LETTERS TO THE EDITOR.

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Collateral Heredity Measurements in Schools.

As a result of the appeal, made in NATURE last June, for aid in the measurement of pairs of brothers and sisters, I have received friendly help from a number of masters and mistresses up and down the country. I think I have received between 400 and 500 data forms properly filled in. Considerable as this assistance has been, I would still beg for further aid, as I want the collection to reach, if possible, 1000 pairs for each fraternal relationship. I have at the present time several head-spanners free, and shall only be too glad to send one to any teacher who will undertake the necessary observations on six to ten pairs of brothers or sisters. As I said in my former letter, the determination of the intensity of hereditary resemblance is a very important matter, and it can, at any rate in the case of man, only be achieved by co-operative effort on the part of those interested in science. KARL PEARSON.

University College, London, October 9.

The White Rhinoceros on the Upper Nile.

IT may interest your readers to learn that during his recent notable traverse of Africa from South to North, Major A. St. Hill Gibbons shot on the Upper Nile, near Lado, a rhinoceros which he considered to be the white or square-mouthed rhinoceros (*R. simus*), hitherto only known from south of the Zambesi, and now, unhappily, nearly extinct there. His determination is fully borne out by the skull, which I have had the pleasure of examining, and which shows all the many characters that distinguish *R. simus* from the common species, *R. bicornis*.

That a rhinoceros of this group existed in Central Africa has been suspected before. Dr. Gregory in " The Great Rift Valley," mentions having seen in Leikipia, but failed to shoot, three specimens which he believed to be *R. simus*. Some years earlier Count Teleki shot a " White Rhinoceros " in the same district, but his account has more reference to the colour than to the specific determination of the animal, and his specimen may only have been a pale-coloured *R. bicornis*.

Now, however, Major Gibbons has fortunately set the matter at rest, as there can be no question that his animal is not *R. bicornis*, but belongs to the rarer southern form, hitherto supposed to be practically extinct.

The discovery of this animal in the Nile watershed brings it geographically nearer to its European and Siberian ally, the Pleistocene *R. antiquitatis*, both species being in turn, no doubt, offshoots of the Pliocene *R. platyrhinus* of the Siwaliks.

Natural History Museum, OLDFIELD THOMAS.
October 12.

P.S.—This find has an interesting parallel in Mr. W. Penrice's discovery in Angola of a zebra allied to the true Cape Zebra (*Equus zebra*), now also nearly extinct there. But in that case the species proves different by its shorter hair, and much broader white striping, and has been named *Equus penricei*.

Disease of Birch Trees in Epping Forest and Elsewhere.

IN Epping Forest, and in other districts around London, birch trees have been attacked during the late summer by a disease which causes them to die very rapidly. In a portion of the Forest known as Lord's Bushes, thirteen diseased and twenty-four completely dead trees were noted on June 10 within an area of about one and half acres.

A few were attacked in the Forest in the summer of 1899, but it was not till this year that the disease appeared in such a destructive form. On Chiselhurst Common, Hayes Common and Keston Common no signs of the disease were evident in the early summer, but now dead or diseased trees may be found in great numbers. Trees attacked in a similar manner occur at Walton-on-Thames, by the canal between Weybridge and Woking, at Lewisham and at Westerham.

The disease is probably due to a micro fungus, *Melanconis stilbostoma*, Tul., for it appears on the branches of both living and dead trees. The diagnosis of the disease is almost precisely that of *Valsa oxystoma*, described as the destroyer of *Alnus viridis* in some parts of the Tyrol.

It would be interesting to know if any of your readers have observed the disease in the Midlands or in the north of England.
ROBT. PAULSON.
10, Denholme Road, Maida Hill, October 8.

Sunspots and Frost.

IN the study of winter cold, we find, I think, some striking contrasts associated with different parts of the sunspot-curve. These contrasts, whether they are really due to sunspot variations or no, seem worthy of attention as a practical matter, and an occasion for observing whether such relations are maintained in future.

Taking the Greenwich records since 1841, let us see how many frost days there were in each three-year group following the sunspot maxima 1848, 1860, 1870, 1883 and 1893 ; and how those sums are related to the average (which is 164 in three years). The following table shows this :—

Three-year groups		a Frost days		Relation to average
1849–51	...	147	...	− 17
1861–63	..	118	...	− 46
1871–73	...	131	...	− 33
1884–86	...	160	...	− 4
1894–96	...	133	...	− 31
		689		− 131

Thus, each of those three-year groups was mild, in respect of frost days, and there was a total deficiency of 131 days.

Now, let us do the same with the three-year groups following the minima, 1843, 1856, 1867, 1878, 1889 :—

Three-year groups		b Frost days		Relation to average		c $b-a$
1844–46	...	166	...	+ 2	...	+ 19
1857–59	...	180	...	+ 16	...	+ 62
1868–70	...	170	...	+ 6	...	+ 39
1879–81	...	210	...	+ 46	...	+ 50
1890–92	...	201	...	+ 37	..	+ 68
		927		+ 107		+ 238

In this case, each three-year group is over average, and the total excess is 107 days. The added column ($b - a$) shows that the three-year groups after minima had altogether 238 frost days more than the groups after maxima, giving an average of 47·6 for each pair of groups compared.

If we group together the fourth, fifth, sixth and seventh years after maxima (*i.e.* '52–55, '64–67, '74–77 and '87–90), and count the frost days in those four-year groups, we find that the latter share the character of the three-year groups after minima, each having an excess of frost days over the (four-year) average. We are now in the last year of another of these groups (viz. 1897–1900).

Analysing those mild three-year groups after maxima, we find out of a total of fifteen years only four with more than the average of frost days, and only one group (1884–86) in which two of the three years had an excess.

It occurred to me to examine what kind of summers we had in those mild groups, and the following curious table was arrived at :—

		M.T. Summers.		Relation to average.
1849–51	...	61·2	...	av.
1861–63	...	60·4	...	− ·8
1871–73	...	61·7	...	+ ·5
1884–86	...	61·2	...	av.
1894–96	...	61·6	...	+ ·4

Thus, the divergence from the average never gets beyond a decimal value. Analysing, one finds only three of those fifteen summers in which the divergence gets beyond a decimal value (viz. − 2·4, − 1·1 and + 1·4). The summers of three-year groups after minima might be shown to have a distinctly opposite character. But I do not lay stress on this.
ALEX. B. MACDOWALL.

Simple Experiments on Phosphorescence.

IN consequence of reading your note in NATURE of September 27, on M. Gustave le Bon's paper on various forms of phosphorescence, the following experiments were tried. A surface, previously dark, of the sulphide of calcium, was exposed to the