Letters to the Editor.

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The Stature of the Scottish People.

ON the data published in the "Final Report of the Anthropometric Committee" of the British Association (1883), the Scottish people have been regarded as being considerably taller than any other British nationality. The following letter from Dr. Aleš Hrdlička, of the United States National Museum, Washington, D.C., shows that, through an error in computation, the Scots have had nearly two-thirds of an inch added to their real stature.

"In preparing my report on the 'Stature of the Old Americans' I had occasion to look up, among other things, the principal records of that nature on the Scotch people. I found quite a number of these and they all showed fairly harmonious results, with one exception. This was the record on the Scotchmen in the 'Final Report of the Anthropometric Committee' of the B.A.A.S., 1883, p. 256. This record gave results that were so much higher than any others that I was finally led to a re-computation of the series. Taking the number of persons measured and the record in inches, in which the measurements were originally recorded, I found to my surprise a different and a very perceptibly lower average. The averages given in the Report were 68·71 in. or 174·6 cm., while I obtained 68·1 in. or 172·97 cm.

"I should be thankful to you if you would bring this matter to the attention of the members of the Anthropological Institute, and have it looked into; and if it should be found that an error has been made, then I think it would be advisable for some one to publish a little note on the subject, for the figures of the Anthropometric Committee have been widely utilised (see Deniker, Martin, etc.)."

I have not checked Dr. Hrdlička's estimates, but I have no doubt that they are right. The average stature of the four British nationalities thus amended reads: Scottish, 172·9 cm.; Irish, 172·6 cm.; English, 171·2 cm.; Welsh, 169·4 cm.

ARTHUR KEITH.

Advanced Mathematical Study and Research at Cambridge.

IT has been suggested to me that attention might well be directed through the columns of NATURE to a point in the regulations of the University of Cambridge which prevents many graduates of other universities taking advantage of the opportunities Cambridge offers for advanced mathematical study.

In most universities other than Cambridge our best students of mathematics now usually read for a degree in science. They have passed an entrance examination of a standard far higher, I need scarcely say, than that of the Previous Examination. But neither in their entrance examination nor in their course need they have taken Latin or Greek. They are thus cut off from the privileges of affiliation, which include exemption from the Previous Examination and permission to take their degree on Part II. of the Tripos after a residence of two years.

It is true that graduates of other universities may proceed to the degrees of M.Sc. and Ph.D. at Cambridge by research, without any questions being asked as to the nature of their entrance examination. But in my opinion, at least, few of the graduates of the Scotch universities, the newer English universities, and the universities of the Dominions are ready to devote themselves to research in mathematics immediately after graduation. What they want at that stage is just such advanced instruction as Cambridge now offers in the subjects of Schedule B of Part II. of the Tripos. They should be able to take the Part II. examination easily after six terms. Before the end of that time they may have begun some research. But the man who wishes to become a professional mathematician should continue research work for at least two years after taking Part II. Some of the time would be spent at Cambridge; and one or other of the great schools of mathematics at Paris, Rome, Berlin, or Göttingen should certainly be visited.

Oxford admits to the status of Senior Student any person who has obtained a degree at an approved university after a three-year course, the degree also having been approved by the Hebdomadal Council. If Cambridge would modify its regulations for admission to the privileges of affiliation so that our best graduates in mathematics could take the Cambridge B.A. on Part II. after six terms, I believe its school of mathematics would receive a larger number of brilliant scholars, and there would be more of our mathematicians at home and abroad engaged in research.

H. S. CARSLAW.

The University, Sydney, May 1.

Condition of Electrolytes in the Blood.

ARE the salts present in the blood ionised to an equal extent as similar concentrations of these salts in aqueous solution? Are the ions absorbed by the protein? These are questions that have been attracting the attention of physiologists and biological chemists. Investigators have attempted to answer these questions principally by two methods—compensatory dialysis of the serum (Rona, Michealis, and their co-workers) or filtration with pressure (Starling, Cushny, Richter-Quittner).

It seemed worth while to determine the concentrations of other ions by electromotive force measurements, as is done in the case of the hydrogen ion. Accordingly, a 0·2 per cent. sodium amalgam that is but slowly decomposed was used as a sodium electrode. After measuring the E.M.F. of this electrode against known concentrations of sodium chloride of known degree of ionisation, the normal potential of this amalgam electrode was obtained. The E.M.F. of samples of serum and plasma were then measured. When from these readings the total concentrations of Na present were recalculated on the basis that the degree of ionisation of the sodium salts was the same as in an aqueous solution, the calculated Na concentration and that found by analysis were in very good agreement. For example in two samples the calculated values of sodium were 3·51 and 3·67 grams; the values found were 3·46 and 3·65 grams per litre. Thus the conclusions of the aforementioned workers that Na is not bound in the serum, because it can be dialysed and filtered *in toto*, has been confirmed.

To determine the concentration of Cl-ions, an Ag/AgCl electrode was used. By calculations similar to those outlined in the case of sodium, it was found that the quantities of Cl present calculated from E.M.F. measurements of serum and plasma, on the assumption that we were dealing with an aqueous