

This phenomenon in plants of response to stimulus, without direct connection, by means of something resembling a nervous system, seems to be analogous to the action of the hormones, or secretions of the ductless glands, in animals. The action of these animal glands has been studied for some years and is now fairly well understood. The presence of similar substance in plants has long been suspected, but the present experiments come nearer to demonstrating their existence than any that have yet been performed.

OZONE MAY CONTROL WORLD HEAT SUPPLY

Observations on the screen of ozone, which exists some twenty miles up in our air and blocks radiations of certain wave lengths to or from the earth, were made for the first time in America at Mount Wilson Observatory by Dr. C. G. Abbot of the Smithsonian Institution this summer. Dr. Abbot recently returned to Washington having secured data which may prove of importance to astrophysicists and also throw much light on world weather changes.

The amount of ozone in our atmosphere is very small, but that small amount is very important. Although if the layer of ozone which exists some fifteen or twenty miles up were placed under atmospheric pressure at the surface of the earth it would be no thicker than the little finger on a man's hand, yet this scant amount of ozone serves as a screen which blocks off much of the important invisible radiation coming from the sun and stars to the earth or going outward from the earth.

All the shorter wave lengths of the ultra-violet at one end of the spectrum and some of the infra-red or heat rays at the other end are shut off by the ozone in much the same fashion that our ordinary window glass shuts out the longer of the ultra-violet rays which are so beneficial to health.

Many of the stars have their chief energy spectrum in the shorter portions of the ultra-violet so that this screen shuts off observation of these important sections of their invisible light. Heat rays from the earth which are intermediate between light and radio waves are also stopped from radiating into space by this same gaseous screen.

Dr. Abbot's observations were made for the purpose of determining whether or not the amount of ozone in the upper air varies with variations in the earth's heat and with radiations from the sun. The ozone is produced from oxygen in the air by the action of the sun's rays which have a wave length of less than 2000. Ozone is destroyed by the sun's rays of wave lengths between 2000 and 3000.

The amount of this gas in the air, acting as a screen to hold in the earth's heat rays or shut out the ultra-violet rays from the sun at any time, represents a balance between the ozone productive and destructive rays in sunlight.

Dr. Abbot, indiscussing his observations compared these forms of radiations to two men carrying sand to and from a sand pile representing the amount of ozone in the air. If one man carries the sand away faster than the other adds it to the pile, the size of the pile will diminish, while if the man carrying sand to the pile gains on the one carrying it away, the pile will increase in size. Dr. Abbot suspected that some such variation takes place in the amount of ozone in our air.

If there is less at some times than others, obviously at such times the ozone screen will be less effective in preventing heat from radiating away from the earth and so influence climate.
