

**Ullrich, Peter****The Poincaré-Volterra theorem: From hyperelliptic integrals to manifolds with countable topology.** (English) [Zbl 0967.01007](#)

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The Poincaré-Volterra theorem states that a multi-valued analytic function on  $\mathbb{C}$  has at most countable values  $f(z)$  for any fixed  $z$ , or said otherwise, the fibers of a Riemann surface are finite or countable. The paper describes the birth of this theorem, and the various claims by Cantor, Weierstraß, Vivanti, Poincaré and Volterra in the 1870's and 1880's on this topic. Precisely written, this lively paper recounts what turned out to be a decisive moment in the emergence of set-theoretic ideas in the theory of functions of one complex variable, which contributed, as consequence, to their acceptance in main-stream mathematics by the end of the 19th century.

Reviewer: [Martin Andler \(Versailles\)](#)**MSC:**[01A55](#) History of mathematics in the 19th century[30-03](#) History of functions of a complex variable[54-03](#) History of general topology**Keywords:**[Poincaré-Volterra](#); [topology](#); [set theory](#)**Full Text:** [DOI](#)