the usual Oxford Press product (although, for example, Schur's theorem cannot be found with its help).

This reviewer believes several objections to the omission of topics stem from more than personal preference. For instance, nowhere is a group mentioned: holonomy and motions are equally absent; symmetric spaces are left dangling with a tensor definition. Despite the jacket blurb, it is hard to see how this book would be useful to physics or engineering students. But advanced undergraduates and beyond should find it an excellent introduction. Indeed, it is the only book in English of its kind.

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Aufbau der Geometrie aus dem Spiegelungsbegriff. By Friedrich Bachmann. Die Grundlehren der mathematischen Wissenschaften, vol. 96, Berlin-Göttingen-Heidelberg, Springer, 1959. 15+311 pp. DM 49.80.

This remarkable book is essentially an elaboration of an idea of G. Thomsen (*The treatment of elementary geometry by a group-calculus*, Math. Gaz. vol. 17 (1933) p. 232). The idea is to let the symbol for a point A or for a line a be used also for the corresponding involutory isometry, namely, A is the reflection in the point (or rotation through π about the point), and a is the reflection in the line. If A and B are two points, AB is the translation along their join through twice the distance between them. If a and b are two intersecting lines, ab is the rotation about their point of intersection through twice the angle between them. The point A and line a are incident if the corresponding transformations are commutative. The same property applied to two lines makes them perpendicular. In this case, if the lines are a and b, $ab(=ba)$ is their point of intersection! If $abc=cba$, the three lines a, b, c belong to a pencil, and then the line $d=abc$ is another member of the same pencil, namely the line for which the transformation ab (which is a rotation if a and b intersect) is equal to dc.

A good instance of the power of this method is the following generalization of the notion of isogonal conjugacy with respect to a triangle (p. 16): "If $ba'c=a''$, $cb'a=b''$, $ac'b=c''$, while $a'b'c'$ is involutory, then also $a''b''c''$ is involutory. *Proof*. $a''b''c''=ba'c\cdot cb'a\cdot ac'b =(a'b'c')^b$."

One soon begins to realize that such a geometry is not necessarily Euclidean. It is more like the "absolute" geometry of Bolyai, in which a pencil of lines having a common perpendicular is not necessarily the same as a pencil of parallels. In fact, the geometry may be regarded as a special kind of abstract group whose generators, called