

MEDICINE

## Colchicine for Leukemia

Given when the disease was acute and soon after the symptoms had appeared, the patient's life was prolonged, although not saved.

► A NEW kind of attack on acute leukemia, fatal disease of the blood-forming organs, is reported by Dr. W. Harding Kneedler, of Philadelphia, in the *Journal of the American Medical Association*, (Sept. 22). This is the trial of colchicine in treatment of the disease.

In the case in which Dr. Kneedler tried it, the patient's life was perhaps prolonged although not saved. The drug was given when the disease was acute and soon after symptoms had appeared. The patient's downhill course slackened through eight months and there was a three-month period of improvement with gain in weight and strength before she slipped into the final stages of the disease.

Although Dr. Kneedler says that no conclusions as to the beneficial effects of colchicine can be drawn from this case, he believes further trial of the drug

seems justified.

He used it at the suggestion of Dr. O. H. Perry Pepper, professor of medicine at the University of Pennsylvania School of Medicine, who had previously tried it in two cases. In one of these it had no effect but in the other there was complete abatement of symptoms for a time although this patient also subsequently died. There is one other report in medical literature of its trial in acute leukemia.

Colchicine is obtained from the autumn-flowering crocus of Europe and Asia. It has been used as a remedy for gout and rheumatism. Its effect in arresting the phase of cell division known as mitosis in plants and animals, and the special susceptibility of rapidly growing malignant tissue like cancer to colchicine, form the basis for its trial in leukemia.

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MEDICINE

## Penicillin Inhalations

Can be given in doctor's office to help colds, bronchitis, asthma, pneumonitis and allergies. Brings chemical into direct contact with germs at invasion site.

► THE PATIENT who gets bronchitis, an asthma attack, pneumonitis, or even a cold or migraine headaches this coming winter may get relief through penicillin mist inhalation treatments given at his doctor's office or his own home.

These and other disabilities in more than 200 patients have been relieved or improved by this use of the mold chemical, technically known as aerosol penicillin, Dr. Herbert N. Vermilye, of Forest Hills, N. Y., reports in the *Journal of the American Medical Association*, (Sept. 22).

While penicillin is not effective against the virus of the common cold, Dr. Vermilye found that patients got over colds faster when given the penicillin mist inhalations. This was especially true in the case of persons who usually develop a heavy cough with much sputum a few days after the cold starts. Many were ap-

parently well in one or two days although the treatment was continued for five days. Dr. Vermilye believes the reason for this rapid recovery is that the penicillin prevented secondary bacterial infections arising to complicate the cold.

Patients getting this treatment have a feeling of well-being and their appetites improve. This may be one factor, Dr. Vermilye suggests, that leads to the rapid recovery.

Migraine, high blood pressure, eczema, rosacea, colitis, extreme fatigue and even mild psychoneurosis are other conditions which were helped by the penicillin mist inhalations, Dr. Vermilye reports. He explains that this was because the conditions were the result of allergy to bacteria infecting the nose, throat and sinuses. Dr. Vermilye does not suggest that such conditions due to causes other than bacterial allergy would be helped

by penicillin mist inhalations.

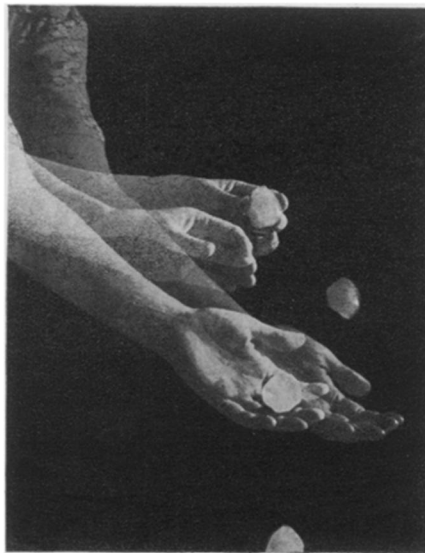
The fact that aerosol penicillin can be given in the doctor's office or the patient's home, instead of by hypodermic injection every three hours in a hospital, gives it many obvious practical advantages. From the standpoint of treatment, this use of penicillin has the advantage of bringing the mold chemical into direct contact with the disease germs at the site of their invasion of the body.

The rapid improvement in such stubborn conditions as intrinsic bacterial asthma is "notable," Dr. Vermilye states. By intrinsic bacterial asthma he means a kind believed due to chronic infection in the upper respiratory tract. The results in this condition, Dr. Vermilye states, encourage the hope that "at last a promising therapeutic weapon is available for that intractable condition."

Acute and relapsing pneumonitis due to various cocci, tonsillitis, sinusitis, sino-bronchitis and pharyngitis with stomach and intestinal symptoms are other conditions in which Dr. Vermilye reports aerosol penicillin was beneficial.

The apparatus used for converting the penicillin into a very fine mist is available from most oxygen equipment companies and may be obtained for about \$10 if a small portable oxygen tank is used, Dr. Vermilye states. With 10 or more outfits a physician can treat at least 20 patients a week without the assistance of a nurse, once the patient understands how to take the inhalations.

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**ELASTIC**—Bouncy sodium silicate is created when the silicate has dried to about 94% of its original content. The material can be rolled into a ball that will rebound like rubber.



CHEMISTRY

## Bounces Like Rubber

Sodium silicate can be rolled up in a ball and bounced when a good deal of the water has been evaporated. No commercial use for this characteristic.

► THE SAME stuff that is used to stick corrugated paper together and to preserve eggs, as a trick can be made to bounce like rubber. No commercial use has been found, however, for this characteristic.

When a good deal of the water has evaporated from the well-known adhesive, sodium silicate, it can be rolled up in a ball and bounced. But instead of stretching when pulled, the material crumbles. These crumbs, not unlike those left after using an art-gum eraser, can be molded together again. If left piled on top of each other, they will soon run together to form a smooth, jelly-like mass.

This is just one of the few amazing forms of sodium silicate, chemically related to common sand and commonly sold for egg preservative under the name of water glass. Composed of alkali and silica, two dry silicates may be selected which, when mixed together, produce a liquid which can actually be poured out of the container. Two liquid silicates, on the other hand, can be combined into a solution which pours more slowly than either of the original ingredients.

Not only do some forms of silicate bounce like rubber, yet fail to stretch, but others stretch like taffy and simply refuse to bounce. Varying the relative amount of alkali and silica in the solution, as well as the proportion of water present, makes it possible to perform many apparently magical tricks with silicates, reports the Philadelphia Quartz Company, interested in developing new uses for this amazing material.

The bouncy silicate may be made from

one of the highly silicious silicates. When water has evaporated so that it composes only about 65 per cent of the solution, little spheres of the material will bounce when dropped. It looks like cloudy glass and breaks just the way glass does, with a shell-like fracture. If left unprotected in the air, the semi-solid silicate dries out rapidly and becomes brittle.

When the soda-silica ratio is one to one-and-a-half, if water forms only about one-third of the solution it can be pulled into long threads. Sticky to the touch, this semi-solid silicate will not bounce. If chilled a little, it becomes quite hard.

With silicates it is possible to mix two solids and get a liquid. When the bouncy silicate is mixed with an equal amount of small crystals of silicate of soda, the material will pour slowly if the crystals were composed of about one-fourth alkali, one-fourth silica and one-half water. It takes vigorous mechanical beating to produce the liquid, but with patience a soupy solution develops. On continued stirring this thins out to a watery fluid.

A solid can be made by adding liquid caustic soda (though not a silicate, it is an allied product) to a liquid silicate containing slightly more silica than the taffy-like solution referred to above. When the caustic soda is at a temperature of 50 degrees Fahrenheit or less, the mixture freezes solid at room temperature.

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*Opossum* is Missouri's most abundant fur-bearing game but it is hunted principally for sport and for its edible meat.

**LIQUID FROM SOLIDS**—A watery substance is produced by mixing the bouncy silicate with small crystals of metasilicate, (left). There is no magic involved, nor is the mixture heated or cooled. When vigorously beaten together, the solution pours because by combining silicates of two extremes in composition, a liquid intermediate product is obtained. Photographs by Fremont Davis, Science Service staff photographer.

PUBLIC HEALTH

## Expectation of Life In U. S. Has Increased

► THE EXPECTATION of life for industrial workers in the United States actually increased during the war. Rising to 64.4 years in 1944, it was about a half year more than in 1943 and a full year greater than in 1941, our last year of peace, as reflected in the experience of industrial policy-holders of the Metropolitan Life Insurance Company.

Last year the expectation of life for girls of 20, namely 51.35 years, was almost three-quarters of a year greater than in 1941. For insured white males of the same age, just entering their prime, the expectation of life in the war year 1944 was 46.4 years, about one-fifth of a year more than during the last year of peace. Military and civilian deaths from enemy action were not included in the study.

The present situation among colored policyholders, which roughly corresponds to that of whites about two decades ago, shows an even more marked improvement. One and one-third years were added to the life expectation of both males and females during the past three years. Colored males of 20 in 1944 had an expectation of life of 43.42 years, and colored females of the same age an expectation of 45.48 years.

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