

MEDICINE

Starting a Stopped Heart

Physicians now have a portable electronic device, the pacemaker, to restart a heart that has stopped. Patients can learn to use the device themselves, Faye Marley reports.

► TO RESTART A HEART that has stopped, the physician now has a less-than-a-pound electronic device that he can carry in his little black bag and use in a cardiac emergency.

Dozens of times a day this new artificial heart pacemaker will in the coming months be used to save a life by starting a normal rhythm.

It might be applicable to the kind of heart condition that President Eisenhower has so successfully overcome in the five year since his heart attack.

This is perhaps the most important potential service of this new medical device, but it is joining the oxygen cylinder, the injection of adrenalin and the heroic heart massage in medical treatment of cardiac emergencies anywhere.

It is known that medical aid is constantly near President Eisenhower, in the hands of his attending physicians. They have a pacemaker in their equipment along with oxygen and other treatment and preventive apparatus.

When the pacemaker was invented several years ago, the only size available—one that is still used because of attachments such as the defibrillator to stop heart flutter—weighed 13 pounds. It costs \$375.

Another type of "heart pacer" weighs nine and three-quarter pounds. Its dimensions are 11 by five by five and three-quarter inches and its cost is \$365.

Still another pacemaker weighs 12 ounces, is two by four by one and one-eighth inches and costs \$385.

Most first-class hospitals have some kind of artificial pacemaker today.

Pacemaker in Recovery Room

Dr. Charles A. Hufnagle, chief of cardiovascular surgery at Georgetown Hospital in Washington, D. C., says there is always an artificial pacemaker in the recovery room for Georgetown patients who might develop heart block after operations.

In an interview with Dr. Thomas W. Mattingly, chief of medical education at the Washington Hospital Center, and former chief of medicine and cardiology at Walter Reed Army Medical Center, he said that four points of value connected to the pacemaker are:

1. Establishing a suitable rhythm in a patient who has developed heart block involving the conductive tissues of the heart muscle.

2. In the management of heart block that develops at times as a result of cardiac surgery. Especially indicated, he said, is the repair of defects in the septa (dividing walls) between the heart cavities.

3. In cases where trauma, or injury, to special conductive tissues occurs.

4. In those conditions where for some reason there is complete stoppage of the heart.

One of these conditions of cardiac arrest can result from the use of the defibrillator, an electric device that shocks the fluttering heart out of its chaotic beat, but which may stop it entirely. Following defibrillation, the artificial pacemaker can restore the normal beat.

Recently in Washington a short circuit occurred in a swimming pool's underwater electric system and the life guard along with a ten-year-old swimmer died. This is the kind of death from cardiac fibrillation or arrest that could have been remedied if there had been a defibrillator and an artificial pacemaker at the pool.

"The important thing, however," Dr. Mattingly said, "is to keep the electric system in order so that the accident does not happen."

Another new method of resuscitation is the closed chest massage recently announced by Johns Hopkins that is being taught to firemen and others who may be called upon to give this kind of first aid without opening the chest.

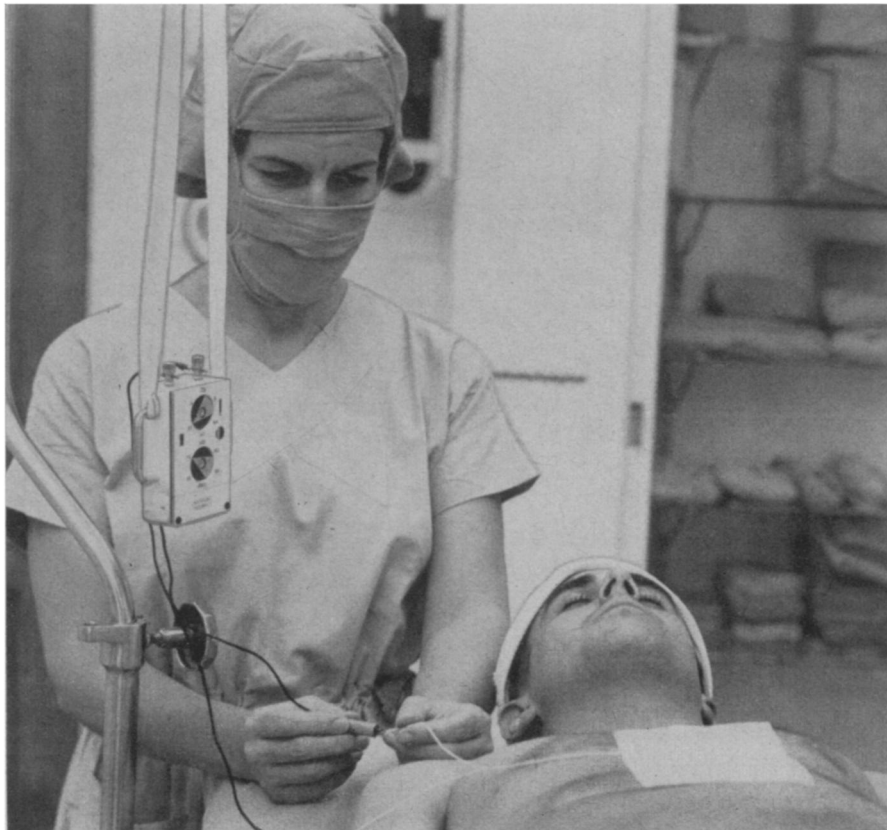
Dr. Mattingly was asked what the outlook is for heart disease—the nation's number one killer.

"Our greatest hope is in the steady progress we are making," he said. "Nothing sensational is going to happen tomorrow. The heart patient's own intelligent care of himself, of his personal health, will be the greatest deterrent to heart attack. He must learn that he can't walk to the corner drug-store and get a pink pill that will cure his heart trouble."

Some heart patients live 15 or more years after a coronary occlusion such as President Eisenhower suffered in Denver in September, 1955. At that time the country was alarmed at the possibility of a recurrence that has not happened.

The reporter asked what the outlook for President Eisenhower's health is when his term of office ends next January.

In other words, how are his physicians going to keep him "down on the farm"



ARTIFICIAL PACEMAKER—An attendant attaches an electronic pacemaker to a patient at Walter Reed Army Medical Center. In case of a heart block, the pacemaker stimulates the heart back into action. The device costs more than \$300.

writing his memoirs after all the stimulation of world travel and official life so necessary, apparently, to his well-being.

Dr. Mattingly looked enigmatically at the ceiling and said:

"I haven't the slightest notion that the President is going to sit still at Gettysburg and write his memoirs, nor would I advise it."

It is amusing in retrospect to consider all the predictions made about the President's outlook for this administration. One of them was that Vice President Nixon was only a heart beat away from the Presidency, and that it was most likely that he would enter into that office before President Eisenhower's term had ended.

With anti-coagulants and all the modern treatment given, not only to the President but to the ordinary man who has a heart attack, the number one killer may take its place down the line before another Presidential term of office is through. Starting a stopped heart will become a simple matter. Or, better yet, fewer hearts are going to stop.

Cases of heart block are few in comparison to other disturbances of heart rhythm associated with heart disease, which make heart trouble the first cause of death in the United States.

Arteriosclerotic heart disease, which includes atherosclerosis, the cause of more than half of all deaths in this category, includes also coronary insufficiency, myocardial infarction (coronary thrombosis) and other disorders.

In an article reprinted from the magazine Cardiovascular Disease Nursing, Dr. Mattingly discusses prophylaxis, or treatment.

He says: "Since the cause or causes of atherosclerosis are not known, specific measures of prevention are not yet available."

Among the many prophylactic measures recommended, he mentions diet, hormonal therapy, regulation of physical activity, emotional or mental stress, and inheritance factors.

Circumstantial Evidence

"There is still no definite proof," he says, "of the theory that arteriosclerosis has a dietary origin. During the past decade, considerable evidence has accumulated in support of this belief, but as far as human experiments are concerned, it is largely circumstantial evidence based upon the frequency of high fat diets with excess of fat or lipids in the blood (hyperlipemia), and, in turn, hyperlipemia with atherosclerosis."

Dr. Mattingly says that science is slowly but surely marching on toward the prevention and alleviation of heart disease.

"Therapy and procedures in the management of arteriosclerosis and arteriosclerotic heart disease are altered almost daily by our efforts to relate new theoretical and laboratory findings to clinical practice," he says.

"In doing so, at times we tend to forget or discard measures which have been thoroughly evaluated and of proven value. In our modern management, it is well to keep in mind the writing of Alexander Pope who, over 200 years ago, gave this good advice:

"Be not the first by whom the new are tried;

Nor yet the last to lay the old aside."

• Science News Letter, 78:250 October 15, 1960

ENTOMOLOGY

Parasite of Pea Aphid Imported From India

See Front Cover

➤ NOW USED TO CONTROL damage of the pea aphid to leguminous crops in California is a small parasitic wasp, *Aphidius smithi*, imported from India. It was imported by the Entomology Research Division of the U. S. Department of Agriculture for propagation in the biological control insectaries at Albany and Riverdale, Calif.

Shown on the cover is an alfalfa leaf with mummified pea aphids containing the parasite pupa of the Indian wasp.

• Science News Letter, 78:251 October 15, 1960

TECHNOLOGY

Geometrical Fracture Puzzles Scientist

➤ A GEOMETRICAL PATTERN consisting of four spirals arranged symmetrically appeared unexplainably when titanium oxide fractured after being pressed for use as a refractory material.

This occurrence is reported by J. S. Jackson in the British science journal, *Nature*, 187:1104, 1960. He discovered this while working in the Research Laboratory of the Associated Electrical Industries, Ltd., in Rugby, England.

The formation of one spiral by the fracture can be explained satisfactorily. However, the formation of four spirals spaced so symmetrically cannot be explained.

• Science News Letter, 78:251 October 15, 1960

Do You Know

The nation's *traffic toll* for 1959 was estimated by the National Safety Council at between 37,500 and 38,000 deaths and 1.4 million disabling injuries.

Arson may be responsible for as much as 30% of the United States' yearly fire total.

Questions

ASTRONAUTICS—What is the total sun pressure on satellite Echo? p. 243.

METEOROLOGY—What type of clouds are being studied by the Missouri Ozarks weather team? p. 249.

VETERINARY MEDICINE—What is the yearly economic loss to farmers whose cattle have leptospirosis? p. 246.

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