MEDICINE

Carbon Dioxide for Polio

Inhalations of carbon dioxide in oxygen have given good results in first cases reported. Given continuously for 24 to 38 hours after patient is admitted.

➤ A NEW treatment for infantile paralysis is being tried at Charity Hospital, New Orleans, La. The treatment consists essentially in putting the small patients in an oxygen tent where they inhale 5% carbon dioxide in oxygen.

Good results in all but one of 13 cases are reported in a preliminary announcement made to Science Service by Dr. Branch J. Aymond, of the Louisiana State Board of Health, Dr. Ralph V. Platou, professor of pediatrics at Tulane University School of Medicine, and Dr. G. Pelton Kelly, also of Tulane.

The treatment was first tried as an emergency measure for a six-year-old girl with acute encephalitis, bulbar and spinal poliomyelitis. Dramatic improvement followed the inhalations of carbon dioxide in oxygen.

"The response was so impressive that this simple and apparently harmless procedure was employed in 12 other cases having varying manifestations," the doctors report.

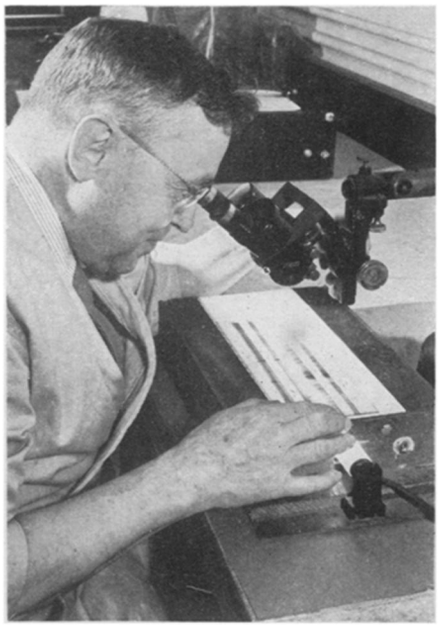
In all but one case there was relaxation, prompt relief of pain, rapid return of muscle strength, early functional improvement and the patients volunteered the information that they felt well.

Appreciating that the course of infantile paralysis varies greatly from one patient to another, almost regardless of the kind of treatment given, and that no claim can be made for a treatment tried in such a small number of cases, the doctors nevertheless feel it is worth calling to the attention of other workers for independent evaluation.

At present the carbon dioxide-oxygen inhalations are given continuously for 24 to 36 hours after the patient enters the hospital or intermittently for one to two hours several times daily. Other general measures for treating infantile paralysis are being continued.

The effects of rebreathing and of using varying mixtures of carbon dioxide in oxygen are now being studied. The scientists also plan experiments to test the relation of carbon dioxide to production of acetylcholine, a chemical liberated from nerves when they are stimulated.

Science News Letter, October 13, 1945



CAUSES "SUNTAN"—An alkali substance present in all ultraviolet-transmitting materials except a new glass and quartz causes glass to pick up a "suntan" under the bombardment of invisible ultraviolet radiation. Here, Dr. Harvey C. Rentschler, research director for the Westinghouse Lamp Division, is shown studying spectral lines of the metallic elements in glass. This is the final step in his experiment which led to the discovery.

BIOLOGY

Eyes Need More Protection

Damage to sight from ultraviolet light may occur without obvious signs of eye injury, studies with baby chicks show.

See Front Cover

➤ WELDERS and their helpers, skiers, flyers and sunbathers may need more eye protection from ultraviolet light than has previously been supposed, it appears from studies reported by Dr. Ernest Wolf, of the Harvard Biological Laboratories, to the National Academy of Sciences.

The danger of "snow-blindness" among skiers and Arctic explorers and of eye damage among persons exposed to invisible ultraviolet light on their jobs is well known, Dr. Wolf points out. He has found, however, that more of the ultraviolet is dangerous than had previously been supposed.

Ultraviolet light is invisible and consists of light waves shorter than those that give visible light. Visible light starts with waves 400 millimicrons long and goes on to waves 750 millimicrons long. Short might seem a better way of describing their length since one millimicron is only 1/25,400,000 of an inch.

The waves of ultraviolet light are all shorter than 400 millimicrons but scientists have heretofore thought that ultraviolet between about 300 and 400 millimicrons in length did not harm the eyes. Dr. Wolf's studies, sponsored by the American Optical Company, show that ultraviolet ranging in wavelength from 300 to 365 millimicrons can damage visual function even though the eyes themselves show no injury.

His studies were made with baby chicks, as shown on the front cover of this SCIENCE NEWS LETTER, since their eyes are very similar to human eyes and since the chicks will keep their eyes wide open during exposure to ultraviolet light. Tests on human eyes could not be made because of the possibility of damaging the eyes.

The chicks were first exposed to ultraviolet light from a quartz mercury lamp for an hour. The lights were then switched off and the chicks left in complete darkness for an hour. This would have been more than enough time for their eyes, if unaffected, to have become adapted to the dark and their visual functions would have been normal.

The chicks were then placed in individual glass jars, each jar surrounded by a glass cylinder bearing alternate transparent and opaque vertical stripes. The stripe system moved at a given rate and produced flicker to which the chick responded by jerky head motions. The

experiment determined the intensity of light needed for flicker recognition.

In comparison with unexposed chicks, the test chicks, due to ultraviolet injuries, required 45 times as much light to recognize the flickering stripes. Not until three days later could their eyes see normally again. By shielding the ultraviolet lamps with protective glass filters that cut out the invisible ultraviolet light at about 365 millimicrons and below, it was discovered that the eyes of chicks exposed to the filtered light functioned normally.

The lamps were then shielded with a series of less efficient glass filters that cut out shorter ultraviolet radiations. Repeated experiments with these filters revealed that ultraviolet below about 365 millimicrons impaired visual functions in varying degrees depending on the wave length transmitted.

Science News Letter, October 13, 1945

ECONOMICS

Curb German Production

Engineering Council recommends that she be debarred from production of nitrogen, aluminum, synthetic liquid fuels, atomic energy and oversupply of steel.

➤ TO DESTROY German militarism and insure that Germany will never again be able to start another war, a joint council of American engineers recommends that this twice-aggressor nation be prohibited from the synthetic fixation of nitrogen, the production of aluminum and of synthetic liquid fuels, have only limited capacities for steel and steel alloys production, and be prevented from any attempt to develop or use atomic energy.

The joint council that makes this recommendation is composed of 35 prominent engineers and technological specialists representing five of the leading national American engineering organizations. Its complete report is based on several months of study and was recently transmitted to the proper government authorities in Washington. It is now released to the public in New York at the council's headquarters.

The organizations with representatives on the joint council are the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Institute of Electrical Engineers, American Society of Mechanical Engineers, and the American Institute of Chemical Engineers.

The report is built around the expressed philosophy that "it is necessary to subtract from aggressor peoples, for a long period of recuperation, the fundamentals of their industrial potential for armed aggression." At the same time it is held that "complete elimination of German industries, leaving agriculture as the sole occupation, would produce an economic dislocation and social chaos of destructive magnitude, not alone in Germany but throughout Europe."

The report details the industrial factors that must be controlled. Control must be exerted, it states, over energy allocation; raw material elimination or limitation, applied to specific elements critical to war industry; processing, fabricating and new construction; scientific research; and economic subsidies.

Coal stands at the head of the list in the field of energy and among the raw materials in German economy, it says. Coal supplies 85% of the nation's energy in power and light, and is the raw material for Germany's huge chemical industry, the synthetic nitrogen industry and the synthetic fuel industry. Coal production should therefore be controlled, the council feels.

Modern war is impossible, the report declares, without a number of products required in large quantities. These include nitrogen for explosives, aluminum for air power, steel and steel alloys for land and sea warfare, and liquid fuels and lubricants to insure mobility of the instruments of war.

Science News Letter, October 13, 1945

INVENTION

Double Adhesive Sticks Rubber to Metal

➤ RUBBER should be, in many ways, the ideal protective coating for metal: it is water- and acid-proof, and some of the synthetic varieties are oil-proof also. The big drawback is that rubber doesn't want to stick to metal, but is always peeling off at just the wrong moment.

For better bonding of rubber to metal, Henry H. Harkins uses a double adhesive. First he coats the metal with a synthetic resin of the Bakelite type—phenol-aldehyde compound. This sticks well to metal. Then he sticks the rubber to this with a cement composed of rubber, a resin, and an oxidizing material.

Patent 2,386,112, covering this bonding system, is assigned to the United States Rubber Company.

Science News Letter, October 13, 1945

De-inking paper, in the repulping process to make new paper, is carried out with sodium metasilicate and rosin soap added after pulping; the alkali and rosin lift the inks from the surface, and emulsify the oily base.

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