

## OCEANOGRAPHY

**May Predict Ocean Waves  
If Three Factors Are Known**

► **STORM-GENERATED OCEAN** waves, which eat away at the nation's beaches and batter ships at sea, may be predicted if three things are known about the responsible storm.

This is a finding of the engineering research division of New York University, working under contracts from the Army's Corps of Engineers and the Office of Naval Research.

These three factors must be known about the storm: 1. The dimensions of the storm area. 2. The duration of the storm. 3. The characteristics of the turbulent eddies of the storm.

Because air masses differ in their stability, N. Y. U.'s Engineering Research Review said, different storms have widely different turbulent characteristics. Winds from the north, for instance, buffet the sea surface more than do winds from the south, even though they travel at the same average speeds.

It was pointed out that the east coast of the United States loses about one foot of beach a year, because of the action of wind and waves. Some are built up—like the beach at Sandy Hook—with the sand from other areas, but the net result is a loss.

Meteorologists and oceanographers at N. Y. U. under Drs. Bernard Haurwitz and Willard J. Pierson have developed a ripple tank where the effect of obstructions can be seen and photographed, and a wave analyzer for the statistical analysis of ocean waves.

Using these and other tools, the scientists have constructed mathematically on paper a "model storm." The waves from this theoretical storm show all the properties of a storm in nature.

With the information thus gathered, not only may the waves be predicted, but also measures might be taken to allay erosion and to protect ships in harbors and at sea.

Science News Letter, February 23, 1952

## ORNITHOLOGY

**Museum Proud Of  
Two New Peacocks**

► **THE SMITHSONIAN** Institution is proud of two peacocks added to its collection of mounted birds.

They are Congo peacocks (*Afropavo congensis*), the largest of the new distinct species of birds discovered anywhere in the world during the past 20 years.

A fairly primitive peacock stock is represented by the mounted birds, received as gifts from the Musee du Congo Belge of Tervuren, Belgium. From this stock the splendid and well-known peacocks of Asia were descended and these resplendent peacocks and the more ordinary pheasants are linked by the primitive stock.

This is evidence for an ancient connection between the forested areas of equatorial Africa and those of southern Asia.

The Congo peacock was discovered by Dr. James P. Chapin of the American Museum of Natural History. In 1913 he recognized a single feather from the hat of a Belgium Congo native as one from a large unknown bird. Then in 1936 at the Congo Museum in Belgium he found two mounted birds which matched the feather and which turned out to be the new species, which he later collected in the field.

Science News Letter, February 23, 1952

## BIOPHYSICS

**X-Ray Photographs Made  
With Radioactive Thulium**

► **MAKING X-RAY** pictures without bulky X-ray equipment has been accomplished by a British professor of physics, W. V. Mayneord, of the Royal Cancer Hospital, London, England.

Using a few grains of the oxide of the rare metal, thulium, after it had been irradiated in the British atomic pile at Harwell, Prof. Mayneord succeeded in taking clear X-ray pictures of the teeth embedded in a skull and of the bones of the hand.

When the thulium atoms are exposed to the neutrons in the atomic pile, they each pick up a neutron and become radioactive, shooting forth principally highly penetrating gamma rays. It is these gamma rays that pass through the tissues and affect the photographic plate, so perhaps they would be better called gamma ray pictures.

Industry has for some years been using irradiated metals, principally cobalt 60, as sources of gamma rays for taking pictures through heavy metal castings, but the rays from these metals are too powerful and damaging to cells to be used on living tissues.

Rays from the irradiated thulium are of 84 kilovolt energy, safely comparable to the 100 kilovolt X-rays already being used in hospitals. It is the softness of the thulium gamma rays which permitted them to be used to take pictures of soft alloy castings, at first reported by SCIENCE SERVICE last summer.

In Prof. Mayneord's preliminary experiments, long exposures had to be used because of the weakness of his source of rays, but he suggests that "if sources of sufficient activity can be obtained, radioactive isotopes emitting low-energy gamma rays will be of use in diagnostic radiology." Prof. Mayneord thinks such sources will surely be found.

He does not expect that radioactive isotopes are likely to compete seriously with X-ray machines where the latter can be used conveniently, but points out that "the advantages, in both peace and war, of a small source of X-radiation, free from electric mains and complex equipment, are apparent."

Science News Letter, February 23, 1952



## PHYSIOLOGY

**Contact Lens Halos  
Due to Oxygen Lack**

► **THE CORNEAS**, or windows, of the eyes need oxygen for the job of letting in light. Contact lenses keep out air and its oxygen and that is why people who wear these lenses find their vision getting hazy after a while and why they see halos around lights.

This explanation is proposed by Drs. George K. Smelser and V. Ozanics of Columbia University. It is based on experiments with persons fitted with diving goggles in which the eyes could be exposed to various gas mixtures. Bright halos and hazy vision developed in less than two to three hours when nitrogen gas was let into the goggles, although no halos were seen when moist air or air and carbon dioxide mixtures were used.

In other experiments, the scientists found that adding oxygen bubbles to contact lens fluid prevented halos when the contact lenses were worn for as long as seven hours. The bubbles became smaller during the experiment, showing that the cornea was using the oxygen.

Oxygen presumably is involved in removal of water from the cornea, and when the cornea is deprived of oxygen by contact lenses, a water-logged condition may develop and cause the haziness of vision and the halos.

The new explanation of this condition is presented to fellow scientists in the journal SCIENCE (Feb. 8).

Science News Letter, February 23, 1952

## MEDICINE

**It's a Fluke in the Water  
That Causes That Itching**

► **"SWIMMERS' ITCH"** in Hawaii, known locally as "Pearl Harbor itch," may be due to a newly discovered marine larval schistosome, or fluke. This fluke might also be the cause of sea bathers' eruptions in Florida.

The new schistosome, or fluke, was discovered in snails collected from Moku Manu, or "Bird Island," and from another bird refuge area, Manana, or "Rabbit," Island.

This fluke can cause itching and eruption when it gets on human skin, patch tests on human volunteers showed.

Discovery of the fluke, first skin irritating one to be found in Hawaiian sea water, and tests with it are reported by Dr. George W. T. C. Chu of the University of Hawaii in the journal SCIENCE (Feb. 8).

Science News Letter, February 23, 1952

# CE FIELDS

## ENTOMOLOGY

### Insect Found in Rain of Ice Crystals

► TO THE old saying about "raining cats and dogs," you may now add insects. Dr. W. R. Henson of the Forest Insect Laboratory, Sault Ste. Marie, Ont., reports that a tiny insect enclosed in a natural ice crystal was observed falling during a rain of ice crystals at Banff National Park.

There is no previous record of such an icy encasement for an insect to Dr. Henson's knowledge. The minute animal, a chironomid, is a midge, somewhat mosquito-like in form, but more delicate than mosquitoes. The chironomid was dead when the crystal was melted at room temperature. Dr. Henson believes that the insect was carried to the level of ice formation by the updraught on a nearby mountain slope. Average length of the ice crystals falling when the insect-enclosing crystal was found was about two-tenths of an inch.

Science News Letter, February 23, 1952

## BIOCHEMISTRY

### Blood Test Tells Horse Meat from Beef

► HORSE MEAT can be distinguished from beef by exactly the same kind of test that police use when they want to tell whether blood is from humans or from animals. Making the standard tests requires special training. There is no known test a housewife can do at home or at the butcher's to make sure that horse meat is not being foisted off as beef.

Antibodies in the blood act as the chemical detectives, Dr. Albert R. Miller of the meat inspection division of the U. S. Department of Agriculture explained. Antibodies are protein substances formed in the blood of either humans or animals to combat foreign substances in the blood stream. Different types of antibodies are developed specifically to counteract different foreign substances, whether the invaders are bacteria or other proteins not normal to the blood.

To distinguish horse meat from beef, chemists take a little blood from the suspected meat and centrifuge it to separate the red blood cells from the serum. A rabbit is then injected for three consecutive days with serum taken from the blood of a horse.

After waiting about 10 days from the original injection, some of the rabbit's blood is withdrawn and centrifuged to separate the serum from the red blood cells. This serum, which now contains

antibodies built up by the rabbit's blood system to fight the horse meat proteins foreign to it, is then mixed with the serum from the suspected meat.

If a white cloudy precipitate forms immediately, the meat was from a horse. The same type of reaction would also work for human, beef or hog's blood, provided that the rabbit blood had been sensitized to the foreign proteins of each.

Normally the rabbit serum containing the antibodies, known as the anti-serum, is not kept on hand in the chemical laboratories where such testing is done. If, however, there is a flurry of fraud cases such as have been reported from Illinois recently, the tests can be speeded up considerably by keeping on hand rabbit anti-serum that contains antibodies against horse proteins.

Of the 88,659,000 animals—cattle, calves, swine, sheep and horses—slaughtered during the year ending June 30, 1951, under the inspection of Department of Agriculture officials, only 319,601 were horses, Dr. Miller reported. Inspected horse meat is used mainly in dog food.

Science News Letter, February 23, 1952

## INVENTION

### Wing Reduces Drag On Supersonic Planes

► A NEW form of wing for supersonic airplanes which will reduce the "wave drag" associated with thick wings, while at the same time avoiding the excessive weight that goes with extremely thin wings, has been invented by Alan Arnold Griffith, Derby, England, and assigned to the Rolls-Royce company of England.

The invention received American patent number 2,584,198.

The wing of his supersonic plane has a leading edge which consists of open air ducts to feed into the air-consuming gas turbine or jet engine. He asserts that the wave drag associated with wing thickness is for the most part in the form of shock wave accompanying the intake of air. It is present whether the intake is inside the thick wing, or outside a thin wing.

Science News Letter, February 23, 1952

## INVENTION

### Patent "Foldable Apron" For Junior's High-Chair

► HIGH-CHAIRS MAY in the future be equipped with a "foldable apron" gutter to catch food which Junior spills while eating. Placed on the floor, the gutter embraces three sides of the high-chair. The food-catching apron was invented by George H. Caponera of Harrison, N. Y. It was given patent number 2,585,434. The gutter is not intended to be effective when Junior hurls food across the room.

Science News Letter, February 23, 1952

## BIOPHYSICS

### Eight-Ton Cobalt 60 Room To Speed Medical Research

► AN EIGHT-TON chamber, whose heart is a piece of radioactive cobalt weighing only 30 grams, has been installed at the Atomic Energy Project at the University of California at Los Angeles to speed medical research on the West Coast.

The radioactive material is known as cobalt 60 and has a radiation output the equivalent of 100 grams of radium. It was made at the Oak Ridge National Laboratories.

One of three in the United States, the chamber stands five feet high, measures 40 inches across and is shielded by plates of lead 8½ inches thick.

Dr. M. A. Greenfield, associate professor of radiology in the U.C.L.A. Medical School and section chief with the Medical School's Atomic Energy Project, pointed out that the chamber will be used mostly for basic scientific studies of the effects of radiation on matter.

The chamber and shielding is constructed so that it is extremely safe to use. It is mechanically simple in construction, minimizing the chance for breakdowns in the safety of the technique. Only a few seconds are required to load a sample to be irradiated.

"The chamber is so safe that a person could lean against it for many hours each day and still get only a small fraction of medically-accepted radiation limits," Dr. Greenfield said.

Science News Letter, February 23, 1952

## INVENTION

### Optical System for Better TV Pictures

► MORE ACCURATE television pictures and less distorted views of the stars and planets may result from an invention which received a patent recently.

Assigned to the Farnsworth Research Corp. was patent number 2,585,009, for a concentric optical system. The inventor, Francois Charles Pierre Henroteau, Fort Wayne, Ind., claims that this does away with some of the distortions now present in the optical systems used in television projectors and cameras and in telescopes.

One optical system having in general the desired properties, says the inventor, is based upon the well-known Schmidt camera, designed for taking pictures of the heavens. However, he claims, the Schmidt optical system produces certain distortions in the image to be photographed.

The inventor claims to do away with this difficulty by providing an optical system composed principally of optical surface members which change the direction of various light rays and which are portions of concentric spheres.

Science News Letter, February 23, 1952