

## CONSERVATION

**Large Cities Wasting Water but Nobody Cares**

► WATER is being wasted in America's large cities, yet very little attention is being directed toward a solution of this problem.

Dr. Warren Hall, director of the state-wide California Water Resources Center at the University of California, Los Angeles, maintains that while sanitary engineers and public health officials are working effectively to prevent biological pollution of water supplies, problems of an economic nature, such as the misuse or outright waste of water in large cities, have not aroused the attention they should.

"In the case of urban waste of water," Dr. Hall said, "the problem is not yet sufficiently obvious to excite research foundations, Federal agencies or the urban population in general. Water bills, though rising steadily, do not yet appear to have reached the point where the householder will voluntarily limit or otherwise regulate water use.

"Industrial water costs, with some notable exceptions, are even farther from the economic pinch point, with respect to excess usage, although public health officials are pointing a finger at the pollution caused by industry.

"As a result of this price-use situation, there is virtually no pressure for research on urban water conservation. Without pressure, there are no funds, and without funds the problem will not be given adequate attention."

Because of the competition for water, agriculture will probably be first to feel the pinch resulting from urban water use, Dr. Hall said. This will continue to be the case until population increases result in a correspondingly acute need for more food.

He said that urban populations now can and do pay more for the privilege of wasting water than the farmer can afford to pay for its use in irrigating food crops.

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## BIOCHEMISTRY

**New Paternity Test Harnesses a Protein**

► ABOUT SEVEN out of ten suspected fathers can be ruled biologically innocent by a new immunologic paternity test given with a battery of existing tests.

The new fatherhood indicator is an inherited serum protein discovered accidentally during immunologic studies by Dr. Jan Hirschfeld of the State Forensic Chemistry Laboratory in Stockholm.

The physician-bacteriologist said "Gc-typing"—for Group-specific components—may be used routinely as a forensic tool in Sweden this year.

"It will raise the 'father' exclusion rate to about 70%," he said. Some 65% of suspects can be excluded by other, mainly blood-testing, techniques.

Gc may be just as useful in analyzing body fluids, tagging and testing other proteins, measuring the degree of immunity to

certain infectious diseases after vaccination or illness, and in genetic population studies.

More than 5,000 serum samples from several areas of the world were Gc-screened, revealing clearcut genetic variations among human racial groups, according to Dr. Hirschfeld.

Dr. Hirschfeld said "the Gc-protein was demonstrated in sera of some fetuses already at 25 weeks. Some cases belonged to Gc types different from the mother, thus allowing an evaluation of biochemical maturity because these proteins must be synthesized by the fetus and not passively transferred through the placenta."

Studies of the Gc pattern after blood transfusion provide another "interesting clinical aspect" of the investigations at the Karolinska Institute in Stockholm, where Dr. Hirschfeld has his laboratory.

"If the donor belongs to another Gc type than the recipient," he said, "the passively transferred Gc protein can be followed in the recipient and a semi-quantitative appreciation of relative amounts between the recipient's own Gc protein and passively transferred Gc protein can be made. In this way we can follow the survival of passively transferred protein and expect this work to give information on protein synthesis and turnover rate."

Gc has been detected in other body fluids, such as blister, ascitic, cerebrospinal fluids and urine. The protein in some samples is not absolutely correlated to total protein content of the sample.

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## METEOROLOGY

**Oasis of Near Tropical Land Seen in Arctic**

► A LAND of balmy breezes with swaying palm trees. Hawaii? No—the Arctic.

Such a scene is possible in this now frozen land of ice and snow, Russian meteorologist Dr. M. I. Budyko believes. Only one big drawback remains—the ice would have to be melted.

This procedure has actually been advocated seriously by the Russian scientist. He believes that by ridding the region of ice, the mild climate present before huge glaciers blanketed much of the earth thousands of years ago would return.

Temperature differences between the equator and the poles are largely due to the ice, not differences in solar radiation, Dr. Budyko said. Once the ice is destroyed, it would not return.

Vegetation of the temperate or even the subtropical zone would then invade the area and thrive.

The same chain of events could also occur on the continent "down under"—Antarctica, the scientist said, if the ice were withdrawn.

The ice cover of the Arctic and Antarctica is the cause, not the result of the low temperatures in the high latitudes, the Russian scientist emphasized in a report translated by the Joint Publications Research Service in Washington.

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**IN SCIENCE**

## ENTOMOLOGY

**Battle of Bugs and Crops Still on in Country**

► THE ANNUAL BATTLE of insects and farm crops still rages even though the fall season is here.

Alfalfa is in retreat from advances of the corn earworm, cloverworm and the alfalfa aphid. In South Carolina, Virginia and Maryland soybeans are suffering damages from the Mexican bean beetle and the leaf bean beetle.

Further casualties have been noted in South Dakota corn crops from European corn borers and adult corn rootworm. The biggest dangers in the cotton flank are cotton aphids, bollworms and spider mites. Forests are being barraged by the bark beetle, pine looper, spruce budworm and the leaf mining weevil.

On the citrus front an unusual trend shows the citrus rust mite heaviest on fruit and lighter on leaves. Livestock skirmishes are with the face fly in Oklahoma and with the horn fly in Wyoming.

The Cooperative Economic Insect Report published by the U.S. Department of Agriculture has issued special statements on the status of important insect menaces throughout the country.

In Illinois the meadow spittlebug is most heavily entrenched in the northwest corner of the state. The rice stinkbug raids rice fields in Arkansas, Louisiana and Texas, annually lowering yields and quality of rice produced.

In a counterattack on the screwworm in Texas and New Mexico, more than 56 million sterile flies released by USDA advanced into infested territories the second week in September. Only 940 screwworm cases were reported, although an autumn increase is expected later.

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## CONSERVATION

**Bugs Bother Fishermen But Bugs Feed Fishes**

► WHEN BUGS bother them while fishing, and when proposals are made for the control of bugs living part of their life in water, fishermen ought to remember that insects are often the staff of life for many fish, according to C. W. Threinen, administrative assistant in the Wisconsin Conservation Department.

Mr. Threinen said that recent department research on Lake Winnebago fish indicated that even the game fish such as walleyes eat insects. In fact, the pesty midge that collects around lights in summer and early fall is one of the most common foods of walleyes and sauger. It is especially important at times when forage fish are lacking, and young fish feed heavily upon midge.

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# E FIELDS

## ASTROPHYSICS

### Intense Source of X-Rays In Heavens Discovered

➤ AN INTENSE source of X-rays previously unsuspected has been discovered in the heavens.

The source is in the region of Scorpius, a constellation representing the mythical figure of a scorpion, which is visible during summer months low in the southern sky.

The intense X-rays were discovered accidentally during a rocket experiment intended to measure the fluorescence of the moon's surface from sunlight. This experiment could have been used as a method of analyzing materials composing the lunar surface.

However, the expected X-rays from the moon could not be measured because of interference from the intense Scorpius source. The X-rays from Scorpius are stopped by the earth's atmosphere at about 50 miles altitude.

Discovery of the source by Riccardo Giacconi of American Science and Engineering, Inc., Cambridge, Mass., is reported in *Sky and Telescope*, 24:196, 1962.

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## MEDICINE

### New Drugs for Alcoholics Promise Lasting Benefits

➤ SOME of the new drugs being used to treat alcoholics promise lasting benefits.

The alcoholic patient, since the introduction of disulfiram (Antabuse) more than 10 years ago, has been treated by a bewildering variety of drugs. Among them are antibiotics, antihistamines, drugs to combat depression, tension and anxiety, withdrawal symptoms, insomnia and craving for drink.

Alcoholism is a disease that affects a diverse group of ill persons, disturbed psychologically as well as physically, and differing in their reactions to alcohol and treatment.

The Center of Alcohol Studies, formerly at Yale and now at Rutgers University, New Brunswick, N. J., collects information that various clinics and hospitals have reported. Here are some of the newer promising drugs, reported by the Center's *Quarterly Journal of Studies on Alcohol* editors in an *Alcoholism Treatment Digest*:

Amphenidone, used at the Alabama Commission Alcoholism Clinic, Birmingham, by Dr. H. H. Haden, showed absence of side effects, with no danger in overdosage.

Dezazyme, reported by Drs. J. Thimann and J. W. Gauthier at the Washingtonian Hospital, Boston, was well adapted to the management of depression. It was also helpful during the withdrawal stage and during subsequent treatment by psychotherapy.

Prochlorperazine, also reported by the same doctors in Boston, was especially effective in reducing agitation and anxiety.

There were no side effects, even with large doses injected in a vein. Its antiemetic action also was helpful in this disease in which medication often causes vomiting.

Dimercaprol, reported by Dr. B. M. Segal of the USSR, resulted in relief of craving for alcohol in many patients within two hours, an effect that lasted as long as three days.

Chlordiazepoxide is the tranquilizer preferred in a number of hospitals because it is a good muscle relaxant and causes less drowsiness than others.

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## PSYCHOLOGY

### Dreams Still Guide Destiny of Millions

➤ EVEN IN THIS AGE of science, millions of people in all parts of the world view dreams as the voice of prophecy and contact with the supernatural.

Dr. Gustave E. von Grunebaum, director of the Center for Near Eastern Studies at the University of California, Los Angeles, finds that the popular quest for material guidance from dreams, fed by curiosities and anxieties, continues on the medieval pattern.

He compares this type of dream interpretation with astrology which also persists below and sometimes even on the surface of our own cultural life despite the fact that it is incompatible with our scientific and religious views.

"To the mentality which discerns no dividing line between the natural and supernatural," reports Dr. von Grunebaum, "the dream is seen as a means of communicating with the future, the hereafter and the divine."

Dr. von Grunebaum, who is an authority on Islamic history, found in Moslem society until as recently as the turn of the century, in medieval Europe and in simpler societies even today, the dream was and is considered a logical basis for deciding important matters of state and religion.

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## MEDICINE

### Artificial Kidney Used In Snakebite Treatment

➤ A MEXICAN LABORER bitten by a red diamond rattlesnake was successfully treated by the use of an artificial kidney.

The artificial kidney helped the patient recover completely within 35 days, San Diego physicians Drs. Donald B. Frazier and Frank H. Carter reported in *California Medicine*, 97:177, 1962.

Kidney damage from a snakebite results after venom has entered the bloodstream, causing an initial breakdown of red blood cells or damage to the central nervous system. It is characterized by scaling off of cells in the kidney tubes.

When an artificial kidney is used, the damaged organ can be healed while normal body functions are being carried out.

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## TECHNOLOGY

### Frigid Power Source For Space Transmitters

➤ A COLD "BATTERY" frigid enough to liquefy air can store electricity for powering space transmitters. Providing greater power output than a conventional battery of similar size, the storage unit can be charged in space by solar energy.

The new unit is a wire coil with virtually no resistance to electricity bathed in liquid helium at a temperature of minus 269 degrees centigrade. The wire coil generates a high magnetic field in which electricity can be stored indefinitely without additional energy, William F. Hassel, physicist at the U.S. Naval Ordnance Test Station, China Lake, Calif., reported to the American Rocket Society Space Power Systems Conference at Santa Monica, Calif.

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## MEDICINE

### Anticoagulant Drugs May Be Useless for Strokes

➤ DRUGS that prevent blood clotting (anticoagulants) appear to be of no value in the treatment of stroke and may even be dangerous, a six-year study has shown.

The study, being conducted by the University of California, Los Angeles, Medical School and Veterans Administration Center in Los Angeles, involved more than 900 patients. The research is concerned not only with treatment of strokes but a better understanding of their natural history and mechanisms. Drs. Robert Baker, Wilbur Schwartz and Augustus Rose are carrying out the investigation.

Strokes occur when blood clots lodge in tiny blood vessels in the brain, blocking blood supply to vital brain centers. Diseased major arteries, such as the carotid arteries in the neck, are believed to contribute to the problem.

Stroke victims are of two main types: 1. Those with definite strokes with either relatively fixed paralysis or loss of speech or vision lasting long periods of time, or both. This group comprises 96 per cent of all strokes. 2. Those with transient, recurring episodes of paralysis, loss of speech or vision, which may last for minutes or hours but soon go away. These have been referred to as "little" strokes.

In the clear-cut, fixed stroke group anticoagulant therapy did not appear to prevent recurrence of strokes or lessen mortality or disability when compared to patients not treated with the drug.

In this group there were more deaths from cerebral hemorrhage among treated patients than among untreated ones. This fatal bleeding in the brain and elsewhere may reflect the risk of the drug's anti-clotting effect.

In the transient attack group there was an indication that anticoagulants relieved transitory symptoms of paralysis and speech and vision loss and reduced the number of recurrences.

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