

the rigorous algebraic treatment of Whitehead and Rimel. All the important aspects of formal logic are touched upon, from the hypothetical proposition and the problem of immediate inference to the complications of the syllogism. The whole is illustrated by examples of problems taken from such diverse sources as Whitehead and Rimel, Lewis Carrol, and Lewis, to all of which the symbolic formulæ are successfully applied.

R. S. GIBSON.

On Substitution as a Cause of Errors in Thinking. (*Amer. Journ. of Psych.*, January, 1928.) Wilcocks, R. W.

The problem treated is that of errors occurring in task-directed processes of thought. Experimentally obtained introspective data are advanced to prove that the validity of the law of substitution must be assumed in order to explain errors of thinking arising in a certain type of task-directed cognitive process, in which solutions occur which do not agree with the anticipatory conditions.

WM. MCWILLIAM.

An Interference Theory of Colour Vision. (*Amer. Journ. of Psych.*, January, 1928.) Forbes, W. T. M.

The author deals with an interference theory of colour vision which assumes that only one light-sensitive substance is concerned with photopic vision, a visual violet substance similar to the familiar visual purple of scotopic vision.

Three kinds of cones, however, are postulated: (1) White, with no special structures, in which the visual pigment is presumably diffuse; (2) yellow, with a reflecting surface at its further end and an insulating film at a distance back from it; and (3) red, similar to the yellow in structure.

The subject of the paper is skilfully elaborated with five diagrams and references in foot-notes.

WM. MCWILLIAM.

Attention and Clearness in the Perception of Figure and Ground. (*Amer. Journ. of Psych.*, January, 1928.) Wever, E. G.

The author deals with his subject under the following headings:

- (1) Perception and attention.
- (2) Figure-ground experience and clearness.
- (3) The nature of clearness—the sensory-cognitive distinction.
- (4) The theory of the two levels.

Many references are given and the article is concluded by a brief summary.

WM. MCWILLIAM.

Experimental Studies on Children and Persons of Unsound Mind by the Method of Conditioned Reflexes [*Études expérimentales sur les enfants et les aliénés selon la méthode des réflexes conditionnels*]. (*Ann. Méd. Psych.*, July, 1927.) Ivanoff-Smolensky, A. G.

The author following closely the work and methods of Pavloff seeks to elucidate the physiology of human conduct. He concludes that the cerebral hemispheres constitute a reflexo-creative organ,

the work of which can be studied exactly, and that cerebral reactions, so-called voluntary actions, follow in every detail the fundamental laws of higher nervous activity.

W. D. CHAMBERS.

Some Effects of Inanition on Animal Behaviour. (*Psychol. Bull.*, vol. xxv, No. 1, January, 1928.) Stone, C. P., and Lindley, S.

The term "inanition," as here used, means the lack of essential food during intervals considerably longer than those usual between feeding periods. The term "starvation" indicates an extreme stage of inanition leading finally to great emaciation or death. Total or quantitative inanition or partial or qualitative inanition are distinguished. The review goes up to 1926 and gives eighteen references.

A. WOHLGEMUTH.

Habit-Formation or Higher Mental Processes in Animals. (*Psychol. Bull.*, vol. xxv, No. 1, January, 1928.) Tolman, E. C.

This interesting review covers the literature of the year 1926, although some earlier papers are referred to. From "experiments which measure with further precision the effect of relatively mechanical factors," the following results are summarized:

(a) Further evidence that sub-mammals (fish and water-beetles) are capable of acquiring both discrimination and food position habits. (b) Relatively unreliable mazes can be used to measure group differences provided the groups are large enough. Properly constructed difficult mazes will give high reliabilities even with rats. (c) Further conflicting evidence on the relative advantages of distributed and of concentrated practice. There is some suggestion that maze habits and sensory discrimination habits differ in this matter. Evidence that longer learning time induced by more distributed practice makes for better retention. (d) The female sex-cycle seems to have no effect upon maze learning. The cerebellum is not involved in the maze habit. As regards the cerebrum "No part of the cerebral cortex is better adapted than any other (save for the closeness of its anatomical connections to the given incoming and outgoing paths) for the formation of any particular habit. . . . This must mean that in a problem situation the effects of stimulation irradiate to all parts of the cortex. As the habit is established there comes into being a definite structural modification having topographical position and capable of destruction by brain injury. The learning process is independent of locus, whereas the mnemonic process or engram has a definite localization."

Next are discussed the "experiments and investigations which lead to new non-mechanical envisagements of learning." In general all the authorities seem to agree in envisaging insightful problem-solving as something fundamentally different from trial and error problem-solving. This seems to the reviewer an important issue, and the remaining section of the paper is devoted to a discussion of it. Forty-four references are given.

A. WOHLGEMUTH.