

ture. From the fact that  $e^2$  enters into the investigation at all it is evident that this is only an approximation to the true distribution. In accordance with this Mr. Stoney has shown conclusively that in a compressed Crookes's layer the number of molecules moving parallel to the direction of the transference of heat is greater than the number of those moving in any direction normal to it, so that the expression Clausius derived from his assumption cannot be considered as expressing the whole state of affairs.

It is remarkable that to this order the expression for the pressure on any plane is the same, but Clausius gives another term in his expression for the pressure on a plane normal to the direction of transference of heat to which he attaches, indeed, only an infinite coefficient because it is of the order  $e^2$ , and he was purposely neglecting quantities of that order. He might have prophesied, however, from the existence of such a term that at distances comparable with  $e$  a force would be manifested such as Mr. Crookes has since discovered. Now this  $e$  is by definition a quantity of the order of the length of the mean path between successive encounters, and hence these terms, varying with  $e^2$  would become of importance at distances comparable with the length of this mean path.

I believe, then, that I have shown that neither Clausius nor Clerk Maxwell have considered the case in dispute between Mr. Stoney and Mr. Osborne Reynolds, and that as far as their investigations bear upon it they tend very much to strengthen Mr. Stoney's case. I have also shown that Clausius was on the point of anticipating both Crookes's force and Mr. Stoney's explanation of it.

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#### Prof. Eimer on the Nervous System of *Medusæ*

SOME of your readers may remember that a few months ago I published in NATURE an abstract of a lecture which I had delivered at the Royal Institution on "The Evolution of Nerves." In this lecture I mainly treated of my recent researches on the nervous system of *Medusæ*; and stated, among other things, that I was the first to publish the observation concerning the paralyzing effect of removing the margins of nectocalyces.<sup>1</sup> Within the last few days, however, I have received a communication from Prof. Eimer, of Tübingen, informing me that he has the right to claim priority as regards the publishing of this observation. I therefore send you this note in order that I may rectify the injustice which I previously did to Dr. Eimer in your columns.

The facts of the case are simply these: Dr. Eimer made his observation a few months later than I made mine; but, as he communicated his observation within a few weeks after he had made it to the *Physikalisch-medizinischen Gesellschaft zu Würzburg*, his publication preceded mine. He has therefore the right to claim priority as regards this observation, and also as regards some further physiological experiments by which he followed it up—all of which I have been careful to detail in my Royal Society publications.

So much in justice to Dr. Eimer. In justice to myself I must now explain that, although, since the publication of my Croonian lecture in 1875, I have been aware that Dr. Eimer's work was independent of mine, it is only within the last few days I have learned from him that the publication of his work was prior to mine. The reason of the ambiguity on this head is explained in a newly-published memoir by Dr. Eimer, where it is stated that his previous memoir, having been published in the *Würzburg Verhandlungen* without its proper title-page, the initials "d. f." ("this year"), which occur in the paper itself, refer, not to the date on the volume, but to the year preceding. My prolonged ignorance concerning Dr. Eimer's claim to priority, has, therefore, not been due to any fault on my part; and as in all my previous publications on this subject I have spoken of Dr. Eimer's work as subsequent to my own, I may here add that I think the fact of his having been so long in acquainting me with the true standing of the case, displays a laudable spirit of indifference on his part to the matter of mere priority.

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#### Mr. Crookes and Eva Fay

AFTER Mr. Cooper's courteous explanation which appeared in last week's NATURE (p. 183), I gladly exonerate him from blame.

<sup>1</sup> I first published this observation in a note to NATURE, which appeared in November, 1874.

To the publication of my letter in the *Banner of Light*, if Mr. Cooper thought it likely to do Eva Fay any good, I have no ground of complaint; but what I did, and do now, protest against, is the unauthorised publication of a lithographed *fac-simile* of my letter in such a manner, and with such surroundings, as to leave no doubt that the intention was to throw discredit on my testimony as a trustworthy experimentalist.

I am glad to find that Mr. Cooper was no party to this breach of etiquette, and I willingly withdraw any expressions in my letter in NATURE (vol. xviii. p. 43) which may appear to reflect on him.

As a fitting climax to this controversy, may I request you to publish the subjoined letter from Eva Fay, which appeared in the *Banner of Light* for December 22 last?

London, January 7

WILLIAM CROOKES

"To the Editor of the *Banner of Light*, Boston, U.S.,  
December 22

"I WISH to state a few facts in reference to an article in your paper of December 8, referring to myself, in a letter of Mr. Crookes on Dr. Carpenter's attack.

"First, it is untrue that Mr. Crookes gave me a letter speaking of the spiritualistic nature of my manifestations, and referring to Fellows of the Royal Society. The only letter, to my knowledge, that Mr. Crookes ever wrote regarding my mediumship (with the exception of the one written to Mr. Cooper) appeared in the *London Daily Telegraph*, and other journals, March 11, 1875.

"Second, in reply to Dr. Carpenter's statement that an offer was made by my managers in May, 1875, of an equivalent sum of money for me to 'expose the whole affair,' I will now say to Dr. Carpenter, as I did to my managers, *I have nothing to expose.*

"I am in receipt of a letter, dated November 18, 1877, asking me if I will fix a price to visit England under the title of an 'Exposée,' and show how I am supposed to have hoodwinked members of the Royal Society.

"My reply was as follows:—'As poor as I am, and as clever as I am supposed to be by Dr. Carpenter and others, I am obliged to decline your tempting proposition to replenish my exchequer by attempting impossibilities. I sincerely hope to be able to maintain myself and child in a more honourable occupation.'

"AKRON, OHIO, December 10, 1877"

ANNIE EVA FAY

#### Volcanic Phenomena in Borneo

MR. WALLACE, in his work on the "Geographical Distribution of Animals," has the remark that no volcano, active or extinct, is known to exist within the area of the island of Borneo, notwithstanding that it is almost environed by a volcanic belt in full activity at a short distance. In fact, it seems to be generally understood that this vast island now represents, and has continued to represent for long past time, a perfectly quiescent area in so far as manifestations of subterranean energies are concerned. This view is doubtless strictly correct in regard to the existence of any volcanic vent which is now in action, or which has been so within the historical period; but it would be erroneous to deduce from it, as seems natural to do at first sight, the inference that the area is one of entire quiescence, or that it has been so free from volcanic action in any but the most recent times.

Speaking solely with reference to the north-west district, it may be observed that shocks of earthquake have been recorded more than once by credible witnesses during late years, viz., one in June, 1874, a second in June, 1876, and two more in July, 1876. These were recorded the first in S. dong, the three others in Sarawak. According to native testimony, slight shocks are by no means rare, and a severe one is particularly held in remembrance, which took place seventy or eighty years ago, and was accompanied by "a rain of ashes." Seismometrical observation would probably show that they are very frequent. These shocks seem to indicate that the island is directly affected by the proximity of the volcanic band above referred to.

As for the period of time preceding the historical epoch, there are not wanting signs that this part of Borneo was the theatre of a display of considerable volcanic energy, and it has yet to be shown that its date of activity was anterior to the deposition of the sandstone conglomerate formation of the country, which is, with the exception of very recent deposits, the most modern of the stratified rocks of this part of the island, it having been assigned—I know not with how much truth—to a later tertiary