MEDICINE

Photograph Heart Sounds By New Method

A METHOD of photographing heart sounds has been devised by three Iowa scientists: Dr. Walter Bierring, president of the American Medical Association; Dr. H. C. Bone and M. L. Lockhart, all of Des Moines. (*Journal of the American Medical Association*, Feb. 23).

The apparatus, called the electrostethograph, is said to have advantages over other methods of recording heart sounds in current medical usage.

A viewing screen is used on which the vibrations from the heart can be seen at the same time the physician is listening to and photographing the heart sounds. This aids in obtaining good photographic records and in detecting certain abnormal sounds and locating their position in the heart cycle, a feature of particular aid in training medical students. The photograph provides a permanent record of heart action.

Science News Letter, March 2, 1935

PHYSICS

Cosmic Rays Born of Structure of Universe

THE latest theory put forward to explain the origin of the cosmic rays, in search of which physicists have sailed around the world, climbed the highest mountains, descended into the deepest mines, and risked their lives in stratosphere ascents, links these mysterious missiles with the structure of the whole universe.

Prof. E. A. Milne of Oxford, who a year ago surprised physicists by working out a theory of the universe in simple mathematical language in place of the complicated formulae in use since Einstein introduced his theory of relativity, explains how the cosmic rays, or rather particles draw upon the gravitational energy of the whole universe.

In Prof. Milne's universe-model any unimpeded free particle in the space between the stars and galaxies undergoes acceleration as reckoned by an observer located on one of the outer "universes" or nebulae. It goes faster and faster until it attains the speed of light, and then begins to slow down.

Now, says Prof. Milne, cosmic rays are nothing but such particles moving with a speed nearly that of light, and drawing their energy from the infinite energy of the universe.

This explanation, he says, removes the "impasse" to which other theories of the origin of cosmic rays lead: that if the primary rays were born in the interior of stars, it is difficult to see how they could ever get out; and if they were born out of collisions in free space, there is not enough matter there to account for them.

Prof. Milne in contributing a preliminary statement (*Nature*, Feb. 2) announced the publication of a book in which he will expound more fully his theory of the origin and structure of the universe.

Science News Letter, March 2, 1935

PHYSICS-METEOROLOGY

Sun's Rays Are Hotter In Winter Than in Summer

THE SUN'S rays which reach the earth in winter are actually hotter than those which strike the earth in summer, if measurements in both seasons are made at the same altitude of the sun, according to Dr. Bernhard Haurwitz, research associate at the Blue Hill Meteorological observatory at Harvard University.

Winter is colder than summer, Dr. Haurwitz has explained, not because the sun's rays are cooler, but because there are so many fewer hours of sunlight in that season and because the winter rays strike the earth at a generally lower angle.

The reasons the sun's rays are hotter in winter are several. The earth is nearer the sun in this season. There is much less water vapor in the air, an important factor since water vapor absorbs solar radiation. And, finally, winter air is less turbid or dusty than summer air, dust also tending to cut off more of the sun's heat from reaching earth.

In studies undertaken as part of an international meteorological research program, Dr. Haurwitz found that on the average December day there is enough heat in the sun's rays falling on a square foot of ground during the day to warm about three pints of water from its freezing to its boiling point.

In June, by contrast, the average day has enough heat per square foot of ground to raise 13 pints of water over the same range.

Science News Letter, March 2, 1935

IN SCIENC

MEDICINE

Now It's Cevitamic Acid Instead of Orange Juice

A BABY'S life gets safer every day. The latest aid to infanthood is a tablet called cevitamic acid. The name is coined and means an acid containing vitamin C.

Its successful use in treating babies with scurvy is reported by Drs. Arthur F. Abt and I. M. Epstein of Northwestern University Medical School (*Journal of the American Medical Association*. Feb. 23) Most modern babies are given orange juice or tomato juice, both of which contain vitamin C, to protect them from scurvy. For babies who cannot retain either of these juices or who have been deprived of them by circumstance until scurvy has developed, these physicians have successfully used cevitamic acid in treating the disease.

The acid is commercially prepared from vegetable sources, such as cabbage, paprika, orange or lemon juice, and comes in tablet form.

Science News Letter, March 2, 1935

DEMOGRAPHY

Europe's Population Quadrupled in 200 Years

MORE than four times as many people are in Europe now as there were two hundred years ago, is the conclusion of J. Halcizer. (*Geography*, abstracted in *Nature*, Jan. 5.)

Comparing 1930 census figures with incomplete census figures and estimates of past centuries, he calculates that in 1820 Europe's inhabitants were 1.89 times as many as in 1720. In 1930, Europe had 4.51 times its population of 1720.

The "center of gravity" of Europe's population has moved from a point about 45 miles east of Munich, where it was in 1720, to 30 miles north of Vienna, where the latest census would place it. This eastward shift amounts to 124 miles in two centuries.

Science News Letter, March 2, 1935

E FIELDS

PHYSICS

Chinese Paper Windows Transmit Ultraviolet

PLENTY of rickets-preventing ultraviolet rays pass through Chinese paper windows and these windows are far superior in this respect than ordinary window glass, it appears from measurements of various Chinese window materials made in the physics laboratory of Yenching University.

"Observers have repeatedly called attention to the fact that rickets is less prevalent among Chinese than among Western children," comments the *Diplomate,* official organ of the National Board of Medical Examiners.

Paper windows might therefore be used to replace the more expensive anti-rickets window-glass now on the market, it is suggested in the report of the Chinese experiments.

Science News Letter, March 2, 1935

CHEMISTRY

Milady's "Sweet Little Dress" Made of Sugar Cane

SUGAR cane may in some not-too-remote future yield not only sweetening for our breakfast coffee but rayon for milady's dress, cellulose to wrap the groceries she buys and lacquer to paint the car in which she goes shopping. Chemists of the U. S. Department of Agriculture are now at work in Washington and Hawaii, developing to the point of commercial practicability a process devised by D. F. J. Lynch of the Bureau of Chemistry and Soils, for making alpha cellulose out of sugar-cane bagasse.

Bagasse is the crushed fiber and pulp that is left after the cane has had its juice crushed out in the mill. Until recent years it has been sheer waste, burned as a supplementary fuel in the mills' boilers, or simply thrown away. At present there is a considerable use for it in making a certain type of building board; this process uses it practically "as is," crude fiber and all.

Alpha cellulose is a clean, white, cotton substance used as the beginning point for chemical manufacturing processes leading to such diverse things as synthetic fibers, plastics, lacquers, etc. At present it is made chiefly from wood pulp and from cotton linters, the short fibers that still cling to the cotton seed after ginning.

Cellulose is present in practically all parts of all ordinary plants, but to get it out in the purified "alpha" form needed for industrial purposes, various other substances must be separated by chemical processes, which are different for each kind of plant material. A few species of wood have been the first for which these processes could be worked out on a paying basis; but now cane bagasse promises to take its place along with wood, and such things as corncobs and cornstalks, peanut hulls and cotton stalks are attracting chemists' attention.

Dr. W. W. Skinner of the Bureau of Chemistry and Soils recently stated that in Hawaii, Puerto Rico, the Philippines and Louisiana there is sufficient bagasse produced annually to work up into 750,000 tons of alpha cellulose.

"The possibilities in the development of synthetic fibers is only now being fully visualized," said Dr. Skinner. "With the advent of this new supply of alpha cellulose at a small production cost and of the highest quality, the possibilities of its use either alone or in combination with such natural fibers as cotton, flax, silk and wool are considered almost unlimited. It may have as great an effect in the progress and development of world agriculture as had Faraday's invention of the electric motor upon the industrial power requirements of the world."

Science News Letter, March 2, 1935

ASTRONOMY

Telescope Site Has 300 Clear Nights a Year

See Front Cover

THE giant dome for the McDonald Observatory pictured on the front cover of this week's SCIENCE NEWS LETTER is now completed and ready for the installation of its huge 80-inch telescope as soon as the instrument has been ground.

Mount Locke, in Texas, was selected as the site for the new telescope because a survey showed that that location is blessed with more than 300 clear nights a year on which astronomers will be able to watch the stars.

Science News Letter, March 2, 1935

DEMOGRAPHY

New York's Great White Way Is Residence Section

GREENWICH Village, considered the Bohemia of New York by New Yorkers themselves as well as by visitors, is not a Latin quarter on the basis of nationality of the heads of families. Native-born family heads outnumber foreign-born more than two to one in a large part of the district, according to the Welfare Council of New York. On the other hand, in the section of the city where fashionable Sutton Place is located, foreign-born family heads outnumber the native-born by a ratio of three to two. These are conclusions from new United States Census Bureau figures which explode a good many fallacies in general circulation regarding certain areas of New York City.

The business and theater district, which includes the New York Times and Herald-Tribune buildings, the theaters and movie houses, restaurants, cafeterias, and night clubs, the Empire State Building, and the Public Library, is very definitely a residence section and has a large resident population, for whom this famous playground is "home"—not of transients but of regular resident family groups. Although it is the "hangout" of the playboy—and playgirl—a large proportion of people living there are over 35 years of age.

The tip of Manhattan, extending south from Canal Street to the Battery, and including Wall Street, the Stock Exchange, Trinity Church, St. Paul's and the Aquarium, was formerly the Turkish quarter, where fibers of spiced odors were detected in the wind's fabric, meat was seen cooking on spits, and there was thick, sweet coffee in little copper pots. There is remaining a mere vestige of its earlier national strain—only six Turks, all males, now being residents of the district.

The Census figures show that the largest number of foreign-born family heads in New York City are Italian, the next Russian, followed by Polish, with German fourth and the Irish Free State fifth, while the smallest is French—only 8,021 French-born family heads in all the polygenic city, outnumbered by the Greeks, with 10,594.

A demographic phenomenon is shown in the Negro population, which more than doubled between 1920 and 1930, being 272,952 in the latter year, as compared with 122,031 in 1920 and 79,952 in 1910.

Science News Letter, March 2, 1935