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The Principles of Dynamics

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him to put in an introduction, in which mass, momentum, acceleration, absolute units and so forth are polished off in 9 pages. But the pupil's good sense may be relied upon to make him skip this, and the poundal, which is duly introduced as the unit of force at p. 6, does not make its appearance once again throughout the book.

C. S. JACKSON.

CORRESPONDENCE.

The Teaching of Geometry.

I am enclosing a copy of our report on the subject of Geometry presented to the Central Association of Science and Mathematics Teachers at Chicago, Ill., which was accepted as a preliminary report, and the committee continued for work in Solid Geometry. It is to be printed as a separate document and published for distribution. In the meantime I thought you might be interested in having a copy of it to see what we are trying to accomplish. You will see that in some respects it parallels the work done by your Committee in England for the Improvement of the Teaching of Geometry; these portions had already been decided upon and outlined when I received through you the copies of the *Gazette* dealing with the subject, and they were of great encouragement to us; until that time I was unaware that anyone had recommended the omission of incommensurable cases, and I was quite pleased to find that it had been already strongly advocated. You will notice that we quote a line from your report. At Chicago our recommendations were well received, but it is hard to tell what will be the result when they are given out to the country at large. I would be glad to have the opinion of your readers on the report, either as a whole or on particular sections in which they may be interested, and also to receive the opinions of any others who would so favor us with their criticisms or support.—Yours faithfully,

G. W. GREENWOOD.

Roanoke College, Salem, Va.

The Principles of Dynamics.

In his interesting paper on the Principles of Dynamics, Mr. Larden, while insisting that kinetic energy is meaningless except with reference to a system, appears to pass over the more obvious fact that force is meaningless except with reference to a frame. It seems to me that it is unnecessary and irrelevant to Dynamics to bring in the statical method of measuring forces; this plan is open to the further objection that it misleads a beginner as to the dynamical meaning of force. With regard to kinetic energy, I am afraid that I do not properly appreciate the difficulty which Mr. Larden has devoted so much space to clearing away. If $k.e.$ is defined as $\frac{1}{2}mv^2$, with reference to $c.m.$ of system as origin, perfectly consistent results are obtained. Considerations as to amount of heat given out appear to me to be extra-dynamical.

In connection with this subject I hope that the first writer of an elementary text-book of Dynamics which shall approach the subject logically, whoever he may be, will note the usual definition of Potential Energy, which, given as it commonly is before anything has been said about a conservative system, is totally devoid of meaning.

W. D. EVANS.

The Line at Infinity.

Mr. Hardy writes (No. 61, p. 14): "Most undergraduates seem to believe that there really are points at infinity, and that they really do lie on a line, and that if you could get there you would find that $1=0$." May I say that at least one undergraduate not only believes "that there really are points at infinity," but is prepared to defend that belief? He does not mean to assert that the reality of the points at infinity is of the same kind as that of, let us say, the *Mathematical Gazette*, but he does assert that that reality of these