

MEDICINE

Birth Control Pills Affect Thyroid Test

► **WOMEN TAKING** the birth control pill Enovid, or other similar pills, should tell their doctors before having thyroid tests.

The pills are harmless to the thyroid, but they do affect the PBI, or protein bound iodine, test routinely given to determine whether or not the thyroid is overly active or not active enough.

Dr. Somers H. Sturgis of Peter Bent Brigham Hospital, Boston, told *SCIENCE SERVICE* that both men and women were given Enovid to determine the effect on the PBI test for thyroid function. The chemical finding in the blood was false for both sexes because of the effect of the norethynodrel compound, Enovid.

Men were used in the experiment, Dr. Sturgis said, to be sure that it was not merely the fact of being a woman that caused the false PBI results.

The *New England Journal of Medicine*, 269:501, 1963, reported the findings by Drs. Charles S. Hollander, now of the National Cancer Institute, Bethesda, Md., Antonio M. Garcia, and Herbert A. Selenkow of Peter Bent Brigham Hospital, along with Dr. Sturgis. The PBI tests were performed at the Boston Medical Laboratory on patients with normal thyroids and no history of having received iodides or other interfering substances.

A significant change was observed in both male and female patients after 20 days on Enovid.

The study showed that Enovid raises the level of protein bound iodine and depresses the red cell uptake of the thyroid gland constituent, tri-iodothyronine.

This combination of elevation and depression, found in pregnancy, is mimicked by the use of Enovid, a female hormone causing ovulation to stop.

"Failure to appreciate this fact," the researchers stated, "can cause serious confusion and errors in diagnoses."

• *Science News Letter*, 84:168 Sept. 14, 1963

HYDROLOGY

Methods Developed for Harvesting Runoff Water

► **LOW-COST METHODS** are being tested for a new kind of crop in America: our vital supply of water.

Rainwater can now be collected as it runs off the land and stored in special equipment to be used later for livestock. Inexpensive methods of this new type of harvest are being developed by agricultural engineers at the U. S. Department of Agriculture's U. S. Water Conservation Laboratory in Tempe, Ariz.

Water can be caught as it falls from the sky and runs across the land by a number of methods and materials, Lloyd E. Myers, director of the laboratory, said.

The ground can be covered with fabric or sprayed with chemicals to collect the rain.

The soil can be treated to increase the amount of water that runs off.

Storage equipment can be set up to elimi-

nate evaporation and seepage once the water is collected.

This harvest and storage of water for livestock will be particularly valuable in low rainfall locations in the West, where grazing land often is not fully used because there is no dependable water supply.

Ranchers in areas with about ten inches of rainfall each year could harvest water at a cost of no more than 36¢ per 1,000 gallons, predict engineers of the USDA Agricultural Research Service. In a 20-inch rainfall area, the cost could be as low as 18¢ per 1,000 gallons.

By treating soil on lands with little or no value for domestic animals or wildlife, agricultural engineers could eventually use this system to develop municipal, industrial and agricultural water supplies.

• *Science News Letter*, 84:168 Sept. 14, 1963

FORESTRY

1963 Forest Fire High Due to Dry Season

► **THE 1963 FOREST** fire record is likely to be the worst in many years. The number of forest fires during the first half of 1963 was 86,000, up 25% from the same period last year. The total acreage burned—more than two million acres—was almost double.

A dry spring and summer, particularly in the East, is responsible for much of the damage. The U. S. Department of Agriculture warned that as the fall season nears, it is particularly important to pay extra attention to fire safety measures.

• *Science News Letter*, 84:168 Sept. 14, 1963

ORNITHOLOGY

More Ducks to Migrate Down Four U. S. Flyways

► **A SLIGHTLY** increased duck population will permit a longer hunting season and increased bag limits this fall.

Better nesting conditions and a lessening of the long drought in the breeding areas have produced more ducks this season than have been produced during any of the past four years.

After extensive aerial and ground surveys of the breeding areas, Fish and Wildlife Service officials in Washington have announced a few leniencies on hunting regulations as waterfowl prepare for their autumn migration down the four great air routes of the United States.

The dates for hunting ducks and coots this season in all flyways will be somewhere between Oct. 5, 1963, and Jan. 5, 1964. In the Atlantic, Mississippi and Central Flyways, dates for hunting geese will be between Oct. 1 and Jan. 15. In the Pacific Flyway, the season on geese will be open between Oct. 5 and Jan. 5.

Canvasback and redhead ducks cannot be shot, since their populations are still dangerously low. Special limits on wood ducks and hooded mergansers are prescribed for all flyways.

Hunters are again cautioned to provide safe passage for the rare whooping cranes which migrate down the flyways during the hunting season.

• *Science News Letter*, 84:168 Sept. 14, 1963

IN SCIEN

ENTOMOLOGY

Bees Stay With Queen But She Is Not Leader

► **THE QUEEN BEE** is not really the leader although she has a swarm of followers.

If the queen is abducted, and confined where she cannot be reached, the swarm will buzz around outside her place of confinement indefinitely. But, although she is the nucleus of the swarm, she does not lead them on their flights.

Observations reported in *Science*, 141:357, 1963, by Dr. Roger A. Morse of Cornell University have shown that the swarm will not go anywhere without the queen. If she gets lost en route, the bees will come back to search for her, using their sense of smell. If she is trapped, the flight stops, and if she is moved, the flight will move with her.

The real leaders are the scout bees who tell the swarm where to go and, under normal conditions, the queen follows them.

• *Science News Letter*, 84:168 Sept. 14, 1963

AGRICULTURE

Computers Now Foretell How Fast Plant Will Grow

► **MEN AND MACHINES** can now predict how fast your garden will grow.

With future information on their growing crops, farmers now can know if they should add more fertilizer or water, how much to add and when to do so.

Plants grow at different rates, depending on the temperature, amount of moisture, length of day and the light intensity. By analyzing these vital factors in a local area or farm, plant physiologists of the U.S. Department of Agriculture have come up with a mathematical formula that predicts the rate of crop growth.

Worked out by USDA Agricultural Research Service scientists J. J. Higgins, J. R. Haun and E. J. Koch, the new formula is based on the relationship between leaf development and a given environmental factor. Research data was obtained with farm crops at the Plant Introduction Station in Glenn Dale, Md.

Using electric computers to analyze data on plant growth response and environmental factors, the scientists determined the probable amount of influence each factor has on the crop every day. Thousands of computations are needed to provide the mathematical evaluation of the plants in relation to the environment.

To test the accuracy of the statistical results, agricultural scientists plotted the expected development here of kernaf, an experimental fiber crop, for June, July, August and September of last year. The actual growth record of the test plants followed the predictions to a "startling" degree of accuracy, the scientists reported.

• *Science News Letter*, 84:168 Sept. 14, 1963

CE FIELDS

MEDICINE

Heart Disease Deaths Level Off in Britain

➤ HEART DISEASES as a rising cause of death appear to be leveling off in Great Britain, Dr. Maurice Campbell of Guy's Hospital, London, reported in the British Medical Journal, Aug. 31, 1963.

After 30 years of increase, there is some evidence that the rise has come to an end. The highest annual death rate was in 1952 and the last three years showed a slightly lower rate than the two previous ones, Dr. Campbell said.

He warned, however, that not enough time has elapsed to make certain that the leveling off is definite.

The decrease in deaths from infectious diseases, particularly from tuberculosis and pneumonia since 1910, has placed heart disease in a higher category as a cause of death than might otherwise have occurred.

Dr. Campbell also said the growing knowledge of doctors about the importance of coronary heart disease was a reason for the growing number of recorded deaths from this cause from 1910 to 1952.

Physicians in the early part of the century did not even mention high blood pressure (hypertension) as a cause of death before 1949.

The death rate from all diseases of the heart in Great Britain changed very little from 1876 to 1920. About 1924 it began increasing rapidly.

How much of the increases can be explained by the older age structure of the population, caused largely by saving lives of young persons who formerly died of infectious diseases, is being studied by Dr. Campbell.

• Science News Letter, 84:169 Sept. 14, 1963

ZOOLOGY

Duck Retains Transplant From Leghorn Chicken

➤ A GROWN DUCK is now waddling around its pen in Canada with a useless chicken leg transplanted on its wing.

Drs. W. S. Lapp, F. N. Jerome and A. T. Cringan of the Ontario Agricultural College, Guelph, Canada, used the method of embryonic transplant as a means of developing tolerance.

The secret of the union of two different birds lies in the transfer of tissue when both were still embryos. This rare case is an example of the most unlike tissue ever tolerated for so long a time in a warm-blooded animal, the researchers reported in Science, 141:818, 1963.

Chickens and ducks are members of different families, *Phasianidae* and *Anatidae* respectively, and also have different incubation periods.

To insure comparable development of the

host duck embryo and the donor chicken embryo, the duck eggs were incubated 120 hours and the chicken eggs 96 hours.

Then the transplant was performed by removing a leg bud from the White Leghorn embryo and placing it where a wing bud of a White Pekin duck embryo had been removed.

The transplanted chicken leg is rather loose and nonfunctional, but it was a successful "take," unlike many transplants.

One of the limiting barriers faced by skilled surgeons today is the fact that, in general, tissue transplants from one human to another eventually disintegrate and slough away. With the exception of cartilage and tissue from the cornea of the eye, and transplants between identical twins, it appears that tolerance between host and donor must be developed in some manner.

• Science News Letter, 84:169 Sept. 14, 1963

MEDICINE

Mother's Stress Could Affect Unborn Baby

➤ SEVERE EMOTIONAL stress during pregnancy leaves its mark on the unborn offspring, Dr. Michael W. Lieberman of Yale University reported in Science, 141:824, 1963.

Emotional stress in pregnant mice changed the behavior of their offspring, caused by the migration of hormones into the unborn. Dr. Lieberman feels the same thing could happen in human mothers.

Stress in the mice was produced through injections of epinephrine, the hormone secreted by the inner portion of the adrenal glands.

• Science News Letter, 84:169 Sept. 14, 1963

BIOCHEMISTRY

Unidentified Compound Found in Schizophrenics

➤ A CHEMICAL COMPOUND resembling the hallucinogenic drug mescaline was recently identified in the urine of 15 of 19 schizophrenic patients by Drs. A. J. Friedhoff and Elnora Van Winkle of the New York University School of Medicine.

This compound has again been found in 57 of 62 schizophrenics by a Japanese group, Drs. Masashi Takesada, Yasuo Kakamoto, Isamu Sano and Ziro Kaneko.

The Osaka University Medical School team found this compound in 21 of 46 normal persons. They also found a second, unidentified substance, that appears to be of dietary origin.

The Japanese investigators suggest that the mescaline-like compound, 3, 4 dimethoxyphenylethylamine, may be a product of intestinal bacteria.

The origin of 3, 4 dimethoxyphenylethylamine is not yet known, Drs. Friedhoff and Van Winkle pointed out in Nature, 199:203, 1963.

If the compound is of metabolic rather than dietary origin, it could reflect a metabolic defect in schizophrenia. This possibility is of particular interest since the compound is known to have marked effects on the behavior of lower animals.

• Science News Letter, 84:169 Sept. 14, 1963

MEDICINE

Exposure to Rubella Unwise in Pregnancy

➤ A PREGNANT WOMAN who is sure she had German measles, rubella, in childhood is still unwise to expose herself to cases in the family or neighborhood.

A 12-day-old baby came down with German measles because his mother was exposed to the disease about a week before he was born, an English obstetrician reported in the British Medical Journal, Aug. 17, 1963.

The 31-year-old mother was believed to have had the disease when she was two years old.

This mother's exposure was in late pregnancy, but the same thing could happen in the dangerous first three months of pregnancy when exposure to rubella may result in serious malformation of the baby.

Dr. James S. McCracken of Chilwell, Nottingham, England, who treated the mother and baby, said the mother could have had an unrecognized case of German measles. The disease without symptoms, which is called subclinical, could be the missing link between theory and evidence to explain why the newborn baby had the disease.

The rubella virus circulates in the blood of the mother during and for a short time after the period of incubation, and passes into the blood stream of the fetus. Three other cases of rubella in the newborn were described by Dr. McCracken.

A baby can become infected with smallpox, chicken pox and vaccinia, the material of smallpox vaccination, in the same way.

The well known birth defects resulting from a mother's infection with German measles are being reduced in Britain by the administration of gamma globulin during pregnancy.

• Science News Letter, 84:169 Sept. 14, 1963

FOOD TECHNOLOGY

Lumps in Dried Milk Prevented by Additions

➤ THE LUMPS sometimes found in whole dried milk, which have helped keep down consumption of the product, may soon be a thing of the past.

University of Wisconsin dairy researchers W. E. Nelson and W. C. Winder of the school's dairy and food industries department said the lumps are caused by the large amount of fat particles in dried milk molecules, making the reconstitution of dried milk somewhat like mixing oil and water.

The two scientists have, in work they term still strictly experimental, tried making the fat particles bigger by increasing their surface area through the addition of surfactants, or surface active agents.

Surfactants are molecules that are partly soluble in fat and partly soluble in water.

In the case of dried whole milk, part of the surfactant dissolves in a fat particle and the rest in water, keeping the fat suspended in water much in the same way as in whole milk.

• Science News Letter, 84:169 Sept. 14, 1963