

PHYSICS

New Cosmic Ray Device Nears Completion at U. of Chicago

Giant 12-Ton Magnet in Wilson Cloud Chamber Serves To Bend Rays So Their Energies Can Be Calculated

MORE powerful than any other similar apparatus in the world is the new cosmic ray equipment now nearing completion in the laboratory of Prof. Arthur H. Compton, Nobel Prize scientist of the University of Chicago.

Heart of the device—a Wilson cloud chamber—is a giant 12-ton magnet whose strong field will bend cosmic rays and the atomic electrified debris so that their energies can be calculated. The magnetic field generated by the new Chicago magnet will be 40,000 times as powerful as that of the earth. The magnet was designed by Prof. Compton and his research associate, Haydn Jones.

The equipment will be used, states Prof. Compton, in a new series of experiments by which it is hoped further data can be obtained on high energy

particles to see if the known laws of electricity apply to them.

As cosmic rays pass through the moist gas of the Wilson cloud chamber in the field of the magnet, they will leave a fog trail which is automatically photographed. Prof. Compton estimates that there should be one cosmic ray entering each second and about one out of fifteen will be moving in the proper direction for photographing.

Curve Reveals Charge

The magnetic field will bend the paths of the cosmic rays. Very high energy particles are less susceptible to deflection than are those of lesser energy, in somewhat the way that a baseball is harder to curve than is a pingpong ball. Because the magnetic field will

curve the tracks of the paths of particles of high energy to a less extent than it will those of low energy, Professor Compton will be able to judge the energy, and determine if the particles are positively or negatively charged.

Previous experiments have measured energies up to 20 billion volts, but Professor Compton hopes to extend the measurement with his magnet to energies of 40 billion volts.

Science News Letter, August 22, 1936

AGRICULTURE

Agricultural Prospects Very Dark for 1936

IN COLD, neatly-typed figures, the Crop Reporting Board of the Bureau of Agricultural Economics announced on August 10 the black agricultural prospects of the nation for 1936. Even if rains now come, they will do little good.

Corn production estimates are only 46.8 per cent normal and the crop is the worst since 1881. Spring wheat is only 32.8 per cent normal and with the exception of 1934 is the worst on record. Oats are 55 per cent normal and of all the edible grains only rice at 86 per cent is anything like normal yield.

The potato crop at 59.8 per cent normal is the worst on record since 1863.

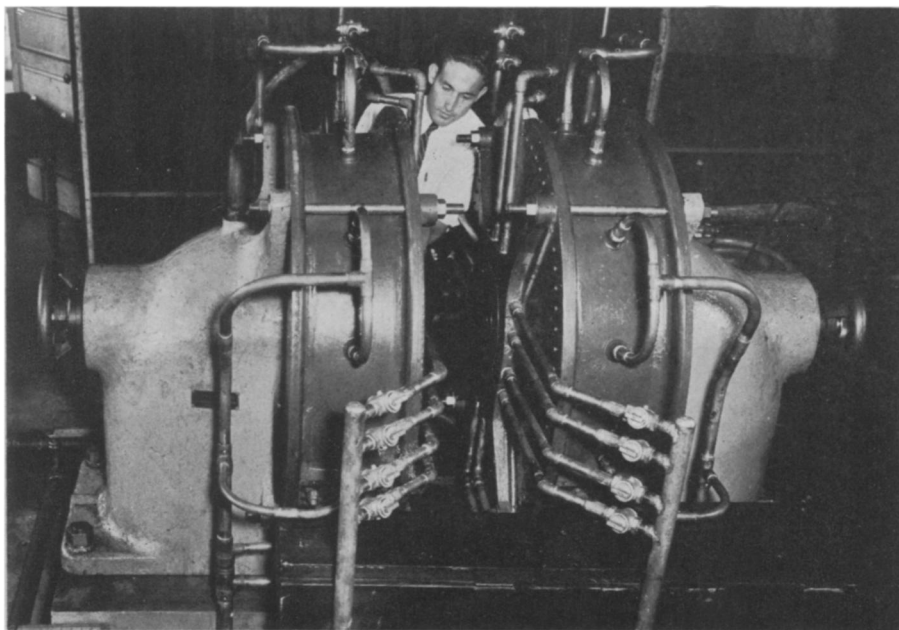
Cotton, unlike most other crops, has had favorable weather during July and the yields are expected to be above average in all states except Virginia and the Carolinas.

Affects Livestock

The reverberation of the report, covering the period up to August 1, in the livestock market will be widespread. Particularly affected will be hogs, which are most dependent of all animals on corn for fodder. Hay consuming animals will be better off than in the drought year of 1934. Hay supplies are 20 per cent greater than in 1934 and the number of animals is 3 per cent less. Heavy marketing of grain-consuming livestock and a lessening of winter rations for this stock are in prospect.

Crop conditions improved only locally during the week ending 8 a.m. Aug. 11, states the weekly weather and crop bulletin summary issued by the U. S. Weather Bureau (Aug. 11).

Showers of the week were confined mainly to the region east of the Mississippi River, while the great drought area of the central plains had abnormally high temperatures (110 de-



FOR COSMIC RAY STUDY

The giant 12-ton magnet with which Prof. Arthur H. Compton, Nobel Prize scientist of the University of Chicago, will launch new studies of cosmic rays. Haydn Jones, Dr. Compton's research associate, is shown examining the magnet which will be a part of Wilson cloud chamber equipment that will enable photographic determination of cosmic ray impacts to be taken. It is hoped that cosmic rays with energies as high as 40,000,000,000 volts can be studied by the device. The previous energy record was twenty billion volts.