

## MEDICINE

## Cancer Detected By X-Ray Examination

➤ **CANCEROUS AREAS** left after surgery or radiation treatment of the lymphatic nodes can be found by a technique known as lymphography, the American Radium Society meeting at San Francisco was told.

The technique consists of X-ray examination before and after treatment. To visualize the lymphatic nodes and channels of the lower part of the body, a radiopaque material is injected into a lymphatic channel between the toes and allowed to make its way upward along the leg as far as the hips. The presence of cancers or other tumors in the lymph nodes will cause a blockage or distortion of the normal pattern as shown on X-ray film.

Drs. Ruheri Perez-Tamayo and John R. Thornbury of the University of Colorado Medical Center, who reported the study, said they have shown that when the lymphatic system is blocked by cancer, alternate channels replace those that are blocked or which have been removed by surgery.

Lymphography is still not entirely reliable, the researchers said, because of the difficulty of getting proper distribution of the opaque material into the lymph channels. The first blockage near the site of contrast material injection may hide tumors farther along the lymph channel, and fibrotic growths, certain infections and fat replacement may show patterns similar to cancer, they warned. But the second examination often shows enough change to clear up uncertainties from the first one.

• Science News Letter, 83:232 April 13, 1963

## SURGERY

## Surgeon Creates Hips From Knees

➤ **WHEN IS A KNEE** not a knee? When it becomes a hip.

Dr. John Toma, orthopedic surgeon in the University of California, Los Angeles, School of Medicine, has devised an operation where hips have been created out of knees in experimental animals.

He believes that with further development it may be the answer to problems of thousands of persons who have lost hip function because of disease, accidents or birth defects.

He has replaced a hip in this manner in many dogs. One of the dogs is now a pet of his own family. The operation was performed four years ago, and the dog can run and jump as well as any dog, Dr. Toma said.

About half of the extreme lower tip of the thigh bone, a part of the structure that forms the knee, is used in the procedure. Doctors call this the lateral condyle.

Without detaching blood vessels which feed it or muscle connections, it is swung end and trimmed. Then its ball-like end is fitted into the socket of the hip. The other end of the transplanted bone is flat and is fastened to the top of the femur, thigh bone, by a screw.

The part of the knee used does not bear

weight, Dr. Toma said, and function of the knee is not impaired by its removal. Experimental animals appear to be a little knock-kneed as a result, but this does not seem to interfere with performance or weight bearing.

There are a number of metal devices used to replace hips. But, as Dr. Toma noted, "Metal and bone do not get along, and, as a result, these prostheses are seldom satisfactory."

He believes the use of a person's own living bone is the best solution to this problem. Success of the animal experiments thus far makes him hopeful that the procedure may work equally well in humans.

• Science News Letter, 83:232 April 13, 1963

## PSYCHOLOGY

## Low-Level Noise More Disturbing Than Silence

➤ **THE DARKNESS** and silence of an empty room make the flesh crawl and the imagination run wild.

But what happens to the brain?

Cutting off all sense-impressions from the outside world disturbs brain activity, Drs. John P. Zubek and G. Welch of the University of Manitoba, Winnipeg, have found.

They tested the reactions of college students in totally silent and dark isolation chambers. Movement was highly restricted. After a week of such deprivation, brain-wave records showed disturbances in the occipital lobes, the brain's center of vision.

The brain waves of students who were isolated and kept under constant, unpatterned noise and light were even more disturbed, the scientists found.

Their work, reported in *Science*, 139:1209, 1963, is new evidence that low-level noise and light are more disturbing to the total functioning of human beings than complete silence and darkness.

• Science News Letter, 83:232 April 13, 1963

## GENERAL SCIENCE

## Central American Area Fastest Growing Today

➤ **CENTRAL AMERICA** is the fastest growing area in the world.

The population of Central America now totals 13.1 million. If it keeps on increasing at the present 3.6% rate, the population will be doubled by 1984, the Population Reference Bureau has reported.

High birth rates are not the only reason for the upsurge. Public health work in Latin American countries since the 1920's has helped lower the death rates and even increase the birth rates. The death rate for this area, 15 per 1,000, is the lowest of any major underdeveloped region.

The population problem confronts those who are working to improve living conditions.

A vicious circle exists. The rapid rate of growth stifles economic and social progress; the lack of progress perpetuates high growth rates. Any rise in the standard of living for the Central American countries may be offset by relentless population growth.

• Science News Letter, 83:232 April 13, 1963

# IN SCIEN

## MEDICINE

## Two-Week Tranquilizer Keeps Patient Medicated

➤ **A NEW WAY** to keep patients from forgetting to take their medicine—giving it by long-lasting injection—has been reported.

Schizophrenic patients, discharged from the hospital on tranquilizing drugs, are given an injection that lasts for two weeks.

They do have a chance to forget to take a spoonful or a capsule of their medicine, Drs. J. Kinross-Wright and K. D. Charalampous of the Baylor University College of Medicine, Houston, Texas, told the conference on Veterans Administration Cooperative Studies in Psychiatry in Kansas City, Mo.

Through these infrequent injections, the desired level of medication can be kept up. The patient can maintain himself in his community, they said.

The tranquilizer, fluphenazine enanthate, used in these studies is a standard one that calms the patient enough so that he can leave the hospital.

The drug would be too strong for the average nervous person who needs a good night of sleep, Dr. Kinross-Wright told *SCIENCE SERVICE*. The side effects of shakiness, tremor and tightening of the muscles, although not serious, limit its use to critical cases.

• Science News Letter, 83:232 April 13, 1963

## TECHNOLOGY

## Central Kansas Field Could Yield More Oil

➤ **OIL RECOVERY** from 9,000 acres of the Hall-Gurney oil-field, Russell County, Kans., can be improved by properly engineered waterflooding, the Department of the Interior reports.

Maps in a new Bureau of Mines technical study pinpoint the areas that could benefit by waterflooding, which has already been begun in many locations.

Production has been declining in the Hall-Gurney field for several years, and the Bureau undertook a petroleum-engineering study of the area as part of the department's general program to aid and promote increased recovery from the petroleum reservoirs.

Widespread natural waterflooding, the Bureau found, has seriously limited the potential for planned flood development. But by studying sources like well logs, drill cores, fluid analyses, and production records, Bureau engineers were able to locate those parts of the field where recovery could be improved by waterflooding and by other techniques such as acid treatment and hydraulic fracturing.

• Science News Letter, 83:232 April 13, 1963

# CE FIELDS

## GENETICS

### More Color-Blindness In "Civilized" World

➤ COLOR BLINDNESS increases as society advances.

Darwin's theory of natural selection is once again illustrated.

The primitive peoples who live by hunting have the lowest incidence of color blindness, while those that live in a settled agricultural or urban life have the highest rate of color blindness, Dr. Richard H. Post of the University of Michigan Medical School, Ann Arbor, has found in genetic studies.

The hunter has the greatest need for good red-green color vision. A mistake in the wild lands could cost him a week's food, if not his life.

When a man has settled down on the farm or in town, the need for good red-green color vision is not so crucial. Under these conditions, the genes can "relax" and color blindness can safely increase, Dr. Post explained.

Color blindness rates for males the world over—from the Africans to the Eskimo, the British to the Russians—were compiled for the study.

The lowest rates were those of the Fiji Islanders (.0), the Brazilian Indians (.0), the Aboriginal Australians (.019) and the Navaho Indians (.011).

Among the highest in color blindness were British students (.088), the Brahmins of western India (.090), the French (.086), the Czechoslovaks (.105) and the Israelis who migrated from northeast and central Europe (.095).

In European populations there has been an over-all increase in the genes that cause red and green color blindness, Dr. Post reported in *Eugenics Quarterly*, 9:131, 1962. He suggested that the increase will continue in the future.

• Science News Letter, 83:233 April 13, 1963

## TECHNOLOGY

### Fast Pictures Taken With Plastic Film

➤ A NEW PROCESS of making instant photographs by a light image on a charged plastic film has been developed.

However, the General Electric Company, which developed the "photo-plastic recording," says there are many steps still to be taken before instantaneous photography becomes available to the general public. The uses to which the new photographic process is now put in the laboratory indicate that competition with the traditional silver process may some day be possible.

The process, invented by Dr. Joseph Gaynor of GE's Advanced Technology Laboratories, records pictures for immediate viewing. It will be used by the Air

Force's Rome, N. Y., Air Development Center to make radarscope pictures immediately available.

An electrostatically charged image is produced on a plastic film. This film is then heated and the picture formed by very tiny depressions in the top layer of the plastic tape. It must then be viewed by a Schlieren projector. The difference in the light-refractive qualities of the plastic forms the image. The picture can be wiped off and the same film reused a dozen times impairing the quality very little.

No chemicals are needed. The resolution of the plastic image is very high, and there is no grain to hinder definition as in the usual silver method. Pictures can be taken in a radioactive atmosphere, which would fog normal silver film.

One disadvantage is the lack of great sensitivity to light. Also a way to see a snapshot-like print must be found.

• Science News Letter, 83:233 April 13, 1963

## METALLURGY

### New Philippine Metal Industry Possible

➤ FERRONICKEL and steel may be produced from native nickel- and iron-bearing materials in the Philippines.

With the installation of suitable ore-treating, smelting, refining and fabricating equipment the production of ferronickel and steel was declared technically feasible in a report by Bureau of Mines metallurgists and could become a reality. Such a new industry, it was said, could have a favorable effect on the Philippine economy.

The Bureau's conclusions were based on a six-year series of laboratory and pilot-plant tests on samples of nickeliferous laterite and serpentine ores from Nonoc Island, near Mindanao. The tests show that both ores can yield a ferronickel product, and that slag from the laterite furnace could be used as a source of iron for steel-making. The iron would contain about one-half percent chromium.

• Science News Letter, 83:233 April 13, 1963

## CONSERVATION

### Rifle Fire to Control Animal Population

➤ A NEW METHOD of population control, death by rifle fire, is officially the policy of the National Park Service.

To get rid of unwanted elk, shooting has been endorsed by a committee of scientists and conservationists reporting to Secretary of the Interior Stewart L. Udall.

The elk-reduction program was tried out this winter when the deep snow and bitter cold forced elk into lower country and park areas. Since they were destroying the balance of the environment, the elk were killed off by the National Park Service.

The report supports this practice, stating: "Direct removal by killing is the most economical and effective way of regulating ungulates within a park." Ungulates are the hoofed animals and include elk, deer and mountain sheep.

• Science News Letter, 83:233 April 13, 1963

## SPACE

### "Information-Please" Satellites Considered

➤ A NEW FAMILY of "information-please" satellites is planned by the National Aeronautics and Space Administration.

The satellites would relay data about ocean currents and depths. They would track icebergs and pack ice for the International Ice Patrol. Buoys in the oceans or balloons overhead would report their information to the satellite passing above them.

• Science News Letter, 83:233 April 13, 1963

## TECHNOLOGY

### Coast Guard TV-Radar System Spots Trouble

➤ AN ELECTRONIC SYSTEM that combines the advantages of radar and television for shipborne use will be built by the Raytheon Company for the Coast Guard.

Equally effective in inland waters or at sea, the equipment will allow a Coast Guard skipper to tell at a glance whether any ships within radar range are headed for trouble—on a collision course or veering towards rocks or other obstructions.

On search and rescue missions, the system can spot and track helicopters and low flying aircraft and direct them to a distressed vessel even in dense fog, snow, rain or hail.

The new seagoing system will be installed on the 210-foot cutter, VIGOR, to be launched this September.

It converts individual radar signals into continuous television trails of moving ships and automatically plots and presents the position, speed and direction of every moving "target" it "sees."

The system, which can be viewed in sunlit areas as well as in darkness, also shows the cutter's path itself moving across the screen, giving the true course and speed of all moving vessels in the area. In conventional radar presentation, the radar-carrying ship is shown fixed in the center of the scope.

• Science News Letter, 83:233 April 13, 1963

## MEDICINE

### Human Livers Grow Back After Partial Removal

➤ AS MUCH AS four-fifths of the human liver can be removed surgically with relative safety, Dr. George T. Pack of New York told the American College of Surgeons' sectional meeting in Pittsburgh.

Much of the liver tissue grew back in three to 24 months, Dr. Pack found in experimental studies with animals and "second look" explorations on humans. Liver functions returned rapidly to normal and ultimately the organ appeared to operate almost as well as before.

The operation has been successful in removing primary cancers in the liver as well as cancers that have spread to the liver from other organs.

• Science News Letter, 83:233 April 13, 1963