manifold possessing a one-parametric isometry, which was to be interpreted physically such that the orbital curves of the V_5 were to be identified with the world points of the four-dimensional manifold of physical experience, i.e., of space and time. Whereas in the original proposal of Kaluza the orbital curves were assumed to be geodesics, which is tantamount to setting the metric component g_{55} constant, Jordan and Thiry developed the theory on the assumption that g_{55} was an extra field variable, which called for a physical interpretation of its own. None of the five-dimensional theories has ever matured beyond the stage of a speculation, even though such outstanding physicists as Pauli, Jordan, and Einstein himself have worked on it.

In this monograph Mrs. Surin has developed within the framework of five-dimensional field theory both the equations of perfect fluids and the Einstein-Infeld-Hoffman approach to the ponderomotive equations. Her treatment emphasizes the formal aspects and deals fully with the Cauchy problems posed. She has little to say about any physical motivation. Approximation methods are developed and discussed quite well.

The work is organized into two main parts, the first being devoted to the Jordan-Thiry theory, the second to the Kaluza-Klein theory. Within the first part individual chapters are devoted to foundations, the perfect fluids, approximate solution of the (combined) field equations, and ponderomotive theory. The second part, which is the shorter of the two, contains chapters on fundamentals, and is devoted to a discussion of the approximation procedure through the second order. The bibliography contains references both to texts and classical papers and to recent developments, with emphasis on the post-war contributions of the French school.

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The Basic Laws of Arithmetic, by Gottlob Frege (Translated, edited, and introduced by Montgomery Furth). University of California Press, Berkeley, 1965. lxiii + 144 pages. $5.00.

Everyone knows how Frege's monumental and pioneering work on the deduction of arithmetic from logic had its foundations cut away by the discovery of the Russell paradox. As a result his work itself has been undervalued. Here the most fundamental parts have been selected, with an extensive historical introduction. The translation is a model of how mathematical translations should be made.

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