



NASA

DESTINATION MOON—Fourteen new astronauts, who will be heading for the moon, were selected by the National Aeronautics and Space Administration for its Manned Spacecraft Center programs. They are from left to right, standing: Capt. Michael Collins, USAF, R. Walter Cunningham (civilian), Capt. Donn F. Eisele, USAF, Capt. Theodore C. Freeman, USAF, Lt. Cmdr. Richard F. Gordon Jr., USN, Russell L. Schweikart (civilian), Capt. David R. Scott, USAF, Capt. Clifton C. Williams Jr., USMC. Seated: Major Edwin E. Aldrin Jr., USAF, Capt. William A. Anders, USAF, Capt. Charles A. Bassett II, USAF, Lt. Alan L. Bean, USN, Lt. Eugene A. Cernan, USN, Lt. Roger B. Chaffee, USN.

NUTRITION

Diets Related to Aging

Cell nutrition is one area of concentration for future research to relieve the disabilities and discomforts of old age, the American Dietetic Association meeting was told.

► **MEDICAL RESEARCH** is underway to find out if proper diet can ease many of the problems of old age.

The assumption behind the studies is that much of "aging" is the deterioration of body cells that could be healthier if supplied with the right nutrients.

The research is not directed at lengthening the life-span, Dr. N. W. Shock told the American Dietetic Association's 46th annual meeting in Philadelphia. He is chief of the gerontology branch, National Heart Institute, Bethesda, Md., and of Baltimore City Hospitals' gerontology laboratory.

The aim, Dr. Shock said, is to reduce the disabilities and discomforts of old age.

A relatively new field of inquiry, research in cell nutrition as applied to gerontology, is going on in several places in the country, including the Baltimore laboratory. Studies are now confined to the effect of various diets upon rats' susceptibility to old age symptoms.

"By learning and understanding the factors of old age, we can find out how they provide a fertile ground for disease," Dr. Shock told *SCIENCE SERVICE*. "For everyone dies of a disease, nobody dies from old age."

Aging is associated with a gradual loss in performance in organ systems, such as the heart or the kidneys. This loss begins

with the death of the basic unit of life, the cell.

After a person reaches his early 30's or 40's, between five percent to eight percent of the cells in each tissue die every ten years.

There is a certain amount of aging within the individual cell, perhaps a 15% to 20% loss in its activities.

But there may be as much as a 50% decrease in the functioning of the entire organ system, due to the gradual loss of cells, Dr. Shock said.

Deeper studies of cell nutrition will involve searching for the essential amino acids required for protein synthesis within the cells and other materials to replace non-functioning enzymes.

Ultimately, a diet containing the necessary nutrients is hoped for.

One complication, Dr. Shock said, could be that changes will still take place after the nutrients are absorbed and transported by the blood to all parts of the body.

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Space Food Problems

► **IF THE MOTHER** who worries about what to put in her children's school lunch-box thinks she has a problem, she should try making up food packets for the astro-

nauts, as the National Aeronautics and Space Administration must do.

Gastronautics, the science of space feeding, is becoming a real problem as men are being launched into space for longer periods of time.

Here are some of the food requirements that menu planners for Project Gemini, the two-man earth-orbiting program, have to consider.

1. The ability to withstand temperatures of 110 degrees Fahrenheit and 100% relative humidity throughout pre-launch, launch and orbit periods.

2. The ability to withstand the shock of 15 g's (or fifteen times the pull of gravity) without any physical change in substance such as crumbs, dust or fragmentation.

3. Dehydrated meats, fruits, juices and soups must mix and be acceptable in water that has a temperature of 80 to 100 degrees Fahrenheit.

4. The residue content of all food items as well as weight and cube must be kept as low as possible.

5. The foods must be packaged in a clear heat sealable plastic that will protect them from moisture and oxidation, or be coated with an edible layer tailor-made for the specific food.

An astronaut's menu now includes 23 different bite-size products and 37 different dehydrated products.

These foods constitute four meals a day in a four-day cycle that will be used in the Gemini tests, Mrs. Mary V. Klicka, ration design specialist of the U.S. Army Natick Laboratories, Natick, Mass., reported to the American Dietetic Association meeting in Philadelphia.

• *Science News Letter*, 84:279 Nov. 2, 1963