MEDICINE

Blood Flow Conditioned

Heart rate and blood pressure are easily conditioned by emotional trauma, establishing lasting reflex patterns in the cardiovascular system—By Patricia McBroom

➤ YEARS MAY SEPARATE an emotional experience from a heart attack but that experience could still be the cause.

The explanation for this phenomenon lies in the fact that heart beat, blood pressure and stroke susceptibility are among the most easily conditioned responses of the body, reported an international group of scientists, meeting at Harvard University for the first assembly of the Pavlovian Society of America.

Attention in this country has been focused on diet as the primary cause of heart attack, said Dr. W. Horsley Gantt, president of the society. Few have recognized the enduring effect on the blood system of old, forgotten emotions.

Heart rate and blood pressure naturally rise in response to fear. It is now clear that they will also rise in response to something in itself completely harmless, but associated with fear in an individual's mind.

For example, a child is frightened by an accident and his blood pressure rises. He also notes the name of the street "Broadway." Thereafter his blood pressure shoots up whenever he sees the word "broadway" or even "broad." Perhaps the accident, and certainly the name of the street, is long lost to memory, but the cardiovascular system has been trained and continues to react.

Such conditioning of heart and blood activity is easier to achieve and lasts longer than any conditioned reflex of the muscles, Dr. Gantt said.

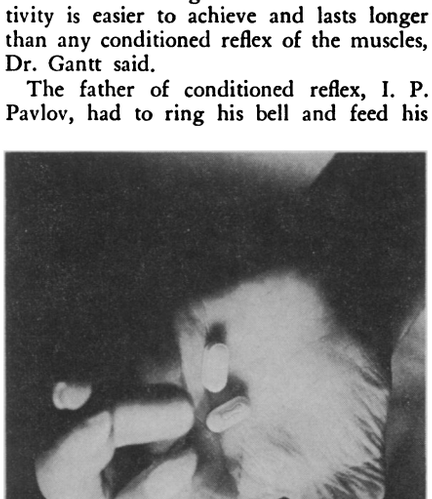
The father of conditioned reflex, I. P. Pavlov, had to ring his bell and feed his dog 20 to 30 times before the dog learned to salivate to the bell alone, said Dr. Gantt. But the dog's heart rate was conditioned after one try.

Chronic malfunction of the blood pressure could be nothing more than reflex reactions to "bells" whose fearful or hateful associations have been forgotten.

British scientist Dr. Arthur Paterson, a psychiatrist at the West London Hospital, reported his success with manipulating heart and blood activity of patients under hypnosis. First he was able to establish a conditioned reflex. Then he removed it, something which has not been possible so far with a fully conscious individual. Under normal conditions the cardiovascular system is extremely resistant to change once a reflex has been established.

Dr. Gantt's work was done at the Johns Hopkins University Pavlovian Laboratory and the Veterans Administration Hospital in Perry Point, Md. Working with him were Drs. E. Cowels Andrus, Joseph Newton and Jorge Perez-Cruet.

• Science News Letter, 89:131 February 26, 1966



Chesebrough-Pond's Inc.

LONG-ACTING ASPIRIN—Each of these pills contains 10 grains of pure aspirin, twice the ordinary dosage.

MEDICINE

Delayed Symptoms Occur In Rare Swamp Disease

➤ AMERICAN PHYSICIANS are warned to be on the lookout for symptoms of a rare disease called melioidosis being brought back by a few soldiers who have been fighting in the rice paddies and swamps of Viet Nam.

Lt. Gen. L. D. Heaton, U.S. Army Surgeon General, does not anticipate a great number of cases, but three or four have been reported.

French soldiers evacuated home from Viet Nam in 1953-54 were treated in the Percy Chest Hospital with chloramphenicol, and four out of five recovered. A British soldier with an acute case died from the disease in 1963.

Dr. Murray Spotnitz of the Army's Fitzsimons Hospital, Denver, told SCIENCE SERVICE that he had treated two cases recently, one from Viet Nam, the other from Korea.

Symptoms, which may not show up for several months, include fever and chest pain, and in addition to antibiotics, surgery is sometimes necessary. It was formerly thought that the infection was transmitted by rat fleas or rodents, but Dr. Spotnitz said this theory had been discarded.

"It could happen from eating meat of infected cattle or sheep that has been insufficiently cooked," he said, "but the usual mode of infection is by way of an open wound."

• Science News Letter, 89:131 February 26, 1966

PHARMACOLOGY

Timed Aspirin Ready

➤ AT LEAST FOUR brands of aspirin tablets have been developed to give eight-hour relief to sufferers from arthritis and other painful ailments. But apparently the one called Measurin has beaten the others to the market. The new long-acting tablets were developed by Chesebrough-Pond's Inc., using a National Cash Register Company process.

The other long-acting aspirin tablets include Stendin, which was launched last May by Abbott Laboratories and the hitherto unpublicized Lever Brothers' Drug Products Division. Stendin is being test-marketed to see how it sells in such key cities as San Francisco, Calif., Buffalo and Syracuse, N.Y., Louisville, Ky., and Tulsa, Okla. Earlier this month the U.S. Food and Drug Administration approved Duramax, a long-acting aspirin tablet put out by Grove of St. Louis, but there are no immediate plans for marketing it.

The Drug News Weekly, which announced these drugs, reported the development of a long-acting aspirin tablet called Relay, by the Vick Chemical Company.

Having recently reported (see SNL, 89:87 Feb. 5, 1966) that delayed-action doses of pills for iron-poor blood appeared to be unjustified, SCIENCE SERVICE determined to learn what drugs really do lend themselves to sustained action.

On questioning Dr. Ralph Shangraw, associate professor of pharmacy at the University of Maryland School of Pharmacy, Baltimore, he said, "Physicians generally know very little of the complexities of timed-release drugs. Therefore, pharmacists should be experts so they can discuss factors affecting dosage and side effects with doctors.

"The idea of timed release is not new. Medieval man often coated pills with gold and silver, but this was mainly for psychological effect. These pills never actually disintegrated in the gastrointestinal tract, and sometimes they even were recovered to be used again.

"An enteric coating, which of course refers to the intestines, is an example of a timed-release drug. Release is supposed to occur only after the dosage form has passed from the stomach into the intestine. Unfortunately, many of our early enteric coatings were based on the supposition that the stomach was acid and the intestine basic. We now know that the acidity of even the lower part of the small intestine seldom goes above neutrality, or 7.0. Consequently, many enteric coatings never broke up and drug release did not occur."

The makers of Measurin describe its timed-release system as "unlike enteric coatings of capsules of delayed-action pellets." Their process involves microencapsulation.

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