

not authority the arbiter in cases of doubt, are the conclusions which the author inculcates throughout.

A century ago it was considered a fundamental principle that venesection was essential in most, if not all, serious illnesses; and, to such an extent was this carried, that 200 ounces of blood were sometimes drawn off during a week, and even half that amount in 24 hours. Next came a reaction, and the theory that fever patients required stimulation, rather than venesection, led to the administration of enormous quantities of alcohol, especially at the hands of Dr. Todd, who at times administered more than four gallons of brandy to young girls during an illness. Finally, to Dr. Gairdner himself is due much of the credit of the modern treatment; for in 1864 he showed that in fevers, especially typhus, the mortality is far less when the patients are supported with milk and not with alcohol. Quackery and humbug meet with but little mercy at the author's hands, and the hollowness of the pretensions of homœopathy is well brought out in an essay contributed thirty years ago, which is reprinted in this collection.

The volume should meet with a large circle of readers outside the medical profession, as it is eminently readable and touches upon many points in the past history of medicine as well as in modern practice, which are of interest to all.

Materials for a Flora of the Malayan Peninsula. Part I. By Dr. George King, F.R.S., Calcutta. Pp. 50. (Reprinted from the *Journal of the Asiatic Society of Bengal*, 1889, No. 4.)

SIR J. D. HOOKER'S "Flora of British India," of which five volumes out of seven are now printed, marks an era in tropical botany, inasmuch as it will probably contain descriptions, with their synonymy, of half the tropical plants of the Old World. It furnishes, therefore, a broad platform for his successors to build upon. It is not likely that within the bounds of India proper many new plants still remain to be described; but it is not so in the wonderfully rich flora of the Malay peninsula. During the last ten years large collections have been accumulated at Calcutta from this region, gathered mainly by Scortechini and other collectors who have been sent out by the authorities of the Calcutta Botanic Garden. In the present pamphlet, which is reprinted from the *Journal of the Asiatic Society of Bengal*, Dr. King, the Director of the Calcutta Garden, begins a synopsis of the plants which are indigenous to the British provinces of the Malay peninsula, including the islands of Singapore, Penang, and the Nicobar and Andaman groups.

In this present paper he deals with the orders Ranunculaceæ, Dilleniaceæ, Magnoliaceæ, Menispermaceæ, Nymphæaceæ, Capparidææ, and Violaceæ, leaving over the intricate and largely represented order Anonaceæ for another time. In these seven orders there are 35 Malayan genera and 90 species, of which 32 are here described for the first time. Amongst the novelties are included a *Magnolia*, a *Manglietia*, 3 *Talaumas*, an *Illicium*, 4 species of *Capparis*, and no less than 11 new *Alsodeias*. Besides the species here described for the first time, there are several others, known previously in Java and China, which are new to British India. It will be seen that the work will add materially to our knowledge of Indian plants, and it is to be hoped that Dr. King, in the midst of his multifarious official duties, may be able to go on with it quickly and steadily. It is hardly worth while, we think, in a series of papers of this kind, to take up space and time by recapitulating in detail the characters of the orders and genera, as, from the nature of the case, it is essentially a supplement to Hooker's "Flora of British India," in which they are already fully worked out.

J. G. B.

LETTERS TO THE EDITOR.

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Panmixia.

SEEING that the whole structure of Prof. Weismann's theory is founded—both logically and historically—upon the doctrine of "panmixia," and seeing that in some important respects his statement of the doctrine appears to me demonstrably erroneous, I propose to supply a paper on the subject.

It will be remembered that the principal evidence on which Mr. Darwin relied to prove the inheritance of acquired characters was that which he derived from the apparently inherited effects of use and disuse—especially as regards the bones of our domesticated animals when compared with the corresponding bones of ancestral stocks in a state of nature. Now, in all his investigations regarding this matter, the increase or decrease of a part was estimated, not by directly comparing, say, the wing bones of a domesticated duck with the wing-bones of a wild duck, but by comparing the *ratio* between the wing and leg bones of a tame duck with the *ratio* between the wing and leg bones of a wild duck. Consequently, if there be any reason to doubt the supposition that a really inherited diminution of a part thus estimated is due to the inherited effects of diminished use, such a doubt will also require to extend to the evidence of a really inherited augmentation of a part being due to the inherited effects of augmented use. Now, there is the gravest possible doubt lying against the supposition that any really inherited decrease is due to the inherited effects of disuse. For it may be—and, at any rate to a large extent, must be—due to another principle which it is remarkably strange that Mr. Darwin should have overlooked. This is the principle of what Prof. Weismann has called panmixia. If any structure which was originally built up by natural selection on account of its use, ceases any longer to be of so much use, in whatever degree it so ceases to be of use, in that degree will the premium before set upon it by natural selection be withdrawn. And the consequence of this withdrawal of selection as regards that particular part will be to allow the part in a corresponding measure to degenerate through successive generations. Weismann calls this principle panmixia, because, by such withdrawal of natural selection from any particular part, promiscuous breeding ensues with regard to that part. And it is easy to see that this principle must be one of great importance in nature, inasmuch as it must necessarily come into operation in all cases where a structure or an instinct has ceased to be useful. It is likewise easy to see that its effects—viz. of inducing degeneration—must be precisely the same as those which were attributed by Mr. Darwin to the inherited effects of disuse; and, therefore, that most of the evidence on which he relied to prove the inherited effects both of use and of disuse is vitiated by the fact that the idea of panmixia never happened to occur to him. In this connection, however, it requires to be stated that the idea first of all occurred to myself, unfortunately just after the appearance of his last edition of the "Origin of Species." I then published in these columns a somewhat detailed exposition of the subject (see NATURE, vol. ix. pp. 361, 440, vol. x. p. 164). I called the principle the cessation of selection—which still seems to me a better, because a more descriptive, term than panmixia—and at first it appeared to me, as it now appears to Weismann, entirely to supersede the necessity of supposing that the effects of use and of disuse are ever inherited in any degree at all. Thus it obviously raised the whole question touching the admissibility of the Lamarckian principles in any case, or the question which is now being so much discussed concerning the possible inheritance of acquired as distinguished from congenital characters. But Mr. Darwin satisfied me that this larger question could not be raised. That is to say, although he fully accepted the principle of panmixia, and as fully acknowledged its obvious importance, he left no doubt in my mind that there was independent evidence for the transmission of acquired characters sufficient in amount to leave the general structure of his previous theory unaffected by what he nevertheless recognized as a necessarily additional factor in it. And forasmuch as no further facts bearing upon the subject have been forthcoming since that time, I see no reason to change the judgment that was then formed.