points belonging to the attracting mass are developed, and the discontinuity of the second derivatives as the point goes through a bounding surface is shown and the values of the saltus determined. Following this, like problems are taken up for surface distributions. The closing chapter of the section is devoted to proving that the properties enumerated for the potential as necessary are also sufficient, hence characteristic.

The second section considers the function for other laws than that of the inverse square of the distance. It is shown in particular that the Newtonian is the only law which gives a constant potential inside a spherical shell whose density is a function of the distance from the center. It is not however the only law for which the attraction on an external point due to the shell is equal to that of an equal mass concentrated at the center of the shell. The shape of the "solid of greatest attraction" is considered. The logarithmic potential and the potential due to a double distribution, as a Leyden jar, are each given a chapter.

The book would seem to be quite teachable. Gauss's, Green's, and Stokes's theorems are not dragged in, but show up naturally when needed to further the development. The student sees clearly all the time the drift of the development and why it proceeds as it is does. He learns how to attack such problems, but he also becomes acquainted with a class of point functions particularly useful in mathematical physics. Difficult questions of higher analysis are passed over, yet the treatment is careful and tends to inspire to further research.

JAMES BYRNIE SHAW.

Geometrie der Kräfte. By H. E. TIMERDING. Leipzig and Berlin, Teubner, 1908. 8vo. xi + 381 pages.

In this book the author has developed the geometry of forces as an independent discipline, a branch of pure mathematics. While the word force (Kraft) has been retained in preference to stroke or vector, great pains have been taken to free it from the "physiological, physical, and metaphysical" attributes which belong to it originally. A force is a matter of definition, being defined as a vector with which is associated a numerical factor. The resulting theory is then applicable to any quantity which satisfies the definition, for example to momentum quite as well as to force in the ordinary physical sense. The subject matter is not new. In different forms and