

## LETTERS TO THE EDITOR.

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## The Utility of Specific Characters.

PROF. LANKESTER (p. 245) has alluded to the dark pigment in the skin of tropical man as "conceivably . . . not in itself a useful, that is, a life-preserving or progeny-ensuring character, but merely the accompaniment of a power of resisting malarial germs . . ." residing in the leucocytes. This hypothetical case, used by Prof. Lankester for illustrating his argument, has been seriously entered upon by Mr. Thiselton-Dyer (p. 293), with the conclusion that "it does not follow that epidermal pigment is useless because one explanation of it seems to fail."

I beg permission to call attention to a paper in NATURE, vol. xxx. p. 401, by Surgeon-Major N. Alcock, "Why tropical man is black," which paper has seemed to me of great importance from the time I read it. Ingenious considerations, together with quotations from various authorities, led Mr. Alcock to the opinion, that the dark pigment of tropical man's skin does serve as a protection against the rays of light. Whereas "... pigment placed behind a transparent nerve will exalt its vibrations to the highest pitch"—viz. in the eye—"... the pigment in front of the endangered nerve reduces its vibrations by so much as the interrupted light would have excited, a quantity which . . . would, when multiplied by the whole area of body-surface, represent a total of nervous action that if continued would soon exhaust the individual and degrade the species."

In this way, the blackness of the negro which, as regards heat alone, must appear far from protective, will act as a screen against "the twin stimulant of life," light. "May it not, therefore, be claimed that there is much foundation for the suggestion that the black skin of the negro is but the smoked glass through which alone his wide-spread sentient nerve-endings could be enabled to regard the sun?"

There is no lack of evidence in support of this view. I will confine myself to mentioning a letter by Mr. Flinders Petrie (NATURE, vol. xxxiv. p. 76).

Perhaps I may remind the leaders in the old strife about the utility of specific characters, of the remarkable statements in "Descent of Man" (second edition, p. 61), commenting on the important conceptions which, in the fifth edition of the "Origin of Species," Darwin has made to the views of Nägeli and others, concerning "... the existence of structures, which, as far as we can at present judge, are neither beneficial nor injurious . . ."

DAVID WETTERHAN.

Freiburg, Badenia, August 1.

## The Position of Science at Oxford.

IN the correspondence which your recent interesting article on this subject has evoked, the writers have mainly applied their criticism to particular aspects of the general argument raised. This is natural, for they have, scarcely without exception, been professionally interested in the teaching and progress of science, and their letters seem to show that an impression exists that there is a cause for blame in the matter, but that there is an uncertainty at whose door this blame should be laid. May I briefly examine the complaints which your original anonymous correspondent brought against the University authorities, and the present system in vogue at Oxford.

The first complaint has reference to the allotment of college scholarships to science. The argument may be admitted that strict justice demands that fifty-five scientific scholarships should be given; that only forty-four science scholars were last year in residence is incorrect. There were at least half-a-dozen men, receiving the emoluments of a nominally mathematical scholarship, who were preparing to take physics as a second school. Then, again, Christ Church annually gives an exhibition of the value of £85. If this be reckoned as equivalent to a scholarship, as in common fairness it should be reckoned, it is perfectly evident that it is not desirable to offer more scholarships in natural science until the school becomes larger, or the competition more severe than is at present the case. It is not unimportant to point out that an examination of the Natural Science Class Lists would show that some of the holders of these emoluments have not justified their selection.

The second part of the indictment against the college autho-

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rities is concerned with the appointment (or non-appointment) of science tutors. And in this matter your article is calculated to give a wrong impression, for it should be clearly understood that the college can exercise no compulsory power in choosing a course of study for any commoner. That commoner only can be influenced in this way, who starts his university career with no preference for a particular school, and it is inconceivable that such an one can ever really adorn any branch of study. But the man who knows what he wants to do, will find that he can get all the assistance he requires from his college lecturer, and that he is in no way worse off because the latter is not on the tutorial staff.

Your article contains a comparison between the conditions which obtain at Oxford and Cambridge respectively, much to the disadvantage of the former, and three reasons are given for the fact. First, at Cambridge scholarships are given to men of one year's standing; but if a man has failed to win a scholarship before his second term, it is not easy to see how he will qualify for one after a year's work. The fact that there is no lack of candidates of sufficient merit at Cambridge, is beyond a doubt largely accounted for by the fact that the scholarships are in many cases of smaller monetary value, and a lower standard is consequently expected. Secondly, a greater prestige attaches to the science school at Cambridge; and this is probably the greatest hindrance to an increase in the science school at Oxford. Time alone, by removing this ignorance and prejudice, can overcome the popular idea that science teaching is better, and, it might be added, cheaper in one university than in the other. At any rate, it cannot be said that Oxford collectively has not done her best to remove any inferiority she may have had in the past. The third argument is that the ranks of Oxford undergraduates are mainly recruited from the public schools, that science teaching in public schools is bad, and that the university is responsible. In fact, the essential argument of the article, and the only one that can possibly stand the test of criticism, is that the examination known as "responsions" urgently needs alteration, both in the direction of excluding the compulsory Greek test, and including an examination in the elements of natural science. Such an alteration, it is contended, would improve the science teaching, and it is the duty of the university to effect this reform.

The question of the Greek test is not new, and it cannot be denied that it has been considered and discussed with the utmost deliberation by those who have decided in favour of its retention. It is idle, in the face of facts, to throw a doubt on the sincerity of the University's good will towards science: it is equally impossible to deny, and it is admitted in your article, that the university is perfectly right to demand of its alumni a preliminary "fair general education"; at the same time, it would be difficult to name a body better qualified to decide what is a good general education than Convocation itself. The writer of your article appears to think that the dons—especially the younger dons—are foolish, childish, narrow-minded persons, absolutely ignorant of science and modern languages. This is, fortunately, far from true, and their deliberately expressed opinion, on a point of the greatest importance in public education, is assuredly entitled to some respect. Your correspondent complains that the knowledge of Greek demanded is too small to serve any useful purpose, and some of us may wish that the standard should be raised; but this complaint applies far more aptly to Cambridge than to Oxford. After all, a knowledge of Greek is insisted on because it is the most beautiful, the most expressive language ever written, and it contains the finest literature. A boy may forget how to conjugate a Greek verb (the sneer is rather hackneyed), but the reading of a Greek play, perhaps the most perfect form of literature the artist could use, will still have left a permanent effect on the mind of any one who is capable of culture. Besides, since a proper equivalent for Greek, even if a substitute be possible, will require as much time and as much application in its preparation, it is difficult to see in what way this alternative subject—be it German or any other—will prove more suitable, more convenient, or more congenial.

The question remains of making a knowledge of the elements of natural science compulsory in responsions, for compulsory it must be, if it is to change the existing state of things. The occasion for making this proposal is certainly unfortunate, for it evidently appears to be made not so much as an abstract suggestion for the improvement of education in general, as a scheme for the express purpose of improving the scientific teaching in schools. That it would have even this latter effect is open to

doubt, for mathematical teaching is almost as bad as scientific, although mathematics is compulsory in responsions. But it is clear enough that the proposal can only be defended on the former ground, for it would be preposterous to impose a useless burden on ninety-five per cent. of undergraduates, in order to raise the standard of a particular five per cent. Now, independently of the fact that the "elements of natural science" is a phrase very vague and difficult to define, it may be fairly urged that these "elements" consist of a series of interesting and important facts, of which, however, the connection and interaction is by no means apparent without a fairly comprehensive knowledge. It would be perfectly useless to have a knowledge of natural laws, when the idea of "law" is, in itself, entirely imperfect, as Helmholtz has held it to be in the unmathematical mind. A knowledge of science may be desirable, but equally so is a knowledge of history, or of English law. But if it be expedient to enlarge the scope of responsions in any way, it is abundantly clear that deeper, instead of wider, knowledge should be required: for example, the standard of mathematics might with good reason, perhaps, be raised.

One more remark seems needed in reply to your article. In attributing to the Greeks a true scientific spirit, your correspondent shows a strange and radical misconception of the tendency of Greek philosophic thought. The Hellenic spirit always inclined to speculative and metaphysical, as opposed to experimental philosophy, and Aristotle probably did more to retard our knowledge of natural science than any ten men have ever done to advance it.

The science school at Oxford may, and it is to be hoped will gradually improve, both in size and in quality; especially is there room for hope in the case of the medical school, though it is sadly handicapped by the absence of those opportunities for practical teaching which only a great hospital, situated in a crowded city, can afford. But it is useless to hope that the whole natural science school will ever become very large, so long as the tendency towards devolution and decentralisation in university (which ought to mean the highest) education continues. The principle of centralisation of educational forces, the enormous importance of which seems nowadays to be so lamentably lost sight of, possesses an especial validity in the case of scientific education. If this principle be neglected, it is our own fault if we find, on the one hand, a teaching staff of the highest order without pupils to instruct, and admirably equipped museums and laboratories standing practically idle and in abeyance; and, on the other hand, the best teachers so scattered up and down the country as to hinder the receptive student from gaining the advantages he would otherwise reap from their combined and systematised tuition.

W. E. P.

Liverpool, August 3.

### The Mandrake.

IN an anonymous work in Chinese, "Tiau-sieh-lui-pien" (1), nine plants are named as frequently to assume the human or animal figures, viz. cypress, Nan-tree,<sup>1</sup> turnip, mustard, citron, *Pachyma cocos*, *Lycium chinense*, *Phytolacca acinosa*, and *Panax Ginseng*.<sup>2</sup>

Of these nine, doubtless the Ginseng is the plant most celebrated for its medicinal virtues imaginarily connected with its anthropomorphous root (2); but as far as the multiplicity is in question of the legends talked of analogous to the mandrake-stories, certainly the Shang-luh (*Phytolacca acinosa*) is the most notorious one.

Under the heading at the beginning of this letter, I wrote to NATURE (vol. li. p. 608, April 25, 1895) a note on the analogies between the mandrake- and the Shang-luh-lore, pointing out the two instances, viz.:

(1) The roots of the two plants are said to have human shape.

(2) Both plants are said to have the power of shrieking.

Continuing in the research from that point, I have found further the additional points of analogy, that are as follows:—

<sup>1</sup> Some Japanese botanists (e.g. Matsumura, "Nippon Shokubutsu Meiji," Tokyo, 1884, p. 64) identify the Chinese "Nan" with the Euphorbiaceous plant, *Daphniphyllum macropodium*; whether the identity is a sound one, I do not know.

<sup>2</sup> Most plants here enlisted, seem to have the alleged figures in their subterranean members; only the citron might produce the fruits of such a configuration. As to the named trees, the cypress of Kien-ling was anciently valued for its wood, the veins of which represented naturally angels, clouds, men and animals ("Yuen-kien-lui-han," *op. cit.*, tom. cccxiii. art. "Peh," 1); whereas the alleged human figure of the "Nan" was apparently formed by its stem and branches (*cf.* H. Ransdell, "Through Siberia," 1882, vol. i. p. 158).

(3) The Shang-luh is said to grow upon the ground beneath which dead man lies; and the mandrake is recorded to thrive under the gallows (3).

(4) When the Shang-luh is about to acquire the power of speech, *ignes fatui*, it is said, crowd about it (4). About the mandrake Richard Folkard remarks: "In an Anglo-Saxon manuscript of the tenth or eleventh century the mandrake is said to shine in the night like a candle. The Arabs call it the Devil's Candle because of this nocturnal shining appearance. . . ." (5)

(5) Chang Urh-Ki, a Chinese literatus of the seventeenth century, writes: "A sorcerer carves the root of Shang-luh into a human effigy, which he makes through his spells capable of telling the fortunes" (6). This forcibly brings to mind the old European belief in the diminutive prophetic images made out of mandrake-root<sup>1</sup> (7).

(6) The mandrake had a reputation that it makes men insane and the reason prisoner (8); correspondingly the red variety of Shang-luh<sup>2</sup> is described by Su Kung (c. 656) to be so poisonous as to cause men to see the demons (*i.e.* to make men delirious) (9).

(7) In "Pan-tsau-king," the oldest Chinese authority on materia medica, attributed to the mythical emperor, Shin-Nung, the Shang-luh is mentioned to kill the demoniacal beings; and, later, Teau Hung-King (452-536) speaks of its influence on the "Malignant Worms," which it drives out of the possessed (10), this efficiency being no doubt the principal reason for the Tautist usage of the white *Phytolacca* under the pseudonym of "Luh-fu" (or "Dried Venison") (11). Still later it is reputed by Ta-Ming (c. 968) to purge the "Poison of the *K'u*"<sup>3</sup> (12). Quite conformable to these is the ancient Jewish belief in the exorcising power the herb Baaras (or the mandrake) was renowned to possess (13).

(8) A recipe quoted by Chang Urh-ki from a "Book of Divine Physic" (14) seems to imply the old Chinese usage of the Shang-luh as philtre as much as the mandrake was highly esteemed therefor (15).

(9) "From the remotest antiquity the mandrake was reputed in the East to possess the property of removing sterility; hence Rachel's desire to obtain the plant that Reuben had found. . ."

(16). Now we read in a Chinese herbal that the black, ripe fruit of the Shang-luh is highly valued by rustic women, for it favours their fertility (17).

(10) Of the medicinal properties these plants are known to possess, some are common to both. Matthioli, referring to Galen, speaks as a cooling stuff of the mandrake (18), Li Shi-Chin assigning the same character to the Shang-luh (19). Both herbs were famed for their purgative functions, and both were applied to indolent and scrofulous tumours, and to swellings of the glands (20).

<sup>1</sup> From their traditions, the Chinese appear to have had about the Fung (*Liquidamber Maximowiczii*) two points of analogy to the mandrake-lore. First, Jin Fang's "Shuh-i-ki" (written sixth century, A.D., ed. Wang, tom. ii. fol. 10. b) contains the following passage: "In Nan-Chung there is the 'Liquidamber-Elf' (Fung-sze-kwei), which is the old tree of the named species transformed to man in its shape. Second, other authorities say a tumour develops upon the old Liquidamber; after a thunderstorm it elongates to three or five feet in length. Now the sorcerer carves this tumour to a human effigy to play black art thereby in a similar manner to the practice with the Shang-luh. However, in case a proper formula is not observed while gathering it, the tumour flies away and never serves the purpose (*cf.* Ki Ngan, "Nan-fang-tsau-muh-chwang," fourth century, A.D., Brit. Mus. copy, 15255, a. 5, tom. ii. fol. 1, a; Wu Ki-Siun, *op. cit.*, tom. xxxv. fol. 2 a; Sie Tsai-Kang, *op. cit.*, tom. x. fol. 4). Whether related to the latter belief or not, I remember some old men in Japan ever extolling the merits of images of Daikoku, the god of riches, artificially formed out of tumours on *Ginkgo biloba*.

<sup>2</sup> That is, the variety with its calyx coloured pale rufous. Kan-Pau-Shing, a herbalist of the tenth century, observes of the Shang-luh: "The red flower accompanies the red root and the white flower the white root" (*See* Iinuma, "Sômoku Dzusetzu," new ed., 1874, vol. vii. fol. 89, b; Li Shi-Chin, *loc. cit.*)

<sup>3</sup> "The district of Kiang-Nan is much infested by the *K'u*. On the fifth day of the fifth moon, the future keeper of the *K'u* puts together in a vessel a hundred different sorts of animals, varying in size from serpent to louse, which are left therein to mutually devour till but one remains the strongest. This he keeps and feeds in his house as the *K'u*. Whomsoever the keeper wishes to destroy the *K'u* infests in the viscera; consequently the man dies, his treasures passing over to the *K'u*-keeper's house," &c. ("Sui-shu," written seventh century, A.D., quoted in Tsiau Huang, "Tsiau-shi-pi-shing," Brit. Mus. copy, 15316, a, fasc. ii. tom. v. fol. 24, a; Ching Tsiau, *op. cit.*, tom. xxxiii. fol. 11, b; *cf.* Morrison, "Dictionary of the Chinese Language," London and Macao, 1823, vol. iii. part i. p. 288.) Among the stories pertaining to the *K'u* several incidents occur parallel to those about the mandrake (*cf.* Folkard, *loc. cit.*; Li Shi-Chin, sub. "Kin-tsan"); Kitamura, Kiyo Shōran, new ed., Tokyo, 1882, tom. viii. fol. 22). Just as are the cases with the mandrake and the Shang-luh, a herb called Lang-tang (*Scopolia* sp. ?) is reputed to make men insane, yet withal to cure demoniacal possession (*cf.* Wu Ki-Siun, *op. cit.*, tom. xxiv. fol. 77, b; Josephus, *loc. cit.*).