

PHYSIOLOGY

"Low-Nicotine" Cigarettes Act Like Nicotine-Free

► **SMOKING CIGARETTES** of "low-nicotine" Kentucky burley tobacco produces about the same effect as smoking nicotine-free cigarettes. Both kinds affect the blood pressure and pulse rate much less than ordinary cigarettes.

These research results, reported (*Science*, Feb. 19) by Drs. H. B. Haag and P. S. Larson of the Medical College of Virginia, indicate that nicotine content of this type of tobacco is low enough to warrant further study with an eye toward wider practical use.

Smoke from the "low-nicotine" cigarettes contained less than 10% as much nicotine as that found in the average standard cigarette.

Nornicotine, a substance not normally found in cigarettes, was present but had little effect on results, because only a low percentage is transferred to the smoke. Tests also showed that nornicotine apparently is only about half as toxic as ordinary nicotine.

The scientists checked the results of their analyses by preparing standard nicotine solutions from smoke of both the standard and "low-nicotine" cigarettes. How much of the solutions was needed to kill white mice was then determined. Amounts needed were identical and in accord with the nicotine content calculated by the scientists.

Science News Letter, February 27, 1943

MEDICINE

"Pernicious Inertia" Laid to Low Blood Sugar

► A **PHYSIOLOGIC** cause and a diet and medical remedy for the "pernicious inertia" or fatigue which frequently keeps nervously depressed patients bedridden are reported by Dr. Sidney A. Portis and Dr. Irving H. Zitman of Chicago (*Journal, American Medical Association*, Feb. 20).

The cause of fatigue, these doctors suggest, is a low blood sugar, resulting from too much insulin production by the islands of Langerhans in the pancreas. Constant stimulation of the vagus nerve by the emotional turmoil these neuro-psychiatric patients suffer causes the overproduction of insulin.

To remedy the fatigue condition, the doctors put their patients on a high protein, moderately high fat and relatively high carbohydrate diet, with extra

feedings of fruit juice and milk between meals. The carbohydrates are in the more complex form, taking more time for their complete digestion. Sugar and pastries are to be avoided. Besides the diet, the doctors give small doses, three times daily, of atropine to partially paralyze the vagus nerve so that temporary or prolonged stimulation by the emotions will be avoided.

Rapid recovery of four bedridden patients who lost their fatigue and were able to resume their normal routine type of living quickly was achieved by this treatment. The psycho-neurotic symptoms also definitely improved. Although the number of patients treated is small, the Chicago doctors report their results so that other physicians may try the treatment on a larger number from which conclusions as to its value can be drawn.

The work was first reported at the inaugural meeting of the American Society for Research in Psychosomatic Problems.

Science News Letter, February 27, 1943

ASTRONOMY

First Sunspots of New Cycle May Have Appeared

► **THE FIRST** sunspot of the new cycle may have already appeared, nearly a year before the end of the present cycle, it has just been revealed by Dr. Seth B. Nicholson of the Mt. Wilson Observatory. The spot-group was visible for one day only on Dec. 20, 1942, in the relatively high latitude of 32 degrees north, on the sun's surface.

One of the most fundamental characteristics of the solar cycle is that toward the end spots are confined to a belt about 10 degrees wide on either side of the sun's equator. But when spots of the new cycle appear they are much farther from the equator than the old, usually above latitude 25 degrees, as was the case of the short-lived group of Dec. 20.

As a rule, the cycle to which a spot-group belongs can be decided definitely from its magnetic polarity as shown by the preceding and following members as they move across the sun's disk, the magnetic polarity of spot-groups of one cycle being opposite to those of the next. But in this particular case, the preceding spot was so little in advance of the other that it was hard to say whether the group should be classified as having a polarity the same as other spots of this cycle or not.

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IN SCIEN

INVENTION

Comfort of Sleeper Planes Increased by Invention

► **WHEN WE** are able to travel by sleeper plane again, we shall find a new seating arrangement that will make for greater convenience and comfort, as well as greater privacy in preparing to retire, thanks to a recent invention on which U. S. patent 2,310,573 has been issued to a Los Angeles aircraft designer, Edward F. Burton. Mr. Burton has assigned rights in his patent to the Douglas Aircraft Company, Inc.

In the new arrangement, there is a double row of seats down the full length of the passenger-carrying section of the fuselage. The aisle seats are narrower than the ones near the wall, which lower their backs to become berths for night travel. Overhead there are upper berths, which lower for use much after the fashion of Pullman uppers. The slightly narrower aisle seats remain permanently in position, behind a curtain, and can be used by the passengers while they are getting ready to turn in, or by the holders of the upper berths if they want to sit up for a while longer than their traveling companions.

Science News Letter, February 27, 1943

ENGINEERING

German Fire Fighters Use New Type Asbestos Soles

► **NEW ASBESTOS** soles prevent recent allied bombing raids from giving German fire fighters a hot foot, according to a report reaching this country from abroad.

Fine asbestos strands are interwoven into sheets. Then the footwear soles are stamped out in various sizes. These are subjected to a hardening process, treated with chemicals and processed.

Emerging from this process almost as hard as ordinary leather, the soles can be nailed or stitched to the shoe uppers.

The asbestos composition wears almost as well as leather, the report claims, and when worn out the old soles can be reclaimed.

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CE FIELDS

NUTRITION

Brown Sugar Best, Experiments Show

► BROWN sugar's traditional advantage over highly refined white sugar receives scientific confirmation from an unexpected source, in researches on two fungi that cause a serious disease in corn plants. Dr. William E. Wilson, University of Illinois plant pathologist, was trying to grow cultures on a synthetic nutrient medium containing white sugar, and wasn't having much luck with them. When brown sugar was substituted, the fungi thrived lustily.

The explanation seems to lie in the presence in brown sugar of biotin, a well-known growth-promoting substance, or something very similar to it. In the refining process practically all of the biotin is removed from white sugar.

The hint came when one of the fungus species, able to manufacture its own biotin, grew well on the white-sugar food substance, while the other species, which cannot form biotin, had to have the brown sugar in order to grow.

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METEOROLOGY

Influence of Sunspots On Weather Insignificant

► VAGUE CORRELATIONS between sunspots and the weather probably exist, but the weather is affected so much by other factors that the influence of sunspots is insignificant.

This is the conclusion reached by Dr. Seth B. Nicholson of the Mt. Wilson Observatory after a quarter of a century devoted primarily to solar research concerning the much-discussed question of whether the weather can be predicted from sunspot activity. He announced this finding in a lecture at Stanford University.

Dr. Nicholson conceded, however, that conditions upon the sun are not exactly the same when there are many spots as when there are few, and that any change in the sun's radiation will certainly be reflected some way in the

weather. Ever since the great astronomer, Sir William Herschel, in 1800 tried to find a correlation between the price of wheat and number of sunspots, not only astronomers, but meteorologists, botanists, and bankers, both professional and amateur, have been trying to find such correlations without much success. Invariably they arrive at the same conclusion as Herschel — more data are needed in order to prove them. This is true in spite of the fact that both the quantity and quality of solar data have vastly increased since Herschel's time.

With regard to the possibility of making short range predictions for particular regions from individual sunspots, Dr. Nicholson was even more emphatic.

"Certainly it is foolish to think that an individual sunspot can in any way produce definite changes in the weather at any particular locality on the earth," he stated.

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NUTRITION

Sugar and Starches May Be Unnecessary in Diet

► SUGAR, potatoes and other sweet and starchy foods belonging to the carbohydrate class may not be necessary as such in the diet, Dr. Richard H. Follis, Jr., and Dr. William M. Straight, of the Johns Hopkins School of Medicine, report in the *Bulletin of the Johns Hopkins Hospital*.

They found that laboratory rats could live and grow on a purified diet completely lacking in carbohydrate, though containing all essential vitamins, minerals, protein and fat. The rats not only thrived but seemed active and normal in every respect. Microscopical examinations of the tissues of the animals after death showed no significant differences from animals that were fed carbohydrate.

Carbohydrate is needed by the body to furnish energy and for the utilization of fat, but rats apparently can manufacture all they need of this from protein and probably also from fat.

The findings may not, however, apply to man or other species of animals, the scientists point out, since a case has been reported abroad of an attempt to raise a human baby from birth on a "practically carbohydrate-free" diet. At 10 months the child developed ketosis, a condition signifying disturbance of liver function, and the experiment was stopped.

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EDUCATION

Women Included in 22 du Pont Fellowships

► WOMEN are now eligible for the du Pont postgraduate fellowships in chemistry, first made available in 1918 to aid in building up a corps of trained chemists in this country and continued every year since then with but a single break.

There are 22 of these fellowships, each carrying a stipend of \$750. The money is placed at the disposal of a number of universities throughout the United States and there are no strings attached: the university authorities designate the students to receive the funds, and the successful applicants are placed under no stated or implied obligation as to future employment. Appointments are to be made later in the year.

The institutions receiving postgraduate awards are the University of California, University of Chicago, Columbia University, Cornell University, Harvard University, University of Illinois, Johns Hopkins University, Massachusetts Institute of Technology (one in chemical engineering and one in chemistry), University of Michigan, University of Minnesota, University of North Carolina, Northwestern University, Ohio State University, Pennsylvania State College, University of Pennsylvania, Princeton University, Purdue University, Stanford University, University of Virginia, University of Wisconsin, and Yale University.

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PHARMACY

Japs Get Monopoly Of Ginseng Growing

► THE JAPANESE government is even in the patent-medicine racket. In Korea, it exercises monopolistic control over the cultivation of ginseng, a sarsaparilla-like plant whose root, dried, shaved up and made into a tea, is considered good for whatever ails you by millions of Chinese and Japanese. By making a monopoly of it, and forcing the Koreans to grow it at coolies' wages, the smart little brown men cut a profit both ways.

There was a short-lived boom in the cultivation of the American species of ginseng about a generation ago, but because of low-cost competition in the Orient it collapsed. The American and Asiatic ginsengs look very much alike, but are distinct species.

Science News Letter, February 27, 1943