POINT SETS IN THREE AND HIGHER DIMENSIONS AND THEIR INVESTIGATION BY MEANS OF A UNIFIED ANALYSIS SITUS*

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1. *Introduction.* When I was invited to give this symposium lecture, I hesitated somewhat to speak upon a field of mathematics which has already been represented before this Society by three Colloquia† and several lectures.‡ It occurred to me, however, that each of these lectures and Colloquia had been devoted to one of the two special "branches" of analysis situs, that is, either to combinatorial topology or to set-theoretic topology.§ (I think it is fair to state that most of the workers in analysis situs can be identified, by the evidence of their published works, with one of these "branches.") We have had no report before this Society which makes clear the relations between these schools of analysis situs—why there are two schools and what is the difference between them—nor is it evident that any but a few topologists are aware of the tendency, which has become manifest within the past few years, for the lines of demarcation between these "branches" of analysis situs to disappear. There are reasons, indeed, for believing that many topologists do not approve of this tendency, whether for esthetic reasons or because of their faith in the power of their own

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† O. Veblen, *Analysis Situs*, Colloquium Publications, vol. 5, Part II; R. L. Moore, *Foundations of Point Set Theory*, Colloquium Publications, vol. 13; S. Lefschetz, *Topology*, Colloquium Publications, vol. 12.

‡ R. L. Moore, *Report on continuous curves from the viewpoint of analysis situs*, this Bulletin, vol. 29 (1923), pp. 289–302; J. R. Kline, *Separation theorems and their relation to recent developments in analysis situs*, ibid., vol. 34 (1928), pp. 155–192; E. W. Chittenden, *On the metrization problem and related problems in the theory of abstract sets*, ibid., vol. 33 (1927), pp. 13–34; T. H. Hildebrandt, *The Borel theorem and its generalizations*, ibid., vol. 32 (1926), pp. 423–474.

§ It might seem that in the case of Lefschetz' Colloquium, this remark is not true, since he considers topics that are ordinarily considered as part of the set-theoretic topology, for example, compact metric spaces. However, as we shall show, it is in method, not subject matter, that the two schools of topology differ, and in this sense Lefschetz' book is combinatorial.