

tion of the sound energies among the fundamental tones and overtones. It is this distribution which sets off a Stradivarius from just another "fiddle."

Such overtones are caused by the multiple vibration of the bowed string. The existence of these extra vibrations can be shown by placing several little "saddles" of paper over the string and bowing it. Where the vibration is intense the saddles jump off. Where vibration nodes exist the saddles stay in place.

The Danish scientist Poul Jarnak, working in the United States through funds of the H. C. Oersted's Foundation, Copenhagen, has not only made studies on the tones of violins but has developed experimental instruments which compare very closely in tone with expensive 17th century Italian violins. This comparison is made not only by the oscillograph records but also by the ears of trained musicians, says Mr. Jarnak in a report published in the *Journal of the Franklin Institute*.

Science News Letter, June 11, 1938



'WAY DOWN DEEP

Curator M. R. Harrington of the Southwest Museum shows where he has found stone tools used by prehistoric Americans of surprising antiquity. Buried under seven feet, five inches, of accumulating earth, these stone tools, he says, mark the camp site of unknown primitives who invaded American shores about 15,000 years ago. These new-found Dawn Men will replace Folsom hunters in scientific annals as the earliest known people in America. The discovery site is in Clear Lake Park, California.

MEDICINE

Benzedrine Sulfate Is Found a Speedy Cure for Hangovers

Physicians Warn Against Going to the Drugstore For a Dose, However, Go to the Hospital Instead

SOBERING up is a speedy process by the benzedrine sulfate method, but—

Unless the man with a hang-over is in the hospital it is not safe for him to use the drug.

Drs. Edward C. Reifenstein, Jr., and Eugene Davidoff of the Syracuse, N. Y., Psychopathic Hospital, give this warning in the course of an otherwise enthusiastic report. (*Journal, American Medical Association*, May 28)

The doctors have treated 28 patients with psychosis (mental disorder) due to intoxication from alcohol, and 93 per cent. of them showed definite and at times a marked acceleration of improvement. Pathologic intoxication, delirium tremens, acute hallucinosis and Korsakoff's psychosis were the conditions from which the various patients suffered.

In just plain, every-day drunkenness, where no psychosis was present, an even more satisfactory result was attained. In these cases the depressive effects of a hangover—headache, fatigue, languor and mental retardation—disappeared within an hour or so after a morning

dose of the benzedrine sulfate.

However, the Syracuse physicians are convinced that the drug in itself is habit-forming. It is open to question whether it should be administered to persons who have shown a tendency to addiction by their chronic alcoholic habits.

Only by restricting its use to hospital patients where the supervision is adequate can it be called safe to use, Drs. Reifenstein and Davidoff feel.

They fear not only addiction but untoward effects or serious toxic reactions among persons who seek the drug themselves from the corner pharmacy.

Under hospital conditions, however, they are hopeful that it may prove of value in overcoming the chronic alcoholic habit.

Their theory is that the benzedrine sulfate may produce these beneficial responses in alcoholic states through its action in stimulating the central and sympathetic nervous system and also directly by neutralizing and antagonizing the alcohol itself.

Science News Letter, June 11, 1938

PHYSICS

M.I.T. Gets Grant For Solar Energy Use Research

METHODS of creating "sun power" by converting the tremendous amount of solar energy into some form in which man can use it as a source of power will be the goal of a comprehensive program of chemical, electrical and mechanical research to be undertaken in the near future at the Massachusetts Institute of Technology.

Enabled by a \$647,700 gift from Dr. Godfrey L. Cabot of Boston, the research will be devoted specifically to a search for direct means of converting the sun's radiant energy into useful power or storing such energy for future use. Under the terms of the gift the income from the fund must be used in

these studies for at least 50 years, after which it may be diverted to other purposes at the discretion of the Institute's corporation.

While scientists at Technology will concentrate on direct physical and chemical methods of using solar energy, research workers at Harvard University, which received a similar grant from Dr. Cabot last year, are making a pioneering study of the possibilities of speeding up the growth of trees, and thus "streamlining" the conversion of sunlight into forms suitable for human use.

In announcing the gift, Dr. Karl T. Compton, M. I. T. president, commented on the enormous potential power of

solar energy, pointing out that heat from the sun reaches the earth in the temperate zones at an average rate of approximately four million calories per square yard daily. In the three months of greatest sunshine an acre of land, he estimated, receives directly from the sun an amount of heat equivalent to that which would be produced by the burning of about 250 tons of first-class coal.

"The store of energy in our familiar fuels, while great, is not inexhaustible," he continued, in pointing out the importance of such research.

A primary object of the project will be to determine whether use of solar energy is economically feasible and practical. Solar energy devices already proposed and studied elsewhere will be evaluated with this point of view in mind. The second aspect will consider chiefly the feasibility of developing new conversion equipment using phenomena now under study which hold promise of ultimately being useful in the solution of this problem.

Science News Letter, June 11, 1938

MEDICINE

Head-Hunter Doctors Set Broken Bones With Chicle

DOCTORS of the Jivaro head-hunting tribe on the Amazon are good bone setters, and use casts of chicle—basis of chewing gum—to hold broken bones in place.

What a family doctor's life is like in this tribe famed mainly for its head hunting, is reported by Matthew W. Stirling, chief of the Bureau of American Ethnology, who ventured successfully into their supposedly dangerous communities.

A Jivaro doctor, called a wishinu, has to study one month before he is considered ready to practice, but there are only six kinds of disease spirits supposed to cause most human troubles. He also has to learn to treat colds, fever and dysentery with specific herbs. His rigid code of medical ethics requires him to answer a sick call at any hour of day or night through trackless jungle. If he fails to cure he may be "sued" for malpractice, which in Jivaro legal machinery means he may lose his head or be required to pay the value of the lost patient's life.

Jivaro doctors are able, honest, and idealistic, Mr. Stirling found. And more often than not they are wealthy.

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PHYSIOLOGY

Dosage of Carotene-in-Oil Eases Eyestrain, Fatigue

EYESTRAIN and fatigue, common complaints among those doing work that requires close attention, have been relieved among color matchers of the Westinghouse Electric and Manufacturing Company by daily doses of carotene-in-oil, a source from which the body manufactures vitamin A, Drs. Ralph C. Wise and O. H. Schettler report. (*Ohio Medical Journal*, June)

Three capsules of carotene-in-oil daily, they declare, by speeding up the regeneration of visual purple, light-sensitive substance in the eye, have improved the efficiency of color-matching inspectors by 75 per cent.

Color inspectors of the company had long complained of severe headaches, burning and smarting eyes. Many of them declared they were unable to read in the evening after work or stated that they actually feared night driving. These conditions have now been changed by use of the new treatment, Dr. Wise, an eye specialist, and Dr. Schettler of the company's medical department, assert.

Basis for giving the carotene-in-oil is the fact that visual purple, the light-sensitive substance in the retina of the eye, is decomposed in the process of seeing and can be regenerated only in the presence of vitamin A. Dosing with car-

otene in effect increases the body's supply of the vitamin so essential to proper seeing. Lack of vitamin A is known to be a cause of night blindness, an eye defect held responsible for a large share of the mounting toll of night automobile accidents.

The possibility of applying this same treatment to other industrial workers required to do eye-fatiguing work is held out by the Ohio doctors.

An interesting by-product of the tests, which Dr. Wise expects to repeat elsewhere, was an appreciable improvement in the health of the workers treated, particularly in cases where fatigue headaches and eye-strain were chronic. Several workers reported gains in weight.

The eye-strain is produced not only by the close application of the eyes required, but also by the unusually bright light in which the work must be done. This light, the doctors note, has a tendency to destroy visual purple and reduce the "light threshold." Measurements conducted with special equipment showed, they state, that the rate of regeneration of visual purple was increased.

The new system is said to be saving the company several thousand dollars a year as well as saving employes' vision.

Science News Letter, June 11, 1938

DENTISTRY

Grade-School Children Need Much More Dental Service

GRADE-SCHOOL children need six times the amount of dental service they are now getting if the cavities they are going to get in their permanent teeth are to be treated. This appears to be one conclusion of a survey of school children's teeth and dental service made by Drs. Henry Klein, Carroll E. Palmer and John W. Knutson, of the U. S. Public Health Service.

The survey was made of the grade-school children of Hagerstown, Md., a city of about 30,000 population which is "representative of the broad middle range of socio-economic groups in the United States."

About 10,000 temporary and 8,000 permanent teeth in mouths of 4,416 of the city's 4,700 grade school children have cavities that need to be filled. In addition to the total of 33,000 defective untreated tooth surfaces, 7,745 permanent tooth surfaces have been lost by caries or decay.

The magnitude of the caries problem in grade-school children, according to the findings of this survey, is "of such order as to make difficult its immediate practical handling with existing facilities and knowledge," the scientists state in their report. They suggest, however, a plan which may prevent such an ac-