

MEDICINE

White Plague Will Be Wiped Out by Year 2000

THE GREAT white plague, tuberculosis, will be wiped out by the year 2000, Dr. Henry D. Chadwick, of Waltham, Mass., president of the National Tuberculosis Association, predicted at the Association's convention in Cleveland.

His prediction was based on the way the tuberculosis death rate has been dropping during the twentieth century. Assuming that the average decline of approximately one-third every 10 years can be maintained, Dr. Chadwick said:

"In that event, the tuberculosis death rate would be 32 in 1950, 21 in 1960, 14 in 1970, and 40 years from now in 1980 a rate of 9 or 10 may be anticipated. The bells that ring in the year 2000 may sound the death knell of the tubercle bacillus."

The "ultimate surrender of the tubercle bacillus" may come sooner than in two generations, Dr. Chadwick said, as a result of discoveries in chemical remedies and nutrition. "Research in both of these fields is yielding rich returns," he declared.

"More additional beds for tuberculosis patients placed where most needed" is the first aim of the fight against the disease at present, he said. For the 600,000 tuberculosis patients in the nation, 150,000 hospital beds are needed. Of this number, there are at present only 90,000 available.

Science News Letter, June 15, 1940

GENERAL SCIENCE

Science Can Aid In Arming America

THE national defense program and the world situation are causing stock-taking in human minds, factories, and scientific laboratories.

What can science do to help America rearm? This question was put to Dr. Charles F. Kettering, head of General Motors research, in a long-distance telephone interview.

"Boss Ket," as he is known in his laboratories, answered with a plea for more applied science in this emergency.

"Most scientists think that if a person learns the alphabet and knows all the letters, he can write an article fit to publish," said Dr. Kettering. "Graduates of our scientific and engineering schools learn the scientific alphabet. Too often they think they are fit to write all about any subject."

We must strive to learn more about

matter and energy with the idea of using that knowledge which is so fundamental to our mechanical civilization, in Dr. Kettering's opinion. While theoretical physicists may argue about the precision of our understanding of the physical world about us, the field of force of an electric current is a perfectly definite and understandable thing that can be used. Less argument about theories and more engineering explorations and applications are called for by Dr. Kettering.

As research men move on to conquer those new frontiers of industry, considered by Boss Ket as full of promise, there must be done what he calls "janitor work," arranging the knowledge we have so that it can best be used.

Science News Letter, June 15, 1940

ENGINEERING

Average Car Speed Is 41 Miles Per Hour

THE average speed of passenger cars on the public highways is 41.6 miles an hour, it has been found in new studies by scientists of the U. S. Public Roads Administration.

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MEDICINE

Hibernation Treatment Is Declared Dangerous

THE FREEZING or hibernation treatment for cancer is "hazardous and is not justifiable in the treatment of hopeless metastatic carcinoma," Dr. Arkell M. Vaughn, of Loyola University School of Medicine, declares. (*Journal, American Medical Association*, June 8.)

Dr. Vaughn tried the method on six patients with cancers that had spread to other parts of the body and who were considered in a hopeless condition. Of this group, four patients died between 24 hours and three weeks following hibernation. The other two are still living seven and eight months after treatment.

Relief of pain in these two still living patients is "the only result of possible value" found from the treatment. The pain has returned in these patients, after three months of freedom from it, but has not yet become so severe as to require narcotic drugs for its relief. Dr. Vaughn believes that high voltage X-ray treatment given before the freezing treatment may be in some degree responsible for the relief of the pain.

Spread of the cancer to the bones was not retarded by the treatment in these cases, Dr. Vaughn reports.

Science News Letter, June 15, 1940

IN SCIEN

SEISMOLOGY

Earthquakes Repeated With New Analyzer

MOST persons, when an earthquake is once over, have no desire to repeat it, but the seismologists, who study such tremors scientifically, often want a return performance, so as to study the movements that took place. This, in effect, can be done with the new earthquake analyzer developed by Prof. Arthur C. Ruge, of the Massachusetts Institute of Technology. It was described before the meeting of the eastern section of the Seismological Society of America at Xavier University, Cincinnati.

In many places, especially California, where earthquakes are likely to occur, "strong motion" earthquake recorders have been placed in strategic locations. The ordinary seismographs, which respond to tremors thousands of miles away, are so delicate that they cannot record the effects of a local quake. The strong motion instrument lies dormant until one happens in its vicinity, then it goes into action. Dr. Ruge now has available for study such records of about 40 earthquakes, including the disastrous one at Long Beach, California, in 1933, which killed 120 persons and caused damage to the extent of \$50,000,000.

With the earthquake analyzer, the wavy lines in the record are scanned by an electric eye, and are transformed into a series of electric impulses. These are fed into a galvanometer, which has a swinging mirror, adjusted to vibrate with the same characteristics as any desired building or other structure. Thus, the swaying of such a building may be measured by recording, on a moving strip of photographic paper, a spot of light reflected by the mirror.

The characteristics of the swinging mirror are changed with another photo cell, or "electric eye," and can be adjusted by turning the control dials.

Professor Ruge expressed the opinion that the device will find other applications, such as analyzing rainfall or sun-spot records, or for solving difficult vibrational problems of the mechanical engineer.

Science News Letter, June 15, 1940

CE FIELDS

METEOROLOGY

Cosmic Rays Give Hint On Upper Air Weather

INVESTIGATIONS of the still mysterious cosmic rays provide a way to study the conditions of the upper atmosphere of the earth at extreme heights, it has been demonstrated at the Institute of Physical and Chemical Research and the Central Meteorological Observatory in Tokyo. It has been found that cosmic ray intensities fluctuate with different air mass conditions over Japan. Warm air masses high in the stratosphere tend to decrease the intensity of the cosmic rays.

Science News Letter, June 15, 1940

PHYSIOLOGY

Weed Out Soldier's Heart By "Mark Time" Test

BRITISH medical authorities in London believe the French are using the "mark time" test to weed out of their army potential victims of soldier's heart or effort syndrome.

This condition is not a specific disease but a combination of symptoms: shortness of breath, fatigue, giddiness, pain in the chest and palpitation. It is not confined to soldiers but occurs in civilian life as well, and the patients are usually unable to do heavy physical work.

Dr. C. Lian, French physician, who used the "mark time" test to diagnose the condition in the last war, has recently reaffirmed his faith in this test, which suggests that it is probably being used in the present conflict.

The test is made by having the soldier mark time at the rate of two steps a second for one minute, being sure that he bends his hips fully at each step. The pulse rate is then counted for a quarter of a minute immediately after the test and again every minute until it has returned to its original rate, the soldier meanwhile remaining standing. The result is satisfactory and the man can be passed for active service if the pulse rate has returned to normal by the beginning of the second or third minute. If the pulse rate rises to 160 per minute or does not

return to normal within 6 minutes, the result is unsatisfactory.

The toe-touching test is not severe enough for military requirements, Dr. Lian states, and other tests, such as mounting steps or running a prescribed distance, are impractical because they take too much space.

Science News Letter, June 15, 1940

PHYSIOLOGY

Men and Women Swap Clothes in Test of Comfort

WOMEN are two degrees cooler than men by skin temperature readings but the chief reason the sexes cannot agree over what is a comfortable indoor temperature is that women's clothes are cooler.

This was proved to a group of men when they donned women's filmy garments in scientific studies at the Harvard School of Public Health.

The studies were reported by Dr. C. P. Yaglou at the meeting of the American Industrial Hygiene Association in New York.

"Men dressed in women's summer clothing (weighing 1.8 pounds including shoes, as compared with men's summer wear of 5 pounds) demanded a temperature of 80 degrees Fahrenheit, which was about the same as that preferred by women (79.5 degrees) similarly dressed," Dr. Yaglou reported.

"Reversely, when women wore men's winter clothes (8.3 pounds instead of 2.6 pounds, the average of women's winter garb) the comfortable air temperature was just as low (70.5 degrees) as that preferred by men wearing the same clothes."

If men would wear a coatless and vestless dress with the lightest of underwear in hot summer weather, rooms would not have to be cooled below 85 degrees Fahrenheit for comfort, Dr. Yaglou said. The present standard is from 76 to 80 degrees. With men garbed for a temperature of 85 degrees Fahrenheit in summer, there would not be the trouble now experienced from exposure to sharp temperature contrasts between apparently chilly air-conditioned buildings and the heat outdoors.

In winter, Dr. Yaglou said, a room temperature of about 70 degrees Fahrenheit would be comfortable for both sexes in the coldest weather, if women wore more and warmer clothes and buildings were suitably insulated.

Science News Letter, June 15, 1940

BIOLOGY—CHEMISTRY

Faulty Sugar Chemistry May Cause Mental Disease

FAULTY sugar chemistry in the body may be one cause of mental and nervous diseases, Dr. G. Wilse Robinson, Jr., and Dr. Prior Shelton, of Kansas City, Mo., announce. (*Journal, American Medical Association*, June 8.)

Patients on the verge of a nervous or mental breakdown might, therefore, be helped by treatment of such a condition, it appears.

Signs of sugar disturbance that could be considered diabetes were discovered by these doctors in a high percentage of patients when first admitted to a hospital for mental disease. From one-third to nearly two-thirds of the patients appeared from the tests to have diabetes—a "hardly conceivable" percentage.

The patients were suffering from all types of mental and nervous diseases, including alcoholism. Tests on these patients several weeks after they entered the hospital showed normal sugar chemistry in from one-fourth to one-half of the group, although only one patient was given treatment for diabetes.

From their studies, the doctors conclude that faulty handling of sugars and starches is common in nervous and mental patients and that it may be a cause of the abnormal nervous and mental condition.

"The physician in general practise," they advise, "should keep this in mind when he is consulted by patients who present a symptom complex of 'nervousness,' fatigue, and ready exhaustibility, vague somatic (bodily) complaints and the picture that is usually diagnosed 'psychoneurosis.'"

If the doctor finds from tests that these patients are not handling sugar normally, a diet high in starch and sugar with insulin will be a valuable aid in treatment.

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ASTRONOMY

Meteors Are Neighbors, Members of Solar System

SHOOTING stars, or meteors, seem all to be permanent members of the solar system, according to Dr. Fletcher Watson, of the Harvard College Observatory. He finds that previous measures of their speeds, which would have brought some in from outer space, were too great.

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