MEDICINE

Urge New Cancer Study

New approaches to the problem of what causes cancer in all its various forms are needed. Studies of diet and viruses as influencing cancers are underway.

➤ A REVISED approach to the study of possible causes of stomach cancer will become more and more popular, the associate chief of the biometric branch of the National Cancer Institute at the National Institutes of Health, has predicted.

This approach calls for a more controlled retrospective study of the exact role that diet plays in the development of malignancies of the stomach, William Haenszel told SCIENCE SERVICE.

A recently published national and international survey of stomach cancer incidence and mortality strengthens the formerly observed relationship between diet or geographic latitude and stomach cancer. The report, published in the *Journal of the National Cancer Institute* (Aug.), also reveals that the stomach cancer rate is lowest in the United States.

Iceland has a very high rate while Norway has an intermediate rate, as does Denmark and Sweden. Yet, the Icelanders come from the same racial stock. Therefore, some environmental factor is favored as an explanation for the difference in rates that would be expected to be similar.

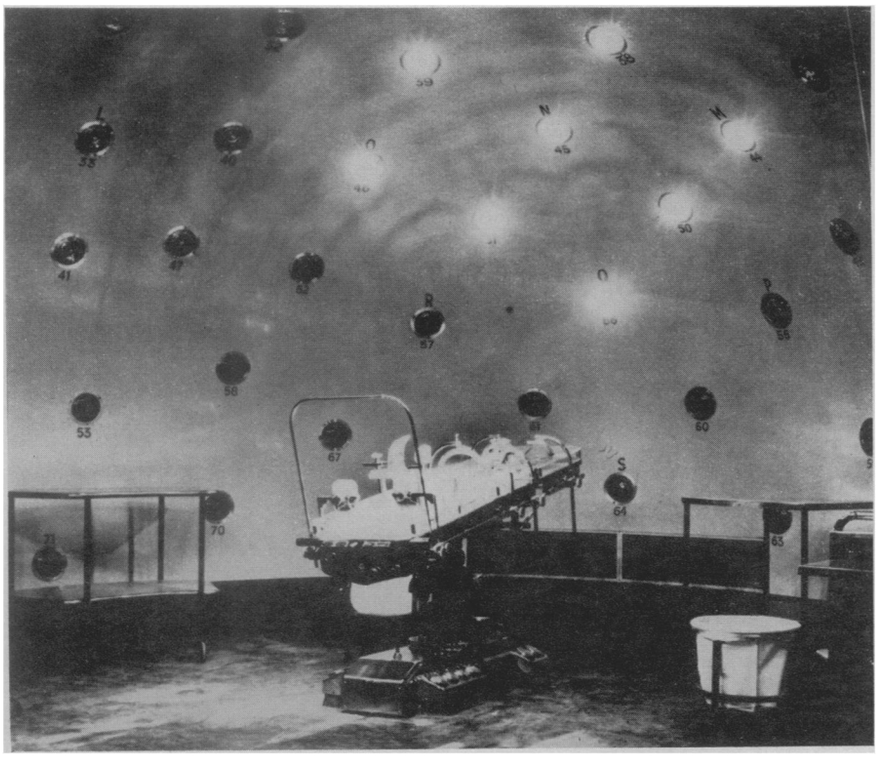
Here in the United States, the highest rates were found in the area across the northern tier of states from North Dakota to Michigan. Low rates predominate in the South, while most large cities throughout the nation had lower rates than the Dakota-Michigan belt.

The latitude association is susceptible to dietary interpretation because climate determines the type of crops that can be grown, Mr. Haenszel suggests.

A striking trend in recent years, about the time that the stomach cancer rate declined in the U.S., offers another supporting argument. At that time, citrus fruits, tomato juice and lettuce were beginning to be used abundantly. Lettuce replaced cabbage as a green leafy vegetable at this time and the consumption of potatoes and wheat flour decreased.

Pathologists have long suspected a connection between diet and stomach cancer, but their studies of gross national differences in diet and stomach cancer have failed to reveal a simple and direct explanation. Further work to uncover effects associated with diet must depend on more refined and controlled studies comparing the diets of persons with stomach cancer with others in the general population, Mr. Haenszel says.

It would seem that a dietary cause of cancer would be in sharp contrast to the virus and hormone theories of cancer. But a dietary connection with stomach cancer might be explained as a condition that aids the growth of viruses or triggers off-beat hormonal actions.



EGG-SHAPED OPERATING ROOM—Six "egg-shaped" operating rooms designed by U. S. architect Paul Nelson of Ketchum and Sharp, Paul Nelson, Associated Architects, New York, are featured in a hospital opened in September in Copenhagen, Denmark. Features of the room include 71 lighting projectors arranged within the walls to give surgeons many lighting possibilities without moving the patient.

Need to Study Viruses

➤ UNSUSPECTED viruses may be the cause of some human cancers.

Because many researchers have been searching elsewhere for the causes of these cancers they may have overlooked a very productive field of study. Recently, however, more and more scientists are coming to realize the important relationship between cancer and viruses, Dr. J. W. Beard of the Duke University School of Medicine points out.

In his report on viruses as a cause of cancer, which appears in the *American Scientist* (Sept.), Dr. Beard says that virus tumors make up the only naturally occurring tumors with a known and specific cause. Study of these cancers could provide a "virtually inexhaustible wealth of material" for fundamental research.

Recent studies of mouse and chicken tumors implicate viruses, thus simplifying somewhat the researcher's problem in determining the cause of these cancers.

A good example of how discovery of the virus solved a puzzle is the case of breast cancer in mice, Dr. Beard reports. Scientists discovered some strains of mice were more susceptible to the cancer, also that some factor found in the mother mouse's milk influenced the offspring's cancer susceptibility. It has since been shown that the factor transmitted through the mother's milk is a filterable virus.

Recognition of the virus cause of mouse breast cancer has been the most important single advance in emphasizing the possible implication of viruses in the total tumor problem, Dr. Beard reports.

Much of the difficulty in finding new virus tumors is due to the complex conditions, ranging from the host animal's genetic make-up, its hormones, age, to the amount of virus present, associated with the disease. However, the possibility of studying the virus in extremely thin sections of tissue now makes this easier.

Actually, Dr. Beard reports, "ultrathin sectioning provides the only means at the present for the search for specific agents in the tissues of the apparently undiseased host."

With the possibility of viruses as the causes of some human cancers and the technique of examining very thin sections in which viruses can be identified, Dr. Beard explains, scientists have "something" in their cancer studies that can be subjected to detailed experimentation.