

association would show how general amongst teachers is the dissatisfaction with the ancient methods, and might lead to more uniformity of practice by securing a free public discussion of the best methods and most suitable terms. There are abundant materials available as the basis of discussion, and no doubt the aid of the most distinguished geometers would be easily secured by the Association, so as to bring about a decision on controversial points. Several English text-books are already in existence, and there are many good features as well as many defects in all of them. Excellent series of lectures have lately been given on the subject in London and Cambridge, and some of the lecturers have printed very full notes for the use of their students. The syllabuses of Mr. Clifford, and Professor Hirst, are very suggestive.

After an exhaustive discussion, the Association would doubtless be able to secure the publication of a text-book which would have the approval and patronage of all its members. If the readers of NATURE who approve of the plan, would send their names to Mr. Levett, with contributions, if possible, towards expenses of printing, postage, and advertisement, some practical result would soon ensue.

Brixton

RICHARD WORMELL.

#### Storms and Fishes

CAN any of your readers give me any information on the following subjects?

1. What is Le Verrier's law of storms?

I asked this question some months ago, but no one replied to it.

2. Have any articles or special works on Poisonous Fishes appeared since Dumeril's memoir on the subject?

I should also be obliged to anyone who can give me information regarding fresh-water fishes that are in the habit of attacking bathers. Don Paez describes such fishes in some of the South American rivers.

M.D.

#### The Scientific Education of Women

WILL you kindly allow me to add some information to an article which I have just seen in NATURE of June 16, on the Scientific Education of Women? First, however, allow me to correct an error which was made in an article on Lectures to Ladies, which I observed in NATURE some months ago, in which it was stated that the first series of educational lectures to women given under the auspices of any society for such lectures, was given under the direction of the Edinburgh Ladies' Educational Association. The fact is, that the first series of lectures of that kind, in recent years, was given in Liverpool, Manchester, Leeds, and Sheffield, under the auspices of the "North of England Council for the higher Education of Women." These lectures were given in the Autumn of 1867. The subject was Physical Astronomy. Under the auspices of that society, as well as of other societies, many sets of lectures have been given since that time on subjects connected with Physical Science. But I have always regretted, as the writer of your article regrets, that a greater number of the lectures have not been on such subjects, for I have always found that women exhibit a peculiar aptitude for the study of Physical Science. I have also found in my own experience a considerable desire on the part of women for such studies; and I believe that the fewness of such courses of lectures to them is to be put down to the scarcity of people at once competent and willing to teach them such subjects. From all that I have seen there is in my mind no doubt that the desire for true scientific instruction throughout the country, both among women and among men, exceeds the present possibility of supplying that teaching. I called your attention to this fact some months ago, and I believe that we cannot over-estimate its significance.

With respect to the remarks made in your article as to the medical education of women, it may interest your readers to know that Cambridge, which has moved so much in the matter of women's education, has not been behind-hand in this; but that a few weeks ago a petition went up to parliament praying that, in the ensuing legislation for the medical profession, provision might be made to prevent the exclusion of women from that profession. This petition was from resident graduates, and one hundred names were attached, among which were those of two heads of houses, nine University professors, and thirty-eight tutors or assistant-tutors of Colleges.

In your notice of the exhibitions in connection with the lectures to women at Cambridge, you speak of the Cambridge higher examinations for women. These examinations, which were instituted last year for women over eighteen years of age, were suggested to the University by a memorial presented by the North of England Council for the Higher Education of Women, a body to whose exertions the whole of this cause is deeply indebted.

JAMES STUART

June 22

#### ILLUMINATION OF THE SEA

THE following is derived from the *Kölnische Zeitung* of June 19:—

"Gulf of Siam, April 11

"Last night, between two and three o'clock, I had the opportunity of witnessing an illumination of the sea of the most peculiar kind. It had become quite calm, after a sharp breeze which had sprung up from the N.N.W., caused by a passing storm in the distance. Heat-lightning was still very frequent in the west horizon, and the sky was covered with light clouds, through which the moon shone rather brightly. We took in sail and set the engines going. I then noticed in the water large white flakes which I had at first taken to be reflections of the moon; they were about a fathom in diameter, apparently lustreless, and of no particular shape, like objects seen lying deep in the water. By the rising and falling of the sea's surface these flakes floated off to a short distance from the ship without imparting any noticeable increase of brightness to the water illuminated by the moon's rays. After steaming further forward for six or seven knots, a most wonderful spectacle presented itself. On both sides obliquely in front of us, long white waves of light were seen floating towards the ship, increasing in brightness and rapidity till at last they almost disappeared, and nothing was observed but a white lustreless, whirling (*schwirrendes*) light upon the water. After gazing for some time it was impossible to distinguish between water, sky, and atmosphere, all which were but just now clearly distinguishable, and a thick fog in long streaks appeared to be driving upon the ship with furious swiftness. The phenomenon of light was somewhat similar to that which would be produced by the whirling round of a ball striped black and white so rapidly that the white stripes seem to be lost and blended with the dark ones. The light was just as if we were enveloped in a thick white fog. The direction of the waves of light upon the ship was always on both sides obliquely from the front. The phenomenon lasted about five minutes, and repeated itself once more afterwards for about two minutes. Without doubt, therefore, shoals of small creatures in the water were the cause of this luminosity, and the waves of light find their cause, according to my conviction, in the white flakes above described. Yet their moderate velocity of  $1\frac{1}{2}$  geog. mile per hour, and the weak light at first emitted by each flake, so weak as not to influence the tint of the surface-water, does not seem calculated to call forth a phenomenon of such magical effect as the one described. The luminous appearance commonly seen in the wake of a ship, or in water disturbed by oars or rudder, is not to be compared with such a phenomenon as the above. In the former the light is lustrous, glaring green and blue, like phosphorus, often very splendid in deep clear water, mingled with a reddish white foam. We saw a beautiful instance of this kind one night, in perfectly still and smooth water, in a lonely bay of Nipon. It was pitch dark and perfectly quiet, when a heavy shower of rain came on, in large but not dense drops. Every drop as it struck the water became illuminated, little drops of fire sprang up in the air, and a little luminous circle formed itself. It seemed as if the bay was suddenly filled with little flowers of fire. This phenomenon was almost immediately dissipated by a puff of wind."