

laboratory. They may be paid to the treasurer of the college or to the undersigned.

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#### Research and the Colleges.

It is evident that the question of subject-matter for research is still a difficult one, and that our colleges are still unable to meet it. In the meantime, it is essential that the students should be instructed in such procedure, unless the matter is to be shelved until some outside source of supply can be obtained.

I would suggest that class research be instituted on the following basis. The senior students, divided into groups of, say, four, would engage in some well-recognised research of a classic nature, which would be selected from the published work in this direction. It must follow, I think, that the difficulties met with by the original investigator would come to the surface, and be followed by the students step by step.

The different groups in class would at intervals examine each section's work, and be instructed generally in the same by the staff. By a careful selection, and in this way, the work coming before the students might cover research in pure chemistry, and technical or industrial research as well.

From the industrial side of the question, it seems that Prof. Kipping's recent criticisms on the Institute of Chemistry for not insisting that the subject of original research shall be compulsory are a little premature, while the colleges themselves do not do more in this direction. From this point of view the institute might insist that all senior students shall be instructed in the methods of research in a practical and thorough way, and might refuse to "recognise" any college not conforming to this regulation. With the above method of class research this training is available. The fact is often lost sight of that the more important the nature of industrial research the less possible is it to publish it, even to the examiners themselves. Thus the opposite conditions obtain from those in the colleges, but the mass of this hidden research is of far greater value and importance than that which is published from these institutions, at any rate to the present generation.

W. P. DREAPER.

#### Fall of an Aëroïte in Mokoia, New Zealand, on November 26, 1908.

By the kindness of Mr. J. T. Ward, honorary director of the Wanganui Observatory, and Mr. G. R. Marriner, curator of the museum at the same place, I have received particulars of the aërolitic fall of November 26 last, together with several fragments of the object. Perhaps it will be best to quote from their accounts:—

The flash of the meteor was seen at 12.30 p.m. to 12.35 p.m. (civil time, 11.30 fast on Greenwich), and the loud detonations were heard by many persons distributed over more than 100 miles of coast-line and for a considerable distance inland. The object left a streak like a line of smoke or steam, which broke into three portions and drifted apart before it disappeared in about five minutes. The sound appeared to follow the flash after a minute or more, and formed a combination of booming with sharp cracking sounds, similar to that produced by thunder and discharges of musketry. The observed flash, or meteor-flight, occupied the following position as ascertained by Mr. Ward from various observers:— $25^{\circ}$ — $30^{\circ}$  to  $220^{\circ}$ — $5^{\circ}$ .

At Stratford, twenty-five miles from the place of the meteor's descent, the noise was very loud, and startled the horses and cattle, as well as many persons who were in the open and amid quiet surroundings. Mr. Marriner visited Mokoia and recovered two fragments of the body, but a third, which was seen to fall in a plantation, could not be found owing to the thickness of the bush. The pieces secured were  $4\frac{1}{2}$  lb. and 3 lb. in weight, and the former fell at the foot of a tree, splintering a part of it and making a hole in the ground about 15 inches deep.

Mr. Marriner estimates the whole weight of the meteorite which fell on Mr. Hawkins's estate as 12 lb., but as disintegration occurred before its descent, the original body was much larger, and it is to be hoped that other fragments will be found after more careful examination of the district.

The portions received by me are composed of a very dark grey stone or admixture of stone and iron, which has evidently undergone intense heat, and seems of a crumbly nature. The analysis of the meteorite is being made at Wanganui, and will be published shortly. After circulating in space for probably countless ages, it had apparently ceased its rovings when it struck the root of the tree in Mokoia and penetrated about 15 inches below the soil; but it was destined for a further flight from one side of our globe to the other, for it has just completed its transit of about 13,000 miles to Bristol!

It is interesting, after a person has habitually watched the luminous careers of these bodies during many years, to hold a similar object in one's hand and contemplate it from a much nearer point of view!

Bristol, March 19.

W. F. DENNING.

#### Early References to Fluorescence and Light transmitted by Thin Gold Films.

PETRO VAN MUSSCHENBROEK, in his "Elementa Physicæ," after a discussion of the colours of thin films, proceeds:—"id quoque conspicuum est in infuso Ligni Nephritici, quod pro diverso tam oculi, quam lucis situ, alio colore apparet" (p. 393, second edition, Leyden, 1741).

This clearly could not have been an instance of ordinary interference colours, and it occurred to me that we might have here an early observation of fluorescence.

Inquiries kindly made for me by Mr. Harold Evans have elicited, in a letter to the *Gardeners' Chronicle*, the facts that the wood *Lignum Nephriticum* was shown in the Paris Exhibition of 1855, that its source is some Mexican tree, but that this tree was not identified, at any rate in 1871. In the Admiralty Manual of Scientific Inquiry for that year information as to its origin is asked for, and it is stated that "its infusion is remarkable for having the blue tint seen in a solution of quinine."

This seems to confirm definitely my conjecture that van Musschenbroek had observed fluorescence at least ninety-two years before it was recorded in alcoholic chlorophyll solutions by Brewster, and more than one hundred years before Herschel described it in solutions of quinine sulphate.

Can any of your readers throw any further light upon the nature of *Lignum Nephriticum*?

In the next sentence after the one quoted above van Musschenbroek alludes to the blue colour of the light transmitted by very thin films of gold:—"tum Auri lamellae tenuissimæ ante Microscopium positæ; per quarum poros Lux caerulea tantum transit."

JOHN H. SHAXBY.

University College of South Wales and Monmouthshire,  
Cardiff, March 22.

#### Another Fossil Tsetse Fly.

IN NATURE, August 22, 1907, I reported the discovery of a tsetse-fly (*Glossina*) in the Miocene shales of Florissant, Colorado. In going over the materials collected in the same locality in 1908, I find a second species of the same genus. It is preserved showing the lateral aspect, the abdomen arched dorsally, and the proboscis evident, though imperfect. It is about  $10\frac{1}{2}$  mm. long, the wing 7 mm., thus much smaller than *G. oligocena*. The venation is perfectly typical for *Glossina*, but the first basal cell bulges less subapically than in *G. oligocena*, its maximum breadth or depth being only 323 micromillimetres. The vein bounding the outer side of the discal cell has a double curve, as in the *Cæstridæ*.

For the new species I propose the name *Glossina osborni*, after Prof. H. F. Osborn, the distinguished palæontologist.

T. D. A. COCKERELL.

University of Colorado, Boulder, Colorado,  
March 15.