

CHEMISTRY

New Products Envisioned

Postwar automobiles may burn gasoline of 150 octane rating. Lighter building materials predicted. Recent advances reported to American Chemical Society.

➤ THE POSTWAR automobile will burn gasoline of 150 octane rating, and it will never be necessary for the filling station attendant to put more water in the radiator because the cooling system will be permanently sealed. When you get home from your ride, you'll put the car in a garage with plastic-and-plywood walls and a stainless steel roof.

Your house will be built of the same materials, strong yet so light that two men will be able to lift the whole wall of a room as they put it up.

These are items from a vision of the future presented before the meeting of the American Chemical Society at Buffalo, by Dr. Charles M. A. Stine, vice president of E. I. du Pont de Nemours and Company. They aren't just dreams, he explained; the things actually exist now, at least on an experimental basis, but are at present absorbed into the war effort.

Other new accomplishments in scientific technology were listed by Dr. Stine—glass that is unbreakable, glass that will float, wood that won't burn, shoes that contain no leather, window screens without wire, machinery bearings not made of metal.

Post-victory production of consumer's goods will reach heights undreamed of in prewar days, the speaker predicted. We have built an immense industry that turns out more light metal in a year than was formerly produced in a decade, with corresponding volumes in such things as special steels, plastics, synthetic fabrics, fuels.

Having seen how abundantly we can produce for war, the American people will insist on abundance in time of peace, Dr. Stine forecast. Slums must be cleared away, he declared; the space they leave should not be filled with other buildings, but put to use as close-in airfields. Better nutrition for everyone, based on recent researches in food chemistry, is imperative for the maintenance of a population of high industrial productivity.

"No doubt, some will become alarmed over the possible displacement of old materials and old industries," Dr. Stine

admitted. "Changes of a drastic nature are inevitable but they seldom result in the hardships that the timid predict . . . Let our swords be mighty, and mighty indeed will be our plowshares."

Science News Letter, September 12, 1942

Flours Help Replace Meat

➤ MEATLESS DAYS, even whole meatless months in an emergency, need have no nutritional terrors, if a supply of soybean, cottonseed or peanut flour is available, the American Chemical Society was told by Dr. Theodore F. Zucker and Dr. Lois Zucker of Columbia University. These flours, which are made from the seeds after the oil has been extracted, are very rich in protein and certain vitamins, so that they should prove

highly valuable as additions to ordinary wheat flour, making bread a more nearly balanced diet.

It is possible to make a meatless sandwich just by buttering two pieces of this mixed-flour bread and slapping them together. The "meat" is invisibly present, incorporated in the bread itself.

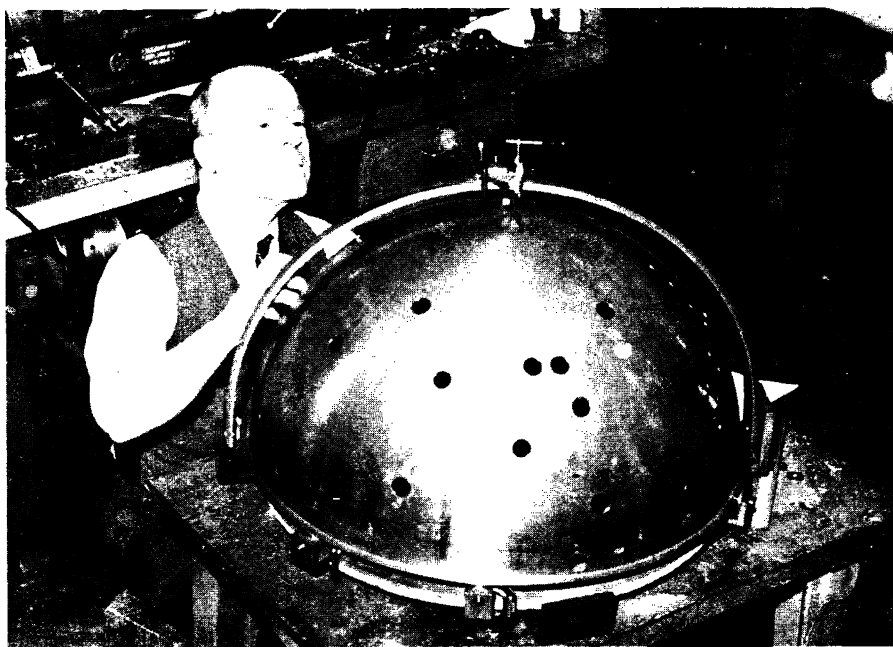
Both soybean and cottonseed flours have distinctive (*Turn to Page 170*)

MEDICINE

Symptoms May Be Wrongly Blamed on Blood Pressure

➤ A GOOD many people afflicted with headaches, nervousness, cold hands and feet, lack of energy and a tired feeling plus a low blood pressure are likely to blame their symptoms on the low blood pressure. In fact, says Dr. Thomas M. Durant of Philadelphia, they often may have been helped to that idea by their physician.

Generally, the patient does not know he has a low blood pressure until he goes to his doctor for relief of his headaches, fatigue and other symptoms.



STAR MAKER—Bausch and Lomb has built a new star projector for use by Navy aviators. Men are taught the position and degree of brightness of 145 navigational stars which are projected on the spherical dome. Stars appear realistically in the sky through a period corresponding to a 24-hour cycle, which speeds up instruction. The instrument can be used in the daytime when no stars are visible and can be operated at night when bad weather obscures the stars outside.

When no other cause for the symptoms can be discovered, both patient and doctor are likely to blame them on the low blood pressure.

Many a person with low blood pressure, however, is "in good physical trim" and "robust health." The well-trained athlete is a typical example of a person with low blood pressure who has no symptoms or complaints, Dr. Durant points out in a report to the Medical Society of the State of Pennsylvania.

The nervous, tired low blood pressure patient is also generally underweight and leads a sedentary life, taking very little exercise.

In most cases these patients can be relieved of their headaches, nervousness, cold hands and feet and tired feeling by "faithfully indulged-in graduated exercises and dietary measures to correct the weight deficiency," Dr. Durant declares.

Science News Letter, September 12, 1942

INVENTION

Cultivate Germs to Combat Harmful Japanese Beetles

► THE JAPANESE beetle and similar insect enemies are likely to have a bad time of it in the future. Two deadly micro-organisms which attack the larvae of these insects, producing milky disease, can be cultivated, rapidly multiplied and preserved by a method described in U. S. patent 2,293,890, issued to Samson R. Dutky of Moorestown, N. J.

The inventor has assigned the right to manufacture and use his invention to the United States government without payment of royalties.

The two micro-organisms that cause milky fever were described by the inventor in 1940 and named by him *Bacillus popilliae* and *Bacillus lentimorbus*. They are found in the blood of larvae having the disease. The blood is extracted and dried, in which condition the spores of the bacteria will remain alive and virulent, the inventor says, for at least four years.

To multiple the supply, the spores are separated from the dried blood by delicate processes and injected into the blood of healthy larvae which are then put into an incubator. In 10 to 12 days, the inventor states, the spores injected are multiplied 1,000-fold.

In this way a plentiful supply can be obtained and preserved against future invasions of the Japanese beetle and his like.

Science News Letter, September 12, 1942

MEDICINE

Combating Syphilis

Ten-hour syphilis treatment tried experimentally. But six-week treatment available in 50 clinics is considered promising to replace standard 18-month schedule.

► A TEN HOUR treatment for syphilis, major disease of war and peace, is being tried experimentally on a few patients in the early stages of the disease. Both arsenicals and artificial fever are used in this one-day treatment.

Now in practical use in over 50 clinics, including government hospitals, are six to ten-week treatments given thousands of patients.

These are promising improvements over the old standard treatments. Eighteen long months was the time needed to cure this venereal disease until medicine's new offensive achieved these new results.

Authorized details of the one-day syphilis treatment practiced by Dr. Walter M. Simpson, Dr. H. Worley Kendall and Dr. Donald L. Rose of Dayton, Ohio, may now be given with the cooperation of the U. S. Public Health Service which is publishing the scientific paper in its technical publication, Venereal Disease Information.

Ehrlich's "magic bullet," arsenic, in the form of Mapharsen, is combined with 106-degree man-induced fever in the Dayton treatment. That is the trick of the speedy action allowing, if the first few successes are continued, one day of treatment to do as much as 540 days have done in the past.

Premature and over-enthusiastic disclosure of the experimental work caused the scientists and the U. S. Public Health Service to release details at this time. The patient is given a preliminary dose of bismuth, long a part of standard treatments for syphilis. After injection into his muscles of four grains of bismuth subsalicylate, he is put into the fever cabinet early in the morning. As soon as the heat of the cabinet has raised his temperature to 106 degrees Fahrenheit, he is given his first hypodermic injection of Mapharsen. Three more injections of this drug are given at the end of the third, sixth and ninth hours of fever. Total amount of the arsenical given the first patients varied from 120 to 240 milligrams. After the tenth hour of fever, the treatment is finished, though the patient is kept in the hospital for a few days for observation and tests.

The Dayton research team do not claim a one-day cure for syphilis. In fact, they do not even announce the development of a new method for treating syphilis in one day. Instead of any such claim, they specifically state:

"It should be emphasized that it is not the purpose of this communication to present a new method of therapy. The number of patients is small and insufficient time has elapsed following the administration of the therapy to permit adequate clinical evaluation of the method employed."

Their aim, they state, is to present experimental data on the value of quantitative rather than merely qualitative tests for syphilis under various methods of treatment. Qualitative tests, they point out, are "yes" or "no" tests. They show either that a patient has syphilis or that he has not got it.

Quantitative tests, devised by Dr. Reuben L. Kahn, of the University of Michigan, show not only whether the patient has syphilis but also whether he is getting better as a result of treatment. These tests, the Dayton scientists state, showed that after the intensive one-day treatment their patients were getting better, whereas the standard qualitative tests would for some time have continued to show a blunt "syphilis positive" and would have led to the assumption that the treatment was without value.

The U. S. Public Health Service, although it is publishing the scientific account of the one-day treatment, does not recommend it for general use. It is watching this and all other speedy methods of treating syphilis with interest, but takes the position that it is too soon to state whether one or the other is the final answer.

The Public Health Service, however, has recommended as standard procedure in all U. S. Marine Hospitals the six-weeks treatment procedure devised by Dr. Harry Eagle and Dr. Ralph B. Hogan, of the U. S. Public Health Service and the Johns Hopkins Medical School. And since the Army and Navy are alert to put into practice all advances in medicine, it would be logical to assume that the shorter treatment proce-