The primary mission of the Office of Technology Transfer, Rehabilitative Engineering Research and Development Service, is to expedite the transfer of research results into clinical practice; this will include the dissemination of information on new devices and techniques developed in the rehabilitative engineering program. One of the means used by OTT to achieve this goal is a unique reference collection situated in New York.

This collection was begun more than 25 years ago by the Research and Development Division of the VA Prosthetic and Sensory Aids Service, Department of Medicine and Surgery, which in 1973 became the Research Center for Prosthetics, from which OTT has recently evolved. Thus the collection’s management has been continuous despite name changes.

The resulting collection includes both formal and informal publications, unpublished information, patents, reports of research projects, progress reports, and audio-visual materials. There is also an extensive collection of handout materials. Today the OTT has probably the largest collection of its kind in the world and OTT is still in the process of acquiring information and materials in the related fields. The present holdings include 2,500 books, 135 periodicals (including back issues of some journals since the collection was instituted), 900 technical reports to VA or other agencies, 12,500 reprints and copies of papers, 7,000 patents, 80 films and 22 videocassettes, all dealing with various aspects of the field of rehabilitative engineering. The collection is valuable for both retrospective research and modern studies. This collection has been and is currently used as a source of reference for a highly specialized clientele whose interests are in prosthetics, orthotics, spinal-cord-injury, automotive adaptive equipment, and sensory aids. The last category includes material concerning the hearing impaired and the deaf, the visually impaired and the blind, and, those with speech defects.

This reference collection is available for use by all individuals in the medical or allied health and engineering professions, on
the premises, through the mail, or by phone. Some materials may be borrowed (through interlibrary loan service to individual institutions and rehabilitation centers) for clinical research purposes. Photocopies of specific articles are provided on request for personal research and study. There is also a limited supply of pamphlets, booklets, reports, suggested references and various other types of materials: appropriate documents of specific interest are available free to visitors and are distributed at no cost to rehabilitation centers throughout the world in response to requests for information on clearly defined topics.

For additional information on the collection, or specific inquiries and service, write to: Ms. Lily W. Hom, Rehabilitative Engineering Reference Collection, Office of Technology Transfer, Rehabilitative Engineering Research and Development Service, Veterans Administration, 252 Seventh Avenue, New York, N.Y. 10001.

**AEMB ELECTS NEW OFFICERS FOR 1978-79**

The Alliance for Engineering in Medicine and Biology has elected the following new officers for 1978-79: President, Edward J. Hinman, M.D., Assistant Surgeon General and Director, Division of Hospitals and Clinics, U.S. Public Health Service, College Park, Md.; Vice President, Thelma Estrin, Ph. D., Director, Data Processing Laboratory, Brain Research Institute at UCLA, Calif.; Secretary, Paul W. Mayer, M.D., Clinical Associate Professor of Orthopaedic Surgery, University of Miami Medical School, Miami, Fla.; and Treasurer, Daniel D. Reneau, Jr., Ph. D., Professor and Head, Biomedical Engineering Department, Louisiana Tech University, Louisiana.

**DIRECTORY OF SCIENTISTS WITH HANDICAPPING CONDITIONS**

The Project on the Handicapped in Science of the American Association for the Advancement of Science (AAAS) is developing a directory of scientists with handicapping conditions. Research for the publication is supported by the National Science Foundation.

Scientists listed in the directory will be asked if they would be willing to act as evaluators, consultants, or advisors on many levels concerning science and the handicapped.

**NATIONWIDE SURVEY PLANNED**

The Veterans Administration, Department of Medicine and Surgery, has awarded the National Amputation Foundation a con-
tract to undertake a survey of the status and prosthetic needs of service-connected amputees.

The survey is expected to provide a representative view of the rehabilitation achieved and to identify the needs for the development of new prosthetic devices and treatment techniques.

**14TH WORLD CONGRESS OF REHABILITATION INTERNATIONAL – JUNE 22-27, 1980**

The Canadian Rehabilitation Council for the Disabled is hosting the 14th World Congress of Rehabilitation International in Winnipeg, Manitoba, Canada.

The purpose of the Congress is to serve the interests of all concerned with disability, prevention, and rehabilitation.

The theme of the Congress is “Prevention—Integration: Priorities for the '80’s”.

(For information: World Congress of Rehabilitation International, c/o Canadian Rehabilitation Council for the Disabled, P.O. Box 1980, Winnipeg, Manitoba, Canada. R3C3R3.)

**SPACE SHUTTLE—1980’s**

Two VA physicians have been selected and will report to the Johnson Space Center in Houston for two years of training as Mission Specialists for America’s Space Shuttle Corps. They are Margaret Rhea Seddon, M.D., a 3rd-year surgical resident at the VA Hospital, Memphis, Tenn., and Norman Thagard, M.D., an intern at the VA Hospital, Charleston, Va.

Dr. Seddon and Dr. Thagard are two of 35 selected from 8,079 applicants.

**HENRY H. KESSLER, M.D., Ph. D., 1896-1978**

Dr. Henry H. Kessler, who died on January 18, 1978, often described admiringly the tremendous resources available in his patients. In turn, his friends admired the imagination, talents, and energies he displayed over an eventful career as orthopedic surgeon and as a spokesman for rehabilitation, whose essence he defined as “ideas.”

He was born in Newark, New Jersey, on April 10, 1896. With the aid of a scholarship and work as a writer and night chef, he took the premedical course at Cornell University at Ithaca, then worked his way through the Cornell Medical School in New York City. His original interest was in obstetrics, but during his internship at
Newark City Hospital he volunteered to assist part-time Dr. Fred H. Albee, a great orthopedic surgeon of World War I. Dr. Albee, first chairman of the pioneering New Jersey Rehabilitation Commission, was attempting, on a very small budget, to transfer the methods of his successful reconstruction hospital for war-wounded to a small state-sponsored clinic for injured workmen. It was housed in a loft of a factory building, on the floor below the Workmen’s Compensation Bureau, which provided cases. Months after completing internship, Dr. Kessler was hired as full-time staff member. Eventually he became Medical Director of the Clinic and later of the New Jersey Rehabilitation Commission. Despite an attack of tuberculosis, he earned an M.A. degree at Columbia University; still later he received a Ph. D. there. He had gradually developed associations with other hospitals and a private practice and made several trips abroad by the time World War II began. After a brief period of examining recruits, he was sent to the South Pacific to treat wounded from Guadalcanal. By October, 1943, he was transferred to Mare Island, California.

Because Dr. Kessler was a Cornell graduate as well as a distinguished orthopedic surgeon and rehabilitation pioneer and because he was currently stationed at the amputation service at the Mare Island Naval Hospital with a fascinating story to tell, he was the principal speaker at the monthly meeting of the Cornell Club of San Francisco on the first Wednesday of July, 1944. A skilled raconteur, he fascinated the audience with moving tales of the rehabilitation of amputees at a variety of levels and disabilities, some of them bilaterals. He told a number of anecdotes of specific patients, both civilian before the war and the Naval and especially Marine patients whom he had seen in the South Pacific and at Mare Island. These impressed, amused, and often moved his audience of fellow Cornellians. The only slight problem was a color motion picture including some scenes of revision amputations which some of the members found a bit disturbing immediately after a delightful lunch!

Because I was a Cornell mechanical engineer, teaching at that time at the University of California at Berkeley, I attended this meeting and listened with great interest. Fortunately the motion picture did not upset me, but the numerous scenes of construction of artificial limbs, of the process of fitting and alignment, and of amputee gait appealed to my already existing interest in mechanics of the body. That area had been suggested to me by the late Professor L. M. K. Boelter in 1942 when I was assigned to teach analytical mechanics to the engineering students. After the meeting I talked with Dr. Kessler of my interest in the applications of mechanics to the human body, a field which was just beginning to be called
biomechanics. He seemed interested and suggested that we get together again to discuss the engineering problems related to artificial limbs.

Unfortunately, before I had an opportunity to visit Mare Island, Professor Howard Eberhart of the Civil Engineering faculty of Berkeley lost his leg in an accident in August, 1944. Dr. Verne T. Inman of the UC-BL Medical School, who had already been working with Professor Eberhart on analysis by engineering methods of the forces in the tendons about the shoulder joint, had to perform the below-knee amputation. As a result of seeing the Navy film and hearing Dr. Kessler’s talk, I was able to reassure a number of our engineering colleagues (who had misinterpreted the shocking report, “he lost his leg,” as meaning a hip disarticulation) that a below-knee amputee was capable of a very high degree of rehabilitation. I visited Professor Eberhart at the University of California Hospital, where I found him working on the problem of mechanics of the shoulder joint as a sort of occupational therapy to take his mind, as he said, off the pain in his stump. I was able to tell him of the Kessler lecture.

Through other sources entirely, Professor Eberhart was sent to Mare Island to be fitted with a temporary artificial limb of the type then being used by Dr. Kessler. It consisted of felt wrapped around the stump and encased in plaster of Paris bandage into which were incorporated brace-like side bars fastened to a wooden ankle block and the conventional single-axis ankle attached to the artificial foot.

Dr. Kessler had long been an advocate of cineplasty, particularly using skin-lined tunnels through the forearm muscles, based on his visit to Dr. Ferdinand Sauerbruch at Berlin in 1928. This technique was used rather extensively at Mare Island. In later years we saw at a National Research Council meeting one of Dr. Kessler’s patients who possessed strong forces and substantial excursions, but unfortunately he was relatively rare. A great many of the patients had quite limited forces and excursion from forearm cineplasty. Among the great advantages, of course, were dexterity and sensory feedback. Some people returned to playing the piano with dramatic success, using a split hook easily adjustable in span to strike chords accurately. A natural sensory feedback resulted from muscle proprioception in the muscles normally controlling the fingers and from the pressures in the tunnels from the pegs reflecting the pressure between the fingers and thumb as long as direct control was being used. The limitation of this sensory feedback, however, was that in order to obtain strong forces, many patients necessarily used a special “advancing” lock which both closed the grip slightly further and locked the hand.
After the war Dr. Kessler not only rebuilt his private practice but was able to establish the Kessler Institute for Rehabilitation in South Orange, New Jersey. The early patients were paraplegics sent by the United Mine Workers Welfare and Retirement Fund. The Fund collected royalties from the coal companies on the coal mined. It was able to send former military ambulance railroad cars and other vehicles into the mountains of Appalachia to bring out miners who in many cases had been left neglected in local hospitals or in their homes after coal mine accidents had broken their backs; their conditions were often complicated by amputations or other disabilities.

The development of spinal cord injury care during World War II had, of course been dramatic, leading to much higher probability of survival and recovery, control and elimination of urinary infections and pressure sores, and vigorous methods for rehabilitation. Dr. Howard Rusk, after leaving the Army Air Corps and setting up what is now the Institute of Rehabilitation Medicine at New York University, and Dr. Kessler and his Institute played major roles in the transfer of these military developments to a large scale civilian application. Both Institutes played major roles in the training of large numbers of doctors, nurses, therapists, counselors, and orthotists in the special techniques involved in rehabilitation of the spinal cord, amputees, hemiplegics, and other severely disabled.

This concept of special rehabilitation institutes likewise represented a transfer to civilian life of the major rehabilitation centers which had been rapidly built up by military and naval establishments but then, like Dr. Albee's military hospital, quickly disbanded a year or two after the war ended as the military patients were released and transferred to the care of the Veterans Administration. Fortunately many reserve officers besides Drs. Kessler and Rusk retained their enthusiasm for interdisciplinary rehabilitation of the amputees, spinal-cord-injured, or blind as they returned to private practice and teaching. They have served in key roles in programs for vocational rehabilitation, crippled children, and veterans.

Dr. Kessler, whose early years had been at the Hospital for Crippled Children in Newark, N.J., was a pioneer in advocating prompt care of child amputees including congenitals. The Kessler Institute of Rehabilitation not only treated patients individually but for many years held annual child amputee conferences to which both professionals and families of child amputees were invited. These typically included demonstrations of some severely handicapped children who had been rehabilitated. Dr. Kessler had some very severely involved children as patients long before the Thalidomide disaster in Europe. He often used cineplasty or, in later years,
pneumatic externally powered arms on severely handicapped bi-
lateral upper-limb amputees.

Large numbers of visitors to the Kessler Institute carried away both technical knowledge and inspiration. In turn, Dr. Kessler himself was a frequent traveler to many parts of the world, stimulating local programs, lecturing, and serving as an expert consultant for international organizations, foreign governments, and private charitable organizations in many countries. He was a dynamic spokesman for rehabilitation, with a fund of anecdotes and examples to illustrate the key points of his talks.

He was elected the president of the then International Society for the Welfare of Cripples in 1948, giving that organization new vitality and much greater influence. The successor organization is now known as Rehabilitation International with widespread member societies in various countries, and holds an official consultative status to the United Nations. When he attended in 1972 International Congress of Rehabilitation International at Sydney, Australia, he practically held court, with a steady stream of visitors and admirers calling upon him.

In 1954 the World Health Organization organized a conference on amputations and prostheses at Copenhagen, Denmark with a dozen participants. Dr. Kessler was unanimously elected president, with Sir Harry Platt of Great Britain, then president of the British Orthopaedic Association, as vice-president and Dr. Gudmund Harlem of Norway, later Minister of Health in Norway, as Rapporteur. I have always felt that I was both honored and fortunate in being selected to be a participant, the only non-medically trained member of the group. It was a delight to watch Dr. Kessler’s skillful channeling of discussion and suave methods of reconciling differences of opinions in this very diverse international group. One evening during the conference Dr. Knud Jansen of Denmark, later chairman of the Rehabilitation International Committee on Prosthetics and Orthotics and first president of the International Society for Prosthetics and Orthotics, invited some of us, including Dr. Kessler and me, to dinner at his apartment, then at the Orthopedic Hospital. It was a charming evening and a delightful opportunity to meet informally with great people.

As an orthopedic surgeon himself, he tried to keep orthopedic surgeons interested in the field of rehabilitation at a time when many were so busy with new operating techniques that they tended to lose interest in the welfare of the patients after the scar had healed. Dr. Kessler presented or discussed papers at the American Academy of Orthopaedic Surgeons and his exhibit on cineplasty in 1936 won the gold medal.
When the American Board for Certification in Orthotics and Prosthetics was organized in 1948 by farsighted leaders of the prosthetics and orthotics industry, they decided to take the highly unusual step of inviting members of another profession to participate on the Board of Directors. Four of the seven directors were selected from among the leading prosthetists and orthotists, but three were nominated by the American Academy of Orthopaedic Surgeons. Dr. Kessler was, as I recall, among the first three selected to serve on this very important Board to certify both individual practitioners and the facilities in which they practice. Dr. Kessler’s early service on this Board undoubtedly helped to establish confidence and respect for its efforts. His genial methods of reconciling differences helped develop mutual respect among the members and the middle-aged or older individuals undergoing the certification process.

A major dinner in his honor was held at the Waldorf Astoria Hotel in New York City on the occasion of his 70th birthday attended by a large ballroom full of admirers and enthusiastic supporters. It was only one of many tributes paid to him.

His autobiography, *The Knife Is Not Enough*, published by W. W. Norton in 1968, presented a fascinating story of his own early struggles for education, for rehabilitation in general, and for treatment of amputation and spinal cord injury in particular. It is replete with anecdotes and moving stories of some of his cases as well as numerous details of his own life, adventures in many nations, honors, and occasional disappointments. An earlier book, *Peter Stuyvesant and His New York*, Random House, 1959, described his research establishing that the colonial governor of New Amsterdam had lost his right leg.

In the passing of this pioneer, the world has lost a kindly and gentle man. The fields of rehabilitation as a whole and especially after amputation or spinal cord injury, particularly the orthopedic aspects, have lost a champion.

Eugene F. Murphy

**HENRY H. KESSLER MEMORIAL FELLOWSHIP**

Howard A. Rusk, M.D., president of the World Rehabilitation Fund has announced the creation of the Henry H. Kessler Memorial Fellowship in honor of the world-renowned authority on rehabilitation.

A physician from Bandung, Indonesia, has received the first fellowship for advanced training in rehabilitation medicine at the Santo Tomas University Hospital in the Philippines.