The reviewer compared Langdon's results with those of Cecil Hastings, Jr., *Approximations for Digital Computers*, where possible. Although both authors considered approximations for $\tan^{-1} x$, $\sin (\pi/2)x$, $\sin^{-1} x$, and $H(x)$, the only one of these in which the ranges are the same $(-1 \leqq x \leqq 1)$ is that for $\sin (\pi/2)x$. Here both authors use a five-term polynomial approximant; Langdon claims an error bound of 4×10^{-9}, compared to Hastings' claim of 5×10^{-9}. It is of interest to note that C. W. Clenshaw approximated the same function on the same range with a six-term polynomial, the stated error bound being 3×10^{-9} (*MTAC*, v. 1954, p. 143).

The reviewer made some spot checks of the approximations given and found no evidence that the error bounds or coefficients are incorrect, with the exception that the value of $H(2.5)$ was found to be 0.99959 30388, as compared with the value 0.99959 30480 given in the NBS *Tables of Probability Functions*, v. 1. Here the error in the value obtained from Langdon's approximation exceeds the stated bound of $8 \cdot 10^{-9}$.

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40[Z].—H. Freudenthal, "Logique Mathématique Appliquée," *Collection de Logique Mathématique*, Série A, XIV, Gauthier-Villars, Paris, 1958, 57 p. Price $3.00.

This pamphlet is a prize-winning essay in a 1953 contest of the Institute for the Unity of Sciences on the general subject, Mathematical Logic as a Tool of Analysis—its uses and achievements in the sciences and philosophy. For the purposes of the present publication the most interesting portion is the second section entitled "Le calcul des propositions, les réseaux electriques et les machines à calculer." This gives a brief description of various electronic and electro-mechanical realizations of the propositional calculus, introduces the temporal problem, and suggests research in a temporally affected propositional calculus. Unfortunately, the span of five years between initial composition and publication means that no knowledge of the recent work on such temporal structures as the neuron model is demonstrated. The author's point that mathematical logicians should enter the field rather than surrender it to computer engineers retains its initial force.

Briefly, the introductory section comments on what the author considers as an unfortunate tendency to abstract, non-realizable research by logicians. (He concedes the right of number theorists to an ivory tower but thinks that logic must be primarily viewed as a part of applied mathematics.) The third section reviews certain clarifications introduced in philosophy and the foundations of science by the influence of mathematical logic. The fourth suggests an operational definition of implication in terms of an idea of "complete implication" which requires that all pairs (p, q) such that $p \rightarrow q$ be meaningful in a particular case before using the term "implication." The final portion suggests problems involving transitivity in modal forms.

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