

BIOCHEMISTRY

Living and Test-Tube Proteins Found Differing

► A HIT-OR-MISS effect in bringing together the ingredients of living tissue has been detected. It was revealed by tracing the build-up of protein from simple materials containing tell-tale radioactive carbon.

Uniformity in the distribution of this tracer carbon is not found when protein is first built in the laboratory from simple amino acids containing it.

These discoveries were reported by Dr. Daniel Sternberg of the National Heart Institute, National Institutes of Health, Bethesda, Md., who described his studies on protein structure to the American Chemical Society meeting in New York.

Proteins created in test tubes in Dr. Sternberg's laboratory must, he believes, be formed with intermediate stages between the free amino acids and the completed protein, or else some of the reactions must reverse themselves at some stage and exchange carbon atoms "at different rates for different residues in the protein."

After eight or ten hours, the radioactive carbon is found to be more evenly distributed in his synthetic protein, Dr. Sternberg states. This leads him to believe that, in the laboratory, the process of protein formation goes in "slow motion" compared to the rate in living tissues.

Study of the steps by which these complex life chemicals are built may lead to new understanding of the difference between normal and abnormal growth.

Science News Letter, October 16, 1954

ENGINEERING

Three Men Can Run Huge Lumber-Making Robot

► THREE MEN can run a huge lumber-making robot that turns sawmill waste into a continuous, strong, warpless board.

This statement was made by representatives of Bartrev Limited, London, who opened a display of the unusual product in New York for American industrialists to see.

Wastes suitable as raw materials include a variety of fibrous woods. Sugar cane waste, called bagasse, and even flax sheaves are eligible. A conventional hammer mill can prepare small pieces of the raw material for the machine. A special chipping machine, however, is needed for logs or slabs.

The prepared raw material passes to a storage bin and is fed there at a steady rate to a drier. Moisture is accurately controlled in this stage which precedes compressing the tiny chips into a board.

Meanwhile, a film of liquid resin is applied to the chips to foster adhesion. Then a carpet of chips is dropped on the press. A radio-frequency heater starts the drying process before the board is mashed to its final thickness. Afterward, the board is dried by gas or electric radiant panels.

A continuous board emerges from the

machine at the rate of 20 feet a minute. It can be four feet wide and from 3/16 to 3/4 of an inch thick. It can be any length desired.

Only three trained men are required to watch over this automatic process. The machine is designed to serve on a 24-hours-a-day, seven-days-a-week basis.

The board, which can have built-in chemicals to fight pests and resist fire, is easily worked with ordinary hand or power tools. It can be sawed, bent, nailed, glued, planed, rabbeted and drilled.

Developed by a team of engineers and chemists led by William J. Fischbein, a British plastics specialist, the board can be used in prefabricated homes, as partitions in offices, as a decorative lining, as ceiling boards having good insulation qualities, and in panelled doors, flooring, theater sets and furniture.

Science News Letter, October 16, 1954

PSYCHOLOGY

Fake Suicide Notes Show More Pain Than Genuine

► A PSYCHOLOGIST can see a difference between a genuine suicide note and one written to order by a person just pretending he was going to kill himself.

The comparison of fake and genuine suicide notes was reported to the American Psychological Association meeting in New York by Drs. Edwin S. Shneidman and Norman L. Farberow of the Veterans Administration Neuropsychiatric Hospital and Mental Hygiene Clinic.

The genuine notes were provided for the study by the Los Angeles County coroner. The fake ones were written by non-suicidal persons asked to write a note "that you would write if you were really going to take your own life."

It was the fake notes that showed the greatest amount of mental anguish, the report stated.

The true suicide when he writes his death note is more occupied with leaving unemotional instructions for things to do after he is gone, the psychologists found.

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DENDROLOGY

Simple Color Test Shows Pine Decay

► A CHEMICAL solution, painted on the freshly cut ends of poles, pilings or posts provides a simple color test for detecting early decay in southern pine, the U. S. Department of Agriculture announced.

When a solution of Alizarine Red S is applied to the ends of southern pine stock, decay-infected areas turn yellow, whereas, healthy wood stains a bright red.

The test was developed by the Forest Products Laboratory at Madison, Wis. The Alizarine Red S is available commercially.

The Forest Service stated that this new test detected southern pine decay faster than any other known method.

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IN SCIEN

TECHNOLOGY

Sheer Hose Create Knotty Problem

► SHEER HOSIERY that adorns the shapely pins of the American female have created a knotty problem for manufacturers. Machines work too slow in knitting the fine threads.

But the American Institute of Electrical Engineers was told in Reading, Pa., that the problem is solved. One champion of Milady's stockings is an "amplistat."

It regulates the speed of the knitting machine, said R. E. Parker, textile application engineer for the General Electric Company. It considers the variation in the welt, knee, ankle, heel and foot, and automatically tells the machine how fast to knit on each of these spots.

In combination with new, fast-working machines, the device helps turn out sheer "gossamer" stockings in 30 to 40 minutes—about the same time as for less-sheer leg-wear.

The amplistat is a "static regulator" using a motor-generator set, but not a single vacuum tube. Previously, machines have used either all-electronic regulators, or electronically controlled governors.

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MEDICINE

Drug Allays Fears and Tension in Childbirth

► WOMEN IN childbirth feel "pleasantly carefree" instead of nervous, tense and frightened if they are given a relatively new drug, methylpentynol.

Good results with the drug, with no harm to mother or child, in 220 cases are reported by Dr. Gordon Bourne of the City of London Maternity Hospital in *Lancet* (Sept. 11).

The drug was first introduced as a sleeping medicine under the trade names of Dormison and Oblivon. It is not an anesthetic nor is it a pain-relieving drug. In the size dose Dr. Bourne used, however, it did not always put the women to sleep.

The chief effect of the drug for these women in childbirth was to relax them. The more nervous the patient, the more the effect. Most of them were also given "gas and air" for the labor pains. This pain-reliever seemed more effective than usual, perhaps because the women used the apparatus with more composure.

An unusual degree of forgetfulness for the events of labor occurred in some cases. Dr. Bourne thinks this effect of the drug, which has not previously been reported, should be investigated further.

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CE FIELDS

ENGINEERING

New Fuse Gets Most Out of Transformers

➤ A NEW fuse has been developed that squeezes the most out of each distribution transformer but which protects the power company from burn-outs.

G. Appleman, control equipment engineer of the Pennsylvania Power and Light Company, told the American Institute of Electrical Engineers in Reading, Pa., that the fuse has two elements. One clears the transformer in case of a failure on its high-voltage side. The other element protects the device from overloads over a period of time. Neither element blows because of momentary overloads or lightning surges.

L. Z. Ludorf, the company's assistant division superintendent, told the engineers that herbicides applied to P. P. & L. rights of way have cut costs and improved game lands.

It costs only half as much to spray an acre with chemicals than to cut weeds by hand, he reported. The mixture used, consisting of 2,4-D and 2,4,5-t, encourages low-growing plants to cover the rights of way, and this in turn provides food and cover for wild life. The brush-controlling mixture is not toxic to man or wild life, he said.

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GENERAL SCIENCE

Federal Spending for Science Not Really Cut

➤ FEDERAL GOVERNMENT spending for scientific research and development in the fiscal year 1955 will be about the same as it is for fiscal 1954, although there is an estimated cut of about 10% in Federal funds obligated for science for 1955.

This appears from figures in the report, Federal Funds for Science, III. The Federal Research and Development Budget, Fiscal Years 1953, 1954, and 1955, issued by the National Science Foundation.

In fiscal year 1955 Federal agencies will obligate an estimated \$1,993 million for research and development activities, compared to the \$2,225 million obligated in fiscal year 1954.

The major decreases occurred in obligations for research and development plants and facilities and in applied research and development.

Obligations for basic research are expected to increase in fiscal year 1955.

About 87 cents of each dollar obligated by the Federal Government for scientific research and development goes to the physical sciences; 11 cents to the life sciences; and two cents to the social sciences. Research and development for national security ac-

counts for about 85% of the Federal science expenditures, and the remaining 15% is divided among all other functions of government, including agriculture, health, welfare, transportation, communications, and development of natural resources.

Estimated obligations for fiscal year 1955 are \$1,993 million compared to \$2,225 million for fiscal 1954. Estimated expenditures for fiscal 1955 will be \$2,020 millions compared to \$2,133 in 1954.

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METALLURGY

New Plating Non-Rusting But Can Be Soldered

➤ AN INEXPENSIVE rust-resisting coating that can be soldered is produced by a new plating process described to the Electrochemical Society meeting in Boston, Mass., by E. B. Saubestre of Sylvania Electric Products Physics Laboratory at Bayside, N. Y.

Called zincaloy, it has the corrosion protection of zinc and the solderability of tin or cadmium at a price only slightly greater than that of zinc.

A new type of plating solution was developed and a procedure for operating with soluble alloy anodes was achieved. The bath used combines tin and zinc plating solution in an unusual manner.

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TECHNOLOGY

Photographic Halftones Made Self-Luminescent

➤ PHOTOGRAPHIC HALFTONES that shine by their own light have been produced by a research team from Mellon Institute, Pittsburgh, Pa., by use of a combination of the phenomena of electroluminescence and xerography.

The self-luminous picture is in the form of a halftone that is formed in phosphor powder that glows when acted upon by an alternating electrical field. The image is laid down in a plastic film on a glass plate.

Electroluminescence is the relatively new kind of electric lighting that allows large surfaces to glow or electroluminesce electrically. Xerography is a process for transferring electrically ink or other substances from a plate without the receiving surface being touched.

As reported to the *Journal of the Optical Society of America* (Sept.) by F. A. Schwartz, M. N. Haller and J. J. Mazenko, the self-luminous halftone is prepared by coating a sheet of special glass with a clear thermoplastic resin, then forming the image on a selenium plate in phosphor powder, transferring it to the plastic coating, fixing the plastic coating by heating it to its softening point, and evaporating aluminum over the phosphor layer. The halftone is made to luminesce by applying an alternating voltage.

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ASTRONOMY

Supernova Is Fifth Reported This Year

➤ A GREAT star has suddenly burst forth in the heavens, a supernova as it is known to astronomers.

For the fifth time this year Paul Wild, astrophysicist of the California Institute of Technology, has reported a supernova. This one is a relatively faint 14.5 magnitude although it was a great astronomical explosion to that far distant part of the universe.

It was observed Sept. 27 and it is located two-tenths of a minute of arc south of the nucleus of the spiral galaxy NGC5879.

Mt. Wilson and Palomar Observatories reported this discovery through Harvard Observatory, clearing house of astronomical observations for the Western Hemisphere.

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PSYCHOLOGY

Learn Foreign Words Faster With Pictures

➤ A STUDENT of a foreign language can pick up the foreign vocabulary more quickly if he learns the words paired with a picture of the object instead of learning the new word paired with its English equivalent.

This was shown by research reported to the American Psychological Association meeting in New York by Drs. Felix F. Kopstein and Sol M. Roshal of the Air Force Personnel and Training Research Center, Chantute Air Force Base, Ill.

They experimented with teaching Russian nouns to several hundred airmen by both the picture and English word method.

The picture method is faster, they found. However, the advantage of pictures depends somewhat upon the method of testing or applying the knowledge.

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PUBLIC HEALTH

Need Better Method To Detect Lung Cancer

➤ TRYING TO find lung cancer in early, more curable stages by semi-annual chest X-rays of everyone over 45 years will not save enough lives to be worthwhile, Dr. L. Henry Garland, X-ray specialist of San Francisco, told fellow medical X-ray specialists at the meeting of the American Roentgen Ray Society in Washington.

X-ray screening procedures of the general public have detected about 10 cases of lung cancer per 100,000 persons examined, he reported.

On the basis of a detailed study of the survey-type cancer detection program, a more effective screening procedure must be found, Dr. Garland said.

He recently received the distinguished service award of the American Cancer Society.

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