

Introduction to the theory of algebraic functions of one variable, by C. Chevalley,
 Mathematical Surveys, no. 6, American Mathematical Society, New York, 1951,
 12 + 188 pp., \$4.00

Here is algebra with a vengeance; algebraic austerity could go no further. “We have not tried to hide (says the author) our partiality to the algebraic attitude...”; he has not indeed; and, if it were not for a few hints in the introduction and one casual remark at the end of Chapter IV, one might never suspect him of having ever heard of algebraic curves or of taking any interest in them. Fields and only fields are the object of his study. A field is given, or rather two fields: one, the function-field R ; the other, the field K of constants; K is algebraically closed in R ; and R is finitely generated and of degree of transcendency 1 over K . Everything must be “intrinsic,” i.e. must be born from these by some standard operations. Later on the family circle is enlarged by the appearance of another function-field S containing R , with a field of constants L containing K , and a large portion of the book is devoted to the mutual relations between R and S ; but nowhere except in one or two lemmas is any element allowed to appear unless it is contained in those fields or canonically generated from them.

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Enough has been said to indicate that, in spite of some shortcomings which it was our duty to point out, this is a valuable and useful book, and also a timely one. While it is not as attractively written as the classical paper of Dedekind and Weber, or as H. Weyl’s *Idee der Riemannschen Fläche*, it covers far more ground than the former, and, even in its final chapter, has little in common with the latter. It was highly desirable that the principles of the theory of algebraic functions should be treated at least once in their full generality by purely algebraic methods; this is what the author has done as perhaps no one but he could do it, and for this he has a right to expect the gratitude of the mathematical community. His attitude towards his subject has been professedly one-sided; but his work should be of value, not only to those who will always prefer the algebraic methods for their own sake, but also to those who wish to ascertain both their scope and their limitations. Indeed some conclusions already seem to emerge from it, and will now briefly be set forth.

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Thus it appears that the author has somewhat overstated his claims, and has been too partial to the method dearest to his algebraic heart. Who would throw the first stone at him? It is rather with relief that one observes such signs of human frailty in this severely dehumanized book. And it would only remain for us to congratulate him on the service he has rendered to the mathematical public, if it were not necessary to devote some of our attention to typographical matters.

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It is difficult enough to follow such a text in detail without having constantly to reconstruct in one’s mind what has been separated on paper; and apart from all

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aesthetical considerations, such practices, which in this country are fast becoming the rule rather than the exception, may soon make many of our mathematical texts intolerably hard to read. It is high time that a reaction should set in against the tendency to cram as much text as possible into each page at the lowest possible cost, regardless of the effect on the reader; this will require a coordinated effort on the part of authors, editors and the printing-presses. The authors, who undoubtedly bear some responsibility for the present situation, should be more mindful of such matters in the preparation of their manuscripts; editors and editorial assistants should cooperate with them to a greater extent than sometimes happens now. As to the typesetters, who are doing an extraordinarily good job of setting the most complicated formulas, they could very easily be trained to avoid broken formulas, if their attention were drawn to it by the presses; they could well be trusted to use their judgment in displaying some long formulas, even in the absence of an indication from the author or editor; as to short formulas, all that is mostly required is some adjustment in the spacing of words; this might sometimes take more time than mechanically running along, but would still be far less expensive than later corrections which may affect a whole paragraph of type. Possibly, at least in the transitional period until typesetters acquire experience in such matters, the average cost of the printed page in mathematical texts would increase slightly; possibly the number of pages to be printed every year by mathematical journals would have to be somewhat cut down. Maybe the gain would be greater than the loss.

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