

MEDICINE

Arsenic Poison Remedy

Alcohol that removes poisons from the body is now announced by the British. Hundreds saved through application by U. S. scientists.

► MORE THAN 200 patients poisoned by arsenic in the course of treatment for syphilis have been saved in the United States by a special alcohol first developed by British scientists and made even more widely useful through research in this country.

There is hope that the same saving of lives may be accomplished in cases of mercury poisoning, such as occurs in use of bichloride of mercury in suicide attempts.

The alcohol that is more than an antidote for arsenic and probably mercury poisoning is 2, 3 dithiopropanol. A closely guarded secret during the war, this chemical has been known only as BAL, (British anti-lewisite).

Its identity is now revealed by the biochemist whose 20 or more years of painstaking research between two wars resulted in its development. This is Prof. R. A. Peters of Oxford University. His report in *Nature*, (Nov. 24), will be followed shortly by reports in the United States of the work of American scientists during the war.

BAL, the anti-arsenic chemical, was developed for use in local decontamination of the skin after lewisite poisoning. Lewisite, war gas developed by an American scientist, is an arsenic-containing chemical.

When the British shared the secret of BAL with American military and scientific authorities, scientists in the United States proceeded first to confirm the British findings and then to develop a practical ointment for use on the skin and in the eyes in case of lewisite poisoning. This was necessary because BAL itself is very unstable in water solution and some means of preserving its stability until it would be used was needed.

The very specific nature of the alcohol's action on arsenic in the skin, suggested that it might be useful in cases in which arsenic had reached other tissues in the body, for example, in patients suffering toxic reactions from arsenicals used in treatment for syphilis.

American scientists next devised a method for using it in such cases. The method was to put up the alcohol in peanut oil and methylbenzoate. In this

form it is stable and can be given by hypodermic injection.

Ampules of this form of BAL were distributed to all rapid treatment centers of the U. S. Public Health Service, where syphilis patients were getting large doses of arsenicals. From these centers records of more than 200 cases treated with BAL show that it is effective in counteracting arsenic poisoning. The failures are believed to be instances of too little or too late. The chemical was not given in large enough dosage or was given too late to help the patient.

BAL's action is much more than that of an antidote. Antidotes merely take up whatever poison has not been absorbed by the tissues of the body before the antidote is given. BAL actually removes the poison from the tissues by forming a compound with the arsenic which the body can excrete.

Under the microscope scientists have seen germs "killed" by arsenic come back to life when BAL is put on them.

BAL itself has poisonous properties but these are not so great that it cannot be safely used if proper precautions regarding dosage are followed. It has been distributed to many doctors all over this country for scientific investigation. Manufacture for civilian distribution is planned but the chemical may not be available for several months.

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Poison Gas Research Points to New Remedies

► NOT ONLY can patients threatened with arsenic and mercury poisoning be saved from death, others whose eyesight is endangered by glaucoma, those afflicted with the muscle weakness disease called myasthenia gravis, and even sufferers from the mental illness, schizophrenia, may in future be restored to health as a result of chemical warfare research.

These benefits from the search for new, more potent poison gases and for methods of combatting those that might be used against us are reported by Maj. Oscar Bodansky, M.C., of the medical division of the Chemical Warfare Serv-

ice at Edgewood Arsenal. (*Science*, Nov. 23.)

Myasthenia gravis and glaucoma patients may some day be grateful for the fact that British chemists, searching for new poison gases, investigated a chemical that might be popularly termed a nerve poison gas. One such selected for study caused excessive contraction of the pupil of the eye. It was hoped this chemical might be an effective weapon because it might make it impossible for a man to see well enough to shoot accurately.

As a chemical warfare agent it turned out to be a dud, but study of its action showed that it checked the activity of a body enzyme to an unprecedented degree. This enzyme is cholinesterase. Present treatment of both glaucoma and myasthenia gravis involves the use of prostigmine and physostigmine, substances which are believed to check cholinesterase activity.

The chemical warfare agent, not identified in Maj. Bodansky's report, checks this enzyme's activity for a much longer time, however, than prostigmine does. Studies are now under way to determine how effective it may be in treating glaucoma and myasthenia gravis and whether an even more effective chemical can be developed.

Successful search at Edgewood for a chemical to counteract the effects of hydrocyanic acid gas led to reinvestigation of the effects of cyanide on brain activity and the possibility of developing a successful chemical treatment of the mental disease, schizophrenia. Maj. Bodansky does not state in his report that such a treatment for schizophrenia has been developed, but that a program for exploring the possibilities is now under way at one of the neuropsychiatric centers in this country.

The glimpses he gives of benefits to come from research at Edgewood and elsewhere on the medical aspects of chemical warfare show the importance of fundamental research. The work, he points out, "did not consist of haphazard, disconnected attempts" to find substances which might prove useful in treating gas casualties. It did consist of a systematic search for basic information.

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Mealy, dry perfection in *baked potatoes* is obtained by starting the baking in a hot oven and letting them bake at about 400 degrees until thoroughly done.

A seed supply of 20 pounds of a new variety of *sorghum* in 1941 was pyramided to produce 32,000,000 pounds of grain in 1944.