MEDICINE

Use of Auxiliary Drug With Morphine Fails

➤ HOPE FOR doubling the nation's stockpile of morphine through use of a potentiating drug is discouraged by research reported by Dr. Howard L. Andrews, U. S. Public Health Service (*Journal, American Medical Association,* Oct. 17).

By giving prostigmine methylsulfate with morphine, it had previously been reported by other scientists, pain could be relieved with only about half the amount of morphine usually required when given alone. Besides conserving morphine, this potentiating drug might also reduce the risk of morphine addiction developing from morphine given to relieve pain.

As a result of studies at the U. S. Public Health Service Hospital at Lexington, Ky., where narcotic drug addicts are treated, Dr. Andrews concludes:

"It appears that the combination morphine-prostigmine methylsulfate is not significantly more effective in raising the pain threshold than morphine alone and that the addition of prostigmine methylsulfate does not appreciably change the rate at which tolerance is developed."

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ASTRONOMY

Variable Star Observers Make 33,090 Observations

➤ A TOTAL of 33,090 looks at variable stars, those flashing beacons of the night skies, have been turned in by members of the American Association of Variable Star Observers during the past 12 months, bringing the 31-year total of the amateur observers up to 880,000. This is reported by Leon Campbell, of Harvard Observatory, recorder of the A.A.V.S.O.

Ninety observers compiled the year's total, Mr. Campbell said. One of these, Cyrus Fernald, of Wilton, Maine, maintained his position of leader, gained last year, with a total of 4,206 observations. He worked 207 hours in observing time alone, averaging 20 stars an hour, which is very fast for this kind of work. Several other members, including Leslie C. Peltier, of Delphos, Ohio, famous as discoverer of seven comets, turned in from 2,000 to 2,500 observations each.

In a long-range program of analyzing the amateur observers' reports, Mr. Campbell has just concluded the determination of 12,000 maxima and minima times for some 250 stars out of his observing list of 700. This and other information is of great value to professional astronomers in their studies of variable stars.

The Merit Award of the A.A.V.S.O. granted only five times previously, was bestowed on D. F. Brocchi, of Seattle, Washington, who has long served as chairman of the chart committee of the Association. Previous recipients of the Merit Award have been: L. C. Peltier, William Tyler Olcott, Rev. T. C. H. Bouton, E. H. Jones, and David B. Pickering.

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MEDICINE

12-Cylinder Medical Care Asked for Bicycle Income

➤ DOCTORS must find a way to "bring a 12-cylinder standard of medical services to a man who can barely afford a bicycle," Dr. George W. Cottis, president of the Medical Society of the State of New York, declared at the meeting of the First District Branch of the Society.

He challenged the doctors to find answers to this and a dozen other pressing questions, among them the following:

How shall we extend preventive measures to the whole population and so lessen the need for curative medicine?

How provide proper care to our civilian population when the most virile one half of us are in the armed forces?

How care for defense workers and workers in general industry? How meet the demands of thousands of workers and their families today in an area where yesterday was only a scattered rural population?

How clear our own house of legalized quacks and fakers?

How force the speeding up of the production of doctors by casting out deadwood from curricula and rearranging courses?

"As a nation we are beginning to appreciate the tremendous cost of the wishful thinking, wilful blindness and inexcusable ignorance of world affairs which resulted in our unpreparedness to meet what was plainly inevitable," he declared. "As a profession we should profit by that experience and make sure that we know what is happening or is about to happen to us."

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IN SCIENC

INVENTION

Develop Non-corrosive Oil For High Pressure Bearing

➤ HOW TO produce non-corrosive lubricating oils for use where pressures between the bearing surfaces rise to more than five tons to the square inch, is told by Carl F. Prutton of East Cleveland, Ohio, in U. S. patent 2,298,636. The rights have been assigned to the Lubri-Zol Corporation of Cleveland.

High pressure lubricants are usually corrosive, the inventor states, in fact depend on chemical action between the oil and metal to prevent seizure and scoring of the bearing surfaces. But he has found that certain halogen carbon compounds, particularly chlorinated compounds, inhibit this corrosive action without destroying the high pressure qualities of the lubricant. The action seems to be to form a protective film on the metal which prevents electrolytic action to which the corrosion is due.

His new "inhibitors" can be used to make new high pressure oils or to improve existing ones.

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ARCHAEOLOGY

Ancient Europe Said To Be Land of Milk and Honey

➤ PREHISTORIC Europe, as well as Palestine, was a land "flowing with milk and honey," according to Professor Grahame Clark, British archaeologist, writing in the journal, *Antiquity*.

Cheese, honey and beeswax were among the chief barter products used by prehistoric Europeans living in the Alps. And among the products of Brundisium, a town in ancient Italy, "honey and wool were strongly commended," according to the Greek geographer Strabo, quoted by Professor Clark.

Honey, beloved of the Egyptians, was the only source of sugar known to most of the ancients. Europeans too, of the Early Bronze Age, used it. Chemical analysis of sediment in an ancient Danish coffin showed that honey and myrtle had been added to cranberry wine.

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E FIELDS

ENGINEERING

Cut-Out for Rural Electric Lines Perfected

➤ FOR PROTECTION of rural electrification lines, a simple cut-out has been perfected which distinguishes between a temporary surge, such as caused by lightning, and a graver fault requiring lengthy repairs. Five seconds after a fault has caused the breaker to open, it recloses. If the fault is still present, the breaker reopens and again recloses after five seconds. Then the breaker reopens, if the fault still remains, and stays open until repairs are made. This device, developed by the Westinghouse Electric & Manufacturing Company, saves needless repair trips in rural areas remote from the service and expensive equipment available in the cities.

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INVENTION

New Plane Control Cables Have Uniform Tautness

➤ TO COMPENSATE the control cables of an airplane for changes in temperature, tilt or other conditions that might cause them to become too loose or too tight is the object of the invention of Henry H. Bruderlin of Hermosa Beach, Calif., who has received U. S. patent 2,298,611 and assigned the rights to the Douglas Aircraft Company.

The general practice has been, the inventor states, to string these cables so tight in the first place that under no ordinary conditions will they become too loose to operate. This increases friction, requires undue effort by the pilot to operate them, and shortens their life. The object of his invention is to maintain a constant tension on the cables and to increase the range of variations that can be taken care of.

The constant tension, he says, gives the control stick always the same feel to the pilot, and better enables him to detect and estimate flutter of the control surfaces.

The compensation is brought about by a spring housed within the control surface. The cable is divided at this point and the two ends attached to the spring. If the cable is pulled in either direction, the spring is locked out, so that the connection to the control surface is then direct and positive, the same as for a cable permanently attached.

The inventor claims that this device will compensate even for a considerable distortion of the plane itself, such as can occur in combat, which would alter the run of the cables and put uncompensated cables out of commission.

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CHEMISTRY

Fluorescence May Help Testing of Gas Masks

➤ SOME OF the difficulties encountered in gas mask testing are well known to many people. These devices must be rendered gas and vapor tight, and the most rapid and effective way of detecting leaks often presents a problem, especially when mass production is involved.

With fluorescent chemicals, those substances which glow under ultraviolet light, it may become possible to test gas masks quickly and with certainty, thus eliminating one of the bottlenecks in our war effort. The originator of the method is Jack De Ment, Portland, Oregon, chemist, who has conducted many studies of fluorescent substances and ultraviolet light.

Briefly, in testing the efficacy of a new mask, very finely powdered anthracene or other fluorescent chemical is allowed to filter into the test chamber under mild pressure. It is possible to immediately detect leaks in the mask and determine exactly where they occur, whether in the fabric, in the mechanism, or about the edges, by examining both mask and subject under ultraviolet light, a bright green glow showing entrance of luminescent powder into the mask. Or, liquids and vapors can be used instead of powder, depending on the type of gas, smoke, or fog, the mask is intended for. The new technique presents interesting possibilities when it is realized that unweighable amounts of chemical can readily be seen on the skin of the wearer's face or inside the mask with "black light". Many fluorescent chemicals are known which can be detected in dilutions as great as one part in several hundred million.

Further, the gas-tightness of boxes, food and medicine containers, suits, and other objects, can be tested by the improvisation.

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NUTRITION

Soldiers in Tropics Need Changes in Their Diet

➤ FINDING the right diet to keep a soldier fit whether he is in training at a home camp or fighting in the desert or in the tropics is the job scientists are now tackling, Prof. Charles G. King, of Columbia University, told members of the American Chemical Society at a meeting of the New York Section.

"The extremely heavy perspiration caused by tropical climates, and the scorching days and freezing nights of desert fighting zones, apparently require a diet differing from that ideally suited to the conditions in a typical American camp," Prof. King explained.

"While still striving to find what a man needs to eat under normal conditions, nutrition leaders were suddenly faced with the problem of feeding men under extremes of temperature, of enclosure and sunlight, of ocean depths and high altitudes, and of great exhaustion.

"Loss of flavor and of nutritional value in food as a result of storage and shipping to tropic or arctic zones, and the loss of stability in fats are other problems which must be solved immediately."

The Nutrition Foundation, of which Prof. King is scientific director, is making research grants to universities, and is working in cooperation with other agencies such as the Office of the Surgeon General and the Food and Nutrition Board of the National Research Council in carrying out a program adapted to the needs of both the civilian population and the military services.

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INVENTION

Synthetic Fabric Replaces Horsehair in Linings

➤ A SYNTHETIC stiffening fabric to replace horsehair in the interlinings of coats, dresses and upholstery, is the invention of Albert Faris Smith of Wilmington, Del. (U. S. Patent 2,298,071) and assigned to E. I. du Pont de Nemours & Company.

The great advantage of the new fabric is that the stiffening fibers can be made in different sizes or may be tapered from end to end so that the stiffness of the fabric can be varied from one part to another as desired. Thus a turn-down collar may be made flexible at the crease, but more stiff toward either edge.

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