

## DENTISTRY

**Tooth Decay Found Low In Old and New Greece**

► "NO CAVITIES!" is a boast that most modern Greek children can make; and it could have been made as well by children of ancient Greece, a U. S. study has shown.

The low incidence of tooth decay among Greeks is apparently a result of a diet that is high in fluoride and low in selenium. Fluoride, ingested in small amounts when the crowns of the permanent teeth are developing, is known to prevent tooth decay. And there is increasing laboratory evidence that selenium may be a factor contributing to tooth decay.

The source of fluoride in the diet of contemporary Greeks is from fish rather than water since the water supply has little fluoride content. This also may have been the fluoride source of the ancient Greeks. The levels of selenium in both ancient and modern Greek teeth were found to be considerably lower than those reported in teeth from persons in the Pacific Northwest region of the United States where the prevalence of tooth decay is high.

The study is reported in *Nature*, 193:177, 1962, by Drs. D. M. Hadjimarkos, University of Oregon Dental School, and Carl W. Bonhorst, University of Portland chemist, Portland, Ore.

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## MEDICINE

**A Common Cold Cause Found to Be a Virus**

► A CAUSE of the common cold has been found.

For the first time an intestinal virus, Cocksackie A-21, has been found to cause the common cold, researchers reported as a result of studies at Camp Lejeune, N. C.

A vaccine awaits considerable further research, but reports in the *Journal of the American Medical Association* 179:112, 1962, indicate that if this virus is found to contribute "substantially" to the cause of respiratory illness, immunization should be effective.

Drs. Karl M. Johnson, Robert M. Chanock and Maurice A. Mufson of the National Institutes of Health, Bethesda, Md., with Dr. Henry H. Bloom of the Naval Medical Field Research Laboratory, Camp Lejeune, report the study.

Physicians also read in their official magazine that sight was recovered in three cases of cortical blindness in young children three years old or younger.

These children became temporarily blind following heart stoppage and loss of oxygen that damaged the central nervous system, Drs. Howard A. Weinberger, Riens van der Woude and Herbert C. Maier of the Lenox Hill Hospital, New York, report (p. 126).

Lung cancer may be preceded by swollen joints resembling early rheumatoid arthritis, Drs. Irving Karten and Harry Bartfeld of New York University Medical Center report (p. 162).

Dr. Albert B. Sabin, whose oral poliovirus vaccine was recommended by the American Medical Association, tells a reader that all susceptible persons should be given the vaccine regardless of how many doses of Salk vaccine they may have had.

"Such a program can begin now with the presently licensed Types I and II vaccines and be completed sometime during the first six months of 1962, when the Type III vaccine should be available" (p. 186).

Bromindione, a new anticoagulant, is reported to be very powerful and to have a minimum of side effects in a study of 75 patients. Drs. Mark M. Singer, Solomon Fisch and Arthur C. DeGraff, all of New York, state, however, that precautions should be observed in the use of the drug, which is given by mouth (p. 150).

Doctors are beginning to worry about what they would do if called from a safe fallout shelter to treat a patient. A North Carolina physician asked what the ethical duty of a physician and hospital authorities would be during the two-week period after an atomic explosion when the danger from radioactive fallout is greatest.

"It would be short-sighted," replied Frank W. Barton, secretary of the AMA Committee on Disaster Medical Care, Council on National Security, "for a physician to provide medical services to casualties in a 'hot' area that would, in a short time, incapacitate him to fulfill subsequent medical responsibilities."

Civil defense authorities agree that the physician is in the same category as everyone else regarding shelter protection from radioactive fallout (p. 183).

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## ENGINEERING

**Electronic Brain Handles Big City Traffic Problems**

► AN ELECTRONIC computer is un-snarling the rush-hour traffic jams in Toronto. Successful results of automatically controlling traffic signals in the Toronto metropolitan area by an electronic computer has traffic design engineers considering general use of the system.

An estimated \$2,000,000 each year is wasted in the rush-hour snarl in the Toronto area alone through car wear-and-tear and fuel costs, Leonard Casciato, chief engineer, Traffic Research Corporation, and Sam Cass, traffic engineer, Toronto, told the Highway Research Board meeting in Washington, D. C. Tests done in an area in Toronto have decreased the average delay per vehicle by some 11%.

For the average driver, rush-hour speeds which average less than 12 miles an hour can be increased to more than 16 miles an hour. This, in turn, means traffic volumes may increase up to 20%, they said.

Engineers in Toronto are considering the system for citywide use since the computer system would cost \$3,500,000 to install and \$200,000 per year to operate, as opposed to possibly \$30,000,000 for widening existing streets or building new roads.

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**IN SCIEN**

## PUBLIC SAFETY

**Avalanche Disaster Unlikely in U. S.**

► AN AVALANCHE DISASTER such as occurred in Peru is not likely in the United States because the snow areas where avalanches might occur are largely uninhabited.

Avalanches on steep mountain slopes are due to the weight of snow sheared off and triggered by quick changes in temperature, vibration or other conditions causing instability.

Travelers on highways and ski enthusiasts have had increased avalanche protection in recent years in this country. The Forest Service of the U.S. Department of Agriculture has taken on the responsibility of providing protection for tourists. Teams of avalanche hunters check potential areas and deliberately set off avalanches before skiers are allowed into the areas.

Aside from a 1909-10 avalanche which swept 118 persons to their death in three snowbound trains in the Cascade Mountains of Washington, there have been only a few persons caught at one time by the powerful crushers.

What happened in Peru, as best can be determined, is that great quantities of snow, warmed by the Peruvian summer sun, coupled with hot springs in the area, caused the loosening of earth and snow and rock which covered the six small villages. It began with the melting of the snow slabs near the peak of the 22,205-foot Huascaran, an extinct volcano.

An avalanche similar to the one this year ripped through the same area on Dec. 13, 1941, with the loss of 3,000 lives. Despite this, the towns were rebuilt and no precautions were taken.

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## PUBLIC HEALTH

**New High Reached By Health Insurance**

► SOME 136,000,000 persons, 75% of the United States civilian population, were covered by some form of health insurance in 1961, the Health Insurance Institute reported in New York.

This is an increase of 4,000,000 persons over the previous U. S. 1960 record figure of 132,000,000. Benefit payments reached \$6.3 billion, an increase of about 11% over the record \$5.7 billion paid out in 1960.

Approximately 53% of Americans 65 years of age or more—an estimated 9,000,000 persons—were covered in 1961 by one or more types of health insurance. Nine years ago 3,000,000 over 65 were covered.

The percentage of older persons with health insurance is growing faster than that of younger people, the Institute reported.

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# CE FIELDS

## TECHNOLOGY

### Automobile of the 1970's Will Be More Efficient

► THE AUTOMOBILE of the 1970's will be 30% lighter, far more efficient in performance, cheaper to operate, and possibly even lower in height than today's models.

These were a few of the predictions made at an assembly of highway and traffic engineers by Dr. George A. Hoffman, senior staff member, the Rand Corporation, Santa Monica, Calif.

"We see no revolutionary changes in automotive design, just a continuation of the steep-gradient evolution we have witnessed so far in passenger cars."

However, faster design improvements in passenger cars, compared with the "moderate evolution" in design of mass transit vehicles will mean that the automobile will still be the most popular form of transportation in the 1970's, Dr. Hoffman told the Highway Research Board meeting.

In urban areas, he said, a mixture of automobiles and mass transit vehicles seems desirable, with some of the trips to work, school and the central district being made collectively, and most other trips (two-thirds to three-fourths of the total) in the surrounding areas being made by passenger cars.

Dr. Hoffman based his predictions on the appearance, performance and operating economy of the automobile on a systems analysis of the vehicle, a process in which he broke the automobile down into components, anticipated design changes in each, and then assembled the parts to make a whole—the passenger car of the 1970's.

Some of these components and their proportionate weight are: body (33%), trim (17%), engine (15%), suspension (10%), fluids systems (7%), rubber (6%), axles, transmission and gears (5%), electrical elements (4%), and glass (3%).

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## ARCHITECTURE

### New Look in Housing For Mental Patients

► COZY COTTAGE-STYLE homes are now replacing old drab buildings for housing mental patients.

Alston G. Guttersen, a Washington architect, told a meeting of state hospital construction authorities at the U.S. Public Health Service in Washington, D. C., that "purely functional, uninteresting and monotonous buildings fail with mental patients." He noted that acceptance of ugliness is more devastating spiritually than impatient enduring of it.

Several cities now have planned cottage-style small units in which mental patients can look out on outdoor recreational areas

from open corridors, glassed in on one side. Mr. Guttersen has acted as consultant to the builders of several modern psychiatric hospital units, some of them built with funds from the Hill-Burton program administered by the state hospital construction authorities. Federal funds matched by the state provide hospital and health facilities where needed.

Two new units are in Grand Rapids, Mich., one is in Memphis, Tenn., and another will be built in Columbia, S. C., Mr. Guttersen said. A typical arrangement is to have single-story "nursing units" in 25-bed wards, separated so that disturbed patients may be isolated from others but still may have access to the outdoors.

The architecture of psychiatric units in general hospitals has changed greatly since 1924 when they were first included. At first, patients seemed to be buried deeply in a huge forbidding building, but now the quarters are attractive and in many places unlocked.

Mr. Guttersen is a member of the American Institute of Architects and a former consultant with the Public Health Service and the American Psychiatric Association.

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## MEDICINE

### New Family Disease Studied for Cholesterol

► TANGIER DISEASE, a new rare family disorder first discovered in a brother and sister on Tangier Island in Chesapeake Bay, is being studied because of unique factors affecting cholesterol and other fat-like substances in the human body.

Tangier disease was discovered in April, 1960, when a five-year-old boy had a tonsillectomy. His tonsils were tremendously enlarged and reddish-brown in color. They were sent to the Armed Forces Institute of Pathology in Washington, D. C., for study, where they were recognized as unique and sent on for more extensive studies at the National Institutes of Health, Bethesda, Md.

NIH scientists, Drs. Donald S. Fredrickson and Paul H. Altrocchi, went to Tangier Island and in the course of examining more than one-tenth of the population, checked the tonsils of the boy's older sister. They showed the same enlarged, lobulated reddish-orange appearance as the brother's, and they also were removed.

Lymph node and tonsil tissue samples from the two children showed extremely large quantities of free and esterified cholesterol.

The most striking biochemical feature of the new disease is the almost complete absence from the serum of high-density lipoproteins. These large molecules normally make up one of the two major classes of fat-protein complexes that serve as carriers for all the fats transported in the blood.

When correlated with similar studies conducted elsewhere on the few recently discovered patients who completely lack low-density lipoproteins, the Tangier studies should help to clarify the functions of each lipoprotein class.

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## GENERAL SCIENCE

### JFK Stresses Federal Aid To Health and Education

► PRESIDENT John F. Kennedy's State of the Union message placed strong emphasis on the need for expanded Federal spending for the support of health and education and underscored the Administration's intention to use all means at its disposal to push through Congress health insurance for the aged and Federal aid to public school construction and teachers' salaries as a minimum program.

There is, of course, opposition to these measures from both sides of the political aisle, and the present political climate in Congress makes it doubtful that these measures will be supported. However, other action urged by the President in these areas probably will pass with little or no opposition.

These include the mass immunization program advocated by the President "aimed at the virtual elimination of such ancient enemies of our children as polio, diphtheria, whooping cough and tetanus," and "action to aid medical and dental colleges and scholarships and establish new National Institutes of Health."

Improvements in the food and drug laws to protect consumers and strengthen inspection and standards recommended by the Administration will have strong Congressional support. His proposal to end adult illiteracy in the United States probably will get support.

The Administration can anticipate opposition in any bills it may recommend to improve educational quality and to provide Federal loans for construction of college facilities and Federally financed college scholarships. This opposition will, in part, reflect the fear of many of our educational leaders that such aid would result in Government interference in schools.

But the growing high costs of higher education, as the President pointed out, makes some aid necessary now, if the nation is to develop the skilled manpower it needs for leadership.

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## SPACE

### Folding Metal Mirror For Solar Space Power

► A CONVERTIBLE aluminum mirror to focus the sun's rays for power on space vehicles has been developed.

The mirror folds into a cylinder less than one-fourth its original diameter and less than one-half its original length.

Held firm by wires and "lazy tongs" when open, the 36 sectors are shaped and polished to focus the sun's rays to serve as a miniature solar furnace.

The blades are lightweight, weighing less than seven ounces per square foot. The mirror can be built to any required size, D. S. Sanborn of Ryan Aeronautical Co. reports in the SAE Journal, 70:74, 1962, a publication of the Society of Automotive Engineers.

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