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Part III: Clinical Departments and Divisions -- Chapter 25: Department of Rehabilitation Medicine (pages 438-446)

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Department of Rehabilitation Medicine

FRANCIS NASO, M.D.

“Use strengthens, disuse debilitates.”

—HIPPOCRATES (460–370 B.C.)

Physical Therapy Begins as Electrotherapy

The Department of Rehabilitation Medicine had its roots in “Franklinism,” the use of electricity in the treatment of disease. In 1752 Benjamin Franklin¹ in Philadelphia employed electricity with success for hysteria in a 24-year-old woman. This modality thereafter became an adjunct in the treatment of both functional and organic disorders of the central and peripheral nervous systems.

In 1881 Dr. Roberts Bartholow,² Professor of Materia Medica and General Therapeutics at Jefferson, published an exhaustive treatise on *Medical Electricity*³ that included electrophysics, electrophysiology, electrodiagnosis, electrotherapeutics, and electricity in surgery. Dr. Hobart A. Hare,⁴ who succeeded Dr. Bartholow from 1891 to 1931, was well known for his skill in treating syphilitic thoracic aneurysms by inserting gold wires through a needle coated with porcelain, followed by electrolysis. This was usually performed in the clinical amphitheater before the students.

The first lectures in electrotherapy were given by Max H. Bochroch⁵ (Jefferson, 1880) who was

listed as Instructor in Electrotherapeutics in the Jefferson Catalogue of 1895–1896 and 1900–1901. He was subsequently a Demonstrator of Neurology (Mind and Nervous System) in 1901–1902 and 1905–1906. Dr. Bochroch was also one of the eight Jefferson founders of the James Aitken Meigs Medical Association,⁶ a social and scientific group that still flourishes. A lifelong interest in mental and nervous diseases led to his Professorship at Temple University around 1925.

In 1909 electrotherapy and massage were carried out in the Neurological Dispensary of what was then the new hospital (1907) at Tenth and Sansom Streets. Drs. William L. Clark and Cyril P. O’Boyle served as Chief and Assistant Electrotherapists respectively, while therapeutic massage was conducted by J.B. Briechner and Miss Liddie Keffer. The appointment of Dr. William H. Schmidt as Assistant Electrotherapist in 1920 accelerated the development of this hospital service. A “Clark Electrotherapeutic Society” of 27 students held meetings in 1923 and 1924, with Dr. Clark as Honorary President, and then disbanded.

In 1925 Dr. William H. Schmidt (Figure 25-1) became the Lecturer in Electrotherapeutics, the name of which was changed to Physical Therapy

in 1930. Dr. Schmidt was promoted to Assistant Professor in 1936. He lectured rapidly without notes and never failed to fascinate the group gathered in the clinic or operating room. He was energetic, extroverted, and dramatic as he demonstrated various modalities of treatment, including electrostatic sparks and fulgerations of skin cancers. He was popular with the students, some of whom felt that he carried an aura of Merlin the Magician (Figure 25-2).

At this time, major changes were occurring in the field of physical medicine and rehabilitation outside the Jefferson complex. A 1921 graduate of Jefferson, Dr. Frank H. Krusen formed the first Department of Physical Medicine at Temple

University Hospital in 1929. In 1943 the Baruch Foundation, under the influence of Dr. Krusen as Executive Director, met for the first time to explore means of developing the field further. By this action, Dr. Krusen was credited as the “Father of the Field of Physical Medicine.”⁷⁷

From the experience of World War II, important changes occurred through improved management of military casualties with major trauma and spinal cord injury. Reduced mortality rates created an increased demand for rehabilitation medicine teaching because no one was quite sure what to do with those patients affected by major paralysis. The field began to stress rehabilitation and its two major principles: adjustment to disability and attainment of independence. This aspect of treatment would peak 30 years later with the development of regional spinal cord centers.

The Division of Physical Medicine and Rehabilitation

At the retirement of Dr. Schmidt in 1959, Dr. John W. Goldschmidt (Jefferson, 1954) became Director of the newly designated Division of Physical Medicine and Rehabilitation. Dr. Goldschmidt (Figure 25-3), after his internship at Fitzgerald Mercy Hospital, completed two years of medical residency. In 1957 he enrolled in the rehabilitation residency at the Hospital of the University of Pennsylvania and completed his training in 1959. He then returned to Jefferson to initiate the next step in the development of Rehabilitation Medicine at his alma mater. An advisory committee for physical medicine and rehabilitation was created, composed of the Chairmen of the major Departments, including Dean William A. Sodeman; Bernard J. Alpers, Professor of Neurology; John H. Gibbon, Jr., Professor of Surgery; Anthony F. DePalma, Professor of Orthopaedic Surgery; Robert A. Matthews, Professor of Psychiatry; and Robert I. Wise, Professor of Medicine. A Division of Rehabilitation Medicine in the Department of Medicine was established with Dr. Goldschmidt as Director. Physical therapy, which until then had been in the Department of Neurology, became a part of the new section. During this tenure, services were expanded to include physical and occupational therapies and speech pathology



FIG 25-1 William H. Schmidt, M.D., early proponent of electrotherapy and physical therapy

(Figure 25-4). In 1963 a new Rehabilitation Unit was dedicated on the third floor of the Thompson Building, with a 32-bed inpatient unit and a new electromyography (EMG) laboratory. When Dr. Goldschmidt left the Division in 1967 to accept the Deanship of the College of Allied Health Sciences, Dr. Thomas A. Kelley, Jr., became Acting Director of the Section of Physical Medicine and Rehabilitation of the Department of Medicine.

The Department of Rehabilitation Medicine

In 1969 Rehabilitation Medicine became a separate Department with Dr. John F. Ditunno, Jr. as its first Professor and Chairman (Figure 25-5). Dr. Ditunno was a Philadelphian whose training had its roots in multiple centers throughout the country. After receiving his degree in medicine in

1958 at Hahnemann, he remained at that institution for his internship. He left the City to practice general medicine in Hot Springs, North Carolina. Although he was destined for a comprehensive approach to medical care even before these years in the South, he became more convinced that his future was neither in the technical field of surgery nor the esoteric hands-off approach of the medical subspecialties. He enjoyed the close relationship with patients and appreciated the importance of the concept that once life-and-death issues of diseases were resolved, the quality of life of the patient needed attention.

In 1962 Ditunno returned to Hahnemann for

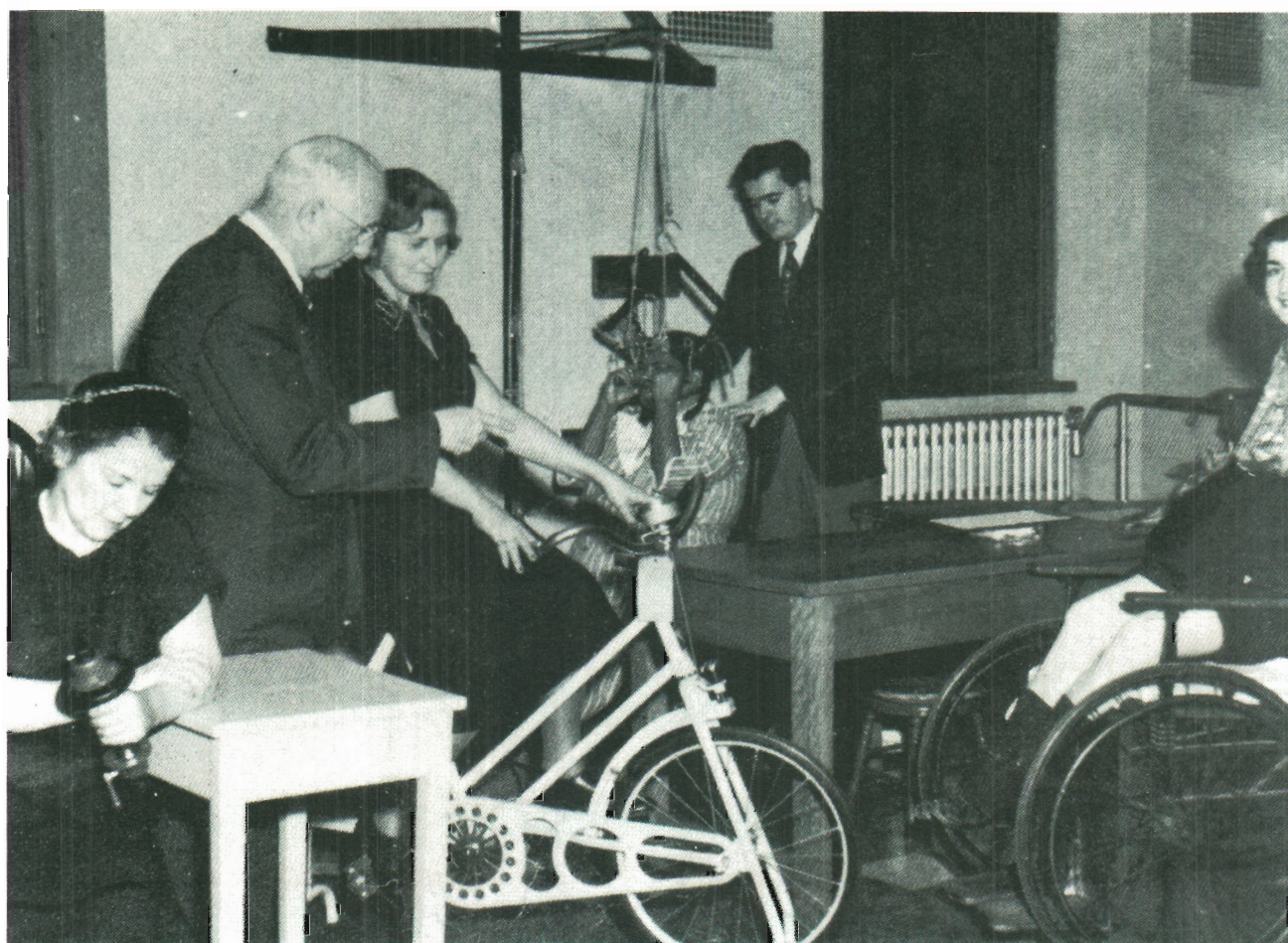


FIG. 25-2. Dr. Schmidt supervising physical therapy session (ca. 1930s).

a residency in internal medicine. The phrase “comprehensive medicine” was in vogue at this time, meaning total care of the patient—addressing psychological-social as well as physical needs. Dr. Ditunno began to familiarize himself with this aspect of medicine and read about Dr. Howard Rusk and his accomplishments. Upon deciding to enter the field of Rehabilitation Medicine, he spent six months at Jacobi Hospital at the Albert Einstein Medical School in New York under Dr. Arthur Abrams, an inspirational role model. It was here that he met Dr. Gerald J.

Herbison (Figure 25-6) with whom a relationship developed that was to be of critical importance to the future program at Jefferson. Ditunno continued his residency at the University of Pennsylvania in Philadelphia and received his certification in 1965. On return to Hahnemann he began to develop the section of Physical Medicine and Rehabilitation. Unfortunately, events at that hospital prevented his expectations from reaching fulfillment and he left to become an Associate Professor of Rehabilitation Medicine at Temple University. Dr. Herbison joined the Temple staff in 1969 as Associate Director and with this the seeds were sown for the new Department at Jefferson.

As major changes continued in the field, the former Dean at Hahnemann, Dr. William F. Kellow, was now at Jefferson, and he remembered Dr. Ditunno well from his Hahnemann years. Dean Kellow was convinced that Jefferson needed a Rehabilitation Department, and he contacted Dr. Ditunno. This constituted a challenge particularly because Ditunno would be one of the youngest Chairmen in the field. Dr. Ditunno accepted Dr. Kellow’s offer and set out to choose the members of the Department. He first selected



FIG. 25-3. John W. Goldschmidt, M.D., First Director, Division of Rehabilitation in Department of Medicine, later Dean (1967), College of Allied Health Sciences.



FIG. 25-4. Dr. Goldschmidt planning a treatment program.

Edward E. Gordon, M.D. as Professor and Director of Research, an extremely productive physiatrist, whose contributions to the literature and qualities as a teacher were unsurpassed. The field needed physicians of this type, and Jefferson was fortunate to have Dr. Gordon. His second choice was Dr. Herbison, the promising young man from Temple who was to become one of the leading physicians in rehabilitation medicine. As was often the case in the early development of the field, Dr. Herbison's major motivating factor that directed him into rehabilitation medicine was his own physical impairment. He had had poliomyelitis as a child and, given the proper circumstances, would relate his experiences during the almost brutal treatment that characterized the management of the disease years before. Dr. Ditunno appreciated the intensity of his commitment and knew that he would be the person to get the new program on its way.

A key position in the Department was filled by William E. Staas, M.D. (Jefferson, 1962). After spending two years with the Armed Services, Dr. Staas (Figure 25-7) trained in Rehabilitation Residency at the Hospital of the University of Pennsylvania. His rotations included a considerable time at Jefferson, because this was part of the rotation schedule for the University Residents. He joined the staff of the Section of Rehabilitation Medicine with its Acting Director, Dr. Kelly. Staas proved to be a valued addition to the new Department because he was known to the Jefferson staff and was highly respected as a

clinician. The Department seemed established, only to undergo almost immediate change when Dr. Gordon left because of problems that required his return to the Midwest. Dr. Herbison was selected to continue the research program, something that he had not intended. Over the five to six years that followed, Dr. Gordon acted as consultant as the Research Program continued with the acquisition of a Research Laboratory in the Curtis Building. Although he was present in a consultation capacity only, Dr. Gordon served as a mentor for Dr. Herbison through the early phases of medical exploration in the new Department. The success of that guidance was clearly evident later.



FIG. 25-5. John F. Ditunno, Jr., M.D.; First Chairman, Department of Rehabilitation Medicine (1969-).

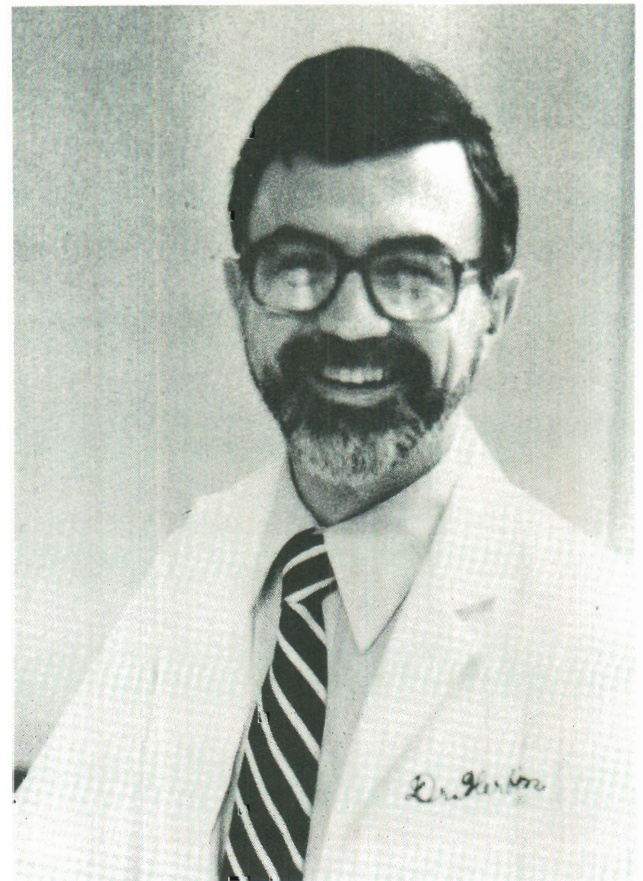


FIG. 25-6. Gerald J. Herbison, M.D., Professor of Rehabilitation and Research.

A training program was initiated with Dr. Leon Venier as the first Resident. Affiliations were established with Lankenau Hospital and with Einstein Medical Center, Daroff Division.

Expansion of the Department continued with the addition of full-time physicians and affiliations with other hospitals. In 1972 a pediatric rehabilitation affiliation was developed with Children's Heart Hospital, renamed the Children's Rehabilitation Hospital in 1986. Dr. Ditunno was also called upon to assist in the formation of a rehabilitation facility at Crozer-Chester Medical



FIG. 25-7 William E. Staas, M.D., Medical Director and President of Magee Rehabilitation Hospital (1967).

Center, and in 1974 Dr. Robert Condon became its full-time Director. This institution served as a valued rotation for the Residency program, offering experience in the care of burns and acute and chronic pain. In 1985 when it opened its ten-bed rehabilitation unit, it added a second full-time physiatrist, Dr. Peggy Abrams, a former Chief Resident in Rehabilitation at Jefferson.

An affiliation of primary importance was consummated on October 10, 1975, between Jefferson and Magee Memorial Rehabilitation Center (currently Magee Rehabilitation Hospital) at 6 Franklin Plaza in Philadelphia. This institution was founded through the 1916 bequest of Miss Anna J. Magee (Figure 25-8), whose generosity also endowed the Magee Chair of Medicine. In 1977 Dr. Staas, who served as Director of Resident and Medical Education as



FIG. 25-8 Portrait of Miss Anna J. Magee, donor of Magee Rehabilitation Hospital.

well as Director of the Rehabilitation Unit, became the Medical Director and President of Magee. Under his tutelage the facility became an important part of the training program for residents, which expanded from the original three positions in the 1970s to 18 positions in 1987. Furthermore, Magee would serve as an essential part of the Thomas Jefferson University Hospital Program in medical student teaching and research, and its cooperative program in pain management, brain injury, and spinal cord injury. Dr. Staas' unique abilities as a superb clinician, administrator, and teacher were clearly responsible, to a major degree, for the continued growth of Magee and the refinement of its relationship with Jefferson.

Under the guidance of Drs. Nathan Smukler (Jefferson, 1947) and John Abruzzo, of the Rheumatology Division of the Department of Medicine, and Dr. Ditunno, the Arthritis Center was developed, coordinating the treatment concepts of the fields of rheumatology as well as rehabilitation medicine. Representing the Department of Rehabilitation Medicine, Dr. Stanley Jacobs (Jefferson, 1972), after his internship, became a Resident in the new Department of Rehabilitation Medicine and upon completion of his Residency remained on the staff. His preciseness and concern about detail made him one of the finest teachers in the Department. Additional programs were added such as the cardiac rehabilitation program in 1973, which, under the directorship of Dr. Frank Naso, encompassed all phases of management.

Spinal Cord Injury

A significant development was the awarding of a multiyear demonstration grant to Jefferson in 1978 for the study and treatment of spinal cord injury. This effort was to produce major changes throughout the University. Dr. Ditunno, utilizing his unique ability to relate to his surgical peers, planned a multidisciplinary approach to the treatment of spinal cord injury. With Drs. Jewell Osterholm, the Chairman of Neurosurgery, and Jerome Cotler, the Clinical Director of Orthopaedics, the team was complete. With this arrangement, the physiatrist was no longer "at the end of the line," providing treatment only when the patient was "medically stable." At the time of

admission to the Spinal Cord Injury Center, each patient would be seen not only by the neurosurgeon and orthopedist, but also by the physiatrist. Evaluation would begin by each of the disciplines and follow-up would continue. The physiatrist directed the early rehabilitation program to prevent or retard those sequelae and complications so characteristic of this phase of illness. Very early in this care, these patients would be transferred to the Rehabilitation Center where the primary physician would be the physiatrist. The program continued its development through the efforts of a large staff that included Drs. Ditunno, Staas, and Posuniak.

The Regional Spinal Cord Injury Center of Delaware Valley became one of the most important in the country and has made a substantial contribution to medical practice. With over 120 new admissions each year, each of the major Departments has benefited. In addition to the areas of orthopaedics and neurosurgery, its impact was felt in medicine, urology, plastic surgery, and psychiatrics. Opportunities in research became important in the further development of the Center with projects in the causes and treatment of thrombophlebitis in spinal cord injury patients. The project was carried out in cooperation with the Department of Medicine through Dr. Geno J. Merli (Jefferson, 1975) a physiatrist as well as an internist.

Departmental Expansion

In 1981 after 11 years of continued rehabilitation service expansion, Lankenau Hospital, one of the regional major medical centers and a long-time affiliate of Jefferson Hospital, recognized the importance of full-time physiatric coverage and announced the appointment of Dr. Jay Siegfried, a former Chief Resident at Jefferson, as Director of the Department. It became a major residency rotation and since 1983 has offered continued experience with electromyography as well as a consultation service. An affiliation with Bryn

Mawr Rehabilitation Hospital was formulated in 1983 and became a rotation for the Residents in 1985. Also in 1986, the former Children's Heart Hospital changed its name and orientation to become the "Children's Rehabilitation Hospital." At this time, Ditunno attracted Dr. Nadine Trainer, educated both in Pediatrics and Rehabilitation, to the staff. She was a major addition to the staff of both Jefferson and the Children's Rehabilitation Hospital. In 1984 the Department had been asked to participate in the training of medical students at the junior and senior levels. Although electives had been offered before, this was to be an obligatory rotation. The

two-week rotation made Jefferson one of the few institutions that exposed all medical students to the field of Physical Medicine and Rehabilitation.

In 1987 the Department consisted of seven full-time physicians with nine additional physicians at Magee. Full services were offered in all disciplines, with 17 physical therapists, 11 occupational therapists, three speech pathologists, two psychologists, and three social workers. Treatment programs included spinal cord injury, stroke, amputations, cancer, cardiac disease, arthritis, compensable injury fitness, and cooperative programs in sexual dysfunction, sports medicine, and pain management.

The Department and its members were recognized as constituting one of the major rehabilitation facilities and training centers in the country. Its members have received recognition throughout the world. In 1983 Dr. Herbison, Director of Research and one of the most inspired physicians in the field, became editor of the *Archives of Physical Medicine and Rehabilitation*,⁷ the



FIG. 25-9 Inauguration of the Michie Professorship of Rehabilitation Medicine on May 8, 1987. Left to right, Daniel B. Michie, Jr., Esq., John F. Ditunno, M.D., Lewis W. Bluemle, M.D., and Clarence B. Michie.

major scientific journal in the field. He also received the honored position of Zeiter Lecturer in 1984. Major contributions to the literature occurred under the guidance of Dr. Herbison. In addition to his skills as teacher and administrator, his laboratory contributed significant papers on exercise and muscle physiology. Dr. Ditunno served as President of the American Academy of Physical Medicine and Rehabilitation and the Association of Academic Physiatrists as well as Chairman of the American Board of Physical Medicine and Rehabilitation. His recognition locally was exemplified by his inauguration in May, 1987, as the first Michie Professor of Rehabilitation Medicine, an endowed Chair provided by a bequest of Jessie B. Michie to Jefferson as a family memorial (Figure 25-9).

By 1988, the Rehabilitation Medicine at Thomas Jefferson University Hospital could not be recognized, at least on the surface, as the offspring of that original facility from the beginning of the century. Research was not a part of the program at that time but the research efforts under Drs. Ditunno and Herbison reached their culmination with a \$2.5 million grant from the U.S. Department of Education–National Institute on Disability and Rehabilitation Research for the study of neural recovery in spinal cord injury. Earlier emphasis on electrotherapeutics seemed to be far removed from the modalities used by the new Department. On closer review, however, electricity began to receive focused attention once more. One of the major areas of research involved thrombophlebitis in the spinal cord-injured population, with electrical stimulation of paralyzed lower extremities under study as a preventive

measure. Furthermore, in the recovery of upper-extremity functioning in quadriplegics, electricity was being used not only to quantitate muscle strength but also to study neurologic recovery. Indeed the cycle was complete.

Ongoing challenges for the Department involve rehabilitation in congenital disorders, trauma disabilities, and infirmities of an ever-expanding aging population. To improve upon older methods and to develop newer ones remain constant goals of the Department.

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