the white house, whilst the tree was still almost bare of leaves. Not wishing for the noise and dirt so near the windows, I removed it, and they began another; again it was removed, and this time, though apparently little more than a flat beginning, it had eggs upon it. They tried again, and on removing it the third time I found that the birds were overlaying it on all sides with the flowers of some sweet Alyssum that was growing below; the intention being, evidently, to render it more like the background of white wall, and therefore less conspicuous.

Sidmouth. J. M. H.

Earthquakes and the Suspended Magnet.

DURING the afternoon of May 3 at Lyons, N.Y., a peculiar quivering motion of the suspended magnet was noted, especially at about 1 o'clock p.m., and a strong westward deflection continued during the afternoon. Similar phenomena have been noted repeatedly when earthquakes were in progress, in this case the shock being quite severe, and occurring at 3.8 p.m. at El Paso, Texas. M. A. VEEDER.

Lyons, N.Y., May 4

Units of Weight, Mass, and Force.

THE letter of Prof. Greenhill (NATURE, vol. xxxv. p. 486) is both timely and suggestive. Herbert Spencer's chapter on space, time, matter, motion, and force, supplemented by his chapter on the persistence of force, in "First Principles of Philosophy," gives all that can be desired by the student for a complete comprehension of the subject. One who assimilates the basic truths there so clearly given need never be perplexed by any statement found in the mechanical and mathematical text-books. It is simply impossible to use language in regard to these matters without employing expressions that are true only in a certain sense. We say that "the sun rises" and "the sun sets," and that "the heavens revolve." If these words are used to indicate the cause of the progressive shadows on a sun-dial, or the time of day, they serve a practical need as well as if they were true. But a student who should infer the constitution of the solar system from such phrases would go far astray.

When the significance of Spencer's explanation of motion is grasped, a great part of the ambiguity will have vanished. We constantly think of motion as an entity, which is a pure delusion. We also say of force that it is the cause of motion. Nothing can be more untrue. Force is the cause of change of motion only There is not a conceivable difference between rest and motion otherwise than as the expression of a relation. Whether a body be at rest or in motion depends wholly upon the body to which it is related.

When the student sees that motion is no entity, and is familiar with the process by which the conceptions of matter, force, space, and time, are built up from sensations, he will be in no danger of mistaking the sense in which certain text-book statements are to be taken, much less will he be captured by those in which the errors are unpardonable. I. LANCASTER.

Chicago, Ill., April 28.

WITH regard to Mr. Geoghegan's letter in your issue of April 7 (vol. xxxv. p. 534), my experience in teaching physics long ago led me to the same conclusions. For three years I have used in my classes in this the oldest existing University in Ontario, and with the greatest advantage, the terms *tach*, *gram-tach*, *prem*, and *dyntach* for the units of velocity, momentum, pressure-intensity, and rate of working respectively, in the C.G.S. system of units. These may be found in my "Introduction to Dynamics," which was printed last year for my junior class. *Prem* was chosen after failure to get a euphonious monosyllable from the Greek. A name for the unit of acceleration I have not found to be necessary. *Vel* seems to me to be a good word for the unit of velocity in the F.P.S. system of units, but, for fear of hanging on a sour apple-tree, I would shudder to mention *pound-vel* and *poundal-vel*. The term *squeeze* would be suitable in several respects for a *poundal per square foot*, but in mixed classes, such as we have here, it might lead to disorder.

D. H. MARSHALL.

Queen's University, Kingston, Ontario, Canada, April 27.

Remarkable Phenomenon seen on April 26, 1887.

A PHENOMENON was seen here this evening quite distinct from anything I have before observed. It was an exact copy of streams of aurora borealis rising from a low arch, but instead of being in the northern heavens it was near the south horizon. The sky was cloudless, except a long thundercloud which extended from near south-south-west to almost south-south-east, the upper portion of this cloud being about 12° above the horizon. From this cloud issued from one to three streams of conspicuous white light, the north-easterly stream being the largest and brightest, and this continued visible from 9.40 until 10.5 (the others were only seen for five minutes). The streams were at an angle of about 53°, and moved slowly easterly (the cloud moving in the same direction). The longest stream reached an altitude of 25°, and at 10 o'clock exactly (G.M.T.) the base was immediately over the Avonmouth Lighthouse. The light of the streams was more persistent and less flickering than is usually the case with aurora borealis.

There was also a confused luminosity behind the cloud, which varied considerably in brightness; this made the outline of the cloud at one time distinctly visible, and at another scarcely discernible; this also gave the clouds a black appearance. After 10 p.m. other clouds rose above the cumulo-stratus, and the streams became hid. Three hours afterwards there was a snow-storm, and the ground was white till 7 a.m. Reports from Somerset, Dorset, and Devon would be valuable.

Shirenewton Hall, near Chepstow. E. J. LOWE.

Pear-shaped Hailstones.

ARE pear-shaped hailstones as uncommon as some of your correspondents suppose?

We have had here to-day a succession of heavy showers of rain and hail together, the hailstones being small, but many of them pear-shaped, and the rest of shapes which might easily have been derived from that form by attrition or partial melting.

About half past six this evening we had a storm of hail only, heavier than any that preceded it, in which nearly or quite all the stones were pear-shaped, from a fifth to a third of an inch in diameter. B. WOODD SMITH.

Penmaenmawr, N. Wales, May 20.

P.S.—May 21. At 9.30 this morning we had another shower of hail and rain, in which the stones showed no sign of any pear-shape, but were of irregular rounded forms.

"A Junior Course of Practical Zoology."

IN the review of Messrs. Marshall and Hurst's book referred to in my friend Prof. Bourne's letter, I sought to compare that work with others devoted to the familiar type-system, to which alone the words "all other books current" were meant by me to refer, to the exclusion of general text-books such as those from which he quotes. I admit that I might have made my meaning somewhat plainer than I did, and would beg to be allowed to state that I had it in my mind, at the time of writing, to refer the reader to the impartial statements made on the subject in question by Prof. Rolleston in his "Forms of Animal Life"; the first of the series of what we are now pleased to term "type" or "junior course" books.

With respect to my critic's second objection, I would ask the readers of NATURE to judge for themselves how far the quotations which he so skilfully weaves into his letter do justice to my contention. His view is, like my own, but an expression of opinion, and time alone can show which of the two will come nearest the truth. G. B. H.

South Kensington.

Bishop's Ring.

THE letter by Prof. G. H. Stone in NATURE, vol. xxxv. p. 581, is interesting, as showing the disappearance of "Bishop's ring" in Colorado. It has not wholly disappeared here, being still plainly visible about sunset. In the middle of the day, however, I have rarely seen any trace of its red colour since May last year; but up to that time, although growing much fainter, it was still frequently plain here, and I also saw it in the south of England, both in May and June 1886, but only feebly. Since then, when there has been a slight tinge of red, it has usually