

PHYSIOLOGY

Pregnancy May Cause Error in Syphilis Tests

► CHANGES in the blood brought about by pregnancy may cause false positive reactions in standard serological tests for syphilis.

A joint study by the department of infectious diseases of the University of California at Los Angeles Medical School and the Los Angeles City and County Health Departments has demonstrated a significantly high percentage of such biological false positives among pregnant women.

TPI, or *Treponema pallidum* immobilization, tests were performed on 400 pregnant women and 400 non-pregnant women who had positive reactions with one or more of the standard syphilis tests. The TPI test is a relatively new and complex procedure involving use of live spirochetes grown in rabbit sex glands.

Approximately 73% of the pregnant women had negative TPI's. This group of negatives had exhibited as high as 80% positives on one of the standard tests. Only 61% of the non-pregnant women were negative in the TPI test.

The difference of 12% in false positives among the two groups is statistically significant, according to the investigators. The study suggests that changes in the blood brought about by pregnancy may cause the false positive reaction in the standard tests.

Members of the research group were Dr. Ruth Boak, Dr. Charles M. Carpenter, James Miller, Helen Drusch, Dr. John Chapman and Dr. Gerald Heidebreder.

Science News Letter, January 28, 1956

PHYSICS

Find Metal Atoms From Radon in Air

► METALLIC PARTICLES of atomic size, formed in the air by radioactive decay of radon gas, were reported at the Conference on Radioactive Isotopes in Agriculture held at Michigan State University in East Lansing, Mich., by two scientists from the University of California.

Radioactive isotopes of lead, bismuth and polonium are among the metals detected by Dr. Perry R. Stout, professor of soil science, and Dr. C. C. Delwiche, associate professor of plant biochemistry.

The radioactivity cycle begins in the earth's uranium deposits, which release radon gas. Radon is a heavy, inert element that forms no chemical compounds. Two of its isotopes escape through the soil into the atmosphere. One decays with a half-life of 3.8 days, the other needs only 54 seconds to convert half its substance into heavy metals.

Since this process has been going on for millions of years, there is no need to fear additional radiation hazard from it. It merely adds a minute amount to the natural radiation.

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LANDING CRAFT RECOVERER—This machine, driven about in ocean surf on gigantic rubber tires, promises to save the Army Transportation Corps millions of dollars by recovery of stranded landing craft. Individual electric motors in the center of each mammoth wheel operate under air pressure to prevent penetration by water. Machine was designed and built by R. G. LeTourneau, Inc., Longview, Texas. It can straddle a 67-ton vessel and literally lift it from the water.

NUTRITION

Congenital Abnormalities

► A WIDE RANGE of congenital abnormalities can be produced in baby rats by subjecting the mothers to severe dietary deficiencies for as little as two days during a critical period of pregnancy.

This is reported by Drs. Marjorie Nelson, Herbert M. Evans, C. Willet Asling, Ian W. Monie and Catherine D. Baird of the University of California.

The deformities, similar to those that occur in humans, were produced in the heart, blood vessels, bones, brain, eyes, kidneys and sex organs. A number of deformities usually showed up in each infant rat. These were cleft palate, hairlip, club foot, and missing bones or fingers or excesses of fingers and toes.

Abnormalities had been produced in animals earlier by dietary deficiencies, but scientists had not realized how narrow a time range may be involved.

While deformities were produced by four-day deficiencies of riboflavin and pantothenic acid, the most spectacular results were achieved with deficiencies of folic acid, another B vitamin.

In the case of folic acid, no significant abnormalities were produced if the deficiency occurred before the seventh day of pregnancy or after the 12th day. Moreover, a 24-hour deficiency between the seventh

and 12th days had no effect.

But a 48-hour deficiency during the period from the seventh to 12th days, when embryonic tissue is differentiating and organs are being formed, produces either death or devastating deformities in 70% to 100% of the young.

The two-day deficiency is equal to about one to two weeks of human pregnancy.

There is no evidence that humans encounter such severe dietary deficiencies as those produced in the rats. The research is of a fundamental nature, designed to shed as much light as possible on congenital abnormalities.

The completeness of the deficiency was probably responsible for deformities. The scientists not only withheld folic acid from the diet, they also gave the animals anti-metabolites to prevent the body from synthesizing its own folic acid.

The mother rats did not suffer despite the injurious effects on the young. The mothers gained weight and remained in good health throughout the experiments. Why this is so is not known at present.

Science News Letter, January 28, 1956

During winter, save all *wood ashes* and keep them in a dry place to apply to roses in the spring.