any lesser power of technique. When one of the main researchers in a field takes the time and trouble to write an exposition, he makes a valuable contribution; certainly that is the case here.

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Geometric measure theory by Herbert Federer. Springer-Verlag, Berlin, Heidelberg, New York, 1969. 676 pp. $29.50.

Measure theory is perhaps the least honored of the several large mathematical disciplines which have been developed during the twentieth century.

A number of reasons may be given for this humble standing of the subject. In the first place, the French school of mathematicians, with its high prestige level and talent for persuasiveness, had relegated the subject to a relatively minor role and declared it to be a small branch of functional analysis, another discipline of rather low status, except perhaps in its applications to partial differential equations. A second reason is that the subject was largely regarded as a tool for probability theory and this, for a while, involved, for the most part, some of the pleasant but not especially deep or difficult aspects of measure theory. Thirdly, the representation of measure algebras consists primarily of one theorem, that a homogeneous nonatomic normal algebra is homeomorphic to the measure algebra of a product of circles, and this has an interesting but not especially difficult proof.

This is an improper assessment of measure theory. Probability theory has had an unexpectedly proliferous growth, giving more to other fields than it has taken. It is often indistinguishable from measure theory. It may suffice to note its connection with potential theory via brownian motion and more general processes, its elucidation of the behavior of orthonormal systems via martingales, and its generalization of differentiation theory.

A more serious slighting of measure theory by distinguished and influential people lay in their failure to emphasize that the deepest and perhaps most useful aspects of measure theory relate to those measures for which open sets have infinite measure. Geometric measure theory deals with measures of this sort. Recent developments, notable among which are the appearance of Federer's book, are bringing about a change in the position of measure theory described above. The subject deals with measures of lower dimensional sets imbedded in higher dimensional spaces, as well as with the evaluation and properties of integrals over appropriate lower dimensional domains. It accordingly includes such topics as the Gauss-Green theorem and Stokes' theorem, as well as matters related to the Plateau problem.