

information to be obtained of one science is generally so closely connected with another, or others, that no difficulty would be found in getting the greater part of the local members together for the purpose of hearing an address upon any scientific subject. The large libraries of the various central societies could be utilised by sending a parcel of books to the local library, such books to be exchanged monthly. It may be asked, would the parent bodies, and science generally, gain by such an arrangement? Are the British Islands too well explored? Is there no more celestial or terrestrial object remaining unknown? Have mathematicians, mechanicians, &c., reached the bounds of their studies? I say to these, and a score of other similar questions, No! Then the watchword should be Onward. By the above means the face of the whole country would be covered by earnest and interested searchers. Botanists might discover new species; astronomers would be joined into an immense circle, closely watching every phenomenon which occurred in the heavens; one statement would be verified by others; geologists would be at the side of every quarry or well, seeking specimens; antiquaries would be at hand to receive "finds," whenever historical ground or old buildings were being moved. Monthly statements of work performed would be forwarded to the general Secretary, to be printed in the Transactions. Lectures would be multiplied a hundredfold. Book-worms would find treasures hitting about in family mansions, and even in village cottages, which would satisfy even their craving appetite. But I am not writing for readers unable to understand. All will admit the feasibility of the plan, if only it were tried. Probably other correspondents may wish to be heard upon the subject, therefore I leave the suggestion in their hands.

Reading

C. H. W. BIGGS

Kant's Transcendental Distinction 'between Sensibility and Understanding

As Dr. Ingleby's letter cannot well be answered, except by me, will you kindly insert the following observations? I am very sorry the form of the controversy compels me to refer to myself; you will see that the point at issue concerns an important question in Kant's philosophy. He said a certain question of mine was badly worded. As a question set out of a prescribed book, he concedes it to have been accurate enough, but he still denies the precision of the statement in that book. I think he is right, and that I was guilty of an error, though by no means so grave an error as he imputes to me. But his imputation is again partly my fault; for I did not write clearly enough. Here are the words which misled him; "we must not confuse the empirical distinction between real object and merely subjective appearance with the transcendental distinction on which Kant's doctrine of Space and Time is based."

In the first place I do not think there is any ambiguity in the term *real object*, when I am speaking of an *empirical distinction*, for then it cannot possibly be a noumenon; and the meaning of *subjective appearance* follows upon its correlative. Dr. Ingleby should, therefore, have found no difficulty in interpreting me rightly so far, and, indeed, he has done so. But he understands the rest of the sentence as if I had written "we must not confuse the empirical distinction between real object and merely subjective appearance with the transcendental distinction *between the same two things* on which Kant's doctrine of Space and Time is based." This I did not say, though I am afraid my words are open to such a construction. He justly adds that Kant's *Æsthetic* is founded on no such distinction, and he points out the fact that Kant has in the previous page (p. 78 of Hartenstein's Ed.) spoken of his broad distinction in kind between Sensibility and Understanding, as a transcendental distinction.

I perfectly agree with him that this was the point referred to by Kant, and perhaps he is right that the philosopher meant nothing more. But what I had in my head when I wrote the passage, was a special phase or aspect of this same distinction, the aspect which insists, that *it is not merely the ordinary empirical sensibility* (such as tastes and odours), *but the a priori and necessary sensibility which his doctrine contrasts with the understanding*. Of course he has not yet considered, and therefore leaves undetermined, whether the understanding can cognize things, *per se*; but as to sensibility, the most obvious illustration which a superficial teacher would select, in expounding the so-called subjectivity of space and time, would be contingent, as opposed to necessary, data of sense. He would show how colour and taste and warmth were apparently perceived in the object; but were really modi-

fications of the subject, while other qualities (extension, figure, &c.), were really necessary to the object. Kant protests repeatedly against this empirical distinction being used to illustrate his doctrine, which depends on a transcendental distinction—a distinction (I thought) not of mere contingent, but of pure *a priori*, and therefore necessary, sensibility from understanding. The passages which I indicated and translated in the sequel of the note, preach this peculiar aspect of his doctrine, and were cited for this reason alone.

I confess I was led to search them out by overlooking, stupidly enough, his employment of the phrase "transcendental distinction" in the previous page; and the fact, that Professor K. Fischer had omitted to mention so important a point, made me all the more anxious to notice it. But when my language was so ambiguous as to mislead a really competent critic, like Dr. Ingleby, I must only acknowledge my fault, and promise to make amends in my next edition. I trust, however, that in this instance, your readers will absolve me from having blundered in the principles of the Critical Philosophy, even if I gave too much meaning to the *transcendental distinction*. I cannot conclude without thanking your able correspondent for his valuable criticism.

Trinity College, Dublin, Aug. 15

J. P. MAHAFFY

Colour Blindness

To the remarks in Mr. Hayward's letter in NATURE of August 18, may I add my own observations? I have often noticed that my right eye has much greater defining power than my left; as, for instance, in reading print; but when I look at a check pattern of white and black, the white looks much whiter and the black much blacker to my left than to my right eye. Is not this somewhat analogous to Mr. Hayward's case?

St. Peter's, York, Aug. 20

LEONARD MARSHALL

Cross Fertilisation

THERE could perhaps be found no more striking illustration of the law which seems to demand, from all species of living things, frequent crossing as a condition of their continued existence, than is afforded in the structure and development of the flowers of *Lobelia*. A hasty examination of a few specimens of this plant might seem to refute this idea; and I can imagine an anti-Darwinian, unacquainted with the life-history of the flower, pointing triumphantly to it, not only as an instance of perpetual self-fertilisation, but also as an incontrovertible example of an organism specially adapted to the use and convenience of a different species, without itself deriving any advantage from the circumstance. For while the flowers of this genus are furnished with a broad and brilliantly-coloured lip, forming an attractive lure on which insects may alight to feed on the nectar provided for them, the introrse anthers are connected together, so as to form a rigid case completely enclosing the style and imbedding its summit in pollen. In this case, then, insect agency appears to be worse than useless; for though a few grains of pollen may be, and are, shaken out, through a small orifice between the extremities of the anthers, upon the back of every moderate-sized insect which enters the flower; such grains can apparently never be brought into contact with the stigma, and consequently must perish and be wasted. How completely, however, would such a reasoner find the tables turned by more continued observation. *Lobelia* is one of those genera which might be more correctly described as *versisexual* than, as strictly speaking, hermaphrodite. Its flowers are at first entirely male, the female organs not being fully developed till after all the pollen has been removed. Then the style forces its way between the extremities of the anthers, and expands into a broad stigma, so situated as to rub the backs of the bees and other insects that enter the flower, and brush off any pollen that they may bring. Thus, self-fertilisation, instead of being, as it at first seemed, inevitable, is in fact impossible; and insect agency, which appeared at best useless, is absolutely necessary to the survival of the species.

"Versisexual" seems also to be the rule among the species of *Ranunculaceæ*, *Geraniaceæ*, *Saxifragaceæ*, and probably many other families. It is evident that in such species the pollen of the earliest and the ovules of the latest flowers will be wasted; and since natural selection tends always to prevent any waste, it is conceivable that such species might in the course of many generations give rise to monoecious or dioecious descendants.

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W. E. HART