proof but had not yet anything to take its place, until in 1826 he had found his way successfully through all his difficulties. He adds his own testimony as to the origin of his great theories in the opening sentences of the "Neue Anfangsgründe" in which he declares that the futility of the efforts made during two thousand years since Euclid to complete the theory of parallel lines aroused in him the suspicion that the ideas sought to be proved were not necessarily true. While it is remarkable that the solution of a two-thousand year old problem should be given almost simultaneously by three men, it should be remembered that these three were not the only mathematicians who had worked upon the problem. More than one had missed the solution by a hairsbreadth only; Lobachevsky, Bolyai, and Gauss succeeded in finding it.

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VOGT'S ALGEBRAIC SOLUTION OF EQUATIONS.

Leçons sur la Résolution algébrique des Équations. Par H. VOGT, professeur adjoint à la Faculté des Sciences de Nancy. Paris, Nony et Cie., 1895. 8vo., viii+201 pp.

THE present work is, we suppose, intended to be an introduction to the *modern* theory of the algebraic solution of equations. It is true that the word *modern* does not appear in the title, but however elementary the character of a *new* book of this kind may be, it is natural to suppose that the author will present his material in accordance with modern points of view, as far as these are elementary and simple.

This, however, is not the case with the volume in hand, as we proceed to show. First and foremost we have the following serious criticism to make. The rockbed of the modern theory of the algebraic solution of equations is the principles of Galois. A text book on this subject which does not explain these with all detail and use them systematically from start to finish cannot be called modern.

That the present volume sins grievously in this respect can be shown at once. Galois' theory proposes a perfectly simple and uniform scheme for the solution of any given equation. In a work of this kind this scheme should be developed at the start and then undeviatingly employed