Rariorum Scaniæ item Catalogus Plantarum Rariorum Smolandiæ" (1728), in the possession of the De Geer family (Leufsta Library); and by "Spolia Botanica" (1729), the original of which is in the possession of the Linnean Society, and is considered to have been finished towards the end of 1729. This seems, however, improbable, the date of dedication (to Prof. Roberg, one of Linnæus's teachers at Upsala) being May 5, 1729. The work is accompanied by twelve facsimile drawings of the principal representatives of the Lapland flora.

This part of the first series contains copious and explanatory notes by the late Dr. Ährling, a work which must have entailed very great labour. After his death, his editorial duties were undertaken by Dr. M. B. Swederus. The second series will be edited by Prof. G. Lindström.

First Principles of Physiography. By John Douglas. (London: Chapman and Hall, 1889.)

THE ever-increasing number of text-books on this subject is evidence that the study of physiography is gaining in popularity. The object of the book before us, as the author states in his "Prologue on the Beach," is to give a systematic statement of the nature of the forces at work in the world, and of the changes which the matter of the world undergoes. The book is obviously designed to cover the syllabus issued by the authorities at South Kensington, although no mention of this fact is made.

The first part of the book deals with force, but for some reason or other, force is not defined until p. 26, and there only in an obscure place. The author's notion of treating elementary chemical ideas is somewhat peculiar; to make statements about positive and negative elements without explaining the meanings of those terms, and to use formulæ like NH_3 and H_2SO_4 (p. 36) without naming the compounds they represent, is scarcely the way to inspire a student with confidence in his teacher.

No less than 23 pages are devoted to tables, all of more or less interest to students of physiography.

Perhaps the chief novelty of the book is the introduction of copious quotations from, and references to, standard works. Their introduction as footnotes, however, is rather objectionable, as it tends to discontinuity. A good deal of information is undoubtedly given, but the style is not such as to commend it to those who are just commencing the study of science, and these, it must be remembered, constitute the majority of those who take up the subject of physiography.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

"Engineers" *versus* "Professors and College Men."

PROF. GREENHILL is, himself, one of many proofs that the distinction between "Engineers" and "Professors and College Men" is a Cross Division. Every "Engineer" ought to be a "highly-trained College man." If he were, he would know at once, from the very first sentence of the Principia (*Quantitas materiæ est mensura ejusdem* &c., &c.) that mass is the personal property of a body, one of the invariable things in nature:—and not an accidental property dependent, for its amount and even for its very existence, on the momentary surroundings. The letter M has hitherto been used by Newtonians in this sense. If anyone has since attached to it another and different sense, *he* is responsible for the consequent confusion. Would it not be well if Prof. Greenhill, and the School to which he has attached himself, would kindly leave to Newtonians their M, as defined for them by their Master; and (with severely logical consistency) turn it upside down (thus, W) when they wish to embody their own revolutionary definition? No Newtonian will refuse to recognize $Wv^2/2g$ as a correct expression for so much energy:—though he will probably think it both clumsy and complex, and will prefer to write as usual his $Mv^2/2$.

I am curious to know how Prof. Greenhill would deal with physical Astronomy. What is his measure of the earth's mass? According to the analogy of his "*units of g pounds*" the earth's mass is at present (near perihelion) to be spoken of as if it were some 6 or 7 per cent. greater than it was six months ago!

The whole of this attempt to improve on Newton is caused by unwillingness to face, once for all, the small amount of labour and thought requisite for learning or teaching how to pass from one system of units to another. A properly taught student learns, very early in his career, that this is no awful and mysterious process:—in fact that it is, throughout, quite as simple in principle as is the passing from miles per hour to feet per second.

And I venture to assert that such a student would attack with ease and confidence any *fair* question (*i.e.* one free from mere tricks or traps) connected with the subject. This one, for intance:—

"How many of the following quantities (taken in order) can, by selection of the requisite system of units, be simultaneously expressed by one and the same *number*. *First*, when that number is given? *second*, when it is not?

(*a*) The weight of a ton, at sea-level, at the equator.

(*b*) The speed of light *in vacuo*.

(*c*) The average kinetic energy of a particle of hydrogen at 0° C.

(*d*) The minimum compressibility of water at low pressures.

(*e*) The mean angular velocity of the earth about the sun.

Express the requisite units in C.G.S. measure, when the common numerical value, above mentioned, is $\log_e \pi$; and also when it is not assigned."

Of course it is understood, and this is my answer to Prof. Greenhill's first question, that *the student would be furnished with all the necessary data*, experimental or otherwise, expressed in definite *assigned* units.

In answer to Prof. Greenhill's second question I need only say that it is no part of my case to assert that all statements, made by "College men," are *necessarily* characterized by definiteness, by accuracy, or even by common-sense.

December 21, 1888. P. G. TAIT.

The Sun-spot Cycle.

IT may interest some of the readers of NATURE to learn that an expected change has just been observed upon the solar surface.

It is a well-established fact that in each new series of sun-spots the first spots of the cycle are seen in high solar latitudes, and that as the number of spots increases there is a common drift towards the sun's equator, the spot area becoming most extensive as the sixteenth parallel of heliographic latitude is reached. During late years the spots have been diminishing in number and size, and approaching the solar equator; and in the past twelve months very few spots have been seen on the sun's surface, and all in low latitudes, that recorded on December 21 being 4° south of the solar equator. The close of the year has, however, witnessed a change, as a small spot is recorded on the Stonyhurst drawing of December 30 at 36° south latitude. Spots near the equator will probably continue to be observed for some time, but, whilst they are diminishing, those in higher latitudes will be on the increase. S. J. PERRY.

Stonyhurst Observatory, Lancashire, December 31, 1888.

"Renaissance of British Mineralogy."

MR. FLETCHER'S admirable address on a "Renaissance of British Mineralogy," of which a report was published in a recent issue of your paper, calls timely attention to the present condition of the science. Mineralogy as a popular study seems dead: the chemists have deserted it for a study of complex organic compounds, so that it has become a mere hanger-on of geology. The science is now not thoroughly taught in any institution in this country, and teachers therefore have no means of acquiring knowledge, in the only really useful way, by working under the acknowledged masters. This is especially the case with