MEDICINE

Eyes Saved from Chemicals

Eyes suffering from alkali and chemical burns can be successfully healed by removing the outer layer of the cornea. Treatment helps acid burns.

➤ EYES BURNED by chemicals can be saved by denuding the cornea of its outer layer. This new treatment, developed during seven years of research, was announced by Dr. Ralph S. McLaughlin, consultant in industrial ophthalmology of South Charleston, W. Va., at the meeting of the Industrial Hygiene Foundation.

Treatment of complications of chemical burns of the eyes in the past has been at best make-shift and almost always unsatisfactory, Dr. McLaughlin declared.

A dye, fluorescein, is used to tell whether the denuding operation is necessary. When this is dropped in the eye a green stain appears if the cornea has been damaged.

A number of opaque spots on the transparent cornea will be seen under the bio-microscope in all cases when alkaline and injurious neutral compounds have gotten into the eye. These spots, looking like deposits of grayish-colored material, are actual collections of the chemical, Dr. Henry F. Smyth and associates of the Mellon Institute of Pittsburgh found. They give the solution to the proper treatment of the condition.

Acid burns do not show these spots but such burns heal more quickly if the denuding treatment is given.

This treatment consists in carefully wiping the outer layer of the cornea from its attachment. It is done with a circular motion, from the center outward, using a toothpick swab. Cocaine in the eye relieves the patient of pain during the operation. At first Dr. McLaughlin removed the entire outer layer of the cornea, called the epithelium. Now he finds it is only necessary to remove such cells as have been damaged by the chemical. The bio-microscope is used to check this. The conjunctiva lining the eyelids is also carefully denuded.

The eye should be healed within 24 hours, certainly within 48 hours. If not, Dr. McLaughlin suspects complications, often from infections in teeth or tonsils. These are immediately treated or removed. In some cases ulcers on the cornea which would not heal, healed overnight when the source of the infection had been removed.

The extreme pain which follows the denuding operation is relieved by a half percent pontocain ointment. It can be used as often as necessary to keep down pain without fear of damage to the eyes.

Delay of more than six hours in getting a chemical eye burn victim to the doctor is "unforgivable," Dr. McLaughlin declared. Results will be "excellent" if he gets to the eye doctor within two hours.

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FROST DEFENSE—Machine uses infrared heat to prevent frost damage. It was developed at the Michigan State College Agricultural Experiment Station.

AGRICULTURE

Heat Rays To Save Crop

➤ INFRARED HEAT rays from an oil-burning heater developed at the Michigan State College agricultural experiment station may save farmers some of the millions of dollars lost each year from late spring and early fall frosts.

The experimental burner developed can keep the temperature over one acre eight degrees warmer than outside temperatures at a cost of 75 cents per hour. This is expected to prove most useful protecting the high-cost-per-acre crops such as fruits, berries, truck gardens and flowers.

Infrared heat warms the plants directly without warming the air, a large economy of heat.

Cost of the experimental model was $250, but engineers believe that a burner large enough to protect one acre can be produced for one-third to one-half that figure.

Frost damage, which in Michigan alone runs as high as $20,000,000 some years, is generally caused in a few hours by only a slight dip in the temperature. These early fall or late spring temperature tumbles could generally be rendered harmless by a unit such as the new infrared oil heater.

Electrical units have been experimented with, but they proved to be too expensive to be practical. The oil heater will only be useful where the crop has a high value per each acre.

Tests are continuing with the heater to increase its efficiency and coverage.

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ENGINEERING

Progressive Chilling Separates Wax from Oil

➤ WAX is one thing refiners usually want to get out of oil. In a new process, on which patent 2,410,483 was granted to E. M. Dons and O. G. Mauro of Tulsa, this is accomplished by progressive chilling. The wax-containing oil is first heated, then chilled de-waxing solvent is injected into the hot oil stream.

This causes the formation of a cloud of minute wax crystals. Additional increments of de-waxing solvent are injected at progressively lower temperatures, which causes rapid growth of the crystals. Finally they are removed by filtering.

Rights in the patent are assigned to the Mid-Continent Petroleum Corporation.

Science News Letter, November 16, 1946