PSYCHOLOGY

Cortisone for Mental Patients Disappointing

➤ PRELIMINARY STUDIES of the use of anti-arthritis cortisone in treating mental patients has not proved promising, Dr. Erwin Lotsof, University of California at Los Angeles psychologist, reports. He was in charge of psychological tests on 16 mental patients in a cortisone therapy study.

Many scientists have thought cortisone might have marked effects on mental patients. The suspected relationship between the function of the adrenal cortex—source of the hormone—and mental illness stimulated this line of thought, according to Dr. Lotsof.

It has even been suggested that patients receiving cortisone for treatment of arthritis and other ailments might be mentally affected by the drug.

Half of the group was given tablets containing cortisone over an extended period. The other half was given a placebo, an inactive substance. All were subjected to the same battery of psychological tests before, during and after medication.

There were no significant differences in test behavior between the two groups, Dr. Lotsof reported.

"The small number of subjects used in the study does not justify any definite conclusions about mental effects of the hormone," the psychologist said. "But one conclusion we can draw from this preliminary study is that behavioral changes, if any, following cortisone administration do not occur in easily detectable form."

Data for the studies was collected at the Columbus Receiving Hospital of the University of Ohio Medical Center.

Science News Letter, September 10, 1955

AGRICULTURE

Farming Boon Predicted From New Hybrid Grains

➤ ANOTHER REVOLUTIONARY STEP forward in farming, like the one that came with the use of hybrid corn varieties, may be in the offing, as newly developed grain sorghum hybrids are readied for commercial use.

Holding great promise as superior feed crops for semi-arid lands that cannot grow corn efficiently, the sorghum hybrids are expected to produce 20% to 40% more grain per acre than varieties currently used. This stepped-up yield equals the gain to farmers in their switch from old corn varieties to hybrid corns.

The U. S. Department of Agriculture predicts that most of the nation's sorghum acreage, over 10,000,000 acres last year, will be given over to sorghum hybrids within five years.

Sorghums grow well on many water-deficient lands. The delegation of American farmers just returned from Russia has recommended that much of the Russian "new lands," now being cultivated for corn, should be devoted to sorghums, in view of rain shortage in those areas.

Grain sorghum, like corn, is a member of the grass family. Unlike corn, however, its grain grows at the top of the plant.

Both the grain and stalk are used as livestock feed, the grain used directly and the stalk being processed as silage. Sorghum grains have recently come into importance as a source of food products such as starch and dextrose.

The new sorghum hybrids are largely the result of work done by the U.S.D.A.'s Agricultural Research Service and the experiment stations of Texas, Kansas, Nebraska and Oklahoma.

Seed producers of the hybrids expect to have enough seeds for 40,000 to 100,000 acres for planting next spring.

Although most sorghum is presently grown in the Southern and Central Great Plains area, experts believe its use will spread east, as planters learn that hybrids will give a more stable crop than corn in dry years.

Science News Letter, September 10, 1955

MEDICINE

Footballer's Bleeding Could Bench Whole Team

➤ IF EVERY FOOTBALL player who developed a kidney ailment with bleeding were benched, the entire team might eventually be benched.

This is the conclusion from a survey of 37 university varsity football players during the 1954 season made by Drs. Alex W. Boone and Earl Haltiwanger of the department of surgery and Robert L. Chambers of the physical education department, Duke University, Durham, N. C. Details are reported in the *Journal of the American Medical Association* (Aug. 27).

The disorder, hematuria, meaning blood in the urine, appeared in all players.

It started during pre-season conditioning exercises. There was a moderate increase in its occurrence at the beginning of body contact drills. After each Saturday's game during the season there was a peak in the number of players affected. The number usually dropped by the following Wednesday, with some showing the trouble again after a hard scrimmage Wednesday afternoon.

The condition clears up promptly with rest. In fact, the doctors report the speed with which the condition cleared was "remarkable." Even six players who bled enough to discolor the urine reverted to "football normal" within three to four days. In the others, the bleeding could be detected by microscopic examination.

"We found no reason to restrict activity because of the microscopic hematuria," the doctors report.

When an episode of gross bleeding subsided to microscopic amounts within 24 to 72 hours, there seemed no harm in letting the player resume full activity.

The condition has also been reported in 73% of boxers immediately after a bout.

Science News Letter, September 10, 1955

IN SCIEN

STATISTICS

Eight of Ten Badly Hurt Workers Return to Jobs

➤ MORE THAN EIGHT out of ten seriously injured industrial workers have been so helped by rehabilitation treatment that they were able to go back to work.

This is the record of Liberty Mutual Insurance Company's rehabilitation centers in Boston and at Chicago, Stanwood L. Hanson, Liberty executive announced in the annual report of the centers' operations.

Of 2,866 cases that have undergone rehabilitation at the Boston center from 1943, when it was established, through the end of 1954, 85%, or 2,442, have been definitely improved by the treatment. Of this number, 82.3%, or 2,010, have actually returned to work.

At Liberty Mutual's smaller Chicago rehabilitation center, founded in 1951, of the 730 cases that have undergone rehabilitation, 659 were definitely improved by treatment and of these, 540, or 81.9%, have actually returned to work.

For one of the most severe types of disability, paraplegia, or partial paralysis from spinal cord injury, which generally resulted in death up until 15 years ago, Liberty Mutual has undertaken rehabilitation on 85 cases and completed work on 66. Of these, 48 have returned to work.

Without rehabilitation, the anticipated cost of the 66 completed cases would have come to about $6,812,509. As the result of rehabilitation, the cost of these cases was reduced to $3,683,025, a gross saving of $3,129,484.

The cost of providing rehabilitation was $676,771, a net saving of $2,452,713 through rehabilitation.

Science News Letter, September 10, 1955

AERONAUTICS

Water Vapor Shows Airflow Around Model

See Front Cover

➤ TURBULENCE GENERATED by a wind tunnel model is made visible by the vapor screen method, by which the photograph on the cover of this week's SCIENCE NEWS LETTER was taken.

Water vapor introduced into the wind tunnel forms fog particles in the air stream. When light is beamed across the flowing air, the turbulent vortexes appear in the light plane as dark spirals.

Although the model is not visible, the four vortexes it sheds make a false face. Part of the mount holding the model appears at the lower center.

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CE FIELDS

PHYSIOLOGY

Heart Tissue Stands Very Low Temperatures

➤ YOUR HEART is tougher than you may think—it can apparently withstand near-freezing temperatures without damage to its tissues.

Doctors at the University of California at Los Angeles Medical Center, working under a Los Angeles County Heart Association grant, have investigated the effects of reduced temperatures on bits of living tissue from a rabbit heart.

They found that, although temperatures near freezing abolish the excitability and contractility of heart muscle tissue, these effects disappear upon rewarming, with no ascertainable damage to the tissue.

Interest in the effects of extreme cooling on heart tissue has increased because of the use of ice pack surgery in heart operations. Although it is generally known that patients subjected to these frigid techniques survive the procedure well, little research on their effects on tissue has been done.

On the basis of this study, the scientists suggest that death as a result of exposure to cold is not caused by the direct effect of cold on tissues, but probably caused by the failure of the great supply systems, the circulation and respiratory. Failure of respiration may well be a consequence of circulatory failure.

Science News Letter, September 10, 1955

ARCHAEOLOGY

Indians Carved Jade With Abrasive on String

➤ THE PUZZLE of how the ancient Indians of Costa Rica did fine carving on hard jade ornaments before they had any metal tools is explained by Dr. S. K. Lothrop of the Peabody Museum, Harvard University, in *American Antiquity* (July).

The prehistoric Costa Ricans coated fiber string with an abrasive and pulled the string back and forth like a saw across the place to be cut.

Dr. Lothrop reports he recognized the string-sawing technique from the following characteristics that could be noted by inspecting the carved jade ornaments:

1. With a string saw, a small hole may be drilled anywhere on the object, and the cutting started from the hole by poking the string through it. With a flat saw, the cut must be started at an edge.

2. By string sawing, it is possible to cut curved interior lines that could not be cut with a flat saw.

3. String sawing tends to produce wobbly interior lines instead of the nice straight lines cut with a saw.

4. When sawing away from a drilled hole with a string, the cut is narrower than the hole.

5. The end of a cut made by string sawing will not be flat, but rounded.

Dr. Lothrop reports the suggestion that the spines of cactus or tropical vines might have been dipped in fine abrasive for the delicate workmanship.

Still remaining a puzzle to archaeologists is how these same Indians drilled long tubular jade beads. Two such beads, now in the Peabody Museum, Cambridge, Mass., measure 13 and 14 inches in length and are about an inch in diameter. The longer bead was drilled eight inches from one end and six inches from the other—the deepest drilling of jade ever found in the New World.

The holes taper from 3/8 of an inch in diameter at the opening to 3/16 of an inch in the center.

The jade carvings described by Dr. Lothrop were in a collection found recently near the town of Guapiles in northeastern Costa Rica.

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PUBLIC HEALTH

"Litterbugs" Menace Public's Health

➤ "LITTERBUGS" do more serious damage than spoil the beauty of roadsides and highways.

By their sloppy habits, they may increase the house-fly population and thus indirectly spread disease, the U.S. Department of Agriculture has warned.

Flies feed and breed in garbage or other filth, manure and fermenting crop wastes. One female fly can lay nearly 3,000 eggs a month. Flies may carry typhoid and dysentery, and help spread cholera, trachoma and many other diseases.

Sanitation is the first step against the house fly, killing the second. Good screening of the home is important protection, Department entomologists said. The following are the Department's recommendations for fly control in and around the home:

1. Hold down the fly population by keeping the place sanitary all the time. Keep garbage and other refuse tightly covered. Dispose of it frequently—by burning, if regular pick-up service is lacking. Never leave garbage in the open. Keep compost piles covered. Clean up after dogs, cats, chickens and other animals. Clean up garden or crop wastes.

2. Have well-fitting screens that swing outward on all windows and doors.

3. Kill flies by sprays, both space and surface types, in and around the house and by the new bait preparations outside where flies gather, such as around garbage cans. When buying sprays, look on the label to see that pyrethrins are listed as an ingredient—often along with other insecticides. Pyrethrum is harmless to human beings and animals, but fatal to flies.

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TECHNOLOGY

High-Altitude Suit Fits Pilot Like Girdle

➤ A MANUFACTURER of brassieres and girdles has designed the Air Force's latest high-altitude flight suit.

As with the corsets of old, much assistance is needed to don the suit properly and tighten the many laces. Once wrapped snugly in the tight-fitting "T" suit, a pilot is protected from failure of his pressurized cockpit, even at altitudes up to 65,000 feet where his body would literally burst from the low pressure.

The suit actually "holds the pilot together" in emergency decompression. If the plastic cockpit windshield shatters during a high-altitude flight, the suit and the pilot's helmet would automatically fill with compressed oxygen. This creates a temporary balance that gives the pilot time to dive the plane to a lower altitude where the air is not so thin.

The "T" suit requires no gloves or boots. If decompression should occur, the pilot would probably find his hands and feet have turned black and blue. He would probably be willing to take the chance in the interest of having greater freedom of hands and feet.

The outfit comes in 12 sizes, and further adjustments are made by loosening or tightening the laces. The suit weighs about four pounds and costs about $300.

This new look in pilots' apparel was designed by David Clark, a Massachusetts manufacturer of ladies' wear.

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TECHNOLOGY

Pint-Sized Bottle Analyzes Moisture

➤ THE GERMANS have developed a portable detection device to tell how much moisture a sample contains.

The device allows builders to test their materials just before construction, guarding against damage and losses due to too much or too little moisture. Described as extremely accurate, the moisture detecter is expected to eliminate referring materials to a laboratory for tests.

The testing vessel, about the size and shape of a pint milk bottle, has a tightly fitting stopper with a pressure gauge attached. After putting a known weight of material in the bottle, a small glass container of calcium carbide is added. Then the steel bottle is sealed and shaken vigorously.

The calcium carbide bottle breaks inside, and as fast as the carbide takes up water from the sample, it reacts to form acetylene. The pressure gauge tells how much gas evolved, an indirect measure of the sample's water content.

The bottle is part of a kit developed by the chemical works of Riedel-de Haen, Hanover, West Germany.

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