PHYSICS

## Science Warns Against Black Clothes Mode

THE NEW smart fashion of black clothing for summer wear has no support from the scientists who understand problems of heat. It might do for evening wear, but don't don a black dress and go out in the sun if you want maximum comfort. Rough, black surfaces are the best absorbers of heat known to science.

Smooth, bright surfaces reflect or turn away the heat. Science therefore does give support to these new bright helmets the boys are wearing.

If you don't believe it, here is a laboratory test you can easily try for yourself. Take two bright new tin cans with covers and tear off the labels. Fill both with cold water and set them out in the sun, but first rub lampblack on one of them. Later take the temperature in the two cans. The water in the blackened can will be much warmer than that in the shiny one.

Another warning about summer clothing from scientists. It is not the fabric that is loosely woven with wide air spaces between fibers that is the coolest. Air makes a good insulator for holding the heat of the body in. Wool clothing and furs are warm because the fibers are small and hold plenty of air between them. Linen is a cool fabric because the fibers are large and it has few air spaces.

*Science News Letter, August 1, 1936*

BACTERIOLOGY

## Influenza Virus Carried In Air, Experiment Shows

PROOF that air can carry influenza and that ultraviolet light can rob the virus-laden droplets of their danger has come from research conducted by Drs. W. F. Wells and H. W. Brown at the Harvard School of Public Health (*Science,* July 17).

Changes in the handling of future influenza outbreaks are probable as the result of the new studies. Hospitals and physicians may find it advisable to irradiate the air of their rooms with artificial sunshine in order to stop the spread of the disease from sick to well.

In the experiments a famous strain of influenza virus, known as Puerto Rico 8, was used. This was originally obtained from a human patient in Puerto Rico and was used last year by Dr. Thomas Francis, Jr., of the Rockefeller Institute for Medical Research, to demonstrate the influenza virus and show that the same virus, a substance beyond the reach of the microscope in size, causes the disease in various parts of the world. Later this virus of human influenza was cultivated by Dr. Francis in vitro, that is, upon non-living food in a glass flask. Dr. Francis provided the virus upon which Drs. Wells and Brown worked.

In one of the experiments a liquid suspension of the virus was atomized into a large steel chamber, leaving in its air minute drops containing virus. This is very much like what happens when a person ill with influenza coughs. One sample of air was untreated while another was irradiated with a cold quartz mercury vapor lamp giving off ultraviolet light. The droplets from both samples were extracted by centrifuges and injected into ferrets to see whether they had the ability to produce the disease.

All the animals that were inoculated with material collected from the untreated air within an hour after suspension contracted influenza. Inoculations made later or with ultraviolet irradiated material did not carry the infection.

*Science News Letter, August 1, 1936*

SAFETY

## Monoxide Made to Sound Alarm Against Itself

A LIGHT-weight portable device that rings a warning bell or sounds a horn when deadly carbon monoxide gas gets too plentiful in an airplane cabin or cockpit has been perfected by S. H. J. Womack and J. B. Peterson of the National Bureau of Standards.

Recent tests show that very small amounts of the deadly gas, contained in the exhaust of airplane and other engines, may be dangerous, particularly in high altitude flying. Only five parts in 100,000 of air are permissible at an altitude of 15,000 feet.

Earlier carbon monoxide indicators used commercially and by the U. S. Navy were modified and re-designed by the two Bureau of Standards scientists. The heart of the instrument is a cell containing a granular mixture of manganese dioxide and copper oxide, which changes the carbon monoxide into carbon dioxide with generation of heat. Accurate measurement of heat rise indicates the amount of the deadly gas present.

The National Advisory Committee for Aeronautics has made public the results of this research.

*Science News Letter, August 1, 1936*

# IN SCIENCE

PHOTOGRAPHY

## Non-Dazzling Photoflash Takes Pictures Secretly

A NEW non-blinding, non-dazzling photoflash lamp by which a person, it is claimed, could be photographed without knowing that he has had his picture taken, is the subject matter of a patent (No. 2,046,388) granted to J. H. Kurlander of Nutley, N. J.

The blinding and dazzling flash of conventional photoflash lamps, points out the inventor, is one reason why photographers are kept out of courtrooms and why some people do not care to be photographed by photoflash light. He calls attention to the fact that the human eye is most sensitive to yellow light and that it is the sudden flashing of yellow light from ordinary photoflash lamps which is responsible for the startling shock to the eye when a picture is taken.

The inventor has found that by coating the bulb of the lamp with a lacquer colored with a blue dye, little, if any, yellow light can get through the lamp when it is flashed. Although this dyed coating cuts down on the amount of light given off by the lamp, however, it is said, sufficient blue, violet and ultra-violet light pass through the glass bulb so that a good negative can be made.

The patent is assigned to the Westinghouse Lamp Co.

*Science News Letter, August 1, 1936*

BACTERIOLOGY

## Sea Water Effective As Killer of Germs

THE ocean is the biggest and perhaps the best of all germ killers, Prof. Claude E. ZoBell, of the University of California's Scripps Institution of Oceanography, has found. Harmful bacteria can not survive any great length of time in raw sea water, his studies show. He has not found just what it is in the ocean that kills germs, because synthetic or manufactured sea water is not so germicidal as the real article.

*Science News Letter, August 1, 1936*

# FIELDS

SURGERY

## X-Ray Photograph Taken During an Operation

A SURGICAL operation on a Chicago medical student was interrupted recently and an X-ray picture was taken of the young man's kidney, which the surgeons had exposed.

From a study of the X-ray films, Drs. Herman L. Kretschmer and Faye F. Squires of Presbyterian Hospital were able to make a diagnosis of tuberculosis of the kidney, thus satisfying themselves that the organ should be removed.

The doctors had suspected renal tuberculosis, but when they exposed the kidney it appeared normal and they were undecided as to whether or not it should be removed.

The X-ray pictures cinched the diagnosis. This rare use of the X-ray machine is reported by the two surgeons. (*Journal, American Medical Association,* July 18.)

*Science News Letter, August 1, 1936*

PHYSICS

## Tandem Balloons Record Strength of Cosmic Rays

TANDEM stratosphere balloons—four or more gas bags launched tied together—were set free by Dr. Robert A. Millikan, Nobel physicist, and Dr. Victor Neher, of the California Institute of Technology, Pasadena, in a new attempt to extend their researches upon cosmic rays.

Extremely sensitive and light apparatus were carried to heights that are unattainable with manned balloons and airships. Not until rockets are perfected is there any hope of reaching the distances above earth that the Millikan-Neher balloons promise to attain.

At extreme elevations of between 15 and 20 miles the recording instruments will be bombarded with cosmic radiations hundreds of times more intense than at sea level. Moreover, some of the most interesting rays never get down to more accessible regions at all.

Five flights are planned. With the breaking of one of the balloons in a tandem string, the journey of the instruments back to earth will begin. Each balloon leaves the earth inflated to a diameter of four feet and at the highest or bursting altitude it reaches a diameter of about fifteen feet. The fall of instruments to the ground is broken by the automatic opening of a parachute.

Each flight will take only a few hours, but high winds in the stratosphere may carry the balloons several hundred miles. Drs. Millikan and Neher hope that at least half of the instruments will be found after their fall to earth and will be returned to them. In addition to receiving a small cash reward, the finders will be performing a service useful to science.

The instruments carried aloft by the balloons weigh only two pounds. Yet they contain five devices of special design and automatic operation. These are the cosmic ray electroscope designed by Dr. Neher, a camera, a clock, a thermometer, and a barometer. Dr. Millikan is the pioneer in this type of cosmic ray research and the instruments used were developed at the California Institute of Technology.

Records obtained in the flights will be especially important because there is very little information about the cosmic rays in the stratosphere at such low latitudes as San Antonio. Scientists consider low latitude observations important because they show how much of the cosmic radiation is composed of charged particles which cannot easily approach the earth in those low latitudes due to the magnetic field of the earth there.

*Science News Letter, August 1, 1936*

ENTOMOLOGY

## Mormon Cricket in West Kin to Grasshopper

GRASSHOPPERS have an ally in a related insect, the Mormon cricket, in the northern Rocky Mountain area of Montana and Idaho, and also in Nevada. These crickets, big, clumsy, non-fliers with tremendous appetites, have been raising a great deal of trouble in their limited range. They do not threaten to spread eastward, for the Mormon cricket is distinctly an insect of the Far West.

Appeals continue to come in to the U. S. Department of Agriculture for more poison-bran bait for the still unconquered grasshoppers throughout the West, but there is nothing more to send. The small appropriation provided by Congress in the pre-adjournment rush is totally exhausted, and no more funds are in sight.

*Science News Letter, August 1, 1936*

BIOLOGY-CHEMISTRY

## Citrus Laboratory Opened For Basic Citrus Research

A NEW laboratory for basic research in the biological and chemical problems of handling and processing citrus fruits and their products has just been opened at Dunedin, Fla. It is to be known as the Florida Citrus Research Laboratory, and was founded by B. C. Skinner.

Dr. Rodney B. Harvey, for sixteen years professor of plant physiology at the University of Minnesota, has been placed in charge of the laboratory. Dr. Harvey developed the now widely-used process of speeding fruit-ripening by means of gas treatment, and also a method of adding attractive color to the skins of oranges and other citrus fruits. With him are associated Dr. Longfield Smith, plant chemist, and J. J. R. Bristow, chemical engineer.

*Science News Letter, August 1, 1936*

MEDICINE-PHYSICS

## Silicosis Detection Helped By Spectroscopic Method

ABSOLUTE identification of silicon in the lungs of supposed victims of silicosis, the dust disease now being intensely combated after the national attention focused on the Gauley Bridge, W. Va., situation, is possible through use of the spectroscope, Miss Mary E. Warga of University of Pittsburgh's Mellon Institute of Industrial Research, announced before the Massachusetts Institute of Technology spectroscopy conference.

By breaking up light from the suspected material by means of a prism, the chemical elements contained can be detected from the rainbow produced. In the case of suspected silicotic lungs, amounts of silicon as minute as one or two parts per thousand are positively detected by the spectroscope, whereas usual chemical methods of detecting silica in such small amounts are difficult and time-taking.

Miss Warga has also turned the spectroscope to practical use in detecting glass impurities, dust composition, coal ingredients, tin impurities and the cause of stains on cloth. She was a scientific detective in the case of troublesome discolorations of cloth during manufacture. The spectroscope told that copper caused the stain and a bronze roller was found to be the cause.

*Science News Letter, August 1, 1936*