

## MEDICINE

# Non-Stomach Ulcers

➤ "HE HAS ulcers" has become such a common remark that it is surprising to find a good many are rather ignorant about ulcers.

For example, probably most people think of ulcers as always being in the stomach, but the majority occur instead in the first part of the small intestine. The medical name for this is the duodenum and the ulcers are called duodenal ulcers.

Some may think of an ulcer as something painful and dangerous, but may not have any idea what it looks like. An ulcer looks like "a clean-cut or pinched-out hole in the lining of the stomach or the duodenum," according to a description from the Illinois State Medical Society.

Just why ulcers occur is not known. Many theories have been explored, but the most accepted one points to some interference in the digestive process, the medical society reports.

The stomach secretes substances that help to digest food, and included among

these substances are hydrochloric acid and pepsin.

Pepsin is involved with the digestion of a group of foodstuffs, of which meat is a principal item. It is believed that the acid and probably the pepsin, in some chemical process, cause the ulcer.

Since these two substances are normally present in the body, just why the ulcers occur in some persons and not in others is not known. Emotional and mental strain, anxiety and tension are all considered factors, but the exact underlying cause for the loss of the stomach's protection against digestion by its own juices is not known.

An ulcer may develop at almost any age from infancy to old age, but the greatest incidence of ulcers is between the ages of 20 and 50, and in men more than women. Most ulcers seem to occur and recur in the spring and fall, giving the victim little cause for complaint in the summer months.

Science News Letter, December 4, 1954

## MEDICINE

# Tuberculosis Resistance

➤ RESISTANCE TO tuberculosis may be related to the relative amounts of different hormones produced by the adrenal glands.

Studies in rabbits suggesting this were reported by Dr. Max B. Lurie of the University of Pennsylvania's Henry Phipps Institute, Philadelphia, at a meeting in New York of the committee on medical research of the American Trudeau Society. This is the medical section of the National Tuberculosis Association.

Excess of compound F, or hydrocortisone, is associated with reduced resistance by the rabbits to a human strain of TB germs given by inhalation. A reduction in the proportion of compound F and a corresponding increase of compound B, or corticosterone, is associated with increased resistance to the disease.

These studies were made in cooperation with scientists at Harvard Medical School, Boston, and the Worcester Foundation for Experimental Biology, Shrewsbury, Mass.

Earlier Dr. Lurie found that rabbits with native resistance to tuberculosis could destroy TB germs faster, as they got into the lungs, than susceptible rabbits, and that the resistant rabbits also acquired specific resistance to the germs faster than the susceptible ones.

Fixation of the germs at the portal of entry is of secondary importance, while the digestive capacity of the body's scavenger cells for the germs is of primary significance in the operation of native resistance, Dr. Lurie reported.

The germ-digesting property of the phago-

cytes, or scavenger cells, is under the influence of hormone balance.

Dr. Lurie and associates are continuing their studies of the relation of hormones to TB resistance, working on the effect of age factors, alloxan diabetes and thyroid gland function.

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## OPERATIONS RESEARCH

## Mental "Temperature" Explains Productivity

➤ A NEW concept of mental "temperature" may explain why some scientists are over 100 times more productive than others.

The theory was explained by Dr. William B. Shockley, director of the Weapons System Evaluation Group of the Department of Defense, at the meeting of the Operations Research Society of America in Washington.

He said that the differences in rates of scientific production are much larger than other variations among men. No runner can race a mile 100 times faster than another, and one man does not speak 100 times faster than another, he said.

The concept of mental "temperature," or capacity, likens the production of ideas to a chemical reaction. A small increase in temperature can speed the reaction considerably.

If a man's mental temperature is twice that of another, he is likely to be 100 times more productive.

Mental temperature may be related to the number of ideas a scientist can consider at one time, said Dr. Shockley. Small increases in this capacity may greatly increase his productivity.

A study of the relationship between salary and productivity, however, shows that to win a 10% raise, a research worker must increase his output between 30% and 50%.

The basis for the report was a statistical study of the production of scientists at Los Alamos Scientific Laboratory, the National Bureau of Standards and other laboratories.

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