

## GENETICS

## Chromosome Behavior Clearly Seen in Nematode

► WORMS promise to open up a new field of investigation into problems of living cells, thanks to a student's luck in a laboratory procedure.

The behavior of chromosomes, the rod-like bodies within the cells which are the basis of the phenomena of heredity, was easily and clearly seen in the eggs of the worm, *Nematospiroides dubius*, on a slide prepared by Marjorie Ind, her teacher, Ll. Lloyd of the University, Leeds, reports in the British scientific journal, *Nature*. Now the zoologist need no longer go to plants for the demonstration of the division of the nuclei of living cells.

Very little is known about the chromosomes of nematode worms, in spite of the classical example of one kind, *Ascaris*. Therefore, a study of the cell division will be more important than that of the complete, complex cell division (mitosis) because it shows features not shared by the *Ascaris*.

*Science News Letter, December 1, 1945*

## PHYSICS

## Scientific Meeting Devoted to Atomic Energy

► THE NATION'S leading scientists had on their program for two days nothing but atomic energy, its details and its consequences. Limited in their technical discussions by what the War Department desires to announce, the international pronouncements about atomic power and atomic bombs have become as much a part of the scientific program as what the scientists themselves said.

Many members of the American Philosophical Society and the National Academy of Sciences, among them the physicists and chemists who made the atomic bomb, felt that the program set forth by President Truman and Prime Ministers Attlee and King has logical premises but that the step-by-step operation proposed is too tentative and too subject to failure.

The major problem is whether there shall be war in the future or whether there shall not be. The first step in the Truman-Attlee-King program, the exchange of scientific information for peaceful use, would in normal circumstances be a good beginning. But the atomic bomb has created a situation which is, as Dr. J. Robert Oppenheimer, recently di-

rector of the Los Alamos atomic bomb project, described before the scientists, "a vast threat, and a new one, to all the peoples of the earth."

"By its novelty, its terror, and its strangely Promethean quality," Dr. Oppenheimer continued, "it has become, in the eyes of many of us, an opportunity unique and challenging."

The greatest human problem today and the greatest scientific problem today, at the end of a great war, is to prevent a more terrible war. Dr. Oppenheimer expressed the feelings of the scientists at the meeting when he said that there will be difficult days ahead, beset with discouragement and frustrations, but that the making of the necessary changes in relations between nations and peoples will not be impossible. This is the fundamental problem of human society. It is a pre-condition, as Dr. Oppenheimer put it, not only for civilized life and freedom but for the attainment of any living human aspiration.

*Science News Letter, December 1, 1945*

## GENERAL SCIENCE

## Five-Point Program Proposed at London

► ENCOURAGEMENT and coordination of scientific research and teaching on the broadest scale are called for in the charter of the Educational, Scientific and Cultural Organization of the United Nations (UNESCO), the first meeting of which has been concluded in London.

Scientists attending the conference have informally proposed to the science division of UNESCO's preliminary committee such problems as the following:

1. Bibliographic coverage of fields at present not receiving adequate handling on an international basis.

2. Promotion of wide international interchange of scientific personnel at all levels, including students, teachers and investigators.

3. Maintenance of bureaus for scientific surveys and censuses; for example, a survey of what is needed for the restoration of devastated countries, and a study of standards basic to scientific education.

4. Financial assistance for existing scientific organizations.

5. Organization of "cross-field" international conferences of social and natural scientists to consider problems raised by atomic energy, new labor-saving devices, new kinds of food, and population shifts.

*Science News Letter, December 1, 1945*



## ORDNANCE

## Anti-Sub Rocket Weapon Revealed for First Time

► THE "HEDGEHOG," a multiple rocket launcher used against submarines, has been released from wartime wraps by the Navy. Officially designated as Anti-Submarine Projector, Mark 10, it consisted of a bristling array of 24 big rockets carrying heavy charges of high explosive.

When the approximate location of a submerged U-boat was plotted, all 24 of the missiles could be launched in two and one-half seconds. They fell in an elliptical pattern in the target area and immediately sank, nose down.

Unlike the conventional "ash-can" depth charge, these weapons would explode only on direct contact with the target. Thus, if the listening devices picked up the "bump" of an underwater explosion the commander of the attacking ship knew positively that a hit had been scored.

The "hedgehog," originally a British invention, was adopted and improved by the U. S. Navy, and used with great effect in breaking up the German "wolf-pack" U-boat campaign.

The weapons were manufactured in this country by the Carrier Corporation at Syracuse, N. Y.

*Science News Letter, December 1, 1945*

## PHYSICS

## Awards Given Military Men for Atom Work

► FOR THEIR PART in making the atomic bomb, 54 officers so far have received military decorations and 52 awards are now announced by the War Department. Distinguished Service Medals awarded to Col. Franklin T. Matthias, Col. Kenneth D. Nichols, and Col. Stafford L. Warren have been announced. Maj. Gen. Leslie Richard Groves and Brig. Gen. Thomas F. Farrell had been given the award previously. Forty-nine other officers were given the Legion of Merit or the Oak Leaf Cluster to the Legion of Merit.

It is understood that equivalent awards and commendations will be given to an even larger number of civilians.

*Science News Letter, December 1, 1945*

# CE FIELDS

## ELECTRONICS

### Electronic Heat Makes Bread Mold-Proof

► BREAD MOLD, which each year ruins 150,000,000 pounds of bread, is completely destroyed when the baked bread is heated electronically for five seconds, stated Dr. William H. Cathcart, head of the national bakery laboratories of the Great Atlantic and Pacific Tea Company.

Up to the present, certain chemicals added to bakers' formulas have merely retarded the growth of mold in bread and other baked goods. Mold spores can now be eradicated completely by exposing wrapped bread to high-frequency heat generated in an electronic "oven," Dr. Cathcart reported. The taste, physical characteristics and nutritive value of the bread are in no way changed by the electronic rays, which penetrate all portions of the bread simultaneously.

Bread given the electronic treatment remains completely unaffected by mold after three weeks under normal kitchen conditions of temperature and humidity, while mold appeared on untreated bread three days after the experiment was begun. Both batches of bread were made of the same ingredients with the usual mold retardants added.

*Science News Letter, December 1, 1945*

## CHEMISTRY

### Properties of Fibers Depend on Molecules

► THE INDUSTRIAL importance of textile materials stems from the diverse mechanical properties which the various fibers possess, and these properties depend upon the properties of the molecules in the fiber, stated Dr. Milton Harris at the Polytechnic Institute of Brooklyn, at a meeting devoted to the application of polymer chemistry to textile fibers. Dr. Harris is a member of the Milton Harris Associates, Washington, D. C.

Cotton, he said, is important because of its high strength which serves well in the production of industrial fabrics such as duck, webbing and tire cord, as well as clothing materials which must be subjected to frequent laundering. Wool is important because of its long-range elas-

ticity, a property that confers on wool fabrics the ability to hold their shape or to maintain a porous structure which is closely associated with the warmth of fabrics.

Similarly, the importance of other fabrics, such as rayons, nylon and new fibers which are constantly appearing on the market, he continued, depends on specific mechanical properties which they possess.

These mechanical properties, Dr. Harris explained, depend on the length of molecules which go to make up the fiber, the manner in which these molecules are put together, and finally, their specific chemical structure. In this sense, the fiber bears the same relationship to its constituent molecules as a yarn bears to its constituent fibers. In other words, the property of a yarn depends on the length of its fibers, on the manner in which they are put together and the properties of fibers, such as flexibility, surface properties, etc.

The bearing of these molecular properties on the fiber properties was discussed by others at the meeting. Dr. A. F. Smith of E. I. duPont de Nemours and Company, Wilmington, Del., explained the influence of the manner in which the molecules are put together, and Dr. J. W. Seymour of the Celanese Corporation, Cumberland, Md., discussed the influence of the length of molecules on the mechanical properties of fibers and films.

*Science News Letter, December 1, 1945*

## NUTRITION

### November Cabbage Has Greater Yield of Vitamins

► CABBAGE harvested in November usually has a greater yield of vitamins—vitamin C, thiamin and riboflavin—than cabbage harvested in May. The vitamins are more evenly distributed through the head in fall than in spring cabbage, tests at the Southern Regional Vegetable Breeding Laboratory at Charleston, S. C., showed.

In May be sure to eat the outer leaves for they are much richer in vitamins than the inner leaves next to the core. In November, on the other hand, the inner leaves, next to the core, are richer in vitamins. As the season becomes colder, more vitamins accumulate around the center of the cabbage, but as the season becomes warmer, the vitamins are most abundant in the outer portions of the head.

*Science News Letter, December 1, 1945*

## GENERAL SCIENCE

### National Academy Names Award Winners

► DR. VANNEVAR BUSH, director of the Office of Scientific Research and Development, was awarded the Public Welfare Medal of the National Academy of Sciences in recognition of his outstanding service in bringing to bear the scientific and engineering talent of the country upon the problems of research connected with the war effort.

The Daniel Giraud Elliot medal for meritorious work in zoology or paleontology was this year awarded to Theodosius Dobzhansky, zoologist at Columbia University.

*Science News Letter, December 1, 1945*

## TECHNOLOGY

### Communication Possible At 40,000 Feet

► HIGH ALTITUDE communication, long a serious problem for our flyers, was overcome during the war, with development of a system that kept pilots and crew members of strato-flying airplanes in radio contact with ground stations and other aircraft, Brig. Gen. T. C. Rives of the Air Technical Service Command announced.

Operating at altitudes from 25,000 to 40,000 feet, where former sets had proven ineffective, this radio communication equipment helped make our B-29 raids over Japan successful. Featuring automatic tuning with pushbutton control through 11 different channels, the system overcame serious natural handicaps of high altitude flying.

At high elevations speech difficulties are great and it is only with this long-range transmitting liaison set that proper communication is possible. The set operates effectively at 40,000 feet, whereas the radio formerly used was capable of performance at heights not greater than 25,000 feet.

Any one of the frequency channels can be tuned in approximately 20 seconds after it is selected by pushing one of the corresponding buttons on the control box. Weight and space are saved. The new set weighs 110 pounds, compared with the 215-pound old set. It is compact in design and fits into a small space. Maintenance is facilitated with plug-in units that are easily removed and serviced separately.

The set provides for transmission of the spoken word by voice as well as by Morse code signals.

*Science News Letter, December 1, 1945*