PSYCHOBIOLOGY

No Intelligence Loss From Frontal Lobe Injury

➤ INJURY to the precious frontal lobes of the brain, long thought to be the seat of the higher thought centers, does not cause loss of intelligence.

This was reported to *Science* (May 24) by Drs. Sidney Weinstein and Hans-Lukas Teuber of the psychophysiological laboratory of New York University-Bellevue Medical Center in New York.

Their conclusion was based on a study of 62 soldiers with brain wounds as compared with 50 others who received injuries to the nerves of the arm or leg. Scores of the men on the Army General Classification Test taken when they entered the Army were compared with scores after they had physically recovered from their wounds—about 10 years after injury.

Injury to the frontal and occipital lobes did not produce any significant decline in intelligence test score, they found. Only those men with injuries to the left parietal or temporal lobes showed a significant decrease.

The results, however, were in part due to the particular test used to measure the intelligence, the scientists point out.

When a non-language test was used, injury to any part of the brain caused a lowering of score.

Science News Letter, June 8, 1957

TECHNOLOGY

Instrument Stains Cells Electronically

➤ AN INSTRUMENT combining the techniques of color television and ultraviolet microscopes to stain cells electronically has been developed by scientists at the Rockefeller Institute in New York.

By viewing on a modified color television screen the image produced by ultraviolet, living cells at work can be studied with an accuracy previously unavailable.

The instrument, called an ultraviolet, color-translating television microscope, or UCTM, was described to the Rockefeller Institute faculty by Dr. Vladimir K. Zworykin, director of the Institute's Medical Electronics Center and honorary vice-president of Radio Corporation of America. Cooperating with him in the development were Fred L. Hatke and Carl Berkley of the Institute staff.

In visible light microscopy, cell structure is usually not well-defined because most cell elements are transparent. Biologists therefore stain or otherwise modify cells to make their structure more visible, but this treatment alters their natural state.

Because ultraviolet light is invisible to the human eye, it has to be changed to the visible range by means of color television. The cells, however, do not have to be killed or stained for examination by the UCTM.

The new instrument gives promise of being useful for tracing the distribution, utilization and metabolism of specific materials within the cell, without disturbing the cell in its motion and development as do radioactive and fluorescent particles.

The UCTM provides higher magnification than visible light. The chemical composition of cells can also be studied since the density of the image's different parts on the TV screen depends on their chemical composition and concentration.

Light waves are measured in units known as an angstrom, one angstrom measuring a ten-billionth of a yard. Normally visible objects lie between 4,000 and 7,000 angstroms. Ultraviolet wavelengths transmitted in air lie between 2,000 and 4,000 angstroms.

Science News Letter, June 8, 1957

HORTICULTURE

Chemical Thinners Improve Fruit Trees

➤ BETTER SIZE and better looking fruit will be taken from fruit trees this year as a result of thinning with chemical sprays.

The U. S. Department of Agriculture reports the use of dinitro compounds in the West and hormone-type sprays in the East has been steadily gaining in popularity over the years. U.S.D.A. horticulturists say, that the spray thinning of the fruit also has led to more uniform crops since it eliminates "on" and "off" years of heavy and light fruiting. An additional bonus to the grower is the low cost of spray thinning: spray application costs from five dollars to six dollars per acre compared with hand thinning costs of from $75 to $200 per acre.

While, warns the U.S.D.A., more research is necessary to learn how the thinners operate, they are a welcome addition to the arsenal of sprays already being used by farmers.

Science News Letter, June 8, 1957

METEOROLOGY

Scientist Has Method For Detecting Tornadoes

➤ TORNADOES can be spotted and tracked more than 100 miles away with a new kind of warning system using lightning flashes.

Dr. Herbert L. Jones of Oklahoma A. & M. College has found certain radar signals from very high clouds occurring at high frequency give an "overwhelming probability" that a tornado's swirling funnel is imbedded in the storm clouds.

The lightning flashes on the radar screen must occur at least 20 times a second and the critical height is 10,000 feet or above, Dr. Jones told a joint meeting of the International Scientific Radio Union and the Institute of Radio Engineers in Washington.

A chain of listening posts in the Midwest equipped with detectors such as the one Dr. Jones uses, "a high frequency directional finder," could help to give towns and cities warning of an approaching tornado sooner than they now get the information.

Science News Letter, June 8, 1957

IN SCIEN

ASTRONOMY

Supernova Discovered In Virgo Cluster

➤ DISCOVERY of a supernova, a star that suddenly blazes forth with 100,000,000 times the sun's brilliance, has been reported from Europe.

The spectacular object is in the celestial grouping known as M-84, the Virgo cluster. Although alone it shines with a light equal to that of the other stars in the galaxy together, it nevertheless is too faint, magnitude 13, to be seen without a fairly large telescope.

If the newly discovered object were placed at a distance where the sun would be barely visible to the unaided eye, it would appear about four times as bright as the full moon.

The supernova was spotted by Dr. G. Romano and reported by Dr. L. Rosino of Italy.

News of its discovery was cabled by Miss J. M. Vinter-Hansen of the University Observatory, Copenhagen, Denmark, to Harvard College Observatory, Cambridge, Mass., clearing house for astronomical information in the Western Hemisphere.

Science News Letter, June 8, 1957

BIOCHEMISTRY

Create Longer Lasting Female Sex Hormone

➤ ESTROGEN, the female sex hormone, has been developed in a synthetic form that is cheaper and longer-acting than other forms, it was announced by the Veterans Administration.

Produced by Dr. Jerre L. Noland, VA center, Wood, Wis., during heart disease studies involving cockroaches, the new estrogen is believed to resist breakdown into other products by the liver.

It is made by adding two acid groups to diethylstilbestrol, the form of the hormone most used by doctors in treatment of diseases. This same additive process may be adapted to produce improved long-lasting forms of commonly used drugs such as aspirin and antibiotics, the VA reported.

In human beings, a single dose of the currently used form of estrogen lasts only a few days, and pellets of it are sometimes imbedded under the skin of patients to maintain prolonged hormone activity.

The new compound avoids the use of surgery and has shown activity in rats for one year, longer than the pellet implantation method, the VA reported.

Estrogen is used to treat many conditions, including cancer of the prostate gland and the mental disturbances that sometimes accompany "change of life."

Science News Letter, June 8, 1957

CE FIELDS

TECHNOLOGY

Silicone Paste Wax Lasts Longest on Cars

➤ YELLOW carnauba paste waxes with high silicone content leave a thicker coating and last longer on cars than four other general types of auto waxes.

Two St. Louis wax chemists described radioactive tracer studies measuring thickness of wax deposit and wearing time of five general automobile wax formulas. A paste of yellow carnauba wax and a high proportion of added silicones left a film more than twice as thick as the other paste waxes and about four times as thick as the liquid wax tested.

After more than 2,000 miles of winter driving, the film of carnauba wax and silicone measured three to seven times as thick as the other types investigated, the chemists reported, and after six months it was the only one leaving a measurable deposit.

The studies were made by Tracerlab, Inc., Boston, and reported by Leon Kresser and John D. Saunier, authority laboratories division, Bardahl Oil Company, St. Louis, to the Chemical Specialties Manufacturers Association meeting in Chicago.

Each of the waxes was tagged with a radioactive chemical. Geiger counters measured the thickness of the deposit left on automobiles after waxing. The chemists reported only on weight, thickness and durability of polished films and did not discuss amount of gloss produced or ease of application.

Science News Letter, June 8, 1957

PALEONTOLOGY

"Living Fossil" Found In Shallow Waters

➤ A SPECIMEN of a "living fossil," possibly the most primitive known living crustacean, represented by today's lobsters, shrimps and crabs, has been acquired by the Smithsonian Institution. It was found by Dr. Howard L. Sanders of Yale University.

Study of the primitive sea creature may, scientists believe, fill in some of the blank spaces in our understanding of evolution and the relationships between different crustaceans.

The tiny animal, less than one-eighth of an inch long, is described as a cephalocaridan, a crustacean with some of the characteristics of the long-extinct trilobites. The trilobites were the dominant animals on the earth 500,000,000 years ago, flourishing for over 300,000,000 years before becoming extinct.

The Smithsonian specimen and the trilobites may have evolved from an unknown common ancestor, reports Dr. Fenner A. Chace, curator of marine invertebrates at the Institution. However, the line of sea creatures represented by the Smithsonian's living fossil apparently has been able to survive in the darkness of the mud bottoms of relatively shallow waters. From this line and "from several similar inconspicuous lines," explains Dr. Chace, "the more familiar crustaceans of the present may have risen."

Approximately 30 specimens of the animal have been obtained by Dr. Sanders. He took this specimen from the mud bottom of Long Island Sound and others from Buzzards Bay, Mass. Still others of the same or related species have been taken from San Francisco Bay. All have been taken from water that was between 25 and 70 feet deep.

Science News Letter, June 8, 1957

PSYCHIATRY

Psychiatrists Increase 57% in Six Years

➤ THE NUMBER of psychiatrists practicing in the nation jumped 57% in the years 1950 to 1956, the American Psychiatric Association and the National Association for Mental Health report.

During that period the membership of the American Psychiatric Association went from 5,500 to over 8,700. The figures are approximate since not all psychiatrists were necessarily members of the Association.

Even with the increase, there were still 19,200 people to every psychiatrist in 1956. In 1950, there were 27,000.

In any one area, though, the ratio of people to psychiatrists varies considerably, because more than half of all psychiatrists practice in 15 of the country's largest cities. In smaller towns and rural areas, there are many less psychiatrists to go around.

Availability is limited by factors other than geographical distribution. These include the number of psychiatrists at any particular time who are employed, full-time, by the Federal government or in public mental hospitals.

Science News Letter, June 8, 1957

ENTOMOLOGY

Fly Killer Made From Native Weed

➤ A NATIVE weed, *Heliopsis helianthoides*, has provided entomologists with a second powerful insecticide, the U. S. Department of Agriculture reports.

Scientists are experimenting with an oil obtained from the roots of the plant for use as a possible house fly poison.

Since the new insecticidal oil, called heliopsin, is as toxic as pyrethrin, 90% of which is imported from Africa, an extensive testing and development program is now underway to increase its range of usefulness and its potency.

In 1951, U.S.D.A. entomologists isolated the insecticide scabrin from the Heliopsis plant.

Science News Letter, June 8, 1957

BIOLOGY

Radiation Brings Back Fur to Hairless Rabbits

➤ HAIRLESS rabbits can sometimes regain their fur in spots after a heavy dose of radiation, Drs. B. Jolles and S. G. Greening of General Hospital, Northampton, England, report in *Nature* (May 25).

The return of hair to heavily irradiated skin is highly unpredictable, probably because of varying conditions in the skin at the time of exposure, they report.

A somewhat similar phenomenon has been observed when skin grafts are placed in irradiated spots on rabbits. Fur grows abundantly in the immediate vicinity of the irradiated tissue, both around the grafted area and on the unirradiated skin graft that has been transplanted there.

The curious hair growth may be due to a spreading out of growth-stimulating products released from radiation-demolished tissue or to the elimination of various factors that inhibit hair growth, the researchers pointed out.

But as far as growing hair on bald human heads is concerned, this is not the answer.

Even if the tremendous amount of radiation was harmless, the same results could not be expected in man because human hair has a fundamentally different growth pattern compared with that of the rabbit, the authors explain.

Science News Letter, June 8, 1957

PHYSIOLOGY

Find Substance Causing Delayed Blood Clotting

➤ A POWERFUL substance that can greatly delay the clotting time of blood has been isolated from brain tissue and identified as sphingosine, Dr. E. Hecht, University Hospital, Utrecht, Netherlands, and Dr. D. Shapiro, Weizmann Institute of Science, Rehovoth, Israel, report in the journal *Science* (May 24).

Sphingosine is a known component of both cerebrosides and sphingomyelins, chemical substances found in nervous tissue. It now also appears to be the active chemical in antithromboplastin, a substance that breaks down the chemical reactions necessary for blood clotting.

Antithromboplastin has been reported to appear in abnormally high concentrations in the blood of hemophiliacs or bleeders, Drs. Hecht and Shapiro report.

When sphingosine was tested on chicken plasma, clotting times were greatly prolonged. Even small quantities extended the clotting times to 40 hours or more.

When the plasma is treated only with a salt solution, the clotting takes place within 30 minutes.

Sphingosine has also been produced synthetically in the laboratory and has the same delaying effects on clotting time, except, the scientists report, that smaller amounts of the synthetic substances are needed.

Science News Letter, June 8, 1957