

“FOUNDATION” AND FORMALISM. II

Dedicated to Prof. K. Kunugi on his sixtieth birthday

By

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The whole speculation in this paper is an attempt to suggest that the foundations of mathematics ought not always to be studied “mainly in the framework of logico-mathematical technique” and that the discrepancies in one way or another of the standpoints on the foundations of mathematics is perhaps due to the duality of human nature, especially on knowing.

1. The Prevailing Opinion of Mathematicians.

“Studies in the foundations of mathematics tend to converge in their aims...Hilbert’s formalism has taught us that we have not yet learnt how to study mathematics except under the guidance of the traditional ‘*esprit géométrique*’...Further, when the catchword ‘*the salvation of mathematics*’ has lost its profound meaning and the theory of consistency has been defined as one pertaining to the formal system, that is, a problem in metamathematics, metamathematics has been liberated from the shackles of the ‘*finitary*’ standpoint, and thus given a varied choice of standpoints. In this way, researches in the foundations of mathematics which have hitherto been very much diversified have come to fall into the following two categories; suggestions of formal systems and metamathematics concerning them”.¹⁾ This view is probably shared by most specialists today. In so far as the foundations of mathematics is regarded as a branch of mathematics, such a change in it as is described in the above quotation comes only natural from a process of narrow screening of its objects and methods. Philosophical thinking is placed out of account here. This point of view gives rise to statements like the following. “The present-day problems of the foundations of mathematics, as we see, are investigated mainly in the framework of logico-mathematical technique.—The philosophical disputation concerning the standpoint from which the logico-mathematical constructions are employed, has, therefore, been usually disregarded.—From this point of view, which may be taken for granted by almost every mathematician,

1) S. SEKI: A Report of the Symposium on the Foundations of Mathematics held in Kyoto, 20, 21 May, 1957.