

as mapped permits ready adjustment of the observed quantities for closed areas, in accordance with the potential hypothesis, and it may even permit, to a certain degree, the testing of the accuracy of this assumption, though as regards the latter more can be said at the end of a year's work.

While it is not anticipated that any marked irregularities in the distribution of the earth's magnetism will manifest themselves over the deep waters of the Pacific, it may confidently be expected that in the neighbourhood of the islands and along the coasts distortions and irregularities will be revealed. With the aid of the results of the detailed magnetic survey of the United States and Alaska, opportunity will therefore be afforded of studying the effect of the configuration of land and water upon the distribution of the magnetic forces. The first circuit, passing as it does along the American and Asiatic coasts, will yield especially interesting results in this respect. Thus, for example, along the Aleutian Islands marked local disturbances will be disclosed. Reports are received frequently from mariners in this region regarding the unsatisfactory behaviour of the compass; it is therefore greatly to be desired that a systematic magnetic survey of the waters in this region be made.

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Recently Observed Satellites.

IN reply to Sir Oliver Lodge's letter in NATURE of January 26 (p. 295), it may be said that while it is perfectly possible that the newly discovered satellites are captured comets (see *Harvard Annals*, liii., p. 60), yet the chances against the actual occurrence of the required conditions at exactly the right times, even in one case, are exceedingly large; in two cases they are practically prohibitive.

With regard to a possible meteoric constitution, it is known that the density of the four larger satellites of Jupiter is extremely small—but little above that of water. That their discs are frequently found to be elliptical when seen under favourable conditions has now been noted by more than a dozen different astronomers. The regularly recurring changes in their ellipticity, noted by several observers, taken in connection with the small density of these bodies, can hardly be explained in any other manner than by a meteoric constitution. Such being the case, it is highly probable, as Sir Oliver Lodge suggests, that the newly discovered satellites are similarly constituted.

A reply to his further suggestion that they are now in process of dissolution is impossible in the present state of our knowledge. If formed according to the nebular hypothesis, however, as seems most probable, and if they have accordingly existed through the æons during which their primaries have been contracting to their present dimensions, it seems highly unlikely that they should not yet have reached a permanent condition.

WILLIAM H. PICKERING.

Cambridge, Mass., U.S.A., February 9.

Compulsory Greek at Cambridge.

THE proposals of the Studies and Examinations Syndicate in regard to certain changes in the Previous Examination are to be submitted to the Senate on March 3 and 4. Members of the Senate may record their votes on either of these days between 1 and 3, or between 5 and 7 p.m. The controversy has chiefly turned on the proposal to abolish compulsory Greek, and it is mainly on this question that the issue will be decided.

All the five Graces are important, but Grace II., which raises the main issue, is the most important of all.

The secretaries of the committee in support of the recommendations of the syndicate will be glad to hear from non-resident members of the Senate who have not already intimated their intention of supporting the proposed reform. It is believed that amongst resident members of the Senate a majority will vote in favour of the new scheme, but

the decision is largely in the hands of non-resident voters. As it is proposed to issue a final list of supporters shortly before March 3, it will be a convenience if additional names are sent to Mr. A. C. Seward, Emmanuel College, Cambridge, at once.

R. VERE LAURENCE,
H. RACKHAM,
A. C. SEWARD.

Cambridge, February 21.

THE experiences of Mr. Willis and others suggest that mine may be in point. Mr. Willis was behind in classics. He wasted 105½ hours on Greek and passed. His present knowledge of Greek, he adds, is *nil*.

Mathematics were my difficulty. Being destined for Cambridge, I was specially coached in mathematics at school. Arrived here I was again coached, but failed. Coached once more I passed, having wasted, not one, but several hundred hours on that study. Needless to say, my knowledge of mathematics is *nil*.

My case is that of hundreds. Why, then, are not compulsory mathematics to be reformed away? Because they can be used in trades and professions for the making of money. But the things that put one touch of art in the life of a dull boy, that open his eyes for once to another world, where "utility" does not count—they, forsooth, must be dispensed with because in the market they have no value. And, verily, they are without price.

Away from Cambridge, an intelligent lady was lately speaking to me of her nephew at the University of Birmingham. Knowing nothing of our pending "reform," she said: "He is going to be an engineer. But he has got to waste his time passing in French, and German, and English. He will never want them again in his whole course. It is absurd."

W. BATESON.

Cambridge, February 17.

Secondary Radiation.

IN a paper recently published (*Transactions Royal Dublin Society and Phil. Mag.*, February) I described some work on secondary β radiation given off by substances when exposed to β (and γ) rays from radium. The paper gave the relative intensity of this secondary radiation for only a few elements, but the results from these few indicated that the greater the atomic weight the greater was the secondary radiation.

I have since tested a large number of elements, and found this rule to hold without a single exception. The list of substances tested was a very varied one, including carbon, magnesium, aluminium, chromium, iron, nickel, copper, zinc, arsenic, selenium, molybdenum, silver, tin, antimony, tungsten, platinum, mercury, lead, and bismuth.

The secondary radiation is not proportional to the atomic weight; it increases less rapidly than the atomic weight.

This very general result appears to be of interest as bearing on the subject of radio-activity and atomic structure in general, but cannot be further discussed here.

J. A. McCLELLAND.

University College, Dublin, February 13.

Tenacity to Life of a Grass-snake.

A GRASS-SNAKE which the writer had in his possession for eighteen months has just died.

A fact which seems worthy of note is the length of time during which this snake fasted. The last time the snake fed was June 11, 1904, the meal consisting of a small frog. From that time until the date of its death, February 2, it took no food, although constantly offered it. The animal thus existed for close on eight months without food. During the whole of this time it appeared in good health, and was, at times, most animated. No approach to hibernation was observed, and only for a little more than a week before its death did the snake seem out of health. The body was not unduly thin.

E. V. WINDSOR.

Barnet, February 7.