

## BIOCHEMISTRY

# New Test for Cancer

Measuring the tiny electric difference between inside and outside of cells is new approach to the detection of cancer of the uterus or cervix. Test is still in research stage.

► DOCTORS HAVE come up with an entirely new approach for testing whether women have cancer of the uterus or cervix. The test is done by actually measuring the electric difference between the inside and outside of single tiny cells cast off from the birth canal.

The first preliminary report was made to the Chicago Gynecological Society by Drs. S. A. F. Lash and Ralph W. Gerard, of the University of Illinois, and Dr. G. Falk of the University of Chicago.

The test is a simple one, they say; any skilled technician can do it in 15 minutes. Here is the way they say it works.

First they take an instrument called a speculum and insert it in the vaginal opening, click it shut and remove it again. This simple procedure collects some mucous secretions in which there are tiny cells that have been sloughed off from the linings of the vagina and uterus.

They place this bit of material on a glass slide. Then they take a tiny glass tube with a tip so fine it is only one-half a micron, or a fifty-thousandth of an inch, in diameter. They thrust this tip, which is really an electrode, into the inside of a single cell.

Another electrode is placed on the outside of the cell, and they both are attached to accurate instruments that tell the difference in electric charge between the inside and outside of the cell. All that the technician has to do is read numbers on a galvanometer. The procedure is repeated on 25 to 30 cells.

If most of the readings are slightly negative, the woman does not have cancer. If most of the readings are positive by a moderate amount, there is some kind of cancer in the uterus or in the cervix. Sometimes the electrode potential patterns seem to differ with different kinds of cancer.

The technique of measuring electric charges of single cells is one that Dr. Gerard has used for many years in basic research in nerve physiology, for which he is well known. He used the same apparatus to measure the electric charges and conduction in nerve and muscle cells to try to find some of the secrets of how our nervous system works. Dr. Lash got the idea of trying it on cells of the vaginal tract, and so he tried it on women who came to him for various female sex disorders.

Drs. Lash, Gerard and Falk found that the positive and negative readings, when properly interpreted, told whether the women had cancer of the uterus or of the cervix.

In their first series of 57 cases, the test showed 20 women had this cancer; 18 of these later were proved to have cancer, but

two really did not. The test also showed that 35 women did not have cancer, which was right in every case. In further tests, there has never been a false negative test, and the positives were about 94% correct. The doctors hope that with the test, they will be able to pick up a few cases earlier than before possible.

Many doctors feel that this study, as are others, is bringing basic research and clinical practice closer together in working out the problems of disease.

Drs. Lash and Gerard stress that this is just a preliminary report. The test is purely in the research stage and is not ready for widespread use. They will not even know whether it will be worth using clinically for at least a year.

"We are not yet claiming anything for it," Dr. Gerard said. "It may or may not have any practical value for use in the doctor's office or hospitals, but the method opens up new opportunities for research, because it is now apparent that the apparatus can be put into many kinds of cells." He puns that "the potentials are good."

Science News Letter, June 26, 1954

## MEDICINE

# Filtered Cigarettes

► PATIENTS WITH diseases of the blood vessels and circulation should not be misled by current filtered cigarette advertising, warns Dr. Irving S. Wright of New York.

Patients with such diseases, particularly with the one called thromboangiitis obliterans, or Buerger's disease, cannot safely smoke cigarettes, filtered or otherwise, he declares in a letter to the *Journal of the American Medical Association* (June 12).

Dr. Wright is a recognized authority on heart and blood vessel diseases and a former president of the American Heart Association.

Dr. Wright and associates have tested a variety of filtered cigarettes as well as "so-called denicotinized cigarettes" during the past years. They have yet to find any that contain tobaccos which do not have an effect on the blood vessels.

"There is absolutely no evidence that there is any protection in terms of vascular (blood vessel) disease from these brands," he states. "On the other hand there is quite strong evidence that such protection is completely lacking."

If patients with blood vessel disease resume smoking as some have, their disease may be reactivated. Dr. Wright reports one

## • RADIO

Saturday, July 3, 1954, 3:15-3:30 p.m. EDT  
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. James Ross Westman, chairman of the department of wildlife conservation and management, College of Agriculture, Rutgers University State University of New Jersey, will discuss "Why Fish Bite."

## TECHNOLOGY

## New Furnace Turns Out High-Purity Titanium

► BETTER, CHEAPER titanium for tomorrow's airplanes now is being turned out in a new electric furnace that melts ingots of the lightweight "wonder metal" in a vacuum.

The Titanium Metals Corporation of America has found that its new furnace improves the quality of titanium melted in it. The reason is believed to be that more hydrogen is extracted from the titanium ingot when it is melted in a vacuum than when it is melted in an artificial atmosphere of argon.

Hydrogen is more detrimental to titanium's high-strength, heat-resistant qualities than has been previously thought.

The vacuum technique also fosters more stable electric arcs, larger power inputs, and the production of smooth ingots requiring little or no conditioning before they are converted into sheet metal for frames.

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such case of a man who first had thromboangiitis in 1940. So long as he did not smoke, and with appropriate treatment, his disease remained quiet and he was free from symptoms.

About four months ago, impressed by filtered cigarette advertising, he started to smoke filtered cigarettes. His disease has been reactivated and he has early signs of impending gangrene in the tips of two toes.

Cigarette filter tips and filters have been reported to prevent considerable quantities of tars and other oils from reaching the smoker's lungs. It has been implied that this may reduce the danger of lung cancer attributed by some authorities to cigarette smoking. On this point, Dr. Wright says, he can make no comment.

He objects, however, that "the present advertising implies protection in rather vague, but none the less impressive terms." Such advertising has already influenced some patients and may influence more with blood vessel disease to resume smoking which their physicians had banned.

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Many babies begin to develop day-night sleep patterns by their third week of life.