DISCUSSION AND CORRESPONDENCE

THE POSITIVE ION IN ELECTRICAL DISCHARGE THROUGH GASES

WHEN a metal sphere is hung upon a silk cord between the terminals of a plate glass electric machine, it will oscillate to and fro between the terminals.

When molecules of a gas are placed in a similar position, they can not behave in quite the same fashion. No one molecule can plow its way through the swarm of molecules which surround it. They are all being urged to do this. At any instant some are being urged away from the positive terminal, and some from the negative. These opposing streams of gas mingle. The collisions which result between these overcharged and undercharged molecules within such a field of force result in a continual transfer of electrical corpuscles from molecule to molecule. In such a mixture we should at any instant expect to find three classes of molecules. Those which are negatively overcharged, those which are negatively undercharged, and those which are in normal condition.

Even in open air discharge, the repelled molecules move along streamers. In particular is this the case at and near the positive terminal. Here the corpuscles and air molecules are moving in opposite directions. In rarefied gas, where the mean free path is greatly increased, these streamers become "rays."

All of the properties of these rays are in harmony with what we should expect, from our knowledge of the behavior of the metal ball and the properties of gases.

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A NEW RECORD OF A CHESTNUT-TREE DISEASE IN MISSISSIPPI

PROFESSOR EUGENE HILGARD, of Berkeley, Cal., told me this summer of an observation of his which is of moment to those interested in the chestnut-bark disease.

While surveying in 1856 in the northeastern part of Mississippi, he found the chestnut trees of that region, both young and old, dead. They had been growing in a mixed forest of pine and oak and, as the other trees were in a healthy condition, were very noticeable. The dead trees were frequently of large proportions, attaining a height of 80 to 90 feet. When he saw them, these trees were beginning to decay; the bark was dropping off, leaving the trunks bare. There were no signs of insects. The region which was surveyed is a non-calcareous one.

As chestnuts are still growing in northeastern Mississippi, the epidemic which Professor Hilgard saw did not exterminate the tree in that region. It is another record of a devastating disease which the chestnut tree has endured.

Now that extra attention has been given to the chestnut and old records have been looked over, the struggle which this tree has had against attacks of fungi and of insects during the nineteenth century becomes apparent. There can hardly be a doubt but that the present range of this tree is much less extensive than formerly.

CAROLINE RUMBOLD

BLANDING'S TURTLE

TO THE EDITOR OF SCIENCE: Referring to Mr. Howe's note in SCIENCE of September 1, "Second Record for Blanding's Turtle in Concord, Mass.," and of the introduction of three pairs of the same species in Little Long Pond, Orange County, by Dr. Townsend, I beg leave to report finding this turtle at Queens, L. I., in June, 1909. It has been placed on the records of the Natural History Survey of Long Island now being made by the Brooklyn Institute of Arts and Sciences. This is the first report, so far as we know, of Blanding's turtle having been found on Long Island, but Abbott in "A Naturalist's Rambles about Home" mentions finding it in central New Jersey.

JOHN J. SCHOONHOVEN

THE MOTH OF THE COTTON WORM

TO THE EDITOR OF SCIENCE: In connection with the notices appearing in SCIENCE (October 16 and November 10) recording the occurrence far north of the moth of the cotton