

MEDICINE

Finds Sulfapyridine Speeds Recovery from Gonorrhea

Apparent Cures in From One to Eight Days Reported; No Failures in Group of 18 Acute and Chronic Cases

APPARENT cures of gonorrhea in from one to eight days by the new chemical remedy, sulfapyridine, have led physicians of the Mayo Clinic to advise use of this remedy in treatment of the condition. Sulfanilamide has previously been used successfully to treat this disease but sulfapyridine may prove even more effective.

In their group of 18 cases there were no failures and few untoward reactions. Drs. E. N. Cook and E. B. Sutton reported at a recent Mayo Clinic staff meeting. In two cases symptoms continued for as long as nine and 14 days respectively, but in all cases negative cultures, showing absence of the germs, were obtained within from one to eight days. Both acute and chronic cases recovered under this treatment, but the

physicians point out not enough time has elapsed since the treatment to be sure that there will be no relapses.

A much smaller dose of sulfapyridine than required in treatment of pneumonia is effective in gonorrhea. The chemical seems to be most effective when combined with "mild local treatment." The mildness of the reactions to the drug among their patients is due, the physicians believe, to the fact that it was given in a small quantity of milk, which relieves the stomach and intestinal distress so often caused by sulfapyridine.

The advice to treat gonorrhea with sulfapyridine is based both on experiences at the Mayo Clinic and on cases reported by physicians elsewhere "in which the same phenomenal results and few relapses have been noted."

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AERONAUTICS

All Landings Blind When Necessary, Experts Forecast

ALL LANDINGS blind, if need be. Airlines, come fog or high water, virtually as regular as the railroad. This airman's dream will gradually sneak into reality during the next three years, government radio experts predicted and promised as blind landing studies begin in a newly dedicated laboratory of the Civil Aeronautics Authority at Indianapolis.

Minimum ceiling requirements—now 300 feet at the best airports and higher elsewhere—will be lowered a hundred feet at a time as pilots become skilled in the use of landing instruments and as equipment is more widely installed, they said. The first thing you know, paying passengers will be making regular trips in safety in almost all kinds of weather. A development that has been promised for "next year" for many years now will actually be accomplished.

The engineers foresee early adoption of a standard and practically foolproof

instrument landing system by the airlines and the Civil Aeronautics Authority on the basis of three months of intensive study to be started by the C.A.A. and the lines during the next few days.

In Indianapolis to dedicate the Authority's first field station, they declared training in earnest of the hundreds of airline pilots in how to come down out of the sky on a radio highway will begin this summer.

Ten airports throughout the United States will soon be equipped with blind landing apparatus similar to that at the new field station, said to be the most complete. The airports are to be chosen so as to encounter the widest possible variety of conditions and afford training facilities to the maximum number of pilots. The new C.A.A. unit is the only one involving four sets of equipment to allow landings in whatever direction the wind requires.

This system, worked out by the Radio

Technical Committee for Aeronautics and the airlines, and built by the International Telephone Development Corporation, will be adopted as standard with but slight modifications.

Both Sight and Sound

Differing somewhat from previous systems, it gives the pilot both sight and sound indications of when he is near the airport and when he is passing over its edge. The glide path is formed by the intersection of two planes of radio signals. A vertical plane is generated by a localizer beam similar to the radio range in regular use. It tells the pilot whether he is to the right or left of his course. A second transmitter sends out its signals from a point 400 feet to the side of the end of the runway, in a plane slanting upwards. The pilot can slide down any part of this plane and reach the ground, but he slides down the particular path marked by the vertical plane of signals. He can come in all the way by radio or guide himself by the marker lights once he reaches the field, for he is then but 60 to 80 feet up.

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PHYSIOLOGY

Alcohol in Blood Limit Is Suggested Traffic Law

"IT SHALL be conclusive evidence that a person is under the influence of intoxicating liquor sufficiently to affect his ability to drive safely if it is shown by chemical analysis that within one-half hour after he has ceased operating a motor vehicle his blood contains one-half milligram, or more, of alcohol per cubic centimeter."

This is a new traffic regulation recommended by Dr. Yandell Henderson, Yale's emeritus professor of physiology, the father of 3.2% beer, and a proponent of moderation in the use of alcohol.

Just how valid are various proposed methods of analyzing for alcohol the blood or breath, Prof. Henderson would leave to the courts and their competent scientific advisers.

Analysis of the exhaled air is one method proposed, based upon the fact that when alcohol is in the blood a definite proportion of it diffuses into the air in the depths of the lungs. The breath can be collected by having the suspected person blow up a rubber bag. But Prof. Henderson considers this method unperfected and likely to give misleading results.

European investigations and confirming American tests show that the mod-

erate drinker, who has less than that half milligram of alcohol per cubic centimeter of blood, has no more accidents than the wholly non-alcoholic motorists. This is comforting to those who have worried about the possibility that for safety's sake they would have to give up either motor cars or alcohol.

Scientists recognize that alcohol does affect different persons to different degrees. Should traffic regulations take account of these differences? Prof. Henderson comments that there are also marked differences even among entirely sober persons in the ability to drive a car. Yet there is a 25-mile-an-hour speed limit for all.

What does half a milligram of alcohol per cubic centimeter of blood mean practically? Yale tests show that on an empty stomach 2 ounces of whiskey, such as a highball, somewhat less of gin, as in a Martini, or 1 to 1½ quarts of beer can be taken without exceeding the suggested limit. With or soon after a meal, double these quantities can be taken safely. Keep well within these limits for safe driving, is Prof. Henderson's advice.

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TECHNOLOGY

Scientists Make Tiny Holes in Rubber Sheeting

EVER since Charles Goodyear dropped sulfur and crude rubber on a hot stove top a hundred years ago and learned how to vulcanize rubber the industry has been trying to increase the air-tight, water-tight and liquid-tight properties of its product.

Recently, however, the attention of scientists at the U. S. Rubber Company has been turned in the reverse direction. They have been trying to make rubber with holes in it, but holes that have controlled size and spacing with the emphasis on extreme smallness of size.

The objective is to produce a thin rubber filtering membrane which will find wide utility in scientific research. For immediate commercial use the "holey" rubber is finding use in rubber bathing suits and in girdles.

No punching method can produce the holes in rubber desired, for they are so tiny that 6,400 of them are encompassed in a square inch of surface in the extreme case.

Trick of the operation, according to *Business Week*, is a continuous rubber belt whose upper surface is covered with microscopic pits or depressions. As rubber latex is spread over this surface it entraps a small air bubble over each de-

pression. Heat applied to the under surface of the belt expands the air and swells each bubble until it bursts, leaving a uniform hole.

A drying and cooling chamber makes these holes set permanently into the rubber sheeting. By running this same sheet through the device a number of times thicknesses of from five-thousandths to a tenth of an inch can be created. Maxi-

mum width of the sheets is now 42 inches and the maximum length 18 yards.

If the sheets are stretched before vulcanizing it is possible to create oval holes or even slots. The process is applicable either to ordinary stretchy rubber or to hard rubber; the latter a field which interests industrial research as a filtering medium.

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CHEMISTRY

Bulk of Important Chemicals Made from Few Minerals

Water, Air, Coal, Sulfur, Mineral Salt, Limestone, Sulfide Ores, Brines, Petroleum and Gas Are First 10

THAT the chemical industries depend on mineral resources for their raw materials is well known, but it is little realized that the great bulk of the most important chemicals are made from a relatively few minerals.

Give a chemist water, air, coal, sulfur, mineral salt, limestone, sulfide ores, brines, petroleum and natural gas and he can make an amazing host of basic and important chemical materials. This list, in fact, represents the "first ten" of the raw material resources of chemistry according to a new survey reported in the current issue of *Economic Geology* by Prof. T. T. Quirke and R. N. Keller of the University of Illinois.

Out of a total list of only 34 mineral sources chemistry can fashion literally thousands of chemicals and, most important, a basic list of 150 bulk chemicals, such as ammonia, glycerine, carbon, chlorine, aniline and so on.

In making the basic 150 important bulk chemical products, it was found by the Illinois study that water, air and coal were needed most frequently. Thus water had a relative frequency of use given by an index number 99. Air followed with an index number 96 and coal was a close third with a rating of 91.

The element sulfur came next with a rating of 88 and the first "ten" ended with natural gas having index number of 16. The remaining 24 mineral sources on the basic list of 34 begins with salt-peter (index 13) and ends with titanium ores of rating 1.

A point brought out sharply by this new study in economic geology is the highly developed inter-dependence of all branches of chemical industry. This re-

sults, state the scientists, in a vertical type of industrial development which includes the basic mining industries.

There is a definite trend in the industry for individual companies to control virtually all stages in the preparation of chemicals from the owning of the mineral resources to the marketing of the final product.

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PHYSIOLOGY

New Standards for Taking Blood Pressure Readings

A MOVEMENT for better blood pressure readings is under way. It was started a year and a half ago by a joint committee of the American Heart Association and the Cardiac Society of Great Britain and Ireland. It has significance for millions of people.

The movement aims at standardization of blood pressure readings, so that in future your physician will take and record your blood pressure exactly the same way that every other physician in an English-speaking country takes blood pressure readings. At present there is considerable variation in the way different doctors do this.

For example, when an amplifying arrangement was set up so that a group of physicians could all listen at the same time for the same patient's pulse there was a variation of as much as 20 to 30 points in the blood pressure readings for this patient.

This variation may affect the treatment you are given. Suppose your doctor decides to give you a remedy which an-