

Equating the two expressions for  $(Y_\mu Y_\nu)$  it is found possible by purely algebraical operations to determine the various sets of  $h_{\mu\rho}$  in terms of the  $c_{\mu jk}$  and thus to determine all the subgroups of a given  $r$ -branch group.

We shall make no attempt here to follow the author in those investigations of special properties of groups which occupy a large part of the remainder of the book. The great and increasing importance of his subject would be sufficient of itself to call the attention of mathematical readers to Lie's volumes, but we hope, even at the risk of doing a work of supererogation, to supplement this sketch in the near future with an account of the second part of the Theory of Transformation Groups, which deals with the transformations of contact.

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MILWAUKEE, November 1, 1892.

## THE THEORY OF FUNCTIONS OF A REAL VARIABLE.

ULISSE DINI, *Grundlagen für eine Theorie der Functionen einer veränderlichen reellen Grösse*. Deutsch bearbeitet von Dr. JACOB LÜROTH, Professor zu Freiburg i. B., und ADOLF SCHEPP, Premier Lieutenant A. D. zu Wiesbaden. Leipzig Teubner, 1892. 8vo, pp. xviii + 554.

THIS German version will be welcomed by many mathematicians who have been debarred from a study of Dini's classical treatise by unfamiliarity with the language. In the preface the translators state that they have not attempted to recast the materials, although they feel that some investigations might be transferred with advantage from the later to the earlier sections. Several paragraphs have been added, and the second half of the book has been divided into short chapters. The principal novelties are the introduction of Cantor's definition of the irrational number in place of Dedekind's, the proof that a continuum of points cannot be a mass of points of the first power, an account of Cantor's method for the condensation of singularities, and some additional theorems on integration. The usefulness of the book has been greatly increased by the insertion of numerous references to original sources, and by a list, at the end, of 45 authors whose works are referred to in the text. The translators have performed their difficult task with skill and judgment. We must call attention, however, to the numerous misprints which disfigure the text; for instance, § 8\* is, as it stands, very obscure.