: A Systematic Delineation of the Forms and Early Growth of Human Behavior Patterns. By ARNOLD GESELL. Vol. I—Normative Series, in collaboration with Helen Thompson, and Vol. II—Naturalistic series, in collaboration with Alice V. Keliher, Frances Lillian Ilg and Jessie Jervis Carlson. 921 pages. Yale University Press, New Haven, Conn. 1934. \$25.00.

IN these well-planned and extraordinarily well-printed volumes, Arnold Gesell, who for three decades has pioneered in research on the infant and young child, presents thirty-two hundred photographs, enlarged from motion picture frames, delineating the behavior of infants during the first year of life. Those in the first volume, taken in the photographic dome of the Yale Psycho-Clinic under laboratory conditions, show the development of 24 behavior sequences which cover posture, locomotion, perceptual, prehensive and adaptive behavior at 4, 6, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48 and 52 weeks, respectively. For instance, there is a series of photographs showing the behavior of an infant while sitting, another showing stair climbing, another showing behavior in the ring and string situation.

The enlargements in the second volume show the behavior of infants in naturalistic situations—*i.e.*, under a duplication of home conditions, in a special studio room to which both the infant and the mother, who was present, have been habituated. One purpose of the second volume is the portrayal of individual differences in development. The behavior situations and episodes illustrated center about feeding, bathing, posture, social behavior, play and locomotion. Each volume contains a description of the methods of securing and treating the films and of the apparatus, cameras and observation chambers used. Each photograph in a sequence is accompanied by a brief verbal description and is timed—*i.e.*, the time elapsing from the beginning of the particular response is stated.

In the first volume the pictures are arranged by behavior patterns in age sequences; in the second volume by children. Both volumes are loose-leaf with the photographs printed on only one side of the page to facilitate rearrangement for cross comparison in accordance with the reader's interests. Thus all the pictures dealing with the development of eating or bathing habits can be put together. The excellent quality of the enlargements in the first volume is exceeded by those of the second volume—indicating the superiority of 35 mm over 16 mm film.

The approach to the study of infant behavior as presented in the atlas is so new that its evaluation is difficult. There is no doubt of its vivid and striking

portrayal of infant behavior and its worth for teaching and demonstration and for directing the attention of scientists, students, parents, artists and other workers to various aspects of infant development. Only the future can determine its scientific value. The statistical data necessary for the interpretation of the normative and naturalistic pictures are not given. Nor is it clear how a particular picture or sequence was selected as normative. On the other hand, taken as a whole, rather than examined critically in detail, the sequences give a graphic and total picture of development that may for some purposes be of more value than the fractionating of behavior into minute parts to which we have become so accustomed.

Gesell states (p. 41) that the atlas is offered as "a systematic collection of specimens of infant behavior patterns," and goes on: "In format, arrangements, and mechanical makeup both volumes are designed to make this collection useful for conducting both analytical and comparative studies. Interpretive comment is withheld and the course of the behavior alone is described." The atlas therefore presents the material from which scientific conclusions may be drawn without itself actually generalizing. This raises an interesting question. Is the description of behavior in verbal terms or with the aid of fine instruments, such as the cinema, any more than the presentation of raw data? A partial answer is found in the fact that the pictures presented in the atlas were selected by one of the outstanding students of infant behavior from millions of cinema frames available in the Yale Psycho-Clinic. In the introduction to the atlas, Gesell mentions another publication, entitled "Infant Behavior: Its Genesis and Growth,"¹ which contains an exposition of the findings of the normative research and which he says may be used as a detailed handbook for the interpretation of the illustrations in the atlas.

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MATHEMATICAL PHYSICS

Principles of Mathematical Physics. By WILLIAM V. HOUSTON. Pp. xi + 265. McGraw-Hill Book Company, Inc., 1934.

THIS book is a text of intermediate grade designed to give the college student specializing in physics a working knowledge of the fundamental methods of mathematical physics, without attempting any elaborate exposition of physical theories. A thorough knowledge of elementary physics on the part of the

¹ Arnold Gesell and Helen Thompson, "Infant Behavior: Its Genesis and Growth." McGraw-Hill. New York, 1934. 343 pages.