

MEDICINE

# Unbalanced Nerves Can Cause Heart Disease and Ulcers

## Acetylcholine, Chemical of Nerves, In Bodies of Animals, Produces Heart Disease Artificially

**A**NIMAL studies which apparently prove the nervous origin of one type of heart disease and of such digestive derangements as stomach ulcers were reported by Dr. G. E. Hall of the Banting Institute, University of Toronto, at the meeting of the American College of Physicians in New York.

The type of heart disease is that in which the arteries of the heart itself and also other arteries in the body are affected by hardening and other changes. Because this condition occurs chiefly in the high-strung business or professional man, doctors have long suspected a nervous origin.

Dr. Hall was able to produce this same condition in animals by giving daily injections for as many as 400 days of small amounts of acetylcholine. This chemical substance is produced every time an impulse passes down one of the nerves of the parasympathetic system. These are the nerves which, with the sympathetic nerves, work together to keep the organs of the body, heart, stomach, lungs and all the others, functioning properly.

Acetylcholine is the substance by which the parasympathetic nerves do their part in this nerve teamwork. Acetylcholine normally is rapidly destroyed in the body after its task is done.

### Produced in Animals

The fact that Dr. Hall could produce heart and artery disease in animals, exactly like that in man, by keeping more than normal amounts of acetylcholine in their bodies shows that an excess of this chemical must be at the root of such diseases in man. The excess is probably produced because the two sets of nerves are out of balance, the parasympathetic system doing more than its share of the work.

A new chemical to relieve attacks of the heart ailment angina pectoris, was reported to the Federation of American Societies for Experimental Biology meeting in Baltimore.

The new heart disease medicine is octyl nitrite. It was prepared by Drs.

John C. Krantz, Jr., C. Jelleff Carr and Sylvan E. Forman of the University of Maryland School of Medicine. While it is related chemically to amyl nitrite now generally used in angina pectoris, the octyl nitrite is better and its effects last longer.

### Rickets Inherited

Rickets, or at least a tendency to this deforming disease, can be inherited, it appears from studies reported by Dr. Louise Pearce of the Rockefeller Institute for Medical Research at Princeton, N. J.

At one time, Dr. Pearce pointed out, heredity was considered a more or less important factor in human rickets. Then scientists discovered that proper diet, including plenty of calcium and vitamin D, and sunshine could prevent or cure

the disease and the hereditary angle was forgotten.

Dr. Pearce rediscovered the importance of heredity in studies on rabbits. Deformities of the bones like those in human rickets appeared in racial lines representing six different breeds of rabbits. A predisposition to these abnormalities is definitely inherited in the rabbits and it appears that heredity is also a factor in human rickets.

### Dogs Have Nervous Breakdown

Dogs get nervous breakdowns just like humans and from the same cause—too great a mental conflict, it appears from studies reported by Dr. W. Horsley Gantt and associates of Johns Hopkins University.

Social factors, such as the presence of a human in the room or of a friendly dog, reassures the nervous animal so that he does not have an attack. Drugs such as bromides were not as effective. Prolonged rest on a farm was also helpful.

The condition lasted for five years in one animal. During this time anything in his environment which had been there during the first attack would bring on another, characterized by labored asthmatic breathing, heart palpitation, whin-



### WARPED ROCKS

*Rocks, millions of years ago, warped into complicated curvate shapes by mountain-building forces at the east front of the Rocky Mountains, buried by debris washed from the higher peaks, then bared by the waters released by melting glaciers and snowfields were caught by the camera of Dr. K. E. Lohman, of the U. S. Geological Survey, during the progress of field work in the South Fork Valley of the Shoshone River, near Valley, Wyo.*

ing and a condition resembling sexual impotence.

The original attack, which Dr. Gantt termed a typical anxiety attack like those seen in men and women, occurred as a

result of conflict when the animal no longer could discriminate successfully between two musical tones close together in pitch.

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PSYCHOLOGY—POPULATION

## Fixed National Boundaries Likely to Bring About War

### Territories Must Be Adjusted to Changing Needs of Growing Nations Or Trade Must Make Them Unimportant

THE national boundary lines that are such a headache to school children are the cause of much more serious troubles, including war, Drs. Warren S. Thompson and P. K. Whelpton, of the Scripps Foundation for Research in Population Problems, told the American Academy of Political and Social Science.

Unless some way can be found to provide for a continuous adjustment of territory to the changing needs of nations, they said, or unless such far-reaching changes in trade relations can be achieved that the forceful annexation of territory will no longer appear desirable, the world may expect constant tension and occasional war.

"In this world of constant population changes," these population experts have concluded, "territorial relations and the channels of international trade can no more be frozen indefinitely than can class relations in a modern industrial society.

"The attempt to keep them frozen is certain to induce an equally determined attempt to thaw them out. Under present conditions this means war."

Population pressure which causes peoples to seek new territory and resources is more a state of mind than a literal crowding of peoples, they indicated.

#### Used to It

In China, for example, a large part of the people live at practically a subsistence level and death rates of 40 to 50 per 1,000 per year are very common, and there is no widespread feeling of pressure of population.

"The masses of Chinese are altogether unaware that there are great masses of people elsewhere who live better than they do," the experts said. They are also unaware that their level of living might be affected by the lack of certain re-

sources, particularly the lack of mineral resources. In fact, this relation will only become of importance in the thinking of the Chinese as industrial development proceeds and the use of minerals increases."

Japan was in practically the same condition 75 years ago, but since then that nation has developed an industrial life and come in closer contact with Western nations. The standard of living was raised and with that the death rate lowered, so that the population, which had not increased much for perhaps two hundred years before 1860, more than doubled in the 70 years since that time.

#### Those Who Have Want

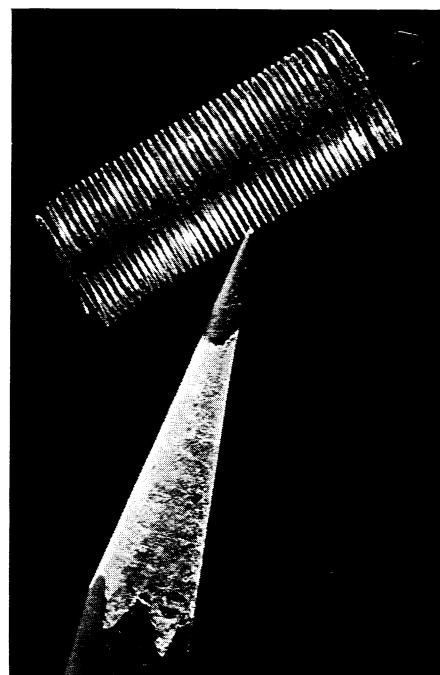
"Only after the people began to get some of the comforts of life did they come to realize that there were vastly more to be had if only they could secure the resources to which to apply their labor," the report continued, "and inevitably begin to ask themselves why they should not have access to what they needed, since great resources were lying unused in neighboring lands."

No brief is being held for recent methods of gaining these resources, the population experts made plain.

"What has been said here is not meant as a justification of Japan's invasion of China, of Italy's conquest of Ethiopia, or of Germany's annexation of Austria. It is merely an attempt to explain how population pressure may and, as we believe, does add to the international tensions of today.

"It does not indicate sympathy with the attitude of national leaders who urge their peoples to have large families and to multiply rapidly and then claim that they must have more room in which to care for this population increase. There is no end to such a process."

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QUARTZ SPRING

*Tiny coil springs made of quartz threads whose diameter is only six one-thousandths of an inch are now being produced in the laboratories of the General Electric Company for sensitive research balances. A difference in weight of only 1/28,000th of an ounce can be detected with apparatus using these quartz springs. Unlike steel springs they are not affected by moisture or moderately high temperature and render superior service for scientific research studies.*

CHEMISTRY

### Plastics Used For Making Coated Waterproof Paper

A CHEAP process for manufacturing coated waterproof paper by the application of a heat-setting synthetic resin to paper has been developed by a New York paper engineer, it is reported.

Ten to 75 per cent. of the cost of manufacturing paper suitable for use in cartons, packages and the like may be saved by the new process, Bert C. Miller, its inventor, claims.

Potential uses listed by Mr. Miller include protective liners for cartons, containers; glossy-waterproof papers for box wrappers and packages; paper boards for utility and decorative purposes; coating to replace cellulose film; protection for delicate printing and enhancement of colors, and others.

The plastic is applied to the paper by means of heat, the plastic cooling and setting on contact with the paper.

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