BIOLOGY

Fat and Protein Layers May Hold Life Secret

➤ GREEN-TOPPED LAYER CAKES of alternating protein and fat tissue appear when the electron microscope is turned on chloroplast cells, basic structures for the support of life.

Chloroplasts, the non-living chemicals in these cells by which plants carry on photosynthesis, have been photographed through the electron microscope by Dr. J. J. Wolken, biophysicist at the University of Pittsburgh Medical School. New methods which he has worked out for using the electron microscope have revealed fine details in the structure of minor parts of living cells.

Phosphorus occurs in the chemical compounds most intimately connected with life processes. Dr. Wolken is trying to relate the structure of these compounds to the shape of the molecules containing them and thus get further clues to the secret of energy transfer within the cells. Application of what is learned about cell growth and nutrition in these studies may aid in solving the mystery of cancer. Announcement of Dr. Wolken's discoveries was made by the American Cancer Society.

Science News Letter, March 12, 1955

MEDICINE

Skin Grafts Take on Child Lacking G.G.

➤ A SEVEN-YEAR-OLD boy whose blood lacks disease-fighting gamma globulin may be able to help surgeons to better success in the future in grafting skin and other body tissues from one person to another.

Skin from a woman not related to the boy has been grafted onto the boy's thigh and has survived and remained intact for 11 months, Drs. Robert A. Good and Richard L. Varco of the University of Minnesota and the Variety Club Heart Hospital, Minneapolis, report in the *Journal of the American Medical Association* (Feb. 26).

Ordinarily grafts from one person to another of skin or any other tissue except eye corneas do not survive very long. Doctors have thought the reason was that the patient's body built antibodies against the graft just as it would build antibodies against disease germs. But so far they have not had proof for this theory.

The little boy who lacks gamma globulin, and therefore cannot form antibodies, seems to have given proof, or at least strong supporting evidence for the theory, since the graft took and survived.

His own skin grafted onto another child did not survive.

Because of his lack of gamma globulin, the Minnesota boy has what his doctors term almost complete "immunologic paralysis," meaning the mechanism in his body that should help him develop immunity, or resistance, to disease has been paralyzed. Because of this he has been plagued almost continuously since he was six months old with one germ infection after another, including at least seven severe attacks of pneumonia, and three attacks of bacterial meningitis.

About 30 patients, some of them grown persons, have been found lacking in gamma globulin since the report three years ago of the first one known. These and others like them may, when thoroughly studied, give doctors knowledge of the dynamics of antibody production and methods for its control.

Transplanting glands and other organs from one person to another and better ways of stopping germ diseases might result.

Science News Letter, March 12, 1955

ZOOLOGY

Teddy Bears Surviving After Near Extinction

➤ AUSTRALIA'S MOST lovable animal, the cuddly koala teddy bear, has won its battle for survival.

Twenty-five years ago the koala almost became extinct. There were only five left in South Australia, a few hundred in sanctuaries in New South Wales and only in southern Queensland were they still numerous.

For many years they had been hunted relentlessly for their pelts which were exported to Canada. They have a tough skin and thick, soft fur. The pelts were in great demand for making heavy rugs.

To avoid a public outcry, the pelts were sent overseas as wombat skins and sold under that name in the United States.

During the depression the Queensland government declared an open season for koalas to give people out of work a chance to earn money. During the next few weeks 100,000 were shot and koalas became almost extinct in Queensland.

Keith Minchin, whose father was director of the Adelaide Zoological Gardens, helped to save the koala. He secured three bears from the last wild colony in South Australia and several others which had been sent to Adelaide from Queensland as a Christmas attraction for a city store.

By 1946 he had so many koalas, all descended from the three survivors of the last colony and the store pets, that he had to transfer the surplus to Rocky River on Kangaroo Island, S.A.

The numbers on the Phillip Island sanctuary off the Victorian coast had also begun to increase.

In 1952 it was discovered the koalas had eaten nearly all their food supplies and were in danger of starving to death. The public rushed to the rescue with carloads of gum-tips.

Some bears were transferred to the mainland to restock other sanctuaries. Today these sanctuaries are full of healthy young koalas.

They are also once more on the increase in New South Wales and Queensland.

Science News Letter, March 12, 1955

IN SCIEN

INVENTION

Polarization Measures Radioactive Fall-Out

➤ USING THE principles by which polarizing glasses protect the eyes from glare, a new instrument has been devised to study the radioactive fall-out of nuclear explosions.

It was developed by Dr. Zdenek Sekera, associate professor of meteorology at the University of California at Los Angeles, to determine the amount and size distribution of particles in atomic clouds. The study is being sponsored by the Atomic Energy Commission in cooperation with U.C.L.A.'s Atomic Energy Project.

The instrument, known as a photoelectric polarimeter, measures polarization of sky-light with the aid of polarizing prisms. Atomic dust particles scatter light in a different manner than those of normal air. This different scattering produces different polarization of sky-light which can be measured by the instrument.

From such data Dr. Sekera hopes to determine amount and size distribution of particles in atomic clouds. Such information will be useful in predicting dangerous fall-out patterns of atomic clouds.

It has been found that the vast amount of dust and other material sucked up into the atmosphere following atomic explosions affects sky-light polarization in a manner similar to large volcanic eruptions. Such effects were noted after the tremendous eruptions of Krakatoa in 1883 and of Katmai in 1912, Dr. Sekera said.

Science News Letter, March 12, 1955

MEDICINE

American Plant Yields Blood Pressure Drug

➤ RESERPINE, CHEMICAL used in treating high blood pressure and also for some mentally sick persons, has been obtained from the Central American plant, Rauwolfia heterophylla, Dr. Francis A. Hochstein and associates of Chas. Pfizer and Co., Inc., Brooklyn, N. Y., announced at an American Chemical Society meeting in New York.

Drug manufacturers have been getting reserpine from an Indian plant, Rauwolfia serpentina. Six months ago the Indian government placed an embargo on exportation of the plant.

Besides reserpine, the Pfizer chemists got from the Central American plant a new chemical, heterophyllin, and five other alkaloid chemicals which have previously been reported.

Science News Letter, March 12, 1955

CE FIELDS

NUTRITION

Lose Weight Together in Eight Lessons With Dinner

➤ PEOPLE WHO want to lose weight or need to for health reasons can do it more effectively if they do it in a sociable, community get-together way, it appears from results reported by Miss Alfretta E. Dickinson, University of Illinois home adviser for Winnebago County, Ill., at the National Rural Health Conference in Milwaukee, Wis., sponsored by the American Medical Association.

In a course of eight two-hour lessons, including two joint meetings and a joint low-calorie dinner, the 159 overweights loss from four to 28 pounds each, with an average of 13½ for the men and 10 for the women.

County medical and home bureau organizations, state officials and medical groups and the University of Illinois sponsored the program. Only those referred by their physicians were admitted to the course.

Science News Letter, March 12, 1955

BOTANY

Discover Plants Emit Light Like Fireflies

➤ GREEN PLANTS give off light, much as fireflies do.

Isolation of the substance responsible for the green plants' emitting light is now being made, Dr. Bernard L. Strehler, assistant professor of biochemistry at the University of Chicago, told the 40 winners of the Fourteenth Annual Science Talent Search in Washington.

Discovery of the fact that plants are emitting a faint red light that cannot be seen with the naked eye was made by Dr. Strehler and Dr. William Arnold of Oak Ridge National Laboratory. He has successfully produced a luminescent substance in the laboratory, which may be identical to the as yet unfound substance producing light in living green plants.

The laboratory-produced substance that emits light was obtained by combining the extracts of dead boiled green plants with a known chemical substance originally separated from hog kidney powders.

"All of these findings were made possible by the study of fireflies and luminous bacteria. It is now thought that there is a close relationship between light emission which releases energy and photosynthesis, which stores energy," the Chicago biochemist said.

"Even more surprising is the fact that the same chemical compounds which are responsible for light emission in fireflies and the luminous bacteria often causing lighted fish at night, are involved in photosynthesis."

Stating that these substances may very well be the first chemically stabilized product in photosynthesis, Dr. Strehler, a Science Talent Search winner in 1943, revealed the discoveries in a talk given to the young scientists attending the five-day Science Talent Institute and competing for Westinghouse Science Scholarships.

He emphasized that the discoveries are but one phase of numerous experiments now being conducted throughout the world to find out how plants use sunlight to build up its starchy substance that means food to man.

The Science Talent Search is conducted by SCIENCE SERVICE.

Science News Letter, March 12, 1955

PSYCHOLOGY

Use Mirrors to Teach Children to Read

➤ SUCCESS WITH a mirror method for teaching school children to read was announced by Dr. William C. Barger, of the Bureau of Child Guidance, New York City Board of Education, at the meeting of the American Orthopsychiatric Association in Chicago.

The children were normal except for severe reading disability. This was due to mixed dominance of the right and left sides of their brains. Instead of seeing letters as most persons do, they saw them as the letters would appear in a mirror.

Dr. Barger's mirror method, used till now only in the laboratory, was tried for an entire school year on 70 pupils. In every case there was noticeable improvement. Usually the child gained two years of reading progress in six months.

Being able to read better and more easily also improved the child's emotional makeup so that he became more responsive and better adjusted.

Associated with Dr. Barger in the work with mirrors were Miss Ruth I. Lavin and Frederick E. Speight.

Science News Letter, March 12, 1955

AGRICULTURE

Cross Pheasant With Bronze Turkey

➤ SUCCESS IN crossing pheasants and turkeys, apparently achieved only once before and that 200 years ago, is announced by V. S. Asmundson and F. W. Lorenz of the University of California Poultry Department in Davis, Calif.

Weight of the mature hybrids of this cross is between the turkey and the pheasant. The head furnishings look like those of the pheasant. The plumage color, from the cross between ring-neck pheasant and Bronze turkey, is dark brown shading to black except on the wings which are lighter.

The hybrids apparently are sterile. The experiments in which the hybrids were obtained are reported in *Science* (Feb. 25).

Science News Letter, March 12, 1955

MEDICINE

Drugs Stop Killing by Kidney Tuberculosis

➤ TUBERCULOSIS OF the kidney is no longer the killer it was 10 years ago. New drugs have cut deaths from this cause to eight percent instead of the 80% of nine years ago, Dr. John K. Lattimer of New York reported to the Chicago Medical Society in Chicago.

The new drugs Dr. Lattimer reported on are streptomycin, para-amino salicylic acid, or PAS for short, and isoniazid. They are used in various combinations but never singly.

Treatment takes a year and patients must be at rest in bed.

Dr. Lattimer's report on the life-saving effects of these drugs was based on studies on 625 patients at the Kingsbridge Veterans Hospital, New York.

"Paradoxically," Dr. Lattimer pointed out, "it is also possible that we may see an increase in renal [kidney] tuberculosis at some later date as a result of these new drugs.

"More and more patients with pulmonary tuberculosis are now refusing to go to sanatoria. Instead, they are going home on ambulatory treatment with the new drugs. As their symptoms improve, they tend to reduce the dosage of their medication, thus reducing the effectiveness of this treatment.

"As a consequence, their sputums become positive again and they may spread the tuberculosis among their children and among their contacts in the community, thus causing a later increase in renal tuberculosis."

Science News Letter, March 12, 1955

PHYSIOLOGY

Ears Need Time to Recover From Noise

➤ EARS EXPOSED to very loud noise may need much more time to recover than previously thought, warns Dr. J. Donald Harris of the medical research laboratory at the USN Submarine Base in New London, Conn. For prevention of partial deafness, work periods in very noisy industries may therefore need to be set to allow recovery time after the point at which audiometer tests show hearing has returned to normal.

The extra time is needed for recovery from the effects of latent damage.

Dr. Harris investigated the subject after reading a report in a Swedish scientific journal showing that nerve cells in the ear may show changes after what are generally regarded as harmless noises and that these changes may last long beyond the time needed for complete recovery of hearing.

Dr. Harris found such latent damage in the first four persons he tested, though there were individual variations. He reports details of his findings and method of study in the *Journal of the Acoustical Society of America* (Jan.).

Science News Letter, March 12, 1955