of the book that deal with the demography of a slave society and with the mating patterns of the present, which are its social heritage, are of particular interest and reflect an originality of research too infrequently encountered.

The author's major emphasis is on historical trends and on the quasi-permanent interrelationships of demographic, economic, and social factors. Unfortunately, the analysis stops with the latest census of Jamaica (1943), and only in vital statistics is it carried to 1952. No mention is made of the current wave of emigration to the United Kingdom.

The Population of Jamaica is the first of three studies dealing with the population problems of the island, sponsored by the Conservation Foundation, an American organization established to promote greater knowledge about the earth's resources. The second is a field study of practices and attitudes relating to reproduction; the third will be devoted to resources and land-use patterns. Roberts has set a high standard of scholarship for the series.

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The Liassic Therapsid Oligokyphus. Walter Georg Kühne. British Museum (Natural History), London, 1956. x + 149 pp. Illus. + plates. £4.

The Tritylodontidae are now considered to have been reptilian by an arbitrary but practical definition: they still had a reptilian jaw articulation and a single ossicle in the middle ear. Actually, they resemble mammals far more than they resemble any recent reptiles. They are almost perfectly intermediate between primitive reptiles and mammals, and they link the two classes about as closely as the famed *Archaeopteryx* links reptiles and birds. They ranged from late Triassic to middle Jurassic in age and have now been found in South Africa, Orange Free State, England, Germany, China, and the United States. Although exiguously known for nearly a century, they are only now becoming well known and are beginning to cast real light on the origin of mammals.

In 1938 a young German student, Walter Kühne, went to England, determined to test his conviction that lack of knowledge of these transitional reptile-mammals was due only to lack of effort and perseverance. In the course of the next ten years, some of them spent in an internment camp, he proved his point. With almost superhuman patience and with, it is pleasant to add, the wholehearted help of nominally enemy British scientists, he accumulated more than 2000 specimens of the early Jurassic tritylodontid genus *Oligokyphus*. The individual specimens are almost all mere fragments—scattered scraps with no articulation and almost no complete single bones. From this material Kühne managed to piece together virtually all the dentition, skull, and skeleton. He has, indeed, demonstrated that the painstaking study of such myriads of fragments can yield more complete knowledge than can the study of one or two more perfect specimens. While he was working, the nearly complete skull of a closely related animal (*Bienotherium*) was found in China, but the account of the skull in the present work is given in considerably more detail than has been possible in the case of the Chinese animal.

In this admirable publication, each tooth and bone is carefully described and illustrated by, for the most part, drawings of composite reconstructions. The more important original specimens are shown in well-reproduced stereophotographs, each with a labeled outline key. The whole is a truly remarkable production—a model of morphological research and exposition and a landmark in our knowledge of the evolution of life. Its importance is enhanced rather than lessened by the recent discovery (still undescribed) of numerous skulls and skeletons of a related tritylodontid in Arizona.

After this research was essentially complete but before the text and illustrations of this extraordinary monograph were ready for the printer, the author chose to move behind the Iron Curtain. Special thanks are due the authorities at the British Museum (Natural History), who so beautifully performed the usually thankless task of seeing the manuscript to and through the press. It is small wonder that a few, comparatively minor, errors in the text escaped their scrutiny.

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Introduction to Logic. Patrick Suppes. Van Nostrand, Princeton, N.J., 1957. xviii + 312 pp. $5.50.

This is an introductory textbook of mathematical logic, covering "first-order predicate logic with identity," a "theory of definition," an elementary treatment of sets (including explanation of the membership relation ϵ, the principle of extensionality, Boolean algebra of sets, and Veen diagrams), similarly elementary treatments of relations (defined as sets of ordered n-tuples) and functions (defined as many-one binary relations), with, finally, a chapter on foundations of the axiomatic method in mathematics and mathematical physics.

A conspicuous merit of the book is the care which is given to explaining the practical procedure of translating from everyday language into formalized language and inversely, as well as the related matter of transition between formal and informal proofs in mathematics.

Connected with this is the author's use of the Jaskowski-Gentzen method of *subordinate proofs,* or of *natural inference,* in order to obtain a formalization which is closer to the usual informal manner of stating mathematical proofs than that provided by standard systems of propositional and functional calculus. There are undoubted pedagogical advantages in thus simplifying the transition between formal and informal proofs. But there is an associated disadvantage in that the notion of logistic formalization is obscured by not presenting it in its most straightforward form. My preference in elementary teaching is to use a formulation of propositional and functional calculus which is a logistic system in the strictest sense, and then to introduce the method of subordinate proofs by means of derived rules (the deduction theorem and other derived rules associated with it).

The author's theory of definition is like that of Lesniewksi in that it makes definitions an integral part of the object language, on a par with axioms and theorems, but differs from Lesniewski's in that it excludes creative definitions. The rules of definition which are given are intended to provide for definition within a mathematical theory based on logic, and there is no provision for definition within logic itself (as, for example, the definition of a new sentence connective from given connectives).

In my opinion the one undeniable major fault of the book—as distinguished from matters which may be debatable—is that there is no propositional calculus whatever, and no pure functional calculus (pure "predicate logic") with predicate variables, but only a "predicate logic" based on some unspecified list of constant predicates. To judge from the author's explanation, the reason for this is that he thinks of the values of propositional (or sentence) variables and functional (or predicate) variables as being certain intensional entities, propositions, and propositional functions in intension, which are philosophically suspect. It appears from his use of set variables in the latter part of the book that he is not a nominalist, rejecting abstract entities altogether, but an extensionalist, rejecting intensions. It is therefore not clear why he does not consider the extensional interpretation of propositional and pure functional calculus, according to which the values of the variables are truth-values and relations. He does indeed sometimes use the term *relation symbol* as synonymous with *predicate.*