if they have neither a common point nor a common perpendicular. The author develops this "negative" definition into a very remarkable criterion. From an arbitrary point on b, draw g perpendicular to a, and e perpendicular to g. From an arbitrary point on e, draw perpendiculars to a, b, and let h join their feet. Then a and b are parallel if and only if e and h are perpendicular. Following Hilbert, he calls a pencil of parallels an *end*. He uses the above criterion to prove that any two ends determine a line. As an instance of the application of projective geometry to hyperbolic geometry, he points out that Seydewitz's theorem provides an immediate proof for the following property of a trebly-asymptotic triangle: the perpendiculars from any point on one side to the other two sides are perpendicular to each other.

In the elliptic plane, the effect of the absolute polarity is to make the reflection in a line a equivalent to the reflection in its pole A. Every isometry is expressible as the product of two such reflections. Isometries are represented as points in elliptic space, in a manner resembling §§7.3–7.5 of the reviewer's *Non-euclidean geometry* (3rd ed., University of Toronto Press, 1957). The author considers, in this group-space, a plane hexagon $P_1Q_2P_3Q_1P_2Q_3$ whose vertices lie alternately on two lines p and q. He draws lines through P_1, P_2, P_3 left-parallel to q, and lines through Q_1, Q_2, Q_3 right-parallel to p, so as to form Dandelin's *Hexagramme mystique* (cf. H. F. Baker, *Principles of geometry*, vol. 3, Cambridge University Press, 1923, p. 44) consisting of six generators of a Clifford surface. This enables him to prove Pappus's theorem in the plane pq. The deduction is illustrated by a particularly fine perspective view on page 254.

The above remarks may serve to suggest something of the flavor of this unusual book, which is well written, well printed, well indexed, and "chock full" of unfamiliar results. All geometers and most algebraists will be glad to keep it on an accessible shelf.

H. S. M. Coxeter

Statistical independence in probability, analysis and number theory. By Mark Kac. Carus Mathematical Monographs, no. 12. New York, Wiley, 1959. 14+93 pp. $3.00.

This delightful little book is an example of informal pedagogy at its best. It entertains, it stimulates interest, it educates (somewhat haphazardly) and it challenges current dogma, all in such deceptively simple style that one feels as if he is reading a popularization from Scientific American. In fact it is popularization, on a very high