

PHYSICS

Water Is Crystalline

► SIX KINDS of water helped Dr. Jui H. Wang, research fellow at Yale University, learn that water at ordinary temperatures has crystalline structure.

Dr. Wang reported his studies to the American Association for the Advancement of Science meeting in St. Louis.

Heavy forms of both hydrogen and oxygen, the chemical elements of which water is made, were used to make up the six kinds of water. Ordinary hydrogen, deuterium and tritium are the three kinds of hydrogen, and he combined them with two kinds, or isotopes, of oxygen, known as O-16 and O-18.

The commonly found kind of water is made up of one atom of O-16 and two atoms of H-1, making a total of 18 units of molecular weight. The heaviest of the isotopic kind of water is made up of one atom of O-18 plus two atoms of tritium, H-3, which adds up to 24.

The greater weight of these particles of heavier water makes a difference in quantities that can be measured, Dr. Wang finds. He has applied this information to studying the way one kind of water diffuses through another when they are mixed, with and without stirring.

Crystalline structure even in liquid water explains in part how water can be denser a little above its freezing point, and expand when it freezes. Atoms are packed most tightly together when the water is at its greatest density, Dr. Wang found, but are spaced out in crystalline arrangement both when frozen and when heated above the maximum density point.

Water made with heavy isotopes reaches its greatest density at a higher temperature than does ordinary water.

Science News Letter, January 17, 1953

BIOCHEMISTRY

Cannot Tell Human From Monkey Blood Stain

► NO SIMPLE, practical laboratory test can tell whether a stain was made by human blood or by blood from apes, monkeys or lemurs, Dr. R. B. H. Gradwohl, director of the St. Louis Police Laboratory, declared at the meeting of the American Association for the Advancement of Science in that city.

In fact, he said, in the precipitin reaction, standard test for identifying blood, chimpanzee blood gives an identical reaction to human blood when tested with anti-human precipitin, and human blood reacts just like chimpanzee blood when tested with anti-chimpanzee precipitin.

Dr. Gradwohl's findings agree with those made by Dr. J. E. Duncan-Taylor of Capetown, South Africa, he said.

He warned scientists appearing in court and testifying in homicide cases about how specific the anti-human precipitin test is, to be on their guard lest conclusions be drawn which cannot be supported scientifically.

It is time, he declared, to check and recheck the whole problem.

Science News Letter, January 17, 1953

Questions

AERONAUTICS—What is a "stopway?" p. 36.

...

ANTHROPOLOGY—Why is a recently discovered bone believed to be that of the first true man? p. 37.

...

CYTOLOGY—How can heart cells be kept alive for at least a month? p. 40.

...

EDUCATION—What would be the advantage of admitting boys to school six months later than girls? p. 37.

...

GENERAL SCIENCE—What Russian sciences are now considered adequate? p. 39.

...

PSYCHOLOGY—What is "action psychology?" p. 41.

...

PUBLIC HEALTH—For what reasons will heart disease incidence climb this month? p. 41.

...

Photographs: Cover, Loh Seng Tsai; p. 35, Fremont Davis; p. 37, Stanford University; p. 38, U. S. National Museum; p. 42, U. S. Bureau of Mines; p. 46, University of Rochester; p. 48, Motorola.

Do You Know?

Watch "jewels" cost about \$3 a dozen.

Under certain conditions, *sound waves* can put out fires.

Steady dripping of a single faucet will waste 24 gallons of *water* daily.

Food production in 1953 is expected to be slightly higher than in 1952.

The average home *freezer*, full or nearly full of food, will remain below freezing temperatures for about 48 hours after the power is cut off.

Using a *transistor* in his transmitter, a radio "ham" recently communicated with another amateur 25 miles away; this is believed to be the first use of a transistor in VHF radio transmission.

If properly trained in *color perception*, some persons can distinguish with unaided eyes as many as 500,000 colors of various hues, densities, purities and brightnesses, one scientist states.

An experimental *television system* produces the video picture by causing the picture tube's electron beam to sweep across the screen at varying speeds—slowly for highlights, rapidly for shadows.

just one quick squeeze . . .
and raw water is chemically pure



with new
DEEMINAC

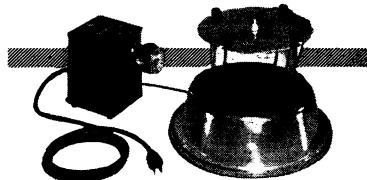
For Photography . . . Storage Batteries . . . Blood Chemistry . . . Hydrogen-Ion Studies . . . Sterilizers . . . Steam Irons . . . and all other devices requiring mineral-free or "soft" water.

Deeminac is by far the handiest, simplest, most economical method of obtaining mineral-free water yet developed. Just fill pliable polyethylene bottle with ordinary tap water, plug in filter and squeeze. Out comes a stream of chemically pure water equal in ionic purity to water that has been triply distilled. Smallest Deeminac filter will produce up to 20 gals. of pure water.

30-861 DEEMINAC is available in three sizes: 6 oz. bottle with 2 oz. filter—\$1.75; 8 oz. bottle with 3 oz. filter—\$2.25; 16 oz. bottle with 4 oz. filter—\$3.00. 30-862 Extra Filters, boxes of TWO: 2 oz. \$2.50 box; 3 oz. \$3.50 box; 4 oz. \$4.50 box. For more details, write for Bulletin D. All prices F.O.B. New York, N. Y. Add 25¢ for postage.

E. MACHLETT & SON
Laboratory Apparatus • Supplies • Chemicals
Dept. D, 220 E. 23rd St., New York 10, N. Y.

"See" RADIOACTIVITY
with the
"CLOUDMASTER"



● Only with the "Cloudmaster"—Nuclear's exclusive continuous cloud chamber—can you see the visible tracks of "alpha" and "beta" particles as they are emitted from radioactive material. A dramatic demonstration that's ideal for classrooms or meetings! Watch the "radioactivity tracks" constantly erupting from the low energy radiation source that's completely safe. Uses easily obtainable dry ice and isopropyl alcohol. Supplied with combination "sweep voltage" 1200 volt d-c supply and illuminating light, ready to plug into any 120 volt a-c line. Nuclear "Cloudmaster", complete with simple operating instructions—\$99.00 f.o.b. Chicago.

**nuclear INSTRUMENT AND
CHEMICAL CORPORATION**
243 West Erie Street • Chicago 10, Illinois
Branch Offices: New York, New York
Los Angeles, Calif. • Silver Spring, Maryland

nuclear "Precision Instrumentation
for Nuclear Measurement" 