

Contents

Translator's Introduction	vii
Topology before Poincaré	vii
Poincaré before topology	viii
The <i>Analysis situs</i> paper	x
The five supplements	xii
The Poincaré conjecture	xiv
Comments on terminology and notation	xv
Acknowledgements	xvi
Translator's Bibliography	xix
On Analysis Situs	1
Analysis Situs	5
Introduction	5
§1. First definition of manifold	7
§2. Homeomorphism	9
§3. Second definition of manifold	10
§4. Oppositely oriented manifolds	13
§5. Homologies	15
§6. Betti numbers	15
§7. The use of integrals	16
§8. Orientable and nonorientable manifolds	19
§9. Intersection of two manifolds	23
§10. Geometric representation	31
§11. Representation by a discontinuous group	36
§12. The fundamental group	38
§13. Fundamental equivalences	41
§14. Conditions for homeomorphism	44
§15. Other modes of generation	53
§16. The theorem of Euler	61
§17. The case where p is odd	68
§18. Second proof	70
Supplement to Analysis Situs	75
§I. Introduction	75
§II. Schema of a polyhedron	78
§III. Reduced Betti numbers	81
§IV. Subdivision of polyhedra	84
§V. Influence of subdivision on reduced Betti numbers	85

§VI. Return to the proofs of paragraph III	89
§VII. Reciprocal polyhedra	92
§VIII. Proof of the fundamental theorem	96
§IX. Various remarks	100
§X. Arithmetic proof of a theorem of paragraph VII	103
§XI. The possibility of subdivision	105
Second Supplement to Analysis Situs	111
Introduction.	111
§1. Review of the principal definitions	111
§2. Reduction of tables	114
§3. Comparison of the tables T_q and T'_q	117
§4. Application to some examples	120
§5. Generalization of a theorem in the first supplement	125
§6. Internal torsion of manifolds	131
On Certain Algebraic Surfaces;	
Third Supplement to Analysis Situs	135
Cycles on Algebraic Surfaces;	
Fourth Supplement to Analysis Situs	151
§1. Introduction	151
§2. Three-dimensional cycles	155
§3. Two-dimensional cycles	162
§4. One-dimensional cycles	169
§5. Various remarks	172
Fifth Supplement to Analysis Situs	179
§1	179
§2	179
§3	187
§4	200
§5	207
§6	215
Index	225