about inquiries to find out whether the wire had been struck or not. No smoke appeared from the flash. There was a deep hissing noise, followed by the natural crash of the thunder some seconds afterwards.

"The hissing noise was probably the wire falling, as it was in many cases driven 2 or 3 inches into the earth. I was about 180 yards from the winch in the same direction as the wire, and about forty yards from directly under the wire to the left, looking from the winch.

"The balloon went away free, carrying the instruments, and was watched for several minutes, as it happened to pass through a clear portion of the sky where no clouds were at the time. It has not since been recovered.

"On investigation of the wire I found that near the winch, say about 250 yards from it, the wire became less tempered; in fact, it would stand bending quite well in the portions found near the winch. It was fused right off at the first wheel of the winch, and was undamaged at the drum of the winch.

"The weather was sultry; there had been some rain. The wind was light but squally, W.N.W. There had been no lightning previously.

"The following are some observations taken on the ground about an hour before the wire was struck:—

Dry bulb	18° C.
Wet bulb	15°·8 C.
Barometer	29·85

Wind, N.W. to W.N.W.

"Specimens of the wire enclosed."

It appears from the specimens of wire that the heat developed was sufficient to melt the tin but not to fuse the wire. If then we assume that the process is too rapid for loss of heat by conduction, we get for the limits between which the heat energy must lie $6\times1400\times200\times0{\cdot}11$ and $6\times1400\times1300\times0{\cdot}18$ in gram degree units, the wire weighing about 6 grams per metre, and the mean specific heat of steel from 0° C. to 1300° C. being taken to be 0·18.

In ergs the limits become $7{\cdot}12\times10^{12}$ and $8{\cdot}28\times10^{13}$, or, assuming the height of the cloud to be 100 metres, the energy was sufficient to raise 73 kilograms, but not sufficient to raise 840 kilograms, to the cloud level.

The fact of the wire being less brittle in the lower portion points to a diminution of the energy developed, but no reasonable explanation of this is apparent unless it is due to an induction effect.

In the case of a similar discharge on April 11 of this year, the wire was completely fused from the balloon to the winch; the length of wire out was half a mile, and the height of the balloon 2000 feet. The balloon was in the clouds at the time. The discharge in this case also took place by a cross flash from cloud to balloon. An account of the occurrence is given in a paper by Colonel Capper, read before the Royal Meteorological Society in May.

E. GOLD.

Meteorological Office, 63 Victoria Street, London, S.W., August 19.

The Origin of the Domestic Striped Tabby Cat.

IN the Proceedings of the Zoological Society for February of this year I attempted to prove that English domestic cats are to be referred by their patterns to two distinct kinds, which were described as the blotched and striped tabbies; and in discussing the possible origin of these two cats, I set the blotched tabby aside as of unknown descent, and stated it as my conviction that the striped tabby was to be traced to the interbreeding of two well-known wild species, namely, the European wild cat (*Felis sylvestris*) and the so-called Egyptian or African wild cat (*Felis ocreata*). There were living at that time in the Zoological Gardens a male example of *F. sylvestris* from Scotland and a female example of *F. ocreata* from Uganda. The latter was captured as a kitten near Nairobi in March, 1906, and had never been put to a male. To test the truth of my belief that the progeny of these two species would resemble our domestic striped tabby, and also to discover if there was any foundation for the theory some authors had put forward previously that the blotched tabby was the result of such a cross, the two cats in question were placed in the same cage this summer. They took to one another at once, and last week the female produced a litter of kittens resembling in every respect a typical striped tabby such as may be seen any day in the streets of London.

R. I. POCOCK.

Zoological Society's Gardens, August 18.

A Fossil Tsetse-fly in Colorado.

AMONG the interesting materials obtained this year in the Miocene shales of Florissant, Colorado, is a large "biting" fly, with a remarkably long and strong proboscis, very well preserved. A very superficial examination was sufficient to show that it was no ordinary Tabanid or Muscid, and it at once occurred to me that it was a tsetse-fly. Having no specimen of the latter at hand, I turned to the admirable coloured figures in the second report of the Wellcome Laboratories at Khartoum, and, as was expected, it matched so nearly that it might well go in Glossina. There is a slight difference in the venation which may or may not be of generic value, but if the insect is not a Glossina it is at least closely allied. Curiously, it is not new, for it appears to be the species described by Scudder in 1892 as *Paloestrus oligocenus*, a supposed new genus of Œstridæ. The new specimen, practically complete, and with the mouth-parts, shows that it has nothing to do with Œstridæ, and anyone who will refer to Scudder's figure will see how closely the venation resembles that of Glossina.

The specimen obtained this year was found by Mr. George N. Rohwer, a member of our party from the University of Colorado. It is an obvious suggestion, following some remarks lately published by Prof. Osborn, that the existence of such flies may have had something to do with the extinction of some of the Tertiary Mammalia of America.

T. D. A. COCKERELL.

University of Colorado.

PHYSICS AND CHEMISTRY.

"ONE of the penalties of devotion to a progressive science is the constant feeling of being left behind." So says the president of Section B, in his address from the chair, at the recent meeting of the British Association; and although he adds that he does "not think there is any occasion for panic," yet the concluding portion of his address seems to indicate that something approaching fear accompanies the impression that the progress of science at the present time is almost too rapid. There were some other indications, also, at the meeting, that physics at the present time is mistrusted by some chemists, to an extent perhaps beyond ordinary and necessary caution.

With a great part of the address agreement is easy. The plea that chemists should continue chemists, and that accurate manipulation and careful experimenting should be strenuously cultivated, is so reasonable as to be almost trite: for who would have it otherwise? That an atomic theory of matter, which has proved so useful in the past, should be adhered to as a guide in the future is also a natural desire against which no physicist has a word to say. Indeed, very much the contrary: the atom of matter is as useful a conception as ever, and has become even more real and concrete owing to the actual counting and measuring of individual atoms by physicists. But that physicists and mathematicians should leave the atom alone, and refrain from discomposing examination into its probable internal structure, should cease to break it up and otherwise modify it by appropriate agencies, and should turn a blind eye to any spontaneous explosions of energy whenever they have the bad taste to occur; also that no element shall be discovered and named which has zero chemical affinity, or which cannot be obtained in weighable amounts—all that is surely more than Section B has any right to expect, nor do I suppose that it seriously makes such a demand.