Intercom
Duke University Medical Center
VOLUME 22, NUMBER 4 JANUARY 24, 1975 DURHAM, NORTH CAROLINA

$3.5 Million Granted For Heart Studies

Doctors here have received a $3.5 million grant to tackle the nation's No. 1 killer—coronary artery disease.

The grant is the largest for the medical center over the past year. It was awarded by the National Heart and Lung Institute and will support the work of 17 researchers over the next five years.

"Prolonging life and reducing disability—that's what we're interested in," said Dr. Andrew G. Wallace, head of the research team and chief of Duke's Cardiovascular Division.

Wallace explained that two arteries feed blood to the heart. Fatty deposits can build up inside these arteries, like rust in a pipe. That's coronary artery disease, he said. The clogging prevents the heart from getting enough blood and, for that reason, can kill.

"It's the most common cause of death for both men and women in this country," Wallace said. In 1971 the disorder was blamed for the deaths of 675,000 Americans—more than the population of Boston.

It can lead to:

* angina pectoris—pain in the chest or arm that strikes when people exercise or go outside in cold weather;

* heart failure—when the heart is too weak to pump normally;

* heart attacks—when a coronary artery is completely blocked; or

* "sudden death"—a not-too-painful heart attack in which "you're here one minute and gone the next," as one doctor described it.

Two of the 17 Duke researchers will try to curb these instant deaths by correcting the irregular heartbeats that precede them. One doctor will use drugs in his effort; the other will try surgery.

Two others will use sound waves to diagnose heart damage.

"It's like radar," said Wallace. "Bursts of high frequency waves are bounced off the structures of the heart. You get a picture of the working heart and you can even visualize valves moving."

One doctor will measure blood flow to the heart with radioactive chemicals that show up on X-rays. They indicate whether a coronary artery is clogging, Wallace said.

Another researcher will try to surgically remove ballooning areas of the heart that contribute to heart failure. Yet another will create a computerized data bank that "will ultimately permit doctors to tell each new patient with coronary artery disease what medicine can and cannot accomplish for him," Wallace said.

Two doctors will test whether the heart actually works better after surgery has been performed to by-pass a blocked section of coronary artery.

Others will:

* look for new ways to treat angina pectoris;

* try to reduce the damage that heart attacks do;

* test heart drugs on animals;

* set up laboratories for continuing research on coronary artery disease.

The associate director of the 17-man team is Dr. H. Newland Oldham, associate professor of surgery. Working with him and with Dr. Wallace will be: Dr. Robert W. Anderson, Dr. Robert J. Bache, Dr. John J. Gallagher, Dr. Joseph Greenfield Jr., Dr. Donald B. Hackel, Dr. Robert H. Jones, Dr. Joseph A. Kisslo, Dr. Yihong Kong, Dr. James R. Margolis, Dr. Daniel B. Menzel, Dr. Charles R. Roe, Dr. Robert A. Rosati, Dr. Harold C. Strauss, Dr. Olaf T. Von Ramm and Dr. Galen S. Wagner.

OCEAN FLOOR OFF THE BAHAMAS—This diver was one of two—Jeffrey R. Prentice and Steven B. Nelson—who tested Duke's new diver decompression table on this 500-foot dive off the Bahama Islands in December. The new decompression schedule allows divers to return to the surface faster and safer than conventional schedules. The picture was taken from a Johnson-Sea-Link submersible owned by the Harbor Branch Foundation, which financed the Duke research.

Developed at Hyperbaric Chamber

New Diving Table Believed Safer

By Joe Sigler

Duke hyperbaric chamber researchers have developed what they believe is the "fastest and safest" decompression schedule for divers returning from 500 feet under the sea. They plan to use similar methods for computing schedules over a wide range of depths and times.

They also have discovered a technique of mixing a diver's breathing gases in a combination that will allow him to descend to the ocean floor at a fast rate and be completely functional, physically and mentally, when he gets there.

The developments were explained in Morgan City, La., Wednesday by Dr. Peter B. Bennett in an address at the International Diving Symposium. Bennett is a professor of anesthesiology and biomedical engineering, co-director of the F. G. Hall Laboratory for Environmental Research (hyperbaric chamber) and director of diving research.

Aside from meaning greater safety for divers, the new techniques hold out a potential for significant financial savings to companies engaged in deep-sea work—including offshore oil developers—who must employ expensive deep-sea divers.

In a separate interview in advance of his speech, Bennett challenged the oil companies to lend greater financial support to research into diver safety such as that being conducted at Duke and elsewhere.

If not—and as the quest for deep-sea oil reserves increases—Bennett said "divers will become cannon fodder in the battle for oil."

"There have been a lot of deaths and injuries to divers, especially in the North Sea," Bennett said, "and it continues to point up the need for safer operating tables and procedures. We believe this is the fastest and safest decompression table that has been developed."

The new decompression table resulted from 89 simulated dives by commercial divers working in cold water in the Duke chamber over the past year. Bennett said it then was tested, "with every success," in 500-foot ocean dives in late December off the Bahamas.

The work has been supported by a $300,000 grant from the Harbor Branch Foundation of Florida with divers supplied by Oceaneering International, Inc. and International Underwater Contractors, Inc.

A decompression table is a schedule by which a diver is gradually brought back up to the surface. Under the pressure of the sea, the gases a diver breathes are absorbed by his blood and tissues. These gases must be allowed to be expelled as the diver decompresses—or comes under less and less pressure as he ascends—or he can experience serious illness or death from decompression sickness, commonly called "the bends."

Under most decompression schedules currently used, Bennett explained, divers are pulled quite fast from the deepest part of their dive—usually halfway to the surface—in the first phase of decompression. The remainder of their trip to the surface is long and gradual.

Under conventional U.S. Navy tables, for example, a diver who has spent 30 minutes at 500 feet would require 1,017

(Continued on page 2)

Sanford Announces Endowment Subsidy

The medical center will share in grants totaling $2.8 million that have been awarded to the university by the Duke Endowment.

In announcing the gifts, President Terry Sanford said that the Hospital and Child Care Section of the endowment appropriated $1.5 million of the total for use in the medical center.

The announcement said the funds would be used for future needs of Duke Hospital.

The endowment's Committee on Educational Institutions authorized the remaining $1.3 million for use for special educational purposes in other areas of the university.

The gifts go toward the $162 million goal of Duke's Epoch Campaign. Gifts, pledges and other commitments so far total more than $54 million.