sary. That is, a system which satisfies Hermes's axioms would be a system of special relativity, but not every system of special relativity would satisfy Hermes's axioms. Hence Hermes's axioms do not properly constitute "an axiomatization of general mechanics."

The difficulty seems to lie mainly in axiom A8.1, which says that the corpuscles of matter behave in certain very peculiar fashions. It is quite possible that, in writing A8.1, Hermes really had in mind some sort of conditional statement to the effect that if the corpuscles behave in certain very peculiar fashions, then certain other things would happen. However, as stated, A8.1 is distinctly not conditional. BARKLEY ROSSER

I. M. BOCHEŃSKI. *Notes historiques sur les propositions modales.* ***Revue des sciences philosophiques et théologiques*** (Paris), vol. 26 (1937), pp. 673–692.

The logic of modal propositions is at best a decadent development. Great confusion arises from the use of "possible" to mean, sometimes, "not impossible," and sometimes, "neither impossible nor necessary." The author proposes to use "contingent" for the latter sense.

Aristotle uses "possible" in the sense of "contingent" and Theophrastus uses it in its strict sense. Herein lies their main point of difference with regard to modal propositions, causing Theophrastus to think he had a new system of logic which corrected the "errors" of Aristotle. Albertus Magnus followed Aristotle; "Pseudo-Scotus" expounded the distinction; Ockham combined the two systems and derived 1000 valid forms.

"Pseudo-Scotus" produced interesting proofs of the propositions, "A false proposition implies any proposition" and "A true proposition is implied by any proposition."

S. K. LANGER

R. FEYS. *Les logiques nouvelles des modalités.* ***Revue néoscolastique de philosophie,*** vol. 40 (1937), pp. 517–553, and vol. 41 (1938), pp. 217–252.

A clear, concise systematization of modern contributions to the study of elementary, abstract, modal logics; a summarization and comparison of (0) the classical true-false logic, e.g., that of ***Principia mathematica,*** (1) logics of the traditional modal concepts of necessity, possibility, etc., e.g., Lewis's logic of "strict implication," (2) "intuitionistic" logics, e.g., Heyting's, (3) many-valued logics, e.g., those of Łukasiewicz. The essay provides a valuable basis and stimulus for further investigations in the field.

I would question one remark. Following Wajsberg, the author states that logics of type (1) can be translated into logics of general propositions or classes. For example, he would say that the analogue of Ap, or better, $A(\phi x)$, "ϕx is necessary," is $(x)\phi x$, "for every x, ϕx." But in a calculus of classes or general propositions there can be strict as opposed to material relations, analogous to strict as opposed to material implication as distinguished by Lewis. In the usual extensional treatment of classes and general propositions, where only material relations are explicitly used, $(x)\phi x$ means merely "for every actual x, ϕx" instead of "for every possible x, ϕx," and is not equivalent to "ϕx is necessary." Only a calculus of classes or general propositions using strict relations would contain analogues of the traditional modal forms. CHARLES A. BAYLIS

L. CHWISTEK and W. HETPER. *New foundation of formal metamathematics.* ***The journal of symbolic logic,*** vol. 3 (1938), pp. 1–36.

The primitive signs comprise just the letter "*c*" and a two-place operator "*". These are combined according to a principle familiar to readers of Łukasiewicz: "*cc", "**ccc", "*c*cc", "**cc*cc", etc. The two signs receive meaning only mediately, through interpretation of certain arbitrary complexes thereof. For example, complexes of the form "******cc**cc*cc*EE*FF*GG*HH" (with the capitals supplanted by any expressions built in turn from "*c*" and "*") are abbreviated "($EFGH$)[c]" and explained as meaning that H is the result of substituting G for F in E. Another arbitrary mode of combination of "*c*" and "*" is identified with alternative denial (Sheffer's stroke); and in terms of this the other truth functions are developed in familiar fashion. The syntactical notion of substitution and the logical truth functions are thus gathered into a single system. On this basis further syntactical notions are defined, among them the notions of expression and