

## GENERAL SCIENCE

**Special Heart Award to President's Consultant**

➤ A DOCTOR, Dr. Paul Dudley White of Boston, heart consultant to President Eisenhower, is getting an award for a newspaper reporting job.

The award recognizes the job he did in reporting on and explaining President Eisenhower's heart attack of September, 1955.

The American Heart Association, which each year gives Howard W. Blakeslee awards for outstanding reporting in the field of heart disease, will this year give a special Blakeslee award to Dr. White for "creating better understanding of heart disease."

The idea for such an award to Dr. White was suggested last October by Watson Davis, director of SCIENCE SERVICE.

Regular Blakeslee awards will go to Frank Carey, science reporter, Associated Press, Washington; Nate Haseltine, science writer, *Washington Post & Times Herald*; Robert P. Goldman, science editor and assistant managing editor, *Parade* magazine; Science Department, *Life* magazine; Howard Whitman, medical commentator on the NBC television network; George Voutsas, producer-director, and Earl Hamner, writer, for the radio program, "Courage to Live," broadcast by the NBC Radio Network.

Science News Letter, September 29, 1956

## PUBLIC HEALTH

**Detect Five Unsuspected Cancers in 1,000 Women**

➤ A MASS CANCER DETECTION program among women has picked up almost five unsuspected cancers of the uterus, or womb, for every 1,000 women examined.

The mass detection program was conducted in Memphis and Shelby County, Tenn., by the University of Tennessee and the U. S. National Cancer Institute. Preliminary findings from the first three and a half years of the survey are reported in the *Journal of the American Medical Association* (Sept. 15).

The aim is to examine all women over the age of 20 in the area and then to make three annual re-examinations. So far 108,000 women have been examined once, 33,000 twice and 8,000 three times.

On the second examination of 33,000 women, intraepithelial cancer was found at a rate of 2.2 per 1,000 women, compared to 3.6 per 1,000 on the first examination. Intraepithelial cancer is the kind thought to be a forerunner of invading cancer of the neck of the womb. It is usually symptomless.

The rate of detection of cancer of the uterus dropped from 3.4 per 1,000 to 0.3 per 1,000 on the second examination.

The lower rates in the second screening examinations suggest the mass screening approach can be useful since, with it, cancer is found in the early and still curable stages.

Final conclusions, however, cannot be drawn.

The Papanicolaou smear technique, in which cells are collected on a slide for microscopic examination, was used. Results show its value for early cancer detection.

Half of the uterine cancers and two-fifths of the intraepithelial cancers found were in Negroes who made up one-third of the population surveyed.

The peak incidence of intraepithelial cancer in women is from 30 to 34 years of age, with the peak for cancer of the womb from 50 to 54 years.

Scientists reporting the survey are Drs. Cyrus C. Erickson, Bennett E. Everett, Jr., Lloyd M. Graves, Raymond F. Kaiser, Richard A. Malmgren, Phil C. Schreier and Douglas H. Sprunt, and Irma Rube, M.S., and Sidney J. Cutler, M.A. They are from the University of Tennessee and the National Cancer Institute.

Science News Letter, September 29, 1956

## PHYSICS

**Convert Atomic Radiation Into Chemical Energy**

➤ STEPS toward the direct conversion of atomic radiation into chemical energy, one of the most important objectives in atomic energy development, were detailed to the American Chemical Society meeting in Atlantic City by Drs. R. H. Schuler and N. F. Barr, reporting work done at the Brookhaven National Laboratory.

Ionizing radiations were used to oxidize an iron salt, ferrous sulfate, in the research aimed at understanding the decomposition of water by radiation. This gives information on the direct effects of radiation on chemical change.

Most atomic energy is used by degrading the radiation energy into heat and then using the heat to produce chemical or other effects. Radiant energy such as in the sunshine is converted directly into chemical energy in the green leaf by the process called photosynthesis. An equivalent in atomic energy would be desirable.

Science News Letter, September 29, 1956

## PHYSIOLOGY

**Follow Cat's Example And Stretch Often**

➤ FOLLOW THE EXAMPLE of the family cat and stretch often, Dr. Harvey E. Billig Jr. of Los Angeles advised at the International College of Surgeons meeting in Chicago.

People tend to tighten up overnight because they do not move much, he pointed out. The cat, on the other hand, arises and stretches periodically, then resumes its nap.

Stretching often will help keep people more agile. Sedentary workers, he pointed out, tend for lack of stretching to contract into a sitting position so that when they try to stand erect they end up with a "hollow back."

Science News Letter, September 29, 1956

**IN SCIEN**

## CHEMISTRY

**Chemists Learn Secrets Of Nature's Processes**

➤ POWERFUL UTILIZATION by the chemist of catalytic forces that nature uses so abundantly in manufacturing natural products and controlling life processes was predicted for the future by Sir Hugh Taylor, Princeton University professor of chemistry, in his presidential address at the first International Congress on Catalysis in Philadelphia.

Explaining the great progress in developing and understanding catalytic agents for speeding chemical reactions, even at very low temperatures, Sir Hugh told how changes in hydrocarbon materials by catalysis indicate that, in the surface material speeding the changes, there are strongly polarizing if not ionic centers.

The modification of surface catalytic agents can produce, by polymerization of monomeric materials such as isoprene, he explained, in one case the stereo-specific configuration in natural rubber and in another case that which nature produces in balata or hard rubber.

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## CHEMISTRY

**Chemicals Can Kill Weeds But Spare Crops**

➤ TWO GROUPS of chemicals that spare the crop and spoil the weed were described to the American Chemical Society meeting in Atlantic City.

Use of the chemicals will mean that the farmer can control grassy weeds in his fields of broad-leaf crops, such as peas, beans and radishes, as well as corn.

The prediction that selective chemical weed control will be possible in the "near future" was made by Dr. P. C. Hamm, project leader in charge of the herbicide screening program at the Monsanto Chemical Company, St. Louis, Mo.

The two groups of chemicals are N-substituted thioesters of dithiocarbamic acid and N-substituted alpha-chloroacetimides.

Modifications of these two chemical groups were used effectively to control germinating grass seeds of wild oats, rye grass and brome grass. Results of the weed-killing tests show, Dr. Hamm said, it will soon be possible to "tailor-make" a variety of weed-killers that will attack only the weed and save the crop.

Even more immediate, Dr. Hamm said, is the use of these same chemicals as tools for biochemists studying cellular chemistry. They could furnish practical means of controlling annual grasses in a variety of crops.

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# CE FIELDS

## PSYCHOLOGY

### Lack of Love Can Affect TB

► UNHAPPINESS in the home and deprivation of love might be a contributory factor in the onset of tuberculosis.

This is strongly suggested by answers given to a questionnaire, according to Dr. D. M. Kissen of the Department of Health for Scotland, Edinburgh. The questionnaire was answered by a group of people attending a diagnostic chest clinic.

Questions asked included:

Did you have a happy childhood, and has there been any divorce or marital separation in your immediate family?

Have you had any unhappy love affairs, and have you any frustrated desires, hopes or ambitions?

Patients questioned included people suffering from different conditions or with no abnormality.

Of 267 patients investigated, 88 were subsequently diagnosed as cases of pulmonary TB. The main finding from the questionnaire was that emotional factors preceded the onset of pulmonary TB.

More than 90% of the emotional factors could be grouped under "break or serious threat of a break in love link"—romance, engagement or marriage.

The term "love" was used in its spiritual sense.

"Sexual factors were conspicuous by their absence," says Dr. Kissen.

Other broken love links were caused by bereavement, "break within the family for various reasons and enforced separation due to circumstances."

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## BIOCHEMISTRY

### Discover Clue Concerning White Blood Cell Function

► USING a radioactive chemical to study white blood cells in leukemia patients has given a clue to the immunity function of the white blood cells called lymphocytes.

The studies were made by Dr. L. D. Hamilton of Sloan-Kettering Institute for Cancer Research, New York.

Lymphocytes in leukemia, he finds, live almost four times as long as another kind of white blood cell, the granulocytes. The leukemic granulocytes have an average life-span of 23 days, compared to 85 days average survival for the leukemic lymphocytes.

Either some lymphocytes survive for very long periods or, Dr. Hamilton suggests, the lymphocytes reuse large fragments of nucleic acid or nucleoproteins or chemical forerunners of these.

The latter explanation, he thinks, is the

more likely one, and the one that suggests something about how lymphocytes function in immunity to disease.

Lymphocytes are believed to produce antibodies, the substances in the body that fight specific disease germs. Although antibodies cannot reproduce themselves, they continue to be formed long after apparently limited contact between the body tissues and the antigen of a disease germ.

This happens, Dr. Hamilton thinks, because when lymphocytes are destroyed their nucleic acids are reused, thus letting the body preserve the necessary templates for production of specific antibodies.

Dr. Hamilton's studies were made by injecting radioactive adenine into two patients with chronic lymphatic and two with chronic granulocytic leukemia, then following the way in which the radioactive adenine was incorporated into the nucleic acids of the lymphocytes and granulocytes. He reports his findings in *Nature* (Sept. 15).

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## NUTRITION

### Prosperity Causing Americans to Be Obese

► PEACE AND PROSPERITY are making Americans fat.

Obesity, brought on by fattened wallets, is the biggest nutritional problem in the United States, Dr. Charlotte M. Young of Cornell University told the Second International Congress of Dietetics in Rome.

Basing her conclusions on Cornell's diet experiments, Dr. Young said that too much prosperity is making for too much overweight because her countrymen are becoming "unwittingly lazier and lazier physically." Nutritional aspects of the problem, she told the Congress, are secondary to its economic, social, cultural and emotional roots.

The only cause for obesity, she explained, is an energy intake greater than an energy output.

Sitting and watching sports, easy housework and travel, and short work weeks, Dr. Young pointed out, all reduce the energy output of the American people. Add these factors to heaps of food and money, clever advertising, poorly used leisure time, and the American tradition of uniting hospitality with eating, and overeating results.

Some people, she said, even try through eating to relieve the tensions and anxiety of living in a highly competitive society, or to express their hostility and defiance.

Dr. Young recommended four remedies to the American problem of too much prosperity on the dinner table:

1. Better mental health facilities to correct defects that lead to compulsive eating.
2. Education in using leisure time to reduce boredom, especially in middle-aged women.
3. Re-education of eating patterns, especially social refreshments.
4. More physical activity for all age groups.

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## GENERAL SCIENCE

### Report Shows Extent of Federal Aid to Students

► EVERY SIXTH UNDERGRADUATE student in college in the United States received money for his education from the Government two years ago.

Together with graduate and postdoctoral students, a total of 390,000 young Americans received an average of \$1,000 each for instruction in all fields of study.

These figures, broken down to show Federal support for science students in higher education in this country, were compiled by the National Science Foundation to help planners evaluate proposals for Government-financed scholarship programs now being considered. Such programs might be one answer to solving the current scientific manpower shortage.

The report shows that the more advanced a student is in his scientific training, the greater his chances for receiving Government aid.

Although only 82,000, or one-fourth, of the undergraduates receiving aid were pursuing scientific studies, approximately one-half or 18,000 graduate students and virtually all, 1,300, postdoctoral students receiving aid were preparing for careers in science.

By far the greatest aid was given through the veterans' educational benefits. Practically all of the undergraduate students in all fields receiving Government money were veterans of the Korean conflict, studying under Public Law 550.

The report also shows that more than one out of every three students receiving Federal aid for graduate work was employed as a research assistant.

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## GENERAL SCIENCE

### State Dept. Assailed On Passport Procedures

► PASSPORT PROCEDURES of the State Department are a "flagrant" violation of the constitutionally guaranteed right to travel, the passport committee of the Federation of American Scientists has charged.

Although more than a year has passed since the U. S. Court of Appeals ruled that U. S. citizens cannot be deprived of the right to travel without due process of law, the scientists' committee said, the State Department has not yet revised its passport procedures.

Denying a passport to Dr. Weldon Bruce Dayton, a cosmic ray physicist who has been working at Corning Glass Works, obstructs international scientific exchange and violates personal rights, the committee charged.

The Federation urged the Government to issue "without further delay" a passport allowing Dr. Dayton to accept a research post offered him by the Tata Institute in India.

Science News Letter, September 29, 1956