

GENERAL SCIENCE

**Scientists and Teachers
To Be Television Stars**

► UNIVERSITY SCIENCE departments and high school science teachers are preparing to compete with the Jack BennyS, Eddie CantorS and Milton BerleS with their own television shows as a result of the reservation of 242 new channels for educational TV stations.

They will be able to bring into your living room the activities of tiny living cells, the workings of intricate machinery, the light from far-away stars and many other dramatic illustrations of the principles of science.

First, of course, the stations have to be built and the funds provided for such television shows. The first step in this process was the reservation, for one year, of the 242 channels by the Federal Communications Commission to educational institutions. In almost all cases, the next main step will be to persuade state and local legislative bodies to put up the funds for the transmitters, studios and programming expenses.

Education officials, such as Dr. Arthur S. Adams, president of the American Council on Education, see a vast expansion of the already broad program of extension courses now carried on by state universities. Experiments have already shown that adult students studying a course by TV do about 20% better than students taking the same course in the classroom.

With the economic and technical problems licked, chemists, physicists and other scientists hope the secrets of nature which they have already discovered will not be so mysterious to the people.

Science News Letter, April 26, 1952

BIOCHEMISTRY

**Single Dose of Heart Drug
Lingers in Body for Weeks**

► DOCTORS NOW know for the first time much of what happens in the body to the digitoxin which for 75 years they have been prescribing for patients with heart failure. As a result, treatment may be modified in some cases.

The new knowledge comes from studies with a radioactive form of the drug, made from radioactive foxglove plants grown in the "atomic farm" of the University of Chicago. First studies of this radioactive digitoxin made on human patients were reported by George Okita, U. S. Public Health Service fellow at the university, to the Federation of American Societies for Experimental Biology meeting in New York.

The drug remains in the body much longer than previously thought, these studies show. It can be detected in the

blood as long as 24 hours after a single dose, and the drug or its breakdown products remain in the body for 40 to 74 days after a single dose. This probably accounts for the cumulative effect of the drug and suggests caution during prolonged treatment.

Most of the drug, or its breakdown products, is excreted through the kidneys instead of through the liver and digestive tract as previously thought, the studies with radioactively tagged digitoxin showed. Only 6% to 10% of the drug is excreted unchanged.

Science News Letter, April 26, 1952

MEDICINE

**Tell Whether Heart
Or Emotions Pain Chest**

► A NEW way for doctors to determine whether a patient's chest pain is due to heart disease or to emotional disturbances was announced by Dr. Arther M. Master and associates of Mount Sinai Hospital, New York, at the meeting of the American Heart Association in Cleveland.

The method is to inject into the patient's veins a drug called dihydroergocornine and then take an electrocardiogram.

Changes in the electrocardiogram that result from anxiety states and other emotional disturbances are eliminated, but those due to actual heart disease remain on the record. Treatment can be planned accordingly.

The method has now been used in more than 300 cases and follow-up studies confirmed its validity in the majority.

Science News Letter, April 26, 1952

HORTICULTURE

**Helicopter Propeller
Tested Against Fruit Frost**

► A BIG, 35-foot propeller, such as those used on Hiller helicopters, is being tested as a wind machine in fruit frost experiments at the University of California's Citrus Experiment station in Riverside.

Wind machines mounted on towers are used by many West Coast citrus growers to stir up the air in their orchards on frosty nights—primarily to eliminate the especially nippy, low-temperature blanket that hovers just off the ground. These machines have airplane propellers six to ten feet in diameter.

Dr. F. A. Brooks, who directs the University's experiments with wind machines, said the large propeller will move the air more slowly but farther from the tower than the conventional propellers.

"Growers are not expected to use such large propellers as this one," says Dr. Brooks, "but we shall collect through this experiment the data that will aid in determining how large a machine can be economically justified."

Science News Letter, April 26, 1952

IN SCIEN

MEDICINE

**Heparin Improves
Angina Patients**

► "DRAMATIC IMPROVEMENT" in 80% of a group of patients with the heart disease, angina pectoris, was achieved by twice weekly injections into the veins of the anti-clotting drug, heparin, Dr. Hyman Engelberg of Los Angeles reported at the meeting of the American Heart Association in Cleveland.

The drug was given not because of its anti-clotting action but because of its effect on the fatty protein particles found in the blood of some patients with artery hardening and on fat metabolism in the body. Heparin had previously been shown effective in preventing fatty degeneration of the arteries in rabbits.

Relief of pain in the angina patients and increased ability to tolerate exercise in patients with blood vessel disease were among the good results reported.

Science News Letter, April 26, 1952

MEDICINE

**Alcohol Deaths Fewer But
Alcoholism Remains Problem**

► A BIG drop in deaths from chronic and acute alcoholism during the past 40 years is noted by statisticians of the Metropolitan Life Insurance Company in New York.

From a high of 6.3 deaths per 100,000 population in the period 1911-1917, the alcoholism mortality rate among the company's industrial policyholders dropped to 0.9 per 100,000 in 1950. This is only slightly above the all-time low of 0.7 recorded in 1920. Figures for the general population show a parallel trend, the statisticians state.

Although the lowest alcohol mortality rate was reached the first year the Prohibition Amendment was in effect, the statisticians point out that a number of other causes of death also recorded a marked decline during and immediately after the influenza epidemic of 1918-1919. After 1920 the rate moved upward to a peak of 4.9 in 1926 and has been falling since then.

The decline for alcoholism mortality has been greater for white persons than for the colored in the company's experience.

With about 4,000,000 people finding the use of alcohol a more or less serious problem in their lives and about 750,000 of them true alcoholics, according to estimates of the National Committee on Alcoholism, the condition is considered a serious problem in spite of the decline in mortality.

Science News Letter, April 26, 1952

CE FIELDS

SURGERY

Change in Nerve Cutting For High Blood Pressure

➤ SURGEONS performing a nerve cutting operation on sympathetic nerves near the spine for relief of very high blood pressure may cut more or different nerves, with better results, as a result of studies reported by Drs. W. C. Randall, A. B. Hertzman, W. F. Alexander and J. W. Cox of St. Louis University and Dr. K. E. Coldwater of the Veterans Administration Hospital, Jefferson Barracks, Mo., at the meeting of the Federation of American Societies for Experimental Biology in New York.

The object of this operation is to free certain blood vessels from nervous control so that they will be more relaxed and permit blood to flow with less pressure from and work by the heart. It has heretofore been believed that cutting the sympathetic nervous system from the first to the third lumbar vertebrae completely denervated the sweat glands and blood vessels.

The scientists found by electrical stimulation of the nerves at that level of the spine that in some patients the sweat glands would still be active, unless nerves further down on the spine were also cut. Presumably the blood vessels also would be unaffected by the operation in these patients, unless the nerve-cutting was carried out on nerves lower along the spine.

It may be possible to determine, in future operations of this type, just how extensive the nerve cutting must be if the surgeon first uses electrical stimulation and observes where sweating continues or stops.

Science News Letter, April 26, 1952

BIOCHEMISTRY

Gland Chemical Saves Premature Babies

➤ SALT AND an adrenal gland chemical may be the means of saving premature babies from death.

These two medicines, given every day, proved "very effective" in keeping a group of premature babies healthy, Dr. Samuel Natelson of the Rockford, Ill., Memorial Hospital reported at the meeting of the Federation of American Societies for Experimental Biology in New York.

Dr. Natelson was led to trying these substances through studies of the blood of premature babies and also of babies born at the normal time who were sick from birth for no apparent anatomical reason. The studies were made to see whether

"chemical evidence could be found for the cause of the high fatality rate in premature infants."

The babies, he found, had too little salt and too much potassium in their bodies. This was a sign their adrenal glands had not developed enough and were not functioning enough.

Dr. Natelson tried cortisone, adrenal gland chemical famous for its relief of pain and crippling arthritis. But it did not help. The adrenal gland chemical he found helped these babies is desoxycorticosterone.

The blood forming system in the babies also seemed to be damaged and they required repeated blood transfusions.

The immature state of the babies' adrenal glands did not seem to be related to the size of the babies. In the 10 babies with immature and underfunctioning adrenal glands, birth weights ranged from about two pounds to 11 pounds, while some premature babies weighing only a little over two pounds had normal adrenal gland functioning.

Science News Letter, April 26, 1952

TECHNOLOGY

Machine Coolant Cuts "Stink," Skin Irritations

➤ A RECENTLY developed coolant for machine shops cuts "stink," reduces machine gumming, inhibits iron and steel workpiece rusting and prevents skin irritations by using a combination of germicides and fungicides so mild they can be eaten without harm.

In describing its new coolant, the Master Chemical Corporation said those problems were solved merely by preventing bacteria from growing extensively in the coolant. Conventional germicides, which kill bacteria easily in the laboratory, were found impractical for the machine shop because they often were poisonous to the skin. Furthermore, bacteria often could develop immunity to the germicides.

Tests conducted on the coolant after it was marketed showed it had the highest lubricating qualities of any water-base coolant previously tested.

Science News Letter, April 26, 1952

MEDICINE

Danger to Athletes In Local Anesthetics

➤ THE AMERICAN Medical Association has condemned the indiscriminate use of local anesthetics such as procaine to keep injured amateur and professional ball players or other athletes in the game by deadening the pain of the injury.

Serious, permanent injury may result from this practice, the association warns in an editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 19).

Science News Letter, April 26, 1952

BIOCHEMISTRY

Find Direct Evidence That Proteins Are Built by Steps

➤ FIRST DIRECT evidence that proteins are built in a succession of steps from simple to more complex compounds was presented by Drs. D. Steinberg and C. B. Anfinsen of the National Heart Institute, U. S. Public Health Service, at the meeting of the Federation of American Societies for Experimental Biology in New York.

Proteins are the chemicals which make up substances ranging from the meat and eggs we eat to our blood, brains and muscles. They are built from chemicals called amino acids, often referred to as the building blocks of protein.

Heretofore scientists have thought a protein molecule was made on a built-in master template, like a mold, and that all the free amino acids needed for a particular protein were stamped into the mold in one simultaneous reaction.

The stepwise reaction was discovered in a study of ovalbumin, the protein in egg white. By adding radioactive amino groups to the synthesis reaction and later checking split segments of the finished protein molecule with a Geiger counter, the scientists showed the reaction was stepwise.

Further studies of the intermediate compounds, it was suggested, might give medical science new knowledge for eventually controlling the vital giant complexes that include such substances as insulin, ACTH, blood proteins and growth hormone.

Science News Letter, April 26, 1952

PUBLIC SAFETY

Most Home Injuries In Kitchen and Yard

➤ THE HOME is a dangerous place, with the kitchen the place where most women receive injuries and the yard the location of the highest injury rate among men.

A survey by the University of Michigan School of Public Health, Ann Arbor, of a typical area of this state shows that women average eight home accidents annually compared with four for men. But, say the experts, put the aprons on the men and they would probably have as many accidents.

Minor accidents were 50 times more frequent than major ones that cause loss of time, expense or outside medical aid. Some people were found who had more than one superficial injury a week or more than one major injury per year.

The living room was found to be the place of the third highest accident toll of both sexes.

This interviewing of more than 8,000 people is designed to discover ways to reduce home accidents, among which were fatal injuries totalling annually 27,500 for the nation.

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