TISSUE CULTURE

Predict Gland Creation

Foresee synthesis in the laboratory of organs for the human body to replace worn or sick ones. Such spare parts would be built from pure strains of cultured cells.

➤ CREATION in the laboratory of functioning glands or other organs for the human body to replace those removed because of disease may "ultimately" be achieved, Dr. Virginia J. Evans of the National Cancer Institute, Bethesda, Md., predicted at the Decennial Review Conference on Tissue Culture in Woodstock, Vt.

Rejuvenation by transplanting suitable laboratory-grown glands would even seem a possibility, although Dr. Evans did not mention this.

Replacement of failing human hearts by laboratory-grown ones would also seem a possibility.

Without specifying what organs might be created in the laboratory, Dr. Evans did point to the fact that tissue for repair operations is "badly needed."

Cultivation of functioning gland tissue in the test tube for implantation, she also said, "deserves concentrated effort in the near future."

The new kind of spare parts for the human body now foreseen will be built from pure strains of cells grown, or cultured, in the laboratory. The gland or stomach or kidney will not necessarily have the characteristic shape and form of the natural organ, but it will be able to function in the same way.

These laboratory-created spare parts will be achieved through advances in the field of tissue culture, which has already provided the means of growing polio virus for vaccine production.

A better understanding of cancer and how it arises can also come, Dr. Evans pointed out, from study of living cells cultivated outside the body. Cancer, she said, seems in one sense to be a disturbance between the interrelated chemical processes of the cancer cells and those of the normal body cells.

When the normal and the cancer cells are cultivated in the laboratory, scientists can learn exactly what chemicals are needed to nourish each kind of cell. They can learn, also, how each kind of cell affects the chemicals it lives in by just living and growing.

Slices of tissue, such as now cultivated in the laboratory, do not give as much basic information as needed for solving problems of growth, both normal and cancerous.

This is because the tissue slices are a mixture of cells.

The food requirements and food handling of cell mixtures are probably different from that of the individual cells in the mixture.

Steps toward learning food requirements of individual cells have already been taken. Skin cells in a pure strain from a 65-year-old man have been growing and reproducing rapidly for four months on a diet of known chemicals without any protein, Dr. Evans reported.

Another pure strain of mouse skin cells has been kept in a state of relatively rapid growth and reproduction for more than 21 months on chemicals without protein.

Once such cells, all the same kind, can be kept alive and reproducing in the test tube on a particular diet, scientists can add one by one other foods, to see how the cells handle these.

The process, on a very small scale, is like that through which requirements for different vitamins have been learned. In both cases, a basic diet is worked out and then substances added one at a time to see how the one extra substance affects the animal or the cell.

"Many if not most of the advances in animal nutrition have been motivated by sociologic and economic demand," Dr. Evans stated. "Tissue culture nutrition has now reached a stage of development where the same strong forces that have been seen in the development of animal nutrition will influence the future trends in nutrition of animal cells in vitro."

Science News Letter, October 20, 1956

VIROLOGY

Find First Jap Brain Disease Virus in U. S.

➤ DANGER of Japanese B encephalitis, a brain infection sometimes called sleeping sickness, getting into this country and spreading is emphasized by a case reported in the *Journal of the American Medical Association* (Oct. 6).

The case is believed the first brought back to this country from the Far East in which the virus causing the disease has been found.

In three other previously imported cases of the disease, the virus itself was apparently not isolated.

The virus was found in the brain of an American soldier who died of the disease a few days after arrival at Fort Lawton, Wash., from Korea. The soldier had been in Pusan where many cases of the disease had been reported earlier.

His case and the finding of the virus in his brain are reported by Lt. Col. Harold E. Shuey (MC) and Lt. Col. Trygve O. Berge (MSC) from the Sixth Army medical laboratory, Fort Baker, Calif.

Science News Letter, October 20, 1956

MEXICAN ANIMALS—Three University of Illinois zoology students went after kangaroo rats and other small animals on a 10,000-mile expedition into Mexico. They trapped 300 kangaroo rats, rodents that can live entirely on dry seeds. Unpacking some of their preserved specimens in the storage room of the University's Museum of Natural History are, left to right, William Z. Lidicker Jr., Wayne H. Davis and John R. Winkelman.