

Horticultural Society. This cross was between *S. multiflorus* (female) and several colour forms of the "Cultivated Cineraria," embodying certainly two distinct species. No direct evidence on origin has been in this particular experiment obtained, or expected, but the predominating influence of the "Cultivated Cineraria" in this and also in the reverse cross, upon the colour and size of the flower-heads, appears to suggest, I think, a possible predominance of one species over another, in other cases. The crosses to which I have referred, taken together, sufficiently demonstrate an extreme readiness to cross, since every one of the thirteen attempts has resulted in a numerous hybrid progeny, while not one of the several hundreds of plants raised has failed of being a hybrid. The only care taken was to exclude insects, which might have brought pollen from another plant, by means of muslin, and no attention was paid to the pollen produced within the muslin bags. This pollen, on the evidence of nearly five hundred plants, had no effect. From the facility with which these plants cross under cultivation—even the woody *S. Heritieri* with the completely herbaceous kinds—it is likely that they cross also in a state of nature, whenever the opportunity occurs. It would be interesting, therefore, to have information of the relative distribution of the kinds, and to know of all variations. There is no doubt a large field and good motive for exploration in the Canaries, and I should be exceedingly thankful for any seeds or plants that may be sent me.

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R. IRWIN LYNCH.

Prichard and Acquired Characters.

PROF. MELDOLA, in his suggestive address to the Entomological Society on January 20, very rightly puts Prichard before Galton and Weismann in the list of those who have formulated the theory that acquired characters are not inherited by offspring. Some years ago, when Platt Ball's interesting little book was published on the question, "Are the Effects of Use and Disuse Inherited?" I was struck by the careful way in which the author pointed out how "so sound and cautious an observer as Francis Galton had also [*i.e.* as well as Weismann], in 1875, concluded that 'acquired modifications are barely, if at all, *inherited* in the correct sense of that word.'" At the same time my memory went back to some allusions I had seen in an old book (Coombe's "Constitution of Man," Edinburgh, 1836, a copy of which I had recently bought at a marine store dealer's for one halfpenny) to the theories of Dr. Prichard. I subsequently looked up the references and made some notes, which have until now been pigeon-holed. I quote three passages and a note as bearing on the question, Who first pointed out that acquired characters are not inherited? ("Researches into the Physical History of Mankind," vol. ii. p. 536, by James Cowles Prichard, M.D., F.R.S.)

"It has often been a question among physiological writers what peculiarities of structure are liable to be transmitted by parents to their offspring, and what terminate with the individual, without affecting the race. Perhaps the following remarks may afford the solution of this difficulty:—

"It appears to be a general fact that all connate varieties of structure or peculiarities which are congenital, or which form a part of the natural constitution, impressed on an individual from his birth, or rather from the commencement of his organisation, whether they happen to descend to him from a long inheritance or to spring up for the first time in his own person, are apt to reappear in his offspring. It may be said, in other words, that the organisation of the offspring is always modelled according to the type of the original structure of the parent.

"On the other hand, changes produced by external causes in the appearance or constitution of the individual are temporary, and, in general, acquired characters are transient; they terminate with the individual, and have no influence on the progeny.¹ [The italics are mine.]

Dr. Prichard has very properly mentioned the source of his ideas, and it is to be hoped that we also may give credit where credit is due.

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Chelmsford, January 27.

I AM very glad that Mr. Webb has also directed attention to Dr. Prichard's share in the establishment of the doctrine of the

¹ This distinction, which has not been pointed out by any former writer on physiological subjects, was first suggested to me in conversation, many years ago, by Mr. Benjamin Grainger, of Derby."

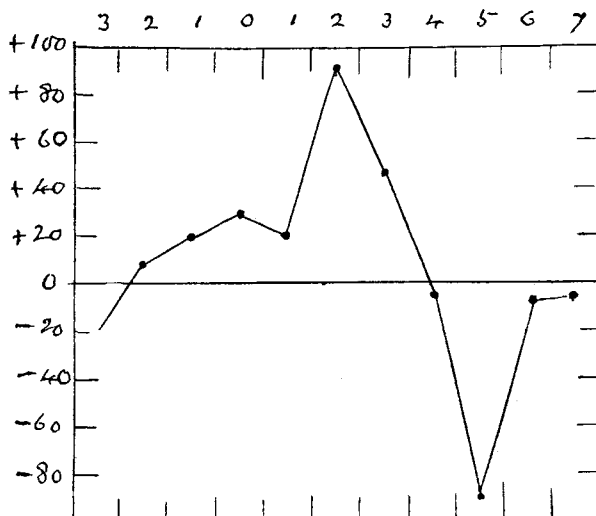
non-transmissibility of acquired characters. I should like to add that my attention was first called to the work in question (2nd edition, 1826) by my father-in-law, Dr. Maurice Davis. Prof. Poulton has taken the subject in hand, and is preparing an article on the whole question.

R. MELDOLA.

Rainfall in the Lake District.

THE recent publication, in Mr. Symons' *British Rainfall* for 1895, of fifty years' data of rainfall at Seathwaite (1845-94), affords an opportunity of studying the climate of this very wet district in relation to the vexed question of sunspot influence on weather.

The following might, perhaps, be offered for criticism. Consider each maximum sunspot year, three years before it, and seven after it. (The intervals from maximum to minimum, it is known, are generally longer than those from minimum to



maximum.) Indicate the character of each year with a + or - sign, according as it is above or below the average (137 in.). We may further give the algebraic sums of each vertical group, and of certain horizontal groups (*a* to *b*) as shown; and plot in a

Sunsp.	3	2	1	0	1	2	3	4	5	6	7	Sums
Max.	+	+	+	+	+	+	+	+	+	+	+	+ 14
1848	+	+	+	+	+	+	+	+	+	+	+	+ 133
1860	-	+	+	+	-	+	+	+	-	-	+	+ 29
1870	-	+	+	+	-	+	+	-	-	-	+	+ 27
1883	-	-	+	+	+	+	-	-	-	-	+	+ 5
1893	+	+	-	+	+	-	-	-	-	-	-	-
	-21	+9	+20	+30	+20	+92	+46	-5	-88	-6	-5	

curve the values for the vertical groups. (Should any objection be taken to comparing vertical groups of four members with those of five, I may say that exclusion of the lowest row of values (1893 group) does not materially alter the result.)

These latter values we find rising (with one slight break) to a maximum in the second year after the sunspot maximum, then sinking rapidly to a minimum in the fifth year, and continuing under average in the two following years.

It will be noted that in the enclosed groups *a* to *b*, the + signs largely preponderate (16 + to 7 -); that they preponderate in each horizontal group, and in each vertical group but one; and that the sums of all those groups have + signs.

A. B. M.

The Epistemology of Natural Science and Mr. Karl Pearson.

ONLY a few days ago I happened to see the review of my "Erkenntnistheoretische Grundzüge der Naturwissenschaften" (Leipzig, 1896) in *NATURE* of November 5, 1896. I too highly esteem English science and literature to follow Mr. Karl Pearson in the department of his "familiar ideas"; I shall confine myself to showing how little my reviewer has succeeded in rendering my views (see p. 3).