

by the almost instantaneous melting of the copper and its rolling up into the rounded end of the pear-shaped bit.

Prof. Wood fired many such detonators, loaded with two different fulminant compounds, and studied their effects. Spark photographs of the air-trails they left in their courses indicated that these end-pellets zip through the air with a velocity of six thousand feet a second, approximately three times the speed of a rifle bullet. The thin sides of the cap are torn into thousands of almost microscopic fragments, each able to make a tiny nick in a piece of plate glass. A

flake of one of the explosive compounds, laid on a glass plate and touched off with a hot wire, shattered the glass in fragments.

While not every accidental explosion of a fulminating cap ends as tragically as the one that "set off" Prof. Wood's research, there are plenty of them every year that result in lost fingers and blinded eyes. Children playing around quarries and similar places find them, pound them with a rock or a hammer "for fun," and are permanently injured.

*Science News Letter, January 11, 1936*

## PHYSICS

## Evidence For Existence Of Neutrino Presented

**E**XPERIMENTAL evidence for the existence of the "neutrino"—postulated but never-found new atomic particle—was presented by Dr. Kenneth T. Bainbridge of Harvard University to the American Physical Society.

For years scientists have known that the cores, or nuclei, of atoms contained the electrons, the negatively charged particles of small mass, and the protons which are positively charged particles of the same mass as the hydrogen.

In 1932 Prof. James Chadwick of Cavendish Laboratory, England, discovered that atom nuclei also contained the neutron which, as the name suggests, is neutrally charged in the electrical sense. Prof. Chadwick won the 1935 Nobel Prize in physics for this discovery.

More recently a number of theoretical scientists have postulated the existence of the neutrino, or little neutron, in order to explain certain products produced in artificial radioactive transmutation of the elements.

Working from known facts and with known theories it can be shown, for example, that certain isotopes can exist only if the neutrino is a fact instead of a mathematical abstraction. The search for such isotopes would, then, constitute a test for the existence of the neutrino.

Dr. Bainbridge's report concerned the discovery of what might be called the "neutrino" isotopes. Using his new mass spectrograph—which might be likened to a super scale for weighing individual atoms—the Harvard scientist detected isotopes of cadmium and indium of atomic weight 113, indium

and tin of atomic weight 115 and antimony and tellurium of atomic weight 123. These isotopes can exist only if the neutrino exists.

The experimental technique is an indirect one, naturally. It is about like saying that all living bodies must contain hearts and if you can find a living body you have evidence for a heart inside it, even though you may not be able to see the heart itself.

*Science News Letter, January 11, 1936*

## PLANT PATHOLOGY

## Artificial Wind of Fans To Banish Turf Disease

**F**ANS built like airplane propellers were used to abate a bad fungus disease of turf, known as brown spot, in experiments reported by Drs. John Monteith, Jr., and Mary E. Reed of the U. S. Department of Agriculture. The fungus thrives and spreads its death in grass when the air is hot and damp, and wind keeps it down, apparently simply by raising the evaporating power of the air to a point too high for the fungus to grow.

Whether golfers will presently see big fans set up alongside the greens on their favorite golf courses, where the brown-patch disease is most menacing, the report of the two Government researchers did not state. More practicable, probably, will be the cutting of air-drainage lanes through too-dense surrounding vegetation and other natural means of encouraging air circulation.

*Science News Letter, January 11, 1936*

## GENERAL SCIENCE

## Prof. E. G. Conklin Will Preside Over A.A.A.S.

See Front Cover

**P**ROF. Edwin Grant Conklin, one of America's leading biologists and long a professor at Princeton University, was elected president of the American Association for the Advancement of Science. Dr. Conklin in being elected to this high scientific office succeeds Dr. Karl T. Compton, president of the Massachusetts Institute of Technology, and he will preside during 1936 and deliver the principal address of the 1937 Christmas meeting.

Newspapers can be the greatest aid to science if they treat science less like magic and are concerned more with truth than with sensationalism in science. This, in essence, is the belief of Prof. Conklin.

In an exclusive statement to Science Service in response to the question, "What is the aim of science and how best may the newspapers of America aid in attaining that aim?" Prof. Conklin said:

### Spirit of Science

"The highest value and promise of science in the present state of the world will be found in the spread of the spirit, the methods and the aims of science among men.

"The spirit of science is freedom to seek truth in any field and to proclaim any view for which there is verifiable evidence. The methods of science are the appeal to phenomena, the rigorous distinction of fact from fancy, of reason from emotion, of truth from error. The aim of science is to understand and as far as possible to control natural phenomena for the promotion of human welfare and progress.

"Science cannot make satisfactory progress nor can human welfare be promoted in a non-scientific society. Newspapers and radio are the schools of the people and they can best help science and promote human welfare by following the spirit, the methods and the aims of science itself.

"Within recent years great progress has been made in these respects by some of our leading newspapers, but there are still many who treat science as a kind of magic and are more concerned with sensationalism than with truth."

*Science News Letter, January 11, 1936*

Heart trouble has increased 61 per cent. in this country since 1900.