PLANT PHYSIOLOGY

Blue Light Causes Plants To Bend Toward Each Other

DIFFERENT colors of light not only produce different rates of growth in plants, but in some way cause neighboring seedling-tips to seek or shun each other, Dr. Enoch Karrer of the Smithsonian Institution has discovered.

Dr. Karrer grew large numbers of oat seedlings, and exposed sets of them to the rainbow-band of light obtained by splitting up the white light of an electric arc. Seedlings exposed to blue light showed the expected reaction of bending toward the light. But they also showed an unexpected reaction: they also bent toward each other. Red light produced an opposite "social" effect: red-illuminated oat seedling-tips bent away from each other.

Plants receiving orange light became greener than their neighbors, while those receiving only blue-green light developed the most marked yellowish color. Roots grew longest in the extreme blue and shortest in the orange-red.

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ENTOMOLOGY

Grasshopper Damage Grows As Hungry Insects Migrate

GRASSHOPPERS are migrating, reports Dr. P. N. Annand of the U. S. Department of Agriculture, recently returned from an inspection tour of the field of the 'hopper war. They have spread over areas of Oklahoma not previously infested, and have also moved into Arkansas. In Oklahoma alone, within a few days they destroyed about fifty thousand acres of corn and an equal area of cotton.

In Kansas, they have been held in check somewhat, because county funds have been available to purchase poison-bran bait. State funds, lacking in Kansas, have enabled Iowa to meet the invasion at a line across the western third of the state, beyond which the insects are not causing major harm as yet, though present in considerable numbers. In Nebraska, with no funds of any kind and plenty of 'hoppers, the situation is very bad.

Minnesota fought the plague vigorously for several years past, so that this year that state has relatively few of them. In the Dakotas they are not as bad as they were in 1935 and 1934, but in this drought-smitten area the crops are so little worth saving that not much effort is being made against the grasshoppers.

Federal funds, made available in the closing hours of Congress, have now been spent for poison-bran bait materials, which are being distributed as far as they will go.

Much of the mischief to corn has been due to the cutting of the small grains, which caused a mass migration to the cornfields, where the insects are feeding now. They will probably do immense damage to the corn crop throughout the Missouri valley if the drought and heat continue.

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PUBLIC HEALTH

Camps Comparatively Safe In Meningitis Epidemic

LIFE in CCC camps proved much safer than life in the surrounding communities when an epidemic of meningococcic meningitis occurred in Missouri and Kansas last summer.

Now it can be told to doctors and the public, and Capt. Dwight M. Kuhns of the Army Medical Corps, Fort Leavenworth, Kans., reports on the control measures adopted in three CCC camps when the disease broke out. (*Journal, American Medical Association,* July 4).

The CCC boys, in addition to the usual quarantine, daily medical examinations and inspection and sterilization of food and dishes, were treated early with antimeningococcus serum. Only one man died, a mortality rate of 11 per cent. Outside the CCC camp, 83 per cent of the patients died.

Aside from the serum used, the most effective control measure at the camps was to do away with all crowding. A space of three feet between cots was required, and head to foot sleeping was initiated.

In the end 395 persons were given meningococcus filtrate to determine its value as a skin testing and immunizing substance. None in the intervening ten months has developed meningitis, although at Tarkio, Mo., scene of the first outbreak, four cases developed among those not immunized.

In presenting this preliminary report, Capt. Kuhns states that in order to prove the value of the meningococcus filtrate as a skin testing and immunizing agent it should be used in a large number of epidemics over a long period of time.

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IN SCIEN

PHYSIOLOGY

Tuna Fish, Dust, Ragweed Cause Hives and Hay Fever

TUNA fish, house dust, chicken feathers, and ragweed pollen lead the list of substances which give trouble to persons suffering from an allergy such as hay fever, hives, asthma, or migraine, it appears from a report by A. A. Janson of the North Shore Clinical Laboratory, Evanston, Ill., to the *Illinois Medical Journal.* He reviewed 300 consecutive cases in which tests were made to find the particular protein for which the allergy patient had an idiosyncrasy.

Foods, he found in these cases, more frequently caused trouble than any other group. More persons were sensitive to fowl than to other meats, and chicken and turkey were the worst offenders. Spinach ranked rather high, 60 patients, mostly children, being sensitive to this vegetable. Eggs, frequently suspected of causing allergic reactions, were guilty only 24 times in this series of cases.

Ragweed was the worst offender among the pollens, with sunflowers a close second. Chicken feathers led the list in the group which included feathers, horse hair, and cat hair. In a miscellaneous group, house dust, orris root (found in many face powders), and silk were the most frequent offenders.

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PHYSIOLOGY

New Sex Hormone Obtained In Crystalline Form

A NEW sex hormone, different in both chemical composition and physiological effects from the ones already known, has been obtained in crystalline form from the female sex glands of slaughtered animals by Robert H. Andrew and Frederick Fenger of Armour and Company's research laboratory in organotherapeutics. The discoverers have reported briefly to *Science* (July 3), and announce their intention to publish their results at greater length soon.

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CE FIELDS

GEOGRAPHY

Canada's Northwest Never Had a "Lost World"

THE LEGEND of a tropical "lost world" in northwestern Canada, a region in which it was supposed that tropical vegetation and prehistoric animals existed in frigid surroundings, was exploded in the Maiben lecture address at the recent A.A.A.S. meeting, by Dr. Charles Camsell, Canada's deputy minister of mines.

Dr. Camsell last August led an airplane expedition that covered 4,000 miles. He tried without success to find the so-called "tropical valley" of northwestern Canada. Although the legend had persisted for many years, it was found to be pure fiction.

There are, however, unexplored areas still awaiting the adventurous geographer and scientist. The Mackenzie mountains, greatest single mountain group in the whole of Canada, are to a large extent unexplored and their structure and history are unknown. Dr. Camsell has pronounced them the most difficultly accessible region in the whole Dominion of Canada and he predicted that they will probably be one of the last portions of this continent to be accurately mapped.

The Mackenzie mountains commence at latitude 60 degrees, immediately west of Liard river, and extend northward and then northwestward for about 600 miles as a gradually broadening belt of mountains about 300 miles wide.

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PHYSIOLOGY

Fright Speeds Heart But Form of Beat Unchanged

IF THE chair in which you are sitting should suddenly and unexpectedly tilt backward, or if an auto horn concealed beneath it is abruptly sounded, your heart would begin to beat faster, but the form of each beat will remain virtually unchanged.

Experiments of this kind, designed to determine the effect of fright on heart action, were made by Dr. N. N. Springer of New York University.

The subjects of the tests, who were given no hint of what was to happen, were college students. The instrument used to study the heart action is the electro-cardiograph, which makes use of the fact that each time the heart beats it generates an exceedingly tiny electric current, of the order of a millionth of that passing through an electric light bulb. The variations of heart current are photographically recorded in the form of a wavy line and it is possible, by examining this curve, to detect and diagnose many heart ailments not revealed by ordinary examination.

Muscular contractions of other parts of the body, however, such as the involuntary clenching of the fists accompanying sudden fright, will generate similar currents which mask those due to the heart itself. Consequently, in Dr. Springer's experiment, the muscle currents had to be compensated by an extra set of wires attached to the limbs.

The final records showed that the heart rate increased in some cases as much as 40 or more beats per minute within the space of 3 or 4 beats following the scare and gradually returned to the normal rate in about ten seconds, but the actual form of the wave remained unaltered.

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BOTANY

Oregon State Flower 30,000,000 Years Old

OREGON'S state flower, the "Oregon Grape" is a real native bloom, its ancestors having lived in this region more than 30,000,000 years ago.

Fossil leaves have been identified by Dr. C. A. Arnold, University of Michigan paleobotantist, in miocene rocks from eastern Oregon. The Oregon grape is not really a grape, but belongs to the barberry family.

Cigarbox wood also grew in this same region ages before smokers arrived. The rock records show that "Mexican cedar" thrived there, whereas it is now native only to the tropics and eastern Asia. Again, incidentally, this "cedar" is a species of mahogany.

Apparently the eastern Oregon of miocene times was inhabited by many plants no longer native there, Dr. Arnold states. From fossil leaves, seeds and fruits he has identified the gingko tree and ailanthus, or Tree of Heaven, now native only to Asia, and the ironwood, found now only much farther east.

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PLANT PHYSIOLOGY

Alga Found to Thrive Planted in "Heavy Water"

HEAVY water—formed of double-weight hydrogen atoms with oxygen—is not necessarily poisonous to plant life, experiments have indicated, Dr. Herbert Meyer of the Plant Physiology Institute of the German University in Prague, Czechoslovakia, states. (*Die Naturwissenschaften,* May 29.)

Dr. Meyer used cultures of the lowly one-celled alga, or water-plant, known as *Chlorella vulgaris.* This is a favorite experimental organism, because it is so easily handled in the laboratory. Planted in high concentrations of heavy water containing the necessary mineral elements, the alga grew quite as well as did control cultures planted in parallel setups containing ordinary water.

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PLANT PATHOLOGY

"Gas Attack" Repels Fungus On Tobacco Plants

DOWNY mildew or blue mould, a destructive disease of tobacco plants which has been retarding the growth of the Australian tobacco industry, is likely to be conquered as a result of the research of Dr. H. R. Angell, J. M. Allan, and A. V. Hill of the Council for Scientific and Industrial Research, Canberra, Australia.

These scientists found that the infection of the tobacco plants was in the seedling stage and they adopted the practice of growing the seedlings in special beds which could be covered with glass and in which they placed a number of shallow vessels containing benzol or toluol, chemicals which are hostile to fungus growth. The young seedlings, therefore, grew in an atmosphere containing the vapor of one or other of these substances and though they remained strong and healthy themselves the fungus causing the disease got no opportunity to grow.

Once the young seedlings had survived the critical stage they could be transplanted with no fear of further infection. This method is now being tried out by the various Departments of Agriculture all over Australia and the results of large-scale field tests are being eagerly awaited by the scientists concerned and the tobacco growers who may be saved many thousands of pounds by this discovery

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