THE ANNUAL MEETING OF GERMAN MATHEMATICIANS.

THROUGH the courtesy of the secretary, Dr. H. Wiener, of the University of Halle, who kindly sent us advance sheets of the *Proceedings*, we are now enabled to give a more detailed account of the papers read before the section for mathematics and astronomy of the German *Naturforscher-Versammlung* held at Halle, September 21 to 25, 1891. The meetings of this section constitute at the same time the annual meeting of the German Mathematical Union (*Deutsche Mathematiker-Vereinigung*). The section had seven meetings; the total number of members registered as present was 70.

1. The first paper read was a report by Prof. FELIX KLEIN, of Göttingen, *On recent English investigations in mechanics.* The following abstract of this paper is translated from the *Proceedings.*

" The distinguishing characteristic of the English work in mechanics in comparison with that of continental writers lies in its being based on a thorough grasp of physical reality and in the resulting graphical lucidity (*durchgängige Anschaulichkeit*) of the investigations. For this very reason the English work in mechanics proves particularly interesting and instructive to the mathematician accustomed to a purely abstract train of reasoning. The usual lack of that methodical treatment and mathematical rigor which the continental mathematician is wont to expect cannot be regarded as a serious objection ; in fact, it adds to the interest.

Among the matters of detail discussed by the speaker, his remarks on the history of the discovery of Hamilton's method of integrating the equations of dynamics may be of general interest. The matter seems to be entirely unknown, although Hamilton distinctly states the facts at various places in his writings, in particular in his first paper on systems of rays (1824). At the time when Hamilton began writing, the emission theory was still prevalent so that the determination of a ray of light passing through any non-homogeneous (but isotropic) medium was considered as a special case of the ordinary mechanical problem as to the motion of a material particle. It may be noticed in passing that the distinction between this special case and the general problem is not an essential one : by proceeding to higher spaces, any mechanical problem may be reduced to the determination of a ray of light traversing a properly selected medium. Now *Hamilton's discovery, according to which the integration of the differential equations of dynamics is made to depend upon the integration of a certain*