

MEDICINE

Can Test Cancer Response

► **WHETHER A WOMAN** should have radiation treatment or surgery in the early stages of cancer of the cervix (neck of the uterus) can be decided by tests, the American Radium Society meeting in Colorado Springs, Colo., was told.

For a minority of patients the choice of initial treatment will be critical, although the majority of women will be cured with either surgical or radiation treatment in early stages of cervical cancer, Dr. S. B. Gusberg, College of Physicians and Surgeons, Columbia University, said.

To find which patients will respond best to radiation treatment, possibly helping to make it the best treatment for them, a small test dose of radiation is given. Biopsies, which are diagnostic examinations of a

piece of tissue removed from a living patient, are taken. Tissue sections and tissue smears are made from these biopsies and are stained for further studies of the cells, which are then tested for response to radiation.

About 70% of Dr. Gusberg's patients had an excellent response to radiosensitivity testing. Some had a moderate or mixed response and a very small proportion had a poor response.

If the tumor cells die or dissolve, if there is increased differentiation in the cells, or if reactions indicate the probability of permanent cell injury, responsive reaction to irradiation is indicated.

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human diseases of unknown cause, "delayed" hypersensitivity is the disease-causing mechanism. Skin testing is necessary.

"Adequate study of autoimmune phenomena in solid tissues will perhaps be possible only when tissue-culture methods are more widely applied to the investigation of disease of unknown cause."

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CHEMISTRY

Electric Fields Used To Mix Liquids

► **ELECTRIC FIELDS** can be used to mix liquids in equipment that has no moving parts, W. P. Cropper and H. S. Seelig of the American Oil Company's research and development department in Whiting, Ind., have reported.

The liquids to be mixed are placed in glass containers between two electrodes and mixing proceeds automatically, they told the joint meeting of the American Institute of Chemical Engineers and the Chemical Engineering Division of the Chemical Institute of Canada in Cleveland, Ohio.

One electrode is liquid mercury placed in the bottom of the container and the other electrode is suspended in the upper liquid layer. Direct current voltages are applied across the electrodes of from 1,000 to 25,000 volts per inch of separation of electrodes.

The bottom layer is usually a solvent such as dimethylformamide, aniline, various esters and various aldehydes. The upper layer is usually a hydrocarbon such as iso-octane, a compound found in gasoline. The two layers mix because they are mutually attracted to each other by the opposite charges absorbed from the electrode with which they are in contact. Opposite electrical charges attract. This produces a mixture of two liquids that are not ordinarily miscible.

The advantages of this process is the absence of moving parts and the efficiency of mixing. Power consumption in this method is about the same as in conventional mixing equipment.

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IMMUNOLOGY

Immune to Yourself

► **YOU MAY BE** immune to yourself, but scientists do not yet know what to do about it.

Dr. Byron H. Waksman of Harvard Medical School and Massachusetts General Hospital, Boston, told the American College of Physicians meeting in Miami Beach, Fla., that medical men may be over-emphasizing "autoantibodies." The two different kinds of antibodies are, first, the well-known protective substances in the blood that prevent disease, and second, the autoantibodies in the cells that mean one is immune to himself.

Successful animal experiments in which the animals had been immunized to autoimmune diseases may in time provide a lead to understanding human unknowns such as multiple sclerosis and rheumatoid arthritis.

"The Wassermann antibody (syphilis) was the first 'autoantibody' ever described," Dr. Waksman said. "But no one has seri-

ously suggested that it could be responsible for the lesions of syphilis."

Whether autoantibodies cause or result from disease is not yet known, Dr. Waksman said. Some of them, as in syphilis, involve tissue destruction that is obviously responsible for stimulating antibody formation. But the simple demonstration of an autoimmunity to a disease of unknown origin tells nothing about its cause.

The children of mothers with active rheumatoid arthritis or multiple sclerosis are born free of these diseases, the microbiologist said. The suggestion that "autoantibodies" may have nothing to do with the mechanism of disease in such cases—systemic lupus erythematosus and rheumatoid arthritis, for example—means the patient has a gamma globulin anemia and cannot manufacture his own circulating antibody.

Dr. Waksman said limited attention has been paid to the possibility that in some



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