New Sickle Cell Anemia Group Holds Meeting. Recommendations Made

Preliminary recommendations have been announced from the first meeting of the HEW Sickle Cell Anemia Advisory Committee for expanded research and community-service programs against this chronic disease of black children and young adults.

Ruth Aikens of New York, committee chairman, said the Committee favors an approximately equal division of available funds between research and community-service activities.

Mrs. Aikens also characterized the $6 million to be allocated for SCA research during this fiscal year as only a beginning toward a maximum-effort program to control and, ultimately, to eradicate the disease as a major cause of disability and death.

The Committee will meet again within 60 days to recommend detailed goals and the relative emphasis to be placed on each.

The SCA Advisory Committee met Aug. 13 at NIH with Dr. Merlin K. DuVal, Jr., HEW Assistant Secretary for Health and Scientific Affairs; Dr. Robert Q. Marston, NIH Director; Dr. Robert L. Ringler, deputy director of the National Heart and Lung Institute and SCA program coordinator for HEW; Dr. Vernon Wilson, Administrator.

(See SCA COMMITTEE, Page 6)

Dr. Youngner (l), Glasgow (c), and Galasso visit Red Square during their Russian tour to discuss U.S. and Soviet antiviral research.

Interferon and other antivirals are subjects of mutual interest to scientists in the United States and the Soviet Union. However, research on antiviral substances in the U.S.S.R., viewed recently by three U.S. scientists, differs significantly from that in America.

This was the opinion of Dr. George J. Galasso, NIAID's Collaborative Research Program, who with Dr. Julius S. Youngner, University of Pittsburgh College of Medicine, and Dr. Lowell A. Glasgow, University of Utah College of Medicine, visited institutions in three Russian cities in June.

Besides exchanging scientific information on antiviral research, the three hoped to encourage Soviet researchers to submit their findings to NIAID's Interferon Scientific Memoranda as well as to use international interferon reference reagents available in the U.S. and England.

The Americans visited the All Union Research Institute of Influenza in Leningrad, the August Kirchenstein Institute of Microbiology in Riga, Latvia, and the Institute of Experimental Pathology and Clinical Cancer Research, the Ivanovski Virology Institute, the Gamaleya Institute of Epidemiology and Microbiology, and the Institute of Poliomyelitis and Virus Encephalitides, all in Moscow.

The American scientists noted the Russian research approach emphasized...
A rider and his horse are about to take part in the Ken-Mar Farm horse show. Proceeds were donated to the CC Patient Welfare Fund.—Photo by Carol Ladd, "Gaithersburg Gazette."

In memory of Michael Newman, a former Clinical Center patient, the proceeds of a recent horse show were donated to the CC Patient Welfare Fund.

The show was held at Ken-Mar Farms in Potomac, Md., home of Michael's parents, Mr. and Mrs. Thomas Newman.

The Newmans also established the annual Michael Newman Perpetual Trophy, awarded to the competitor with the highest score in a number of equestrian events.

Proceeds will be donated annually to the Patient Welfare Fund.

**NIH Television, Radio Program Schedule**

**Radio**

**DISCUSSION: NIH**

WGMS, AM-570—FM Stereo 103.5—Friday, about 9:15 p.m.

September 3

Dr. Frank J. Rauscher Jr., Scientific Director for Etiology, NCI
Subject: Virus and Cancer (R)

September 10

Ralph A. Simmons, Associate Director for Computer Engineering Services, NLM
Subject: Computer Role at the NLM (R)

Interview is during intermission, Library of Congress concerts.

**Explosion in Laboratory Injures Summer Aid**

An explosion in the National Institute of Arthritis and Metabolic Diseases’ Laboratory of Chemistry on Friday morning, Aug. 13, injured a summer science aid working in the Section on Pharmacodynamics.

The explosion destroyed the chemical fume hood where the aid was conducting an experiment. The accident occurred in Bldg. 4.

Dr. Robert Creveling, who had been in his laboratory office next door, took the aid to the Employee Health Service in the Clinical Center. Later, the young man was taken to Suburban Hospital where he was treated for facial cuts.

Jack Leach, the NIH Safety Officer, emphasized the potential hazard associated with many chemical reactions. He said that an investigation of the explosion was underway, and a report will be presented at an early date.

An estimated 25,000 Federal employees retired in May 1971, as compared to 5,000 normally.
Professor Manabu Sasa, Eminent Parasitologist, Joins Fogarty Scholars

Professor Manabu Sasa, Director of the Institute of Medical Science, University of Tokyo, has joined the Scholars-in-Residence Program of the Fogarty International Center and will remain to the end of the year.

The distinguished parasitologist and educator has made outstanding contributions to knowledge of basic aspects of schistosomiasis, filariasis, and related vectors, namely, snails and insects.

Dr. Sasa is well known among American parasitologists and epidemiologists.

He attended the Johns Hopkins University School of Public Health and Hygiene as a Rockefeller Foundation Fellow, and received his M.P.H. degree there in 1948.

In 1959 he was a visiting researcher, attending the summer session of Acarology at the University of Maryland.

Since 1968 Professor Sasa has been chairman of the Filariasis Control Research Committee in Japan.

When the Parasitic Diseases Program was established in 1965, under the auspices of the U.S.-Japan Cooperative Medical Science Program, Dr. Sasa was appointed to the Japanese Parasitic Diseases Panel. From 1968 to 1971 he served as panel chairman.

Professor Sasa, who is chairman of the Department of Parasitology as well as Director of the Institute of Medical Science, is chairman of a Japanese Government project on environmental pollution.

As a Fogarty Scholar, he will study the endemic parasitic diseases in Asia from the standpoint of ecology and geographic medicine. He will also review the worldwide epidemiology of filariasis.

Professor and Mrs. Sasa are residing in Stone House.

Students Working Here in A.U. Program Find Research Challenging, Exciting, Fun

Kathryn explains one of her summer projects to David (l) and William. The students will soon send in a report to American University on their work and the people they worked with at NIH.

Scientific research is not only stimulating and exciting, it is also fun. This evaluation was given by a student who took part in American University's Research Participation Program for Senior High School Students two seasons ago.

Those sentiments were echoed by three students at NIH taking part in the same program. The students are: Kathryn Vige and William Petri who were with the National Cancer Institute, and David Monahan who worked at the Division of Biologies Standards.

This summer 114 top science students were chosen for the program. Twenty-one were at NIH, the rest worked at other Federal research laboratories.

Scientists, in a previous report, described the students selected by A.U. with such phrases as: "strongly motivated ... made real contributions ... talented, congenial and ambitious." The descriptions fit the three young spokesmen at NIH.

Kathryn, 17, entering her senior year at Stone Ridge, was selected by her Chemistry teacher for the program. She worked with NCI's Dr. John Mead in Experimental Therapeutics.

William, 15, a junior at McLean High School in Virginia, was in the Biology Branch under the supervision of Dr. John Weisburger, and David Monahan, a senior at Oakton High School in Vienna, Va., was with Dr. Clifford J. Maloney, in the DBS Biometrics Section.

This is David's second year in the program, and words like "Wylbur" and "linear regressions" fall easily from his lips.

When asked his age, he said, "I’m 16 now, but by the time the Record comes out again, I’ll be 17."

The two students working at NCI stressed the same point—their work was not on the periphery of research—it was research. They did not wash glasses, run errands, or sharpen pencils.

Kathryn explained that she is "really interested in genetics—genetic research or genetic counseling—I don't really know at this point."

But what she is sure of is that her work in an NCI lab has given her "new insights into how research works."

William explained that he had "never been interested in medicine before. I’ve been interested in entomology, but now I’m considering a career in medicine, perhaps cancer, as a researcher."

“My sister was in this program, she’s at Radcliffe, and she’s going to take a pre-med course as a result of her work in the Arthritis Institute. I’m thinking of Harvard.”

David is also going to try for Harvard.

(See STUDENTS, Page 1)

EHS Movie of the Month Stresses Food and Nutrition

The Employee Health Service will present “Three Times A Day” as its September movie. The 28-minute color film emphasizes that man is what he eats.

Food and nutrition information—do's and don'ts—in the movie point out ways to avoid excessive weight, high blood cholesterol, and coronary heart disease.

Shopping tips and practical day-to-day guides for good nutrition are also given.

The movie will be shown in the Jack Masur Auditorium, Clinical Center, Wednesday, Sept. 15, at 11:30 a.m. and 12:15 p.m., and in the Westwood Conference Room D, Thursday, Sept. 16, at 1:15 and 2 p.m.

DBS Opens EEO Library; Gives Access to Books On U.S. Ethnic Groups

The Division of Biologies Standards recently established an “EEO Library,” the first of its kind at NIH.

It will provide access to books devoted to the cultural and historical backgrounds of American ethnic groups, including blacks, Spanish Americans, and Asian-Americans.

Established under a priority program—“The Right to Read”—of the HEW Office of Special Concerns, the library is operated by the DBS Equal Employment Opportunity counselor, Norma Duffin.

It is comprised of paperback books selected from a Civil Service Commission list.

To date, 48 books, purchased with DBS funds, have been acquired. DBS employees may also contribute books included on the list.

Mrs. Duffin points out an interesting book in the new library to Dr. Rodrick Murray, DBS Director.

Other Institute and Division EEO counselors, according to Mrs. Duffin, have requested copies of the booklist in anticipation of establishing similar libraries.

The DBS-EEO library is located in Bldg. 29-A, Room 1A-15.

Dr. J. Brody to Appear On Telethon Labor Day

Dr. Jacob A. Brody, chief of the NINDS Epidemiology Branch, will appear on the Jerry Lewis-Muscular Dystrophy Association telethon on Labor Day, Sept. 6, on WTTG, Channel 5 and WMAR in Baltimore.

He will discuss his research on Amyotrophic Lateral Sclerosis, a fatal neuromuscular disease which strikes adults in the prime of life. ALS is sometimes called Lou Gehrig disease, after the famous baseball player.

Dr. Brody has been studying ALS among natives in Guam, where approximately one in 10 adults die of the disease. He has been conducting research with MDA which maintains a clinic on that island.
Bolivar J. Lloyd Retires, Came here 26 Years Ago

Bolivar J. Lloyd, a virology technician at the National Cancer Institute, retired last month. Mr. Lloyd was with the Electron Microscopy Section, Viral Biology Branch, and had been here for 26 years.

For a number of years he worked

Mr. Lloyd credits the late Dr. Kahler—first to use the electron microscope on the campus—with teaching him how to operate the complex machine with Dr. Herbert Kahler, the scientist who used the first electron microscope—purchased in 1945—at NIH.

Design Standard

He and Dr. Kahler, who died in 1960, were then in the NCI Laboratory of Biophysics. There, they both collaborated on the design for a swinging tube ultracentrifuge for isolating virus by the isodensity method.

That design has become standard equipment in laboratories all over the world. The original is now in the Army Medical Museum.

In 1945 NIH paid $15,000 for the first electron microscope. Now, there are about 95 on the campus—but the prices have changed. Today, they range from $50,000 to $60,000.

Research with that machine has also changed, especially in the field of virology, Mr. Lloyd said.

Machine Complicated

“At first, nobody wanted to play with them unless they were biophysicists.

“Biologists weren’t ready to handle the machine when it first came out, it was too complicated,” he explained.

Mr. Lloyd received a degree from Texas A & M. He is the co-author of a number of research publications on electron microscopy.

He will continue, in private industry, the work he has done here on the isolation of viruses using an electron microscope.

Graduates, who received certificates at the close of exercises, pose with Dr. Marston and two visitors from HEW. L. to r. ore: Jerry Van Sant, Jerry Hoffman, James Goodman, Jesse Wade Jr., Ethel Taylor, Clarence Magwood, Dr. Marston, Janie Taylor and Mr. Robinson, HEW, Douglas Cureton, Alice King, and Melvin Wiggins.

NCI Will Allocate Funds For Construction Grants Needed in New Areas

A call for construction grant applications from nonprofit cancer research institutions throughout the country has been issued by the National Cancer Institute.

The deadline is Nov. 1. Applications will be given final review and recommendation by the National Advisory Cancer Council, and applicants will be notified of the results by April 1972.

The Institute has allocated $11 million for construction grants from the $100 million supplemental appropriation it received from Congress at President Nixon’s request in support for a national commitment for the conquest of cancer.

The Federal grants will provide 75 percent of construction cost, the remainder to be funded locally.

To be eligible for a grant an institution must be actively engaged in cancer research of high quality, and must show that the construction is needed for more effective research for carrying out critical studies.

In part, these NCI funds seek to “develop new, strong, multidiscipline cancer efforts in regions of the country where they do not now exist.”

Information on the procedure for filing applications is available from the Associate Director for Extramural Activities, NCI.

1st Internat’l Congress Of Immunology Reflects New Areas of Concern

The first International Congress of Immunology held in Washington early this month represented “the culmination of almost a century of immunology’s pervasive effects on clinical medicine,” according to Dr. Maurice Landy.

Dr. Landy, who was Secretary-General of the Congress, is chief of the Allergy and Immunology Branch in the National Institute of Allergy and Infectious Diseases’ Extramural Programs.

The Congress was organized by the American Association of Immunologists and sponsored by the International Union of Immunological Societies.

The Union represents immunological societies of 15 nations and affiliated societies of five other nations.

Dr. Cinader Comments

Dr. Bernhard Cinader, of the University of Toronto, who was reelected president of the Union, announced that the second Congress will be held in Sydney, Australia, in the summer of 1974.

Commenting on the Congress, Dr. Cinader observed that “immunology started as a science that concerned itself with infectious diseases and was, therefore, closely associated with microbiology . . .

“Then, suddenly as it became re-oriented and concerned with regulation in areas such as transplantation, autoimmune diseases, and genetic deficiencies, it moved entirely apart from microbiology.”

Four of the five eminent immunologists who received awards for distinguished service have been NIAID grantees: in the United States, Dr. Felix Haurowitz, Indiana University; and Dr. Michael Heidelberger, New York University School of Medicine.

Also, Sir F. Macfarlane Burnet, of the Walter and Eliza Hall Institute of Medical Research, Victoria, Australia; and Dr. Pierre Graber, who holds two emeritus positions, in France—one in the Institut Pasteur in Paris, the other in the Institut de Recherches Scientifiques in Villejuif.

The fifth honoree was Dr. John Marrach, of Cambridge, England.

The edited proceedings of this Congress will be published in December 1971.

The 1200-page volume will be entitled Progress in Immunology.

DAHM Issues New Publication

A publication describing accreditation and certification practices among 16 allied health professions has been issued by the Division of Allied Health Manpower, BHME.

Single copies may be obtained from the DAHM Information Office.
Dr. Roland Chez Named NICHD Branch Chief

'The NIH Data Book' Issued; Contains Charts, Facts on Research Support

The 1971 edition of Basic Data Relating to the National Institutes of Health has been issued by the Special Projects Branch in the office of the NIH Associate Director for Program Planning and Evaluation.

The annual publication contains 58 pages of charts, tables, and historical facts concerning NIH, derived from NIH records and studies.

Support Data Developed

The Office of Resources Analysis, OD, develops the data on national support for medical research from annual surveys and other sources. The Statistical Analysis and Surveys Section, DBG, compiles the data on NIH awards and prepares the charts.

The new edition contains graphs showing national support for medical research, data on health manpower, consolidated tables on NIH appropriations and obligations, charts on NIH obligations by function and program, summary tables on NIH awards, and data on the distribution of NIH personnel.

The "NIH Data Book" is printed in limited quantity for administrative use. The restriction is due to the absence of text explaining NIH programs, which limits the usefulness of the book for the general reader. It is not for sale.

HEW personnel and NIH advisors may obtain single copies from Information Offices.

Report Features Training Dental Students to Use Chairsides Assistants

A report on the use of chairside assistants has recently been published by the Division of Dental Health, BHME.

The 7th Dental Auxiliary Conference was held last year to train dental students across the nation on the use of chairside assistants.

An exchange of ideas and experiences on the Dental Auxiliary Utilization program was also a feature of the conference. Until recently this program was supported through grants from the Division of Dental Health.

Proceedings of the conference, Training Dental Students to Use Chairsides Assistants, includes DAU objectives and guidelines, the program director's guide to DAU grants, and a list of conference participants.

Copies of the publication are available from the Office of Communication Services, DDH.

Champ S. Carter (I) honored by friends and co-workers at a retirement party after 40 years of Government service —23 of them concerned with procurement activities at NIH—admirers his pin presented by Donald R. Watson, assistant director for Material Management, OAS.

Increased Funds in NIH's '72 Budget To Permit Expansion in Specific Areas

NIH's total budget authority for fiscal year 1972 is $1.683 billion. Considering that portion of the Bureau of Health Manpower Education's program for which authorizing legislation is still pending—primarily student assistance—the NIH appropriation will exceed the President's revised budget request by $156.1 million.

The President signed the Department of Labor, and Health, Education, and Welfare, and Related Agencies Appropriation Act, 1972, on Aug. 10.

House hearings on the National Cancer Authority are scheduled to begin on Sept. 15. HEW Secretary Elliot L. Richardson will be the first witness.

Part of the increase for research was to restore the 1971 program level for all research and training grants and contract programs that were below that level in the budget.

Grants Increased

A portion of the increase will enable Institutes not already doing so to fund at least half of the approved competing grant applications.

These are: the National Institute of Arthritis and Metabolic Diseases, the National Institute of General Medical Sciences, and the National Institute of Child Health and Human Development.

The remainder of the increase for the research components is for expansion of selected research initiatives. For example, the National Heart and Lung Institute's increase provides for expanded research on all aspects of cardiovascular and lung diseases.

The increase for the National Institute of Neurological Diseases and Stroke provides for support of acute spinal injury clinical research centers, studies into the causes of multiple sclerosis, and research on communicative disorders.

Increased funds also provide for expanded research on digestive diseases, common causes of kidney disease, and arthritis by the National Institute of Arthritis and Metabolic Diseases.

The Bureau of Health Manpower Education's increase for student assistance will support scholarship, direct loan, and traineeship programs in health manpower areas.

Increased funds for the National Library of Medicine will help maintain the 1971 program level in intramural as well as extramural programs.

DR. BREWER

(Continued from Page 1)

the Division (now Institute) of General Medical Sciences.

Dr. Brewer has been with NIH since then, except for one year as associate dean of the University of Texas Graduate School of Biomedical Sciences.

From 1956 to 1960, he was chief of the Research Division, U.S. Army Chemical Corps Research and Development Command in Washington.

Prior to that, Dr. Brewer worked for 12 years at Fort Detrick, Md., in the Biological Sciences and Allied Sciences Divisions.

He received his B.A. degree (1964) from Simpson College and his Ph.D. degree in Physiological Bacteriology (1939) from Iowa State University.
10-Year Study Suggests Blood Pressure Affects Mental Ability of Aging Persons

It may not be normal for aging persons to lose their mental abilities. Without pathological processes, the aging might well retain their intellectual capacities suggest researchers at the Duke University Medical Center.

The Duke scientists at the Center for the Study of Aging and Human Development were supported by the National Institute of Child Health and Human Development.

They observed aging persons over periods of 10 years or more. Among patients who were first examined in their sixties, only those who had high blood pressure at the first examination showed a significant intellectual decline over the next 10 years.

The scientists started with 202 persons, none of whom showed any evidence of cerebrovascular disease or were hospitalized. At the start of the study ages ranged from 60 to 79 years.

The patients came back to the Duke Medical Center for 2 days every 2½ years. Eighty-seven completed all phases of the study.

The two groups of subjects—those in their sixties and those in their seventies—were divided into three groups, according to blood pressure during the intervals that the heart is not pumping (the diastolic pressure).

Readings of 65 to 95 were considered to be normal, those between 96 and 105 to be borderline elevated, and those above 105 to be high.

WAIS Test Used

The Wechsler Adult Intelligence Scale (WAIS) was among the tests used initially and at 2½ year intervals.

Those in the 60 to 69 age group had initial total WAIS intelligence test scores ranging from the high 80's to the low 90's.

At the 10th year, those who had had normal blood pressure readings showed virtually no intellectual change.

Those who had had borderline elevated blood pressure increased their average score by a little over 3 points. Those who had had high blood pressure dropped by almost 10 points—a striking intellectual loss.

Among those who were in their seventies when first examined, none with high blood pressure completed the 10 years of study.

Those with normal blood pressure had WAIS scores of about 95 at the beginning and dropped by only 5 points 10 years later. Those with mildly elevated blood pressure had WAIS scores of about 76 at the start and dropped by a little more than 11 points.

The Duke researchers think that perhaps the mildly elevated blood pressure in these persons could not overcome the long-term effects of cardiovascular disease or that other disease processes common to old age had their effects.

The Duke scientists are continuing their studies in this area.

Frances Wilkie and Dr. Carl Eis dorfer reported on their 10-year study in a recent issue of Science.
Compound Found in Eye Inhibits Enzyme Believed to Cause Cataract Formation

A compound which occurs naturally in the lens of the eye has been found to be an effective inhibitor of an enzyme believed to play a role in the formation of sugar cataracts.

National Eye Institute grantees

Dr. Joan Martin Named DRG Grants Associate

Dr. Joan Martin recently joined the NIH Grants Associates Program for one year of training in grants administration. She is the eighth woman and the 79th trainee to participate in the program which has been in existence for 10 years.

Dr. Martin was a postdoctoral trainee in the Psychiatry Department (1965-67), and a postdoctoral fellow in the Center for Aging and Human Development (1967-69) at the Duke Medical Center.

In 1969 she became an assistant professor in the Department of Medical Psychology and a research associate in the Department of Anatomy. She held both positions until her appointment to the Division of Research Grants.

Dr. Martin also taught part-time in the Psychology Department at North Carolina Central University from 1966 until she came to DRG. She received her B.A. degree in Boston.

There have found that the coenzyme triphosphopyridine nucleotide (TPN) can block the action of aldose reductase, an enzyme believed to play a primary role in the formation of cataracts in experimental galactosemia and diabetes.

Because this enzyme may be involved in diabetic complications of the kidney and nervous tissue as well, attempts have been made to seek specific inhibitors that can control its activity.

In a study published last year, one of the Boston investigators, Dr. Jin H. Kinoshita of the Howe Laboratory of Ophthalmology, Harvard Medical School, and the Massachusetts Eye and Ear Infirmary, demonstrated that tetrathymylene glutaric acid (TMG) is an effective aldose reductase inhibitor.

Other Inhibitors Needed

However, a relatively high level of TMG is needed to inhibit the formation of sugar cataracts in lens culture making it impractical for use as an agent for altering the course of cataracts in animals. Other more potent inhibitors are needed.

Now, Dr. Kinoshita and Dr. A. Jedziniak have found that TPN at a concentration at which it is normally found in the lens can effectively inhibit purified aldose reductase.

From this and other studies the investigators say that they are now beginning to understand the chemical structure necessary to make a compound an effective aldose reductase inhibitor.

TPN Molecule Explained

The TPN molecule has a ring structure and negative groups, but its action is probably quite different from TMG's. Attachment to a different site on the enzyme.

The action of TPN, as well as other inhibitors, appears to dissociate the active enzyme into inactive forms.

Drs. Jedziniak and Kinoshita reported these findings in a recent issue of Investigative Ophthalmology.

In addition to a grant from the National Eye Institute, the work was supported by the Atomic Energy Commission.

In a recent questionnaire, they were asked: "Are you in favor of continuing this program next summer?" Seventy-six answered. Seventy-six said "yes."

One scientist went even further, he said: "Find more. They are in need."

Dr. Martin is a member of the American Psychological Association, the Psychonomic Society, and the Animal Behavior Society.

Dr. Martin's work on the TPN molecule is with other groups of the National Eye Institute. She has been working on the TPN molecule for the past year and plans to continue for another year.

Dr. Martin has written a number of publications on the subsequent behavioral effects of teratological agents on the fetus.

Dr. Martin was asked if she could reconcile a medical career with a home, husband and children. Her answer was a quiet, "I certainly hope to," adding, "at my school it is emphasized that women should try to excel."

The students have a chance to officially evaluate their summer in a questionnaire that will be sent to Margaret Maury, associate director of the A.U. program. Scientists also evaluate the program.

Dr. Martin is the first woman to be appointed as a grants associate at the National Eye Institute.
CC Rehabilitation Provides Therapy—Physical, Occupational

by Ann Bainbridge

Many illnesses leave the patient with some form of disability. That's where the Clinical Center's Rehabilitation Department comes in. Pain must be relieved, normal range of movement restored, weakened muscles strengthened, and, if necessary, mechanical aids furnished.

Under the direction of Dr. David Fried, department chief, 19 staff members see approximately 500 CC patients in need of some form of therapy each month.

Patients are referred to the department by NIH clinicians. Each patient is directed to the Physical Therapy Service, Occupational Therapy Service, or both.

Should the patient require speech therapy, a consultant is called in.

Therapy is administered in the nursing unit if the patient is not ambulatory.

Rehabilitation begins with testing. In the Physical Therapy Service, tests may include evaluations of muscle strength, range of motion (how much the patient can bend his arm, leg, etc.), self-care, and posture.

Exercises Coordinated

A patient scheduled for chest surgery may be directed to do chest expansion exercises, while one with rheumatoid arthritis may be given exercises to increase the range of motion of the finger joints.

Patients with neurological and muscular disorders, including muscular dystrophy, are treated in the Physical Therapy Service.

Modern equipment helps therapists meet any treatment situation. Custom casts and splints are applied. Specially designed hot packs relieve pain and muscle spasms.

Tilt tables, weights and pulleys, practice stairs, and parallel bars may also be used.

Since certain exercises are less painful and more effective when carried out under water, the service also has hydrotherapy rooms containing whirlpool baths. A larger Hubbard tank allows full body immersion.

Physical Therapy's companion service, Occupational Therapy, seeks maximum restoration of a patient's ability to care for himself.

Marsha Lampert, physical therapist, operates a respirometer which measures lung volumes and rates of air flow, and detects any abnormalities.

Progressive resistance exercises, supervised by physical therapist Richard Hetherington, strengthen weak quadriceps (thigh) muscles.

Mary Duncan, physical therapist, uses a goniometer to measure the range of motion of an arthritic patient's elbow.

Activities may include crafts, homemaking, writing, and dressing. Sometimes custom-designed tools, such as a button hook or a long-handled toothbrush, are needed.

The Occupational Therapy Service also provides pre-vocational evaluations to determine the patient's aptitude, interests, and limitations.

These findings are incorporated into a vocational training program recommended for the patient after he is discharged.

In addition, the Physical and Occupational Therapy Services may recommend at-home activities.

Thus the patient benefits from the services of the Rehabilitation Department long after he has left the Clinical Center.

Occupational therapist Louise Bezdek times a patient as he dons a jacket.

A cutting board with spikes enables a patient to peel an apple using only one hand.