DENTISTRY

Fluoridation Helps Protect Permanent Teeth

➤ FLUORIDATION of public water supplies is giving more help in the fight on tooth decay than was at first expected. And there is more evidence it does not cause any damage to teeth or the body generally.

Studies showing these results were reported at the American Public Health Association meeting in Atlantic City.

The original thought was that fluoridation of water would help keep decay from the permanent teeth only of children born after fluoridation was started. However, 16-year-old children of Grand Rapids, Mich., who were five years old when fluoridation was started there and whose teeth had been formed, benefited from the fluoridation.

Children with first permanent molars that had already erupted when the program was started have fewer and smaller cavities than children in nearby Muskegon, Mich., where fluoridation was started several years later.

The ability of the body to throw off an excess amount of fluoride, thus guarding against accumulating too much of the chemical, was shown in other studies. The kidney excretes the largest part of an extra dose rapidly within the first hour after the dose.

Older persons, who suffer most from diseases of the gums and underlying bone, do not get any more of this trouble when drinking fluoridated water than when not drinking it, was another finding reported at the meeting.

The studies were by Drs. F. A. Arnold Jr., I. Zipkin, A. L. Russell, R. L. Hayes, Nicholas C. Leone, N. W. Littleton and C. L. White, all of the National Institute of Dental Health, Bethesda, Md.

Science News Letter, December 1, 1956

GENERAL SCIENCE

Urge Establishment of Model Secondary Schools

➤ ESTABLISHING SPECIAL SCHOOLS to take care of talented boys and girls and give them special opportunities was recommended at the Seventh Thomas Alva Edison Foundation Institute on Science Education by Rear Admiral H. G. Rickover, USN, chief of the naval reactors branch of the Atomic Energy Commission.

Admiral Rickover charged at the meeting held at East Orange, N. J., that ordinary schools do not give the opportunity necessary in a democracy to develop properly the abilities of the talented boys and girls, particularly those who are going into science and technology.

He recommended the establishment of model academic secondary schools in about 25 different centers in the United States. Those schools would have free tuition, but they would give a very superior kind of student the highest scholastic quality. There would be at least one teacher for every 20 students.

Schools would start with the fifth grade so as to have the pupils ready for college at age 16. The children would attend school for more than the conventional 180 days during the year. This would be accomplished by voluntary summer courses.

"I estimate that the cost of operating each model school for a period of five years will be about ten million dollars," Admiral Rickover said. "At the end of that period the community ought to have an option to take over the school, provided it agrees to continue the high scholastic standards set under private management."

Well-to-do parents have always had it in their power to assure their children a good education by sending them to private preparatory schools, but the talented poor child has had to depend solely upon the public schools.

Admiral Rickover contended that education in a democracy must not only be democratic, but it must be a good and adequate education for the scientific and technologic civilization in which we live.

We cannot let Russia become the big brother to all the backward countries of the world, Admiral Rickover warned. Russia will soon have a surplus of trained manpower that she can export, whereas the United States, continuing at the present rate of production of scientists and engineers, will continue to have a shortage.

Science News Letter, December 1, 1956

FORESTRY

Day Length Affects Rate of Tree Growth

➤ TREE GROWTH is affected by length of day, a fact which should help tree farmers and orchard owners select varieties appropriate to their latitude.

Tests confirming this were reported by reported by scientists of the U. S. Department of Agriculture. In general, short days induce dormancy and long days prolong tree growth, Drs. R. J. Downs and H. A. Borthwick find.

The Agricultural Research Service scientists exposed trees to "short" days and "long" days, then compared the results. A "short" day was eight hours of natural light and a "long" day included eight hours of sunlight plus varying amounts of supplemental light.

The results showed that some but not all trees grow continuously on 16 hours of light a day. The continuous growers include American elm, red maple, catalpa, Asian white birth, tulip poplar and dogwood. They showed horse chestnut, paulownia and sweet gum do not grow continuously on 16 hours of light.

The tests indicated most trees will stop growing within four weeks if limited to eight hours of natural light. Species differ widely in this respect, however. Tulip poplars stop growing after only ten eight-hour days, but elms continue growing for 140 such days.

Science News Letter, December 1, 1956

IN SCIEN

ASTRONOMY

Describe Cameras for Tracking Satellites

➤ THE 12 SCHMIDT CAMERAS that will track the earth-circling satellites to be launched during the International Geophysical Year will be able to follow the moonlet with an error of less than one percent.

Dr. H. Henize of the Smithsonian Astrophysical Observatory, Cambridge, Mass., which is responsible for the optical and visual tracking program, reported that photographing a satellite not at its brightest required tracking it along its path.

Precise driving mechanisms, he said, allow spotting the object at five magnitudes fainter than if the telescope could not track.

The optical system being used in the 12 wide-eyed cameras was designed by Dr. J. G. Baker and uses a three-element apochromatic corrector plate. The system has an aperture of 20 inches, a focal ratio of 1.0 and a good field 30 degrees in diameter.

Calculations of the path taken by a ray of light showed that the focusing action resulting from use of this system gave an increase of five hundred million times in the surface brightness of the light energy.

Dr. Henize's report was presented at an international symposium on optics and microwaves at George Washington University, Washington.

Science News Letter, December 1, 1956

HISTORY

Fourth Century Painting Shows Surgery Students

➤ A FOURTH CENTURY A.D. painting recently discovered in a small catacomb in Rome represents one of man's first surgical operations on a living patient, Dr. George W. Corner, historian for the Rockefeller Institute of Medical Research, New York, believes.

The painting shows a central figure surrounded by a group of white-robed men. On the ground in front of them is the figure of a young man with what appears to be an abdominal wound.

Other interpretations of the picture are that it shows an early medical teaching class of doctor and students, or that it depicts an early dissection of the human body. If this last interpretation were true, medical historians would have to discard their long-held belief that dissection did not begin before the 14th century A.D.

Dr. Corner reported on his and other interpretations of the relic to the American Philosophical Society meeting in Philadelphia.

Science News Letter, December 1, 1956

CE FIELDS

BIOCHEMISTRY

Expectant Mother's Blood Has Growth Promoter

➤ PREGNANCY apparently brings on an increase in growth-promoting activity in the blood plasma of the mother, Drs. A. N. Contopoulos and Miriam Simpson of the University of California, Berkeley, found in studies of rats.

The scientists said they do not know whether the increased growth activity comes from a rise in the output of the pituitary, the master gland at the base of the brain, or from the placenta. They are now investigating this problem.

In their experiments, they injected plasma from normal female rats and from pregnant rats into rats whose pituitaries had been removed. Ordinarily growth in these animals slows to a halt.

In both cases, the growth of the animals was stimulated, but the growth was significantly greater when the plasma of the pregnant animals was used.

The work opens a new study of the relationships of the mother and the unborn offspring. The scientists hope to clarify the influence of maternal endocrine glands on the system of the unborn infant.

Science News Letter, December 1, 1956

VETERINARY MEDICINE

Dog Travel Rules Vary With States

➤ DOG OWNERS who plan to travel with their pets will do well to learn various state regulations governing the animals.

Different states have different laws to protect local animals from infectious diseases.

Most states require either a certificate of health or an anti-rabies vaccination certificate, or both. Only nine states and the District of Columbia permit a dog to enter without a certificate of any kind. These states are California, Delaware, Kansas, Mississippi, Nevada, New Hampshire, New Mexico, New York and Virginia, the Gaines Dog Research Center in New York reports.

Dogs are permitted in private room space on Pullman sleepers and parlor cars provided they are kept in a carrier or on a leash while going through corridors. With the exception of "seeing eye" dogs, no pets are permitted in dining cars or any public space.

However, the Baltimore and Ohio railroad permits dogs to travel in coach cars provided passengers do not object.

Most major airlines will carry dogs on some passenger flights or cargo planes. Dogs must be crated and in some cases must be accompanied by their owners. Dogs are not permitted to ride with their owners in plane cabins.

Instead, they go as excess baggage, which has priority over air freight shipments.

Most dogs take well to air travel, but a few breeds do have difficulty breathing. Such dogs should be transported by train, car or boat.

Animals that are shipped by train are never put on an unaccompanied freight car. They go only in cars where there is an express messenger whose responsibility is to keep the animals away from steam lines and protected from cold.

Canine passengers on ocean liners are usually kept in large, well equipped kennels with attendants to feed and groom them. Each dog has its own kennel.

When shipping a dog by rail or plane, fasten a short note to the crate telling the name of the dog and feeding and handling requirements. Be sure someone is at the dog's destination to claim him.

It is a good idea not to feed a dog for several hours before shipping.

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VETERINARY MEDICINE

Inducing Sleep in Pigs Provides Fat Measure

➤ CAT-NAPPING PIGS, put to sleep by drugs, are fatter than their longer-sleeping sty-mates induced into slumber with the same drugs.

Using this knowledge, scientists of the U. S. Department of Agriculture believe they have a harmless method of measuring an animal's fat.

Such measurements could provide a basis for better selective breeding, give information on growth and fattening changes, and help the packer better assay the "meat on the hoof."

By putting animals to sleep with certain anesthetics, USDA researchers are able to correlate the slumber time and the fat content. They found that the shorter the induced nap, the more the fat.

Louis Feinstein and F. J. Fulmine, the USDA scientists who conducted the fat-measuring experiments, used the anesthetics Kemithal and Thiopental.

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ASTRONOMY

Year's Eighth Comet Spotted by Belgians

➤ THE EIGHTH comet to be found this year has been spotted by two Belgians, Harvard College Observatory reports.

S. Arend, with the assistance of G. Roland, of the Royal Observatory of Belgium, discovered the tenth magnitude object. On Nov. 21, it was in the northern part of the constellation of Pisces, the fishes.

The comet is too faint to be seen without a telescope. News of its discovery on Nov. 6 was cabled from Belgium by Miss J. M. Vinter-Hansen.

Science News Letter, December 1, 1956

ANTHROPOLOGY

Read Love Poem From World's Oldest Literature

➤ A LOVE POEM from the world's oldest literature was read to scientists at the American Philosophical Society meeting in Philadelphia by Dr. Samuel Noah Kramer, cuneiform writing expert of the University Museum, University of Pennsylvania.

Deciphering the poem was made possible by cooperation of Communists in East Germany who permitted Dr. Kramer access to fragments of ancient Sumerian tablets housed in the "Helprecht Sommlung" of the University of Jena, more formally known as the Friedrich-Schiller University.

For most of his scholarly career, Dr. Kramer has been working on piecing together the fragments of several thousand tablets of Sumerian *belles lettres* that were excavated at Nippur between the years 1889 and 1900. The literary works date from about 1700 B.C.

The great majority of the fragments of the super jigsaw puzzle are now located in the Museum of the Ancient Orient in Istanbul and in the University Museum, Philadelphia.

However, a small but significant portion is in Communist East Germany. By themselves the relatively few pieces in Germany were useless. Yet without them, the scientific jigsaw in Istanbul and Philadelphia could not be completed and read.

For years, Dr. Kramer has been eager to have access to the Jena fragments, but first came the Nazis, then the war, then the Iron Curtain.

He finally succeeded in obtaining permission to go to Jena in the fall of 1955 to study the missing pieces and fit them in with what he had already studied.

Science News Letter, December 1, 1956

NUTRITION

Save Cheese by Fighting Phage

➤ A DEVELOPMENT that may lead to the saving of between 30,000 and 100,000 tons of cheese in the main producer countries in a single year has been made by scientists at the British firm of Fisons, Ltd.

It is a phage-resistant medium. Phages are organisms that attack and often destroy the acid-producing bacteria in the cheese starter cultures from which all man-made cheese comes.

Phages are permanently present in creameries. They constitute one of the biggest risks in cheese-making.

In the new medium, which has been successfully tested in Britain and New Zealand, starter cultures may be grown in spite of the heaviest phage contamination.

The discovery has been reported to the Food and Agriculture Organization of United Nations, in Rome, where scientists believe the method to be one of great importance.

Science News Letter, December 1, 1956