

MEDICINE

Severe Heart Pain Relieved by Oxygen

THE SEVERE and often terrifying pain of certain types of heart disease, angina pectoris and coronary thrombosis, can be relieved by letting the patient breathe 100% oxygen through a mask even in cases not relieved by morphine or other drugs, Dr. Edward W. Bolland, of Los Angeles, reports. (*Journal, American Medical Association*, April 20)

A patient who could not exert himself even to tie a shoelace without having a severe paroxysm of pain got complete relief or marked lessening of the pain when breathing 100% oxygen. Other patients in similar condition were likewise greatly helped. By putting on the mask before undertaking activities known to bring on an attack, the attacks of pain could be prevented.

The mask used is the one developed by Mayo Clinic scientists and now used in high altitude flying.

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ARCHAEOLOGY

Hair Pulling in War Old Polynesian Idea

EUROPE'S armies haven't tried hair-pulling yet. But it is an old wartime idea of Polynesians in mid-Pacific. In fact, Polynesians had a number of ideas about warfare that sound interesting in this day when the public is becoming expertly familiar with tactics, strategy and defense.

Putting women into war, for example, was tried in Polynesia in ways modern Europe hasn't thought of yet. R. W. Williamson tells some of them in his new collection of scientific studies, "Essays in Polynesian Ethnology."

The hair-pulling idea was a feminine feature of war on Penrhyn Island. Women of both armies used to lead the attack, he says, and they would eagerly clutch after handfuls of the enemy's hair. Hair-cutting prior to battle was a safety-first measure. Men rarely fought with women in these encounters, it appears, each sex doing its own fighting in its own way.

In the Hervey Islands, women went to war with their husbands, as aides. Not actually fighting, they stood close at hand ready to pass out supplies of weapons or stones.

What we would certainly call war correspondent duty was assumed by Polynesian women of the Marquesa Islands.

Following the armies, they chose a high vantage point to watch the battling, and sent progress reports home.

In Samoa, women of high rank had the delicate mission of carrying proposals for truce.

Some of Polynesian war-making sounds very modern. Writes Mr. Williamson:

"In Samoa alliances with other peoples were always sought before engaging in war, and a district would often wait for months before it suited their allies to come."

Science News Letter, April 27, 1940

PUBLIC HEALTH

Increase in Meningitis Alarms English Doctors

MENINGITIS cases in England and Wales have increased since the war began to a number greater than the previous record high reported in 1915 and the situation is alarming the medical profession, although the general public seems not to have been much concerned so far.

"Epidemiologists who studied the behavior of outbreaks during the last war are not surprised that the prevalence of the disease has been unusually great and are apprehensive of a considerable epidemic in the near future," states the editor of the *Lancet*. (March 2)

Meningitis is essentially a disease of recruits, that is, of newcomers to community life who have not had time to become adapted to or latently immunized by the germs in their new environment. War mobilization, and the black-out and bitter winter weather which interfered with proper ventilation are blamed for the present alarming increase in cases.

Prevention of the disease under such conditions is difficult, although army officers are advised that provision of plenty of space in barracks, especially sleeping quarters, will help keep down the number of cases.

The dramatic results of treatment of meningitis with the chemical remedies sulfanilamide and sulfapyridine, is the only cheerful note in the situation. Prompt treatment with these chemicals, it is said, will reduce deaths to less than five out of every 100 patients. Even under "appalling environmental and hygienic conditions which could not be corrected" in equatorial Africa, these two remedies, it is recalled, reduced the fatality among treated natives during a recent outbreak from 70% to 5%.

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IN SCIEN

MEDICINE

Ammonium Bicarbonate Heals Wound Infections

ONE of the surprising medical discoveries of the World War was that squirming maggots of the blowfly would heal stubborn wounds in human flesh. Repulsive as such a condition may be, the maggots actually kept the wounds clean and allowed them to heal. The accidental infection of the battlefield became medical practise, doctors using maggots made germ free for safety as a therapeutic aid.

Later it was found that it was a chemical that the maggots produced that did the healing. Dr. William Robinson of the U. S. Department of Agriculture's Bureau of Entomology and Plant Quarantine in 1935 discovered that allantoin in the secretions of maggots would heal wounds rapidly.

Then he found that urea, a simpler chemical, acted similarly. Both of these chemicals were used practically.

Now a still simpler chemical, ammonium bicarbonate, is found by Dr. Robinson to have the same effect. Ammonium bicarbonate is formed naturally from urea by the action of an enzyme, urease. Already tried by many physicians and surgeons, Dr. Robinson tells in a report to the *Journal of Surgery* how a 1% solution of ammonium bicarbonate has proved effective when used either as a wet pack or as an irrigation of an open wound. Some of the conditions cleared up by the new treatment were: chronic osteomyelitis, diabetic and varicose ulcers, middle ear infections, stitch abscesses, infected lacerations, and other purulent wounds.

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CHEMISTRY

Plastic Playing "Cards" Are Now on the Market

THOSE playing cards you use for bridge tonight may not be cards at all in the usual sense of the word. They may be made of a plastic instead of a paper product. Plastic playing cards have been on the market for three years.

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CE FIELDS

CHEMISTRY

Castor Oil Replaces Drying Oils from Overseas

IMPROVED ways of dehydrating castor oil so that it can be used as a carrier for paint pigments was reported by F. G. Bessler and J. G. Weaver of the Sherwin-Williams Company, Cleveland, Ohio, to the American Chemical Society in Cincinnati.

Until recently it was difficult to change the sticky, non-drying castor oil into a pale drying oil by removing part of the water.

Chemists Bessler and Weaver reported success in using the dehydrated castor oil to produce rapid drying, high quality finishes without the use of tung oil or perilla oil. Tung oil comes mainly from China and perilla from Manchuria.

Excellent color durability is secured by research which seeks to free the United States from the risks of importing much of its paint drying oils obtained from distant lands now in war zones.

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METALLURGY

Sand Used for Castings, Can Be "Shocked"

THE SAND mixtures used to mold metal castings in foundries, like human beings, can be "shocked", it has been found by new research at Cornell University.

If heat is applied too rapidly to some molding sands at temperatures as low as 1,000 degrees Fahrenheit they will crumble; but if heat is applied slowly samples of the same mixtures actually gain in strength at temperatures up to 2,000 degrees.

Profs. H. Ries and A. C. Davis of the College of Engineering, who have been conducting the tests, point out that the proper sand mixtures for castings have all-too-frequently been prepared by experience alone and rule-of-thumb methods from the past.

The Cornell research, undertaken for the American Foundrymen's Association, seeks to study the behavior of sand and the various binders which have been used to help its molding qualities. Clay,

cement, various kinds of cereals, oil, molasses and resins have been used by the industry as binders at various times in the past.

Foundry sands, the scientists explain, have to meet unique conditions. They must be strong enough to hold metal flowing like water when it is poured. They must be porous enough to permit gases to escape through the walls of the mold, and they must be sufficiently smooth so that the finished casting will have a proper finish. Along with this, the molding sands must disintegrate properly when the casting within them cools and contracts. One sand mixture used in a well-known foundry will hold its shape for two minutes at temperatures of 2,600 degrees Fahrenheit under 40,000 pounds of metal and then, at the end of five minutes, the sand will crumble of its own weight. That's how delicate the sand mixture has to be and how intricately balanced are its properties.

The fundamental studies at Cornell are expected to aid the foundry industry greatly. Profs. Ries and Davis predict that "foundrymen in the not-too-distant future will be able to set down in their specifications the mixtures of sand and 'binder' to be used with as much precision as they now determine the constituents of the metal itself."

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MEDICINE

Death from Cold Usually Preceded by Sleep or Coma

ABOUT those photographs from Finland in which Russian soldiers seemed to have been frozen to death in the act of throwing a grenade or lying with a leg straight up in the air: The *Journal of the American Medical Association* (April 6) finds it difficult to understand how a person could suddenly be frozen stiff. It is considered unlikely that exposure to cold could be so sudden and the cold so severe as to eliminate the drowsiness, sleep and coma that precede death from freezing. However, great muscular effort or exhaustion previous to death, sudden death, death due to violent disturbances of the nervous system, and exposure to cold are factors predisposing to instantaneous cadaveric spasm or cadaveric rigidity. This might affect an exhausted soldier. The body may be found in a grotesque position such as kneeling or standing upright. Usually, however, there is something which supports the body in this position. All of which is not any more pleasant than the photographs.

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ARCHAEOLOGY

Find "Rosetta Stone" For Old Persian Language

INSCRIBED stones unearthed by American archaeologists in Iran prove a valuable "Rosetta Stone" for unlocking difficulties in Pahlavi or Middle Persian language, the Oriental Institute of the University of Chicago reports.

Discovered on buried walls near royal Persian tombs, the inscriptions provide versions of similar data in Greek, Persian, and Middle Persian with sufficient duplication to give important aid to scholars translating the Middle Persian, somewhat as the Rosetta Stone with its duplicated inscriptions in Greek, hieroglyphics and demotic Egyptian helped in solving Egyptian writing.

A translation of the inscriptions from Iran, just published by Dr. Martin Sprengling in the *Journal of Semitic Languages and Literature* at the University, sheds new light on the old Zoroastrian religion. It shows that late in the third century A.D. this religion still had no sacred book such as the Bible or Koran, although ritual forms and songs were used.

The Pahlavi stones are the discovery of the 1939 joint Iranian expedition of the Oriental Institute, the University Museum of the University of Pennsylvania, and the Boston Museum of Fine Arts.

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ARCHAEOLOGY

7,000 Crude Stone Tools Like Old Stone Age Work

DISCOVERY of 7,000 crude stone tools made by unidentified American aborigines, who used the same techniques as Europe's Stone Age people of half a million years ago, is reported by Dr. E. B. Renaud of the University of Denver.

Dr. Renaud found the rough chopping and scraping implements during his archaeological survey of the High Plains in Wyoming. European archaeologists, to whom he has sent samples of the American stone work, agree that the work is strikingly like early stone industry of Europe's Old Stone Age. Dr. Renaud emphasizes that he has no evidence yet as to age of the American finds, and no reason to think they are as old as Europe's Old Stone Age. The bulk of the collection was obtained on the surface at three sites in a terraced river valley.

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