THE OUTLOOK FOR WOMEN

as

PHYSICAL THERAPISTS

MEDICAL SERVICES SERIES
Bulletin No. 203–1, *Revised*

U. S. DEPARTMENT OF LABOR
Maurice J. Tobin, *Secretary*

WOMEN'S BUREAU
Frieda S. Miller, *Director*

UNITED STATES DEPARTMENT OF LABOR
MAURICE J. TOBIN, SECRETARY

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The Outlook for Women as Physical Therapists

Bulletin of the Women's Bureau No. 203–1, Revised

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, March 27, 1952.

SIR: I have the honor of transmitting a report on the employment outlook for women as physical therapists. This is a field in which women did the pioneering during World War II, and in which women have continued to be predominant both in numbers and in leadership. Because its aim is the physical restoration of health and of well-being in the individuals served and because of the delicate manipulative skills required, it is a field peculiarly suited to women.

Although issued as a revision of a previous bulletin on Physical Therapists (Bulletin 203, No. 1) in the Women's Bureau Medical and Other Health Services Series, the present study is based on new and extensive research and has been entirely rewritten. The research was carried out and the report prepared by Grace E. Ostrander of the Branch of Employment Opportunities for Women in the Bureau's Division of Research, under the direction of Mary N. Hilton, Chief, Division of Research.

I want to express appreciation here for the generous cooperation rendered by the many organizations, agencies, and individuals who contributed information and photographs for this study.

Respectfully submitted.

FRIEDA S. MILLER, *Director.*

Hon. MAURICE J. TOBIN,
Secretary of Labor.

FOREWORD

Since 1944, when the Women's Bureau first issued a brief report on the outlook for women in this field, physical therapy has proved its value in the treatment of a wide range of disabilities and diseases, including casualties of war, workers injured on the job, crippled children, and persons with arthritis and other disabling conditions.

Two major Federal grant-in-aid programs—the vocational rehabilitation program and the crippled children's program—require physical therapists in large numbers for their effective operation. In addition, physical therapists are needed in hospitals for members of the armed services, veterans, and civilians; in rehabilitation and treatment centers; in visiting nurse associations and other public health and welfare agencies; in physicians' offices; and in special schools.

The supply of well-qualified physical therapists has failed to keep pace with these rapidly expanding needs. Although the number of physical therapists has doubled in 8 years, from an estimated 3,100 in 1944 to approximately 6,200 at this time, the forecast is that it must be more than doubled in the next 8 years if the estimate of an effective demand for 15,000 physical therapists by 1960 is to be met. This would mean over 1,000 graduates a year. During 1951, however, only 432 persons, of whom 241 were women, were graduated from the 28 accredited schools.

A very real need exists, therefore, for bringing the opportunities for a useful and rewarding career in physical therapy to the attention of women students now in college and high school. The present bulletin is planned for the use of deans of women in colleges and universities, vocational counselors in high schools, and other persons in a position to advise girls and women as to the choice of a profession. It covers the situation preceding the outbreak of war in Korea, including all pertinent historical facts from the previous report (Bulletin 203–1), and the defense period outlook for women in one of the occupations in the field of medical services, in which women in 1951 composed at least 85 percent of the workers.

Although over 1,000 books, articles, or pamphlets have been culled for information, the principal information for this series has been obtained from professional organizations, public and voluntary agencies, schools of medicine, and individuals. To these contributors the Bureau is indebted for the raw material which made this report possible.

The Bureau is also grateful to the following for the illustrations used in this bulletin:

The Milwaukee Journal, Milwaukee, Wis. (fig. 1).
U. S. Department of the Air Force (fig. 5).
U. S. Department of the Army (figs. 2, 3, 9, cover picture).
(U. S.) Federal Security Agency, Children's Bureau (figs. 4, 6, 8).
Washington University School of Medicine, St. Louis, Mo. (fig. 7).

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Physical Therapist as Defined in the Dictionary of Occupational Titles

Physical Therapist, 0–52.22. Treats disorders, such as fractures, sprains, nervous diseases, and heart trouble according to patient's needs or as prescribed by a physician, giving all of the physical therapeutic arts: Gives exercises to patients designed to correct muscle ailments and deficiencies. Administers massage and performs other body manipulations, ref. Masseur; artificial sun-ray treatments, ref. Heliotherapist; ultraviolet or infrared ray treatments, ref. Electrotherapist; therapeutic baths and other water treatments, ref. Hydrotherapist.

Physical Therapy as Defined by the American Physical Therapy Association

Physical therapy is the treatment of disease and injury by physical means such as heat, light, water, electricity, massage and therapeutic exercise consisting of progressive relaxation; assistive, active, resistive and passive movements; exercises for postural defects; breathing exercise; ante and post partum exercises; progressive resistance exercises; stretching; muscle reeducation; coordination and rhythm exercises; exercise by means of mechanical apparatus; ambulation training with or without braces, crutches, prostheses; functional training and activities of daily living; physical rehabilitation procedures; manual and electrical muscle testing; measurement of joint motion and functional achievement tests. It does not include treatment by X-ray, radium, or electrosurgery. Physical therapy procedures are applied only upon the prescription of a qualified physican who may be a specialist in physical medicine or an orthopedist, neurologist, pediatrician, surgeon, or general practitioner. In a broader sense, physical therapy includes "therapeutic teaching" as well as the administration of physical treatment procedures, since patients and relatives may need to be instructed in muscle reeducation technics; the use of prosthetic devices and other treatment procedures.

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Figure 1.—Physical therapist using miniature stairs to teach a crippled child to walk.

THE OUTLOOK FOR WOMEN AS PHYSICAL THERAPISTS

THE SETTING

About 6,200 persons, 85 percent of them women, were estimated to be working as physical therapists in 1951. The great majority of these workers were employed in hospitals, in rehabilitation or treatment centers, and in public health and welfare agencies. The physical therapist, like the occupational therapist, works with a rehabilitation team including the physician, teacher, nurse, medical and psychiatric social workers, psychologist, speech therapist, vocational counselor, recreational worker, volunteer and other professional workers. She cares for the patient in bed and uses restorative medicine by physical means.

Physical therapists give physical therapy as prescribed by a physician for almost every type of illness or condition. Their cases include persons with fractures; with cerebral palsy; with poliomyelitis; workmen injured in industrial accidents; paraplegics and amputees; the arthritics; cardiac patients; patients with hypertension or obesity; the mentally ill; injured athletes; persons with physical ills such as chronic backache or weak feet; and also, persons needing their posture improved or their abdominal muscles strengthened.

Most physical therapists work in a hospital setting (general, special, or veterans'), but they also work in rehabilitation centers, public health and welfare agencies, schools, industrial clinics, physicians' offices, and educational and research organizations. In 1950 approximately 2½ million patients were treated in the 2,277 physical therapy departments reported by 5,863 hospitals. Of these departments, 315 were in Federal hospitals and 1,962 in other hospitals (49 in tuberculosis hospitals, 221 in mental and allied hospitals, and 1,692 in general and special hospitals) as reported in the 1950 Statistical Guides of the American Hospital Association. The number of treatments per day per therapist may vary from 5 to 15 depending upon the size of the staff and amount of treatment required; in some clinics a therapist may handle 2 or 3 patients at a time. In a school for cerebral palsied children there may be only 100 patients per year, while in a public health clinic as many as 180 patients, including 40 to 50 new patients, may be treated each day. Seasonal variations

may alter the case load. During the polio epidemic of 1949 the case load was more than doubled in many instances.

General duties of the physical therapist as described by the American Physical Therapy Association consists of (1) giving treatments and diagnostic tests prescribed by the physician, (2) instructing the patient or his family in continuation of treatment in the home, (3) attending ward rounds and clinics, (4) demonstrating treatment procedures and correlating the work of the physical therapist with other services, such as occupational therapy and nursing, (5) maintaining appropriate records and administrative procedures as required, and (6) instructing physical therapy students or students of allied professions and other nonprofessional personnel.

Under the immediate supervision of a physician, physical therapists treat injuries, disease, or disabilities by nonmedical and physical means such as massage, exercise, heat application, light, water, or electricity (except X-ray, radium, and electrosurgery). The physical therapist also encourages cooperation and an intelligent interest of the patient during the application of all physical therapy procedures.

Physical Therapy in a Medical Rehabilitation Program

The first comprehensive medical rehabilitation program reported in any general hospital in the United States was started in the spring of 1947 at New York University—Bellevue Medical Center in New York City, which enlarged its rehabilitation service in January 1951. The program, as described by Rusk and Taylor, in *The Annals*, offers a comprehensive rehabilitation program for civilians both on an in-patient and an out-patient basis. Its integrated program of physical medicine, physical therapy, occupational therapy, corrective physical rehabilitation, social service, psychologic services, vocational guidance and testing, prosthetic services, and recreation are designed to restore the patient with a physical disability to the fullest usefulness of which he is capable. The Department of Hospitals of the City of New York plans eventually to provide all patients in municipal hospitals with medical rehabilitation services.

Rehabilitation had been available in some tuberculosis, mental, and other specialized hospitals previous to the setting up of the program at Bellevue, but little provision had been made for convalescent care and rehabilitation for the millions of patients in general hospitals throughout the country. However, progress is being made in this direction in some cities. Examples are: The Institute of Physical Medicine and Rehabilitation, Peoria, Ill.; the Rehabilitation Service of the Chicago Welfare Department, Chicago, Ill.; and the Rehabilitation and Physical Medicine Service, Massachusetts General Hospital, Boston, Mass.

Figure 2.—Medical corps officer examining a patient with fractured femur and advising physical therapist (nearer the patient) and occupational therapist as to his treatment.

Physical Therapy in Federal Hospitals

The physical therapy section in United States Army general hospitals is one of three sections in the Physical Medicine Service, which also includes an occupational therapy section and a physical reconditioning section. Physical therapists are assigned to Army hospitals that vary in size from 250 to 2,500 beds. Women physical therapists are officers in the Women's Medical Specialist Corps, which also includes dietitians and occupational therapists. Physical therapists are professionally responsible to the chief of the service, who is a medical officer with special training and experience in the field of physical medicine. Under medical direction, study programs are maintained, clinical research is encouraged, and every opportunity is provided for the professional growth and guidance of the physical therapist.

In the United States Air Force, physical therapists are assigned to Air Force hospitals, which vary in size from 150 to 1,500 beds. In hospitals with a bed capacity under 750, the therapist is professionally responsible to the orthopedic surgeon or to the chief of surgery. In hospitals with a bed capacity over 750, the physical therapy section is

a part of the Physical Medicine Service. All therapists are officers in the WMSC and serve as integral members of the Air Force medical team.

Physical medicine and rehabilitation as a major part of the entire service of the Veterans' Administration hospitals include physical therapy, occupational therapy, corrective therapy, manual arts therapy, and educational therapy. In most veterans' hospitals all five therapies are provided.

The United States Public Health Service also furnishes physical therapy services in its hospitals and out-patient clinics that annually serve 425,000 patients. Each hospital has a staff of 1 to 11 physical therapists, who use the equipment and technics normally employed in hospitals with a wide diversity of conditions under treatment.

Physical Therapy in Rehabilitation or Treatment Centers

In rehabilitation or treatment centers the physical therapist works in cooperation with the physician, the nurse, occupational and speech therapists, the brace maker, the medical social worker, the vocational counselor, and many others. Her work consists of the application of all physical therapy procedures in accordance with the physician's prescription. Electrical and manual muscle testing, testing for joint range of motion, and tests to determine the patient's functional abilities are extremely important phases of her work. A great deal of the work is with the industrially injured and insurance and compensation cases. One insurance company founded a rehabilitation center in Boston in 1943 and one in Chicago in 1951 to rehabilitate patients by restoring them physically and renewing their mental courage so that they would be able to return to work. Through the Boston program of physical, occupational, and recreational therapy guided by trained therapists, Aitken found that men and women injured in industrial accidents have been sent back to their jobs, their work capacity rebuilt and their ambition and spirit renewed.

Among centers visited by persons and agencies initiating and organizing work for the handicapped are New York University—Bellevue Medical Center, Institute of Physical Medicine and Rehabilitation; Institute for the Crippled and Disabled in New York; the Cleveland Rehabilitation Center; the Altro Workshops in New York; the several Connecticut workshops and the Rehabilitation Center at Bridgeport; the State-wide homebound service of the Wisconsin Homecraft program; the homebound and placement services of the Illinois Association for the Crippled; the physical restoration and personnel training program of the Curative Workshop of Milwaukee; the employment, training, and rehabilitation services of the Goodwill Industries in Dayton, Detroit, and Milwaukee; and the expanding rehabilitation

program for the tubercular of the Saranac Lake Study and Craft Guild, Saranac, N. Y.

Physical therapy is an integral part of the Federal-State program of vocational rehabilitation operated by the Federal Government through the Office of Vocational Rehabilitation in the Federal Security Agency. This is the most extensive governmental activity in this field, and since 1943 has been authorized to provide all services necessary to rehabilitate the individual, including medical services, and to serve the mentally ill. The services include medical examination, counseling, guidance, placement and follow-up without cost to the disabled person. For persons requiring medical, surgical and hospital care, the cost is based upon the individual's ability to pay.

The State agency for vocational rehabilitation usually engages or contracts for the services of physical therapists and others, and is then reimbursed for its expenditures from Federal funds. There are some variations. For example, the Woodrow Wilson Rehabilitation Center at Fishersville, Va., employs its own physical therapists. This center, begun in 1947, has as its function the provision of counseling, physical restoration, and vocational training to persons with residual handicapping disabilities in order that they may again resume suitable employment. Specific physical therapy, functional training, teaching in the use of appliances, and general medical supervision are the chief services. These are provided in a medical unit consisting of a well-equipped physical therapy building including a functional training building, and adequate X-ray and laboratory facilities.

Physical Therapy in State Crippled Children's Programs

The Federal grant-in-aid program for crippled children, administered through the Children's Bureau in the Federal Security Agency, includes rehabilitation services for orthopedically handicapped persons under 21 years of age. The services are provided through State agencies for crippled children, usually in the State department of health. Physical therapists are employed in staff positions, supervisory positions, and consultative positions. In the State crippled children's agencies the physical therapist works as a member of a team composed of the physician, the nurse, the medical social worker, the nutritionist, and sometimes other workers. As a result of this approach, each member of the team has a chance to work with a patient through all the stages of his treatment until he is restored as completely as possible—physically, mentally, and emotionally.

In Delaware, for example, when physical therapy is prescribed in the clinic, a physical therapist visits the home, carries out the treatment and demonstrates it to the parent so it can be executed daily until the time of the next visit.

Other Settings for Physical Therapy

The visiting nurse association serves the housebound in many large cities. In Boston, for example, Mary Macdonald reported in 1948 that home visits were made by a physical therapist as frequently as the patient's condition required. Each physical therapist was expected to have a car, and mileage was paid to the worker who used her own car. Approximately 15 to 20 percent of the workday was spent in travel.

The physical therapist working in the office of a physician or in a clinic group necessarily adapts her program to the talents and interests of the medical personnel with whom she is associated. She may become proficient in certain phases of her profession. The scope of the physician's practice will determine her activities, and she learns thoroughly his methods in dealing with his patients.

Other programs of rehabilitation through physical therapy are carried out in schools for physically handicapped children, in convalescent homes, and in educational and research institutions or organizations. In California under a program sponsored by the State Department of Education, the State Department of Health and the Medical School of the University of California, cerebral palsied children requiring special study may have the services of one of the two State cerebral palsy centers, comprised of a diagnostic clinic for cerebral palsied children and a State residential school. In regular schools special classes for children needing physical therapy have trained teachers and adequate medical and health services from qualified workers, including registered physical therapists.

The physical therapist in schools for crippled children contacts many of the community physicians through conferences and clinics, and her knowledge and training grows because of the varied approaches to the problem. She has often the responsibility of organizing clinic services and assisting parents in learning the community facilities available to help their children. In the school for crippled children, the physical therapist can carry out the treatment at regular intervals and can help supervise the child's activity throughout the school day.

THE OUTLOOK

The demand for physical therapists far exceeds the supply and will continue to do so for some years to come. This situation is caused by the continued awareness to the problems of the chronically ill and the handicapped and the rapid development of medical care programs for them, together with advances in medical knowledge making it possible to treat and retrain many persons who formerly had no favorable prognosis for resuming their activities. This has stimu-

lated the development of rehabilitation and treatment centers, and of additional and expanded departments of physical medicine and rehabilitation in hospitals of all types.

The incidence of chronic disability and disease can be expected to increase as the average age of the population advances. In 1950, according to the decennial census, there were 12,322,000 persons 65 years of age and over in the United States; this is 1 in 12 of the entire population.

Estimates of the total number of persons in the United States who have some handicap, such as an orthopedic impairment, a chronic disease, or a serious defect of vision or hearing, have ranged as high as 28,000,000, according to the Report of the Task Force on the Handicapped issued as of January 25, 1952, from the Executive Office of the President. This would include estimates of the Commission on Chronic Illness of some 9,200,000 cases of heart disease, hypertension, and nephritis; 50,000 to 100,000 persons with multiple sclerosis; 750,000 with epilepsy; about 2,000,000 with diabetes; and 500,000 with tuberculosis; between 4,000,000 and 5,000,000 chronic alcoholics, and from 1½ million to 3 million persons with hearing defects. In the past 2 years, according to the National Foundation for Infantile Paralysis, there were over 60,000 cases of poliomyelitis, 28,500 in 1951 and 33,350 in 1950.

These figures are for persons of all ages, and include large groups who may never need physical therapy. The Crippled Children's Services of the Children's Bureau in the Federal Security Agency estimated that there were at least 550,000 children and young persons with serious orthopedic impairments in 1948, a ratio of 1 to 100 persons under 21; and that there were another 500,000 persons under 21 with rheumatic heart disease. These figures are based on names listed in the State Registers of Crippled Children, and are corroborated by scattered estimates from other sources indicating that there were some 175,000 cerebral palsied children, 100,000 with crippling conditions resulting from poliomyelitis, and 275,000 children crippled from other causes including accidents, infectious diseases, nerve and muscle injuries, and rickets.

Areas of Employment

Hospitals employ the largest number of physical therapists, but there is a growing demand for physical therapists to work in the rehabilitation or treatment center, the public health or welfare agency, the doctor's office, and the school for crippled children. Of the 5,863 hospitals listed by the American Hospital Association in 1950, 2,277 had physical therapy departments as noted previously. More hospitals are adding departments as the need is felt. A report of the

Figure 3.—Army physical therapist giving instruction in resistive exercises to patient on Elgin table.

Hospital Council of Greater New York suggested that 25 percent of the bed capacity of the city's general hospitals be used for convalescence and rehabilitation. This would mean one such bed for each 1,000 of the city's population. The New York City hospital commission has said that each city hospital being built or planned will have a large and active rehabilitation unit. The interest in extending medical rehabilitation (of which physical therapy treatments are one part) in general hospitals is not limited to New York.

The Veterans' Administration has established medical rehabilita-

tion services as major departments with specified bed allocations in some of its hospitals. The Veterans' Administration alone could absorb the output of the schools of physical therapy. The approved ratio of physical therapy personnel to patients is 1 physical therapist to 100 patients in veterans' general medical and tuberculosis hospitals and 1 to 200 in neuropsychiatric hospitals. The need in veterans' hospitals will continue as new hospitals are built.

A 1948 survey by Covalt of patient participation in physical medicine and rehabilitation service in five general hospitals of the Veterans' Administration ranging from 350 to 500 bed capacity found that 25 percent of the patients required physical therapy.

Although attention has been centered on the disabled veteran, the number of disabled among the civilian population is much larger. According to Dr. Rusk there were 19,000 amputations in the military service during World War II, but over 120,000 major amputations during the same period in the civilian population. Some 265,000 men were permanently disabled as a result of combat injuries during the war, but 1,250,000 civilians were permanently disabled by disease and accident in those 4 years. Industrial injuries, which create both temporary and long-time needs for this type of service, increased 9 percent in 1951 compared with 1950. The Bureau of Labor Statistics of the United States Department of Labor estimated that 2,100,000 disabling work injuries occurred in 1951, of which 91,000 resulted in permanent impairment, either partial or total. The American Physical Therapy Association, during World War II, reported that, according to insurance statistics, "adequate physical therapy reduces the period of disability and puts a man back to work without the handicap of stiff joints and weakened muscles, thereby not only rehabilitating the workman but saving industry the costs of compensation for longer or complete disability."

As techniques and equipment continue to be developed, more physicians will recommend physical therapy for patients. Especially is this likely to be true of those returning from military service, where they have seen the best and most modern therapy equipment and practices. More and more orthopedic physicians, for example, are employing physical therapists to supplement their work.

The public interest in rehabilitation and services to the handicapped is resulting in a desire by institutions to expand their services, but such expansion is retarded by the lack of trained personnel. Many communities throughout the country are interested in establishing rehabilitation or treatment centers. In some communities, these centers would be a part of and located within the community general hospital; in others, they would be adjacent to a community hospital. As evidence of this growing interest in rehabilitation, new community centers were planned or started in 1949 in Evansville, Ind.; Dayton,

Ohio; and Detroit, Mich. The Goldwater Memorial Hospital for chronic disease was opened, and rehabilitation service was started at Ball Memorial Hospital in Muncie, Ind. A chronic-disease hospital that was being built in Peoria, Ill., by the Forest Park Home Foundation in 1949 has a rehabilitation service. The Federal Vocational Rehabilitation Act makes these services for rehabilitation possible.

The interest in sheltered workshops has grown tremendously during the last 10 years. Since 1943 the standards set up for these shops by the National Advisory Committee on Sheltered Workshops have included some or all of the following services: Physical, occupational, and work therapies along with employment, employment training, occupational advice and placement, social services, medical supervision, psychiatric care and other services designed for the rehabilitation of the client. A few workshops provide auxiliary services in addition to work in prescribed doses, but many depend upon other community agencies for treatment services. Cooperation has been developed between the workshop and the State Division of Vocational Rehabilitation and also with the case work, medical, and vocational agencies in the community. The annual report of the Wage and Hour and Public Contracts Divisions of the United States Department of Labor for the fiscal year ended June 30, 1951, states that there were 181 sheltered workshops in operation, an increase of 32 over the previous fiscal year. Moreover, many workshops had enlarged their facilities and expanded their programs in an effort to meet the urgent needs of severely disabled groups of workers.

The expanding public health program will furnish employment for an increasing number of physical therapists. The crippled children's programs, in which States are aided by Federal funds, also have encouraged the use of physical therapy in the rehabilitation of the children served.

Of the 2,600,000 disabled by orthopedic conditions, over 400,000 were under the age of 21 in 1948. Under the Social Security amendments of 1950 the amount authorized for annual appropriation to the United States Children's Bureau for services to crippled children was doubled, from $7,500,000 to $15,000,000 beginning July 1951. The Bureau's physical therapist reports that some of the more common types of cases treated by the physical therapists in State crippled children's programs are poliomyelitis, cerebral palsy, scoliosis, club feet, torticollis, poor posture, dislocated hips and birth injuries.

In 1949, 27 State agencies were making plans for increasing their physical therapy staffs so that they could serve crippled children in public health situations. During July 1951 to July 1952, 18 States increased their staffs; 3 States decreased their staffs. In addition to these services, visiting nurse associations will continue to employ physical therapists in their programs of serving the housebound.

Figure 4.—Cerebral palsy patient being trained to walk, using a walker with crutch bars.

It is estimated that polio and cerebral palsy account for 85 percent of orthopedic conditions in children, and that about 20,000 new cases of poliomyelitis occur each year.

Work on cerebral palsy increased vastly from 1946 to 1950. If adequate treatment for all the educable children suffering from the effects of cerebral palsy could have been provided, 3,750 full-time physical therapists would have been kept busy. Only 16 centers gave emphasis to cerebral palsy cases in 1946, according to the National Society for Crippled Children and Adults, and the 1950 total was 364. Also, the Society spent $2,170,000 in 1949-50 for direct service for cerebral palsied. An estimated 10,000 new cases of cerebral palsy occur each year. Adequate treatment facilities are available for only 4,000 to 5,000 or about half the new cases of cerebral palsy. Since there is no immediate prospect of reducing the incidence materially, emphasis must be put on possible ways to lessen the crippling effects. Some hope of rehabilitating 75 out of 100 cerebral palsied children exists. Many of them could be made self-supporting.

In 1949 there were more than 150 parents' councils set up by the National Cerebral Palsy Parents Council of the National Society for Crippled Children and Adults and associated with the more than 2,000 local and State societies for the crippled affiliated with the Easter Seal movement which raised funds through the sale of Easter seals.

Rehabilitation activities are carried on by the Arthritis and Rheumatism Foundation, the National Multiple Sclerosis Society, the American Epilepsy League, the Muscular Distrophy Association, and other agencies. Through the United Cerebral Palsy Association and the National Foundation for Infantile Paralysis outstanding efforts have been made in aiding the handicapped. The United Mine Workers are carrying out a rehabilitation program made possible by their Welfare and Retirement Fund.

As some evidence of the continued need for physical therapists, the Federal Office of Vocational Rehabilitation reported 58,000 rehabilitants in 1949. The State vocational rehabilitation agencies spent a total of $40,290 on physical and occupational therapy for 522 of the 754 rehabilitants who received these services. The average cost to the agencies was $77 per rehabilitant. In some cases the rehabilitant paid part of the cost; in other cases, an agency other than the Office of Vocational Rehabilitation furnished the service.

No data on the number of persons receiving physical therapy and occupational therapy are available for 1950 and 1951, but in the latter year, the operating program cost the State Rehabilitation Agency $457 per person for a total of 66,193 rehabilitants. In December 1949, there were 1,500 unfilled positions for physical therapists in the vocational rehabilitation program.

Although figures on the demand for physical therapists in the United States by type of employment are not available for all the 4,955 physical therapists registered with the American Registry of Physical Therapists for 1951–52, an analysis has been made of 602 registered physical therapists (about 90 percent of them women) for whom type of employment was reported by the Registry (see table 1). Over four-fifths (81.1 percent) of the physical therapists were employed in hospitals—the largest proportion (49.7 percent of the total) in public hospitals, the others (31.4 percent of the total) in voluntary hospitals. The remaining physical therapists (almost one-fifth of the total) were teaching in schools of physical therapy or were working with pupils in schools, were assisting physiatrists or other physicians in private practice, were employed in rehabilitation or treatment centers and in public health and welfare agencies, or were working in clinics. Uniformity in the distribution of the physical therapists by type of employment was noted in the several geographical regions (Northeastern, North Central, South, and West) of the United States.

Table 1.—*Type of Employment of 602 Physical Therapists Registered With the American Registry of Physical Therapists, 1951–52, in the United States, by Region*

Type of employment	Number of physical therapists employed			
	Total		Women	
	Number	Percent	Number	Percent
Total reporting	[1] 602	100.0	541	100.0
Hospitals	488	81.1	443	81.9
Public	299	49.7	271	50.1
Voluntary	189	31.4	172	31.8
Rehabilitation or treatment centers	18	3.0	14	2.6
Public health and welfare agencies	13	2.1	13	2.4
Other agencies:				
Schools, teaching physical therapy	47	7.8	43	8.0
Physicians' offices	[2] 23	3.8	16	3.0
Clinics	10	1.7	9	1.6
Schools, working with children	3	.5	3	.5

[1] Represents 12 percent of the 4,955 registered physical therapists in the United States, 1951–52.
[2] Included are physicians who are also physiatrists.

Source: Tabulation made from 1951–52 directory of the American Registry of Physical Therapists.

Suggestions to Those Interested in Physical Therapy Work

A college education, with specialization in physical education or in the biological and physical sciences, or combined with physical therapy courses in an approved school is considered essential for success in the physical therapy field. Personal characteristics such as good health, emotional maturity, interest in and aptitude for science (especially in biology and physics), and the desire to be of service are also essential. Other special qualifications of the physical therapist are described by the United States Employment Service in the United States Department of Labor in its *Job Descriptions and Organizational Analysis for Hospitals and Related Health Services*, published in 1952, as follows: She must be willing to work with the realization that errors may have serious consequences for the patient and to work with a variety of types of patients, many of whom are in disturbed conditions. She must be gentle and sympathetic in dealing with patients and alert to detect symptoms of unfavorable reactions. She must be accurate in the adjustment of sensitive electrical instruments and in timing of treatments and must use considerable initiative and judgment in administering treatments as prescribed by the physician.

Personal qualifications differ somewhat depending upon the type of employment in which the physical therapist will be engaged. For example, in the industrial clinic the therapist must be capable of treating adults, both men and women. In the small general hospital the success of the work of the physical therapist may depend upon her ability to acquaint medical men as well as members of the community with the services available; in the physician's office she must

be prepared to meet the frequently rigorous demands of a busy physician's practice; in the school for crippled children she must have a natural talent for teaching children along with an appreciation and genuine liking for them.

The usual educational requirements for becoming a physical therapist are (1) 3 years of college in addition to a minimum 12-month course in physical therapy in an approved school of physical therapy, and (2) graduation from a school of nursing or physical education. High-school students planning to go into this work should take the college preparatory course, including chemistry, physics, or biology. If the undergraduate college student plans to enter the physical therapy field, she should plan her program with emphasis on chemistry, physics, biology, anatomy, physiology, psychology, hygiene, first aid, and physical education. These courses will give her an excellent background for the special training that follows in the school of physical therapy. (See Training section of this bulletin.) After the students have finished their training, schools of physical therapy and the American Physical Therapy Association strongly recommend that they work under supervision for their first year's service. The education and experience requirements vary according to the agency in which the physical therapist finds employment. The American Medical Association and the American Hospital Association recommend that physical therapists employed in civilian hospitals be qualified graduates from approved schools of physical therapy.

To qualify for a position under Federal civil service as a physical therapist in the United States Public Health Service, the United States Children's Bureau and St. Elizabeths Hospital in the District of Columbia and in the United States Public Health Service hospitals throughout the United States, Puerto Rico, and the Virgin Islands, the candidate must (1) be a graduate of a school of physical therapy which is approved by the Council on Medical Education and Hospitals of the American Medical Association, or (2) have 4 years of experience in physical therapy, or (3) have a time-equivalent combination of (1) and (2). (See appendix, p. 44.) In tSate agencies for crippled children, physical therapists must be graduates of an approved school and in some States the staff physical therapist is required to have had a year of supervised experience under a qualified physical therapist.

To be eligible for appointment with commissioned status as junior assistant physical therapist in the United States Public Health Service one must have been graduated from an accredited high school or possess equivalent college entrance requirements, must have been granted an academic or professional degree from an approved school, college, or postgraduate school, must have completed the prescribed courses in an approved school of physical therapy and have been granted a degree or a certificate in physical therapy, and must present

Figure 5.—Physical therapist in Women's Medical Specialist Corps of USAF administering short-wave diathermy to a patient who has had knee surgery.

evidence of general suitability including professional and personal fitness.

Applicants for work under Federal civil service in the hospitals and regional offices of the Veterans' Administration must be graduates of schools of physical therapy approved at the time of their graduation by the American Medical Association. (See appendix, p. 45.)

The minimum requirements for appointment as a physical therapist in the Women's Medical Specialist Corps Reserve, Army Medical Service, United States Army, include completion of not less than 3 years of training in college or university including satisfactory courses in the biological and physical sciences and in psychology and a course in physical therapy, both of which must be acceptable to the Surgeon General of the United States Army. (See appendix, p. 45.)

The Minimum requirements for appointment as a physical therapist in the USAF (WMSC) Reserve include completion of not less than 90 semester hours with major emphasis on the biological sciences or physical education in a college or university and a training course in physical therapy, both of which are acceptable to the Surgeon General of the USAF. (See appendix, p. 46.)

Other requirements, such as age, differ with the employing agency. For civil service positions, the candidate must be 18 years of age or over but under 62, and the upper age limit is waived for veterans and also for certain war service indefinite employees. For appointment as a physical therapist in the Women's Medical Specialist Corps Reserve of the United States Army, applicants must be between 21 and 45 years of age and have no children nor dependents under 18 years of age.

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(See appendix, p. 45.) For appointment in the USAF (WMSC) Reserve, applicants must be between 21 and 45 years of age and have no dependents under 18 years of age. To take the physical therapy course given by the WMSC, the applicant for the Regular Army must not have passed her twenty-eighth birthday.

A man or woman who plans to teach the techniques of physical therapy should be a graduate of an approved school of physical therapy and should have 3 years of general experience in the field of physical therapy, including a minimum of 1 year of specialized experience in the techniques or procedures to be taught, for example, muscle reeducation and electrotherapy.

Selection and choice.—Physical therapy work is hard, but it offers the reward of seeing a crippled child walk again, a member of the armed services again take his place in civilian life, or a civilian worker go back to his job. If you want to become a physical therapist, the American Physical Therapy Association has suggested that you test yourself by answering the following questions and if your answer is "yes" to all of them you should find a happy, remunerative future in physical therapy:

1. Do you like to work with your hands?
2. Do you like meeting all types of people?
3. Do you work well as part of a team?
4. Are you interested in the scientific reason for things?
5. Do hospitals challenge your curiosity?
6. Do you enjoy being of service to others?

A deciding factor in making a choice of the place of employment in the physical therapy field may hinge on the type of disability in which the individual is interested. The nonchronic cases such as new cases of poliomyelitis, or those with recent surgery, fractures, sprains, amputations, nerve injuries, and arthritis are found chiefly in hospitals. Physicians' offices, like the hospitals, deal primarily with new cases and post-surgery of the chronic ones. Classes in schools for crippled children have mostly children who are poliomyelitis or cerebral palsy victims. The physical therapists of the visiting nurse associations go into homes to care for house-bound patients. An important part of their work is instructing the mothers or other members of the family in ways of assisting with the treatments. Public health work may be done in homes or in centers. A great part of this work is in the field of supervision.

Obtaining employment.—The American Registry of Physical Therapists and the American Physical Therapy Association give placement guidance to registrants and members. Hospitals and other agencies desiring physical therapists may utilize those services. Although registration with the American Registry of Physical Therapists is not required by law, registration in it assists in the

securing of better positions as does membership in the American Physical Therapy Association. Medical journals publish lists of varied types of positions. The National Society for Crippled Children and Adults set up in 1946 the National Personnel Registry Employment Service. This service is available not only to affiliated units of the National Society but to other public and voluntary agencies working with the handicapped.

DEMAND

Conservative estimates for 1951 would put the employment of physical therapists in the United States at approximately 6,200 (of whom 85 percent are women) with a demand for approximately 15,000 by 1960. From scattered reports and from data obtained from interviews, estimates have been made to give an over-all picture of the number of physical therapists employed in the United States in 1951 as follows:

Table 2.—*Estimated Number of Physical Therapists Employed in the United States, by Type of Agency, 1951*

Type of agency	Total	
	Number	Percent
Total employed	6,200	100.0
Hospitals	5,200	83.8
Federal Government	950	15.3
State and voluntary	4,250	68.5
Rehabilitation or treatment centers	500	8.1
State crippled children's programs	246	4.0
Voluntary nursing agencies	80	1.3
Other State and local public agencies in the health and welfare field	44	.7
Agencies not elsewhere classified	130	2.1

In Hospitals

The largest number of physical therapists, an estimated 5,200 (83.8 percent of the total) are employed in hospitals. Almost two-fifths (2,277 of 5,863 or 38.8 percent) of the hospitals listed by the American Hospital Association in 1950 had physical therapy departments, as previously noted. The supply of physical therapists in these departments was not meeting the demand. In February 1952, 1,940 job vacancies were reported in hospitals. Over three-fifths (3,586 of 5,863 or 61.2 percent) of the hospitals listed by the American Hospital Association in 1950 had no physical therapy departments. As these hospitals add such departments, the probable need for physical therapists will increase greatly in the future.

The size of the staff of the physical therapy departments varies with the size of the hospital. A large general hospital with 3,500 beds

would have in the physical medicine department a director of physical medicine, two resident physicians, one chief physical therapist, ten staff physical therapists, two hydrotherapists, and other personnel consisting of maids, orderlies, attendants, and clerical help. The designated number of physical therapists is flexible so that in an emergency additional aid may be secured on short notice. A small general hospital would have about two or three qualified physical therapists and an aide. The Gallinger Municipal Hospital that has had a total physical medicine and rehabilitation program since January 1951 had a staff in March 1952 that consisted of six physical therapists (including four women), two occupational therapists, one vocational counselor, one physiatrist, and two part-time physicians. The physical therapy department of St. Elizabeths, a well-known nervous and mental hospital, employs two physical therapists. The case load is about 15 treatments a day per therapist. The physical therapy department, it has been reported, needs at least four physical therapists. Then the case load would be 10 or 12 a day per therapist.

In the Federal Government, the Veterans' Administration is probably the largest employer of physical therapists. As of February 1952, it employed 593 physical therapists including about 385 women in its 153 hospitals and 40 units in regional offices. The Veterans' Administration gradually is hiring more men. Also, 480 physical therapy aides were employed. Employment has increased from 102 physical therapists in March 1946. However, the need exists for 130 additional physical therapists. It has been estimated that more than 1,000 physical therapists will be needed when the Veterans' Administration completes its program.

The demand for physical therapists in all Federal hospitals is greater than the supply. The Department of the Army that employed approximately 230 women physical therapists in September 1951 had a requirement of approximately 450 at that time; in February 1952, it employed only 235 women physical therapists. The European Command employed five physical therapists in June 1949.

The United States Air Force had in August 1951 approximately 50 commissioned officers as physical therapists. A projected requirement for 1952 of 115 physical therapists was reported.

The United States Navy had been employing nurses to give physical therapy treatments, but as of June 1951, nurses were no longer trained and utilized in this way. Officers will be needed to replace them. In August 1951, 20 WAVES were physical therapists, 14 in the regular component and 6 in the Reserve component. The Navy has a small number of enlisted personnel in the hospital corps. Beginning July 1, 1952, the United States Navy will start procurement of 10 physical therapists for the permanent part of the Medical Service Corps.

The United States Public Health Service employed about 75 physical therapists in August 1951, including 55 women in its 23 hospitals and in 8 of its 15 out-patient clinics. Seventeen physical therapists including 11 women were in the Commissioned Corps of the Public Health Service in February 1952. The rest of the physical therapists were qualified from the civil service registry. The United States Public Health Service could use twice the number of physical therapists that it has, but funds are lacking. The number of physical therapists on the staff of each of its hospitals ranges from one to eleven.

In Rehabilitation or Treatment Centers

The scope and pattern of services offered in rehabilitation centers varies widely. Some centers provide services for a specific limited group while others provide services for those with a wide range of disabilities. Some are a part of a general or specialized hospital providing services both to in-patients and out-patients; others are independent, community agencies. Regardless of the pattern of service offered, each of these centers has one factor in common—physical therapy is the "core" of the program. It has been estimated that there are a minimum of 500 (8.1 percent of the total) physical therapists employed in such programs.

The Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center is patterned after the recommendations of the Baruch Committee on Physical Medicine and Rehabilitation and offers a complete program of physical medicine and rehabilitation, psycho-social adjustment and vocational evaluation and guidance. It has facilities for 86 in-patients and a daily case load of 150 out-patients in its new, specially designed building. Its professional personnel consists of physiatrists, internists, neurologists, psychiatrists, pediatricians, consultants in the other medical specialties, physical therapists, occupational therapists, speech therapists, social workers, psychiatric social workers, clinical psychologists, guidance specialists, recreation specialists, prosthetic specialists, and nurses.

Other rehabilitation or treatment centers employ physical therapists but no employment figures are available. Among them are the Rehabilitation Institute of Kansas City, the May T. Morrison Rehabilitation Center of San Francisco, the Woodrow Wilson Rehabilitation Center in Fishersville, Va., and the Washington Rehabilitation Center in Seattle. The Cleveland Rehabilitation Center has been operating for over 40 years. It was originally set up to care for crippled children but has been assuming more and more responsibilities for care of adult disabled. The Rhode Island Curative Center was founded in 1943 and opened in 1945 as a division of the State

Department of Labor to make facilities for rehabilitation available to men and women coming under the provisions of the Workmen's Compensation Act. It has one physical therapist. The rehabilitation unit at Goldwater Memorial Hospital on Welfare Island has been in operation since July 1949. In its first year 50 of the 150 persons admitted were discharged and 9 were working. Goldwater was the first hospital to start a program for giving the physically handicapped persons "back to the community." The Alfred I. du Pont Institute for the care of crippled children was opened in 1940 by the Nemours Foundation. The 85-bed institute that operates as a children's hospital offers hospitalization and specialized medical care to children of parents or guardians who would be unable to pay for private care. The Georgia Warm Springs Foundation was founded in 1927 for the care of poliomyelitis cases.

The States are encouraged through the reimbursement arrangement provided by the United States Office of Vocational Rehabilitation to further the work of rehabilitation, thereby increasing the demand for physical therapists' services. For the most part, the State agencies employ no physical therapists. (See Setting, p. 1.) The Woodrow Wilson Rehabilitation Center employs six physical therapists. From 1947 to 1949, a period of 2½ years, the center served about 600 disabled persons. A center is getting under way in Oklahoma, and the Federal Office of Vocational Rehabilitation maintains some relationship with a center in Tuskegee. It is probably safe to speculate that if there were more physical therapists available, more needy persons could be treated.

Centers and programs of the Easter Seal Society affiliates of the National Society for Crippled Children and Adults in October 1951 employed 225 physical therapists (approximately 90 to 95 percent of whom were women) in the 48 States, Alaska, Hawaii, and Puerto Rico. About 65 to 70 percent of these physical therapists were working with cerebral palsied children; the others were working in programs for other types of handicapped persons. The president of the Society reported in February 1949 more than 150 cooperating cerebral palsy parent groups under the sponsorships of the Society's State and local units. By the end of the year more than 200 major centers and programs were providing specialized services. This program has been expanding rapidly since only 16 centers were operating in 1946. (See Outlook section of this bulletin.) The State societies have not been able to open treatment centers to meet the needs of treatment of handicapped persons, because properly qualified professional personnel is not available. Other agencies spend a great deal of money on centers and programs for rehabilitation, but they do not sponsor the treatment center under their name.

The number of physical therapists in a given treatment center may

vary from 1 to 20. For example, the Hartford County Rehabilitation Workshop opened in November 1948 with eight patients and one occupational therapist and one physical therapist. In 1950 the staff was increased to 4, and the weekly patient load was 65 with a waiting list. The Curative Workshop of Milwaukee established in 1919, has grown to the point where it serves 2,400 patients a year. The services available in the clinic required the employment in 1951 of 1 medical social worker, and 2 other case workers, 12 physical therapists, 7 occupational therapists, and 2 speech therapists. The executive director of the workshop has reported that the shortage of physical therapists has definitely hampered their work.

In State Crippled Children's Programs

State crippled children's programs and other State and local public agencies in the health and welfare field in 1951 employed an estimated 370 (6.0 percent of the total) physical therapists. Physical therapy services to crippled children have been expanding especially since the passage of the Social Security Act which has made available increased funds for such services. Some State crippled children's agencies have comparatively complete staffs. Others may have relatively few physical therapists and other workers. States that have large staffs of physical therapists frequently assign one physical therapist to a district. A State physical therapist, whether assigned to a district or area, may develop physical therapy treatment centers. These centers may be located in a hospital, school, local health department, convalescent home, or club building. The number of clinics varies among the States. One State in 1946 had 10 regular clinics each month while another had 35 centers with clinics held once or twice a year.

State crippled children's programs, through the use of State and grant-in-aid funds from the Children's Bureau, in July 1951 employed 246 physical therapists in field service visiting the homes and in treatment centers. In 1949, 34 of the 213 physical therapists in 42 State and territorial crippled children's agencies were employed in California, at that time the State with the most physical therapists on its staff. The entire program in this State was a direct treatment service in day schools and two residence schools for the cerebral palsied.

In Voluntary Nursing Agencies

The expansion of services for patients with long-term illnesses and for the physically handicapped has increased the demand in voluntary nursing agencies for personnel prepared in physical therapy. Some overlapping is noted here between the public and voluntary programs. Out of 284 voluntary agencies included in a salary study made by the National Organization for Public Health Nursing as of April 1, 1951, 26, or 9 percent, of the agencies were found to have physical therapists on their staffs. These therapists, totaling 80 in all, were employed in

Figure 6.—Physical therapist assists patient in crippled children's hospital with posture exercises, using a mirror for self-evaluation.

several capacities. Thirteen were specialized supervisors, 19 were nurse physical therapists, 33 were public health nurse physical therapists, and 15 were non-nurse physical therapists. The Visiting Nurse Association in Boston as early as 1948 had a physical therapy staff consisting of orthopedic supervisor (a woman) and six staff physical therapists, three of whom were public health nurses and three of whom had physical education background. Waterbury, Conn., Elmira, N. Y., and Plainfield, N. J., also have sizable physical therapy staffs in their visiting nurse associations.

With the increased recognition of the value of physical therapy, physical therapists are being employed in other State and local agencies in the public health field.

In Other Agencies

The remaining physical therapists, an estimated 130 (2.1 percent of the total), for the most part are teaching in schools of physical therapy, working with children in public schools, or working in physicians' offices.

An estimated 100 physical therapists are teaching in schools of physical therapy. A small number of physical therapists are working in physicians' offices. In January 1952 only 170 physicians had qualified as diplomates of the American Board of Physical Medicine and Rehabilitation (established in 1947). Practically all of them were in active practice. About 20 physicians have qualified for board diplomate each year. Undoubtedly it will be a long time before the demand for certified physiatrists will be met.

Physical Therapists in Research and Administration

A few physical therapists are participating in research projects under medical supervision. Some research and educational assistants are on the staff of the Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, New York City. Under the Baruch Committee that functioned from 1943 to 1951, research in physical therapy was stimulated considerably at the Columbia University, College of Physicians and Surgeons; New York University, College of Medicine; and the Medical College of Virginia.

Physical therapists are employed as consultants on the headquarters staff of national organizations such as the National Society for Crippled Children and Adults that employs a full-time physical therapist in the national headquarters office and a part-time physical therapist on the New York office staff, and the National Foundation for Infantile Paralysis.

At the consultant level the official State crippled children's program employs one physical therapist or more in each State. The consultants are also members of the professional team. They are jointly responsible with their professional associates for planning services which will provide adequate care for the crippled children of the State. Many State chapters of the National Society for Crippled Children and Adults have positions for physical therapists as coordinators. The activities include planning for the establishment of cerebral palsy centers, as well as coordination of cerebral palsy work on a State-wide basis.

The United States Children's Bureau has a small staff of medical, nursing, medical social work, nutrition, physical therapy, and hospital administration consultants as well as some consultants offering services on administrative methods. These consultants study and evaluate the various services throughout the Nation and advise with the State authorities administering the programs. In 1951 there was one woman physical therapy consultant in the Division of Health Services of the Bureau.

In 1951, 34 supervisors or consultants in physical therapy were employed in public health nursing services according to a salary survey of the National Organization for Public Health Nursing. Thirteen of these physical therapists were working in voluntary agencies; the others were working in public agencies or in a combined public and voluntary agency.

Women administrators have jobs in the physical therapy field. For example, a woman is medical director of the school of physical therapy at the University of California Medical School, San Francisco, Calif. All the other schools of physical therapy are headed by men. Women physical therapists were technical directors of physical therapy in 28 schools in 1950. The headquarters staff of the physical therapy services of the Veterans' Administration in Washington consists of two women and one man. There is no administrative staff outside Washington. Two women physical therapists are in the office of the Surgeon General, Department of the Army, Washington, D. C. The chief of the Physical Therapy Branch is a man, a lieutenant colonel, who is responsible for all Army physical therapy activities. Physical therapists may also be assigned to procurement duties in the Army Area Headquarters. The four headquarters outside of Washington are under the charge of one physical therapist, one occupational therapist, and two dietitians. They operate only for recruitment purposes. The United States Air Force has one physical therapist assigned to Headquarters, United States Air Force, Office of the Surgeon General. The Physical Medicine and Rehabilitation Service of the United States Public Health Service employs one senior physical therapist, a woman, on its headquarters staff. Five physical therapists are employed on the headquarters staff of the APTA.

Geographic Variations in Employment

About three-fifths (57.8 percent) of the 4,955 physical therapists registered with the American Registry of Physical Therapists in 1951–52 were employed or were living in the Northeastern and North Central States. (See table 3.) These regions had about the same proportion of physical therapists as they did of the estimated 1950

population of the United States. Of the remaining registered physical therapists, the West had almost half again as many as the South. The West also was more adequately supplied than the South in relation to its proportion of the population.

Wide variations were noted in the number of registered physical therapists per 100,000 population in the individual States. Arizona, California, Colorado, Connecticut, Massachusetts, Minnesota, New Hampshire, and Washington were the best supplied with physical therapists, each having 5 or more per 100,000 population, as reported in 1950. Alabama and Mississippi were the poorest supplied, each having less than 1 physical therapist per 100,000 population. The number of schools of physical therapy in these States might have affected the distribution of physical therapists. California had 5 schools; Massachusetts, 3; Colorado, 1; and Minnesota, 2. Altogether, these 4 States had 11 schools within their borders, almost half of the 28 schools of physical therapy in the whole United States. The other States previously mentioned (Alabama, Arizona, Connecticut, and Mississippi) had no schools of physical therapy. Thirteen schools were located in 9 of the 25 States with 2 and under 5 physical therapists per 100,000 population, and the remaining 4 schools were located in 2 of the 13 States with 1 and under 2 per 100,000 population.

Table 3.—*Geographic Distribution of Physical Therapists in 1951–52 Compared With That of the General Population in 1950, United States*

Region[1]	Physical therapists, 1951–52						Population of United States, 1950 [2]
	Total		Men		Women		
	Number	Percent	Number	Percent	Number	Percent	Percent
United States	4,955	100.0	505	100.0	4,450	100.0	100.0
Northeastern	1,520	30.7	183	36.2	1,337	30.0	26.2
North Central	1,342	27.1	107	21.2	1,235	27.8	29.5
South	864	17.4	84	16.6	780	17.5	31.3
West	1,229	24.8	131	25.9	1,098	24.7	13.0

[1] Regions: Northeastern—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; North Central—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin; South—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; West—Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

[2] U. S. Department of Commerce, Bureau of the Census, Population of continental United States by regions, divisions, and States, Apr. 1, 1950. Series PC-9, No. 1, Washington, D. C.

Source: American Registry of Physical Therapists. 1951–52 Directory.

SUPPLY

The supply of physical therapists can only be estimated. In February 1952, Maryland, New York, Pennsylvania, and New Mexico were the only States requiring special licenses for practice as a physical therapist. Other States providing legal registration for physical

therapists are: Connecticut, Florida, Georgia, Illinois, Massachusetts, Minnesota, New Hampshire, North Carolina, Pennsylvania, and Washington. Similar legislation is under active consideration in Arizona, California, District of Columbia, Kentucky, South Carolina, and Tennessee. A trend toward licensing of all physical therapists exists, and in all probability most of the States will adopt some licensing procedure within the next few years. Until the several States provide for such licensing, the standards set up by the American Registry of Physical Therapists and the American Physical Therapy Association furnish the chief controlling influence on supply of physical therapists. (See appendix, p. 44, for registration and membership requirements.) According to these standards, the source of supply tends to be limited to graduation from an approved school of physical therapy. In addition, the Registry requires the passing of an examination.

In 1951 approximately 6,200 physical therapists were employed in the United States according to a report of the American Physical Therapy Association. Also, an additional estimated 700 physical therapists (who were either registrants or members) were inactive in this profession. According to recent estimates for the country as a whole at least 85 percent of all physical therapists are women. Among the registered physical therapists the percentage of women is somewhat higher. The percentage of men physical therapists is constantly increasing as evidenced from the proportion of men who are being graduated from the schools of physical therapy.

Reports of shortages of physical therapists indicate that the supply falls far short of meeting the demand. These shortages were pronounced even before the present mobilization program was begun. Shortages exist in military and in veterans' hospitals and in public and voluntary hospitals and other institutions such as workshops. Reports in "Modern Hospital" indicate a shortage of therapists for many years to come. The shortage of physical therapists, occupational therapists and speech therapists, has become even more acute since the modern care of poliomyelitis has been given over largely to physical medicine.

The 28 existing schools are maintaining capacity enrollments of 700 students for 1951–52. The actual enrollment for January to October 1951 for which a sex breakdown was available was 529, including 339 women (almost two-thirds of total enrolled), according to figures reported by the American Physical Therapy Association. An enrollment during the same time of 582 was possible. The number graduated from January 1951 to December 1951 was 432, including 241 women. In 1951 the number of schools offering curricula for physical therapists approved by the Council on Medical Education and Hospitals of the American Medical Association had decreased by one since 1949. This Council, cooperating with the Council on

Physical Medicine and Rehabilitation, was anticipating an increase in this number as a result of its 1950 communication to medical schools that might be considering the establishment of training programs in physical therapy. The need for replacements among the estimated 6,200 persons engaged in physical therapy would be at least 400 a year if an attrition rate of 6.5 percent (slightly higher than that used for nurses) were applied. With the addition of several schools of physical therapy, the supply might be adequate not only to take care of replacements for a few years, but also to add a few physical therapists to the increasing demands upon the field. However, it will probably be a long time before the schools will graduate enough qualified physical therapists to fill the total need due to increased public interest in rehabilitation and services to the handicapped and the expansion of Federal agencies in the field of physical therapy in this defense period.

TRAINING

Training for the profession of physical therapy in the United States is obtained usually through attendance at one of the schools approved by the Council of Medical Education and Hospitals of the American Medical Association for training physical therapists. In September 1951 there were 27 civilian schools and 1 military school located in 15 States. (See list of schools in appendix.) In some schools only the certificate course ranging from 12 to 16 months is offered. In some,

Figure 7.—Crutch-walking class for physical-therapy students who must become adept in order to instruct patients properly.

the course is 2 years in length and is open to persons who have completed 2 years of college; in other schools a student may enter as a freshman for a 4-year degree course or transfer to a degree course in any year up to the senior year.

Candidates for admission to the 1-year course should satisfy one of the following requirements: (1) Graduation from an accredited school of nursing; (2) graduation from an accredited school of physical education; (3) three years of approved college training including satisfactory courses in biological and physical sciences. Courses in general physics and chemistry, as well as biology, are highly recommended for all who seek to enter training in physical therapy. A high-school graduate may select a college or university that offers a program leading to a degree in physical therapy, may attend an accredited college, university, or junior college for two years and transfer to a 2-year physical therapy course, or may attend an accredited college or university for 3 years of the study leading to a baccalaureate degree with a major in science or physical education and enter a 1-year course in physical therapy.

The student receives instruction in the school for physical therapy training for a minimum of 12 months, spending two-thirds of the time attending classroom lectures and doing laboratory work and the remaining one-third in clinical practice. Instruction in specialized subjects includes the applied sciences: Anatomy, pathology, physiology, and physics; procedures, such as electrotherapy, radiation therapy, hydrotherapy, massage, and therapeutic exercise; physical therapy as applied to medicine, neurology, orthopedics and surgery; ethics and administration and such electives as bandaging and first aid. After the classroom instruction has been completed, the student is assigned to a hospital or clinic for practical experience under supervision. For example, clinical training for students from 17 schools is conducted in at least 22 Veterans' Administration hospitals and 4 out-patient clinics.

Graduation from an approved school is a prerequisite for admission to the American Physical Therapy Association or to registration in the American Registry of Physical Therapists. Today, without such recognition, no physical therapist can expect to occupy a responsible executive position or to attain distinction in a teaching career.

The Medical Department of the Army conducts a 12-month physical therapy course consisting of two classes a year that is available to qualified young women between the ages of 21 and 28 who have a bachelor's degree, including satisfactory courses in the biological and physical sciences and in psychology. For the first half of the course the student is assigned to the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Tex. During the last half she is assigned to a teaching Army general hospital,

where the emphasis is on supervised clinical practice. Those students selected for the clinical practice program are commissioned as second lieutenants in the Women's Medical Specialist Corps Reserve and agree to serve for two years, including the period of training. Upon completion of their training, they are assigned as physical therapists in Army general hospitals.

The Army Medical Service also conducts a physical therapy clinical practice program for qualified young women between the ages of 21 and 28 who are enrolled in 1 of the 27 approved civilian schools and have completed their classroom work of 9, 11, or 12 months. These young women take 3 months of clinical practice in an Army hospital.

The United States Air Force can assign a limited number of students to the 12-month physical therapy course conducted by the Army at the Medical Field Service School, Fort Sam Houston, Tex., but does not participate in the clinical practice program. Applicants for either program must at the time of application agree to volunteer to serve on extended active duty for 2 years (which includes the period of training). The Medical Service of the United States Air Force has a training program whereby qualified young women may receive training in civilian approved schools of physical therapy. Following acceptance for training by the civilian school, students are commissioned second lieutenants in the USAF and are ordered to duty at the school. During the period of training they receive the pay and allowances of a second lieutenant. At the completion of the training period, the officer is assigned duty at a USAF hospital.

A small number of enlisted women are members of the hospital corps of the Medical Department of the Navy. They must volunteer and must have a combined score of 100 on the general classification test and the arithmetic test. They must be interviewed by the Navy physician and be temperamentally suited for duty. An 18 months' obligated service is assumed upon entering. When these requirements are fulfilled, the volunteers are sent to a basic hospital corps training school for 20 weeks. Upon completion of the course at this school, graduates are transferred to a naval hospital for 6 months of ward duty. Then, they are eligible to apply for technical training in physical or occupational therapy.

Specialization

Training for treating patients with various types of crippling handicaps is offered in some schools and special centers. Various opportunities are offered the graduate to obtain further training in schools of physical therapy and special centers. The Children's Rehabilitation Institute at Cockeysville, Md., and the Coordinating Council for Cerebral Palsy, New York City, are two agencies that

are training professional personnel, including physical therapists, who treat cerebral palsied children. Also, cerebral palsy training programs are conducted at the Lenox Hill Hospital in New York City, Michael Reese Hospital, the North Carolina Cerebral Palsy Hospital, and Columbia University.

In-service Training

The in-service training programs are set up in large physical therapy departments for the recent graduate of a school of physical therapy, the experienced physical therapist who has been in the field of specialization, and the "old-timer" who has had limited training. In large physical therapy departments, such as Veterans' Administration hospitals, the chief physical therapist is responsible for the proper conduct of the in-service training program.

The main aim of this program is the education, training, and retraining of physical therapists in order to better their work performance, to create an intelligent understanding of the principles involved in the application of therapy, and the development of a professional sense of responsibility and medical ethics. All new physical therapists are given an orientation course consisting of a tour of the clinics of the physical therapy department and a tour of the other sections of the physical medicine service and the hospital as a whole.

Some in-service training for physical therapists in official State crippled children's programs is available through the State agencies.

Scholarships

In the physical therapy field, the National Foundation for Infantile Paralysis is the principal source of scholarship funds. The $1,267,600 program that the Foundation established in 1945 allocated $1,107,000 for scholarships to train new physical therapists, $82,000 for fellowships to provide additional teachers of physical therapy, and $78,600 for general development in the field of physical therapy. By 1949, the training of over 1,100 physical therapists had been financed by Foundation funds.

For physical therapy training.—The National Foundation for Infantile Paralysis offers scholarships to men and women who need financial assistance to complete their training in physical therapy. These scholarships are good only in schools approved by the Council on Medical Education and Hospitals of the American Medical Association. Applicants must not have passed their thirty-sixth birthday and must be citizens of the United States or those who have already applied for citizenship. The scholarships cover only the approved physical therapy courses or the senior year of 4-year degree courses. They do not cover any of the prerequisite work, or work toward a degree after a physical therapy certificate has been obtained.

A scholarship student must agree to accept employment under the supervision of a qualified physical therapist in an institution in the United States or its territories for a year immediately following completion of training. There is no obligation to work exclusively with poliomyelitis patients; neither is the National Foundation responsible for placing a student in a position after graduation.

For graduate training.—The National Foundation for Infantile Paralysis announced for 1951 scholarships for short-term courses in the care of poliomyelitis patients. These scholarships were available to qualified graduate physical therapists who needed financial assistance to attend these courses. They were available to citizens of the United States who planned to work in the United States after completing the training. A minimum of 2 years of clinical experience was required as a prerequisite; and graduate physical therapists must have senior registration by the American Registry of Physical Therapists and/or membership in the American Physical Therapy Association.

Long-term fellowships are available through the National Foundation for Infantile Paralysis, Inc., to physical therapists who wish to prepare for teaching or supervisory positions in approved schools of physical therapy. The applicant must (1) be a member of the Ameri-

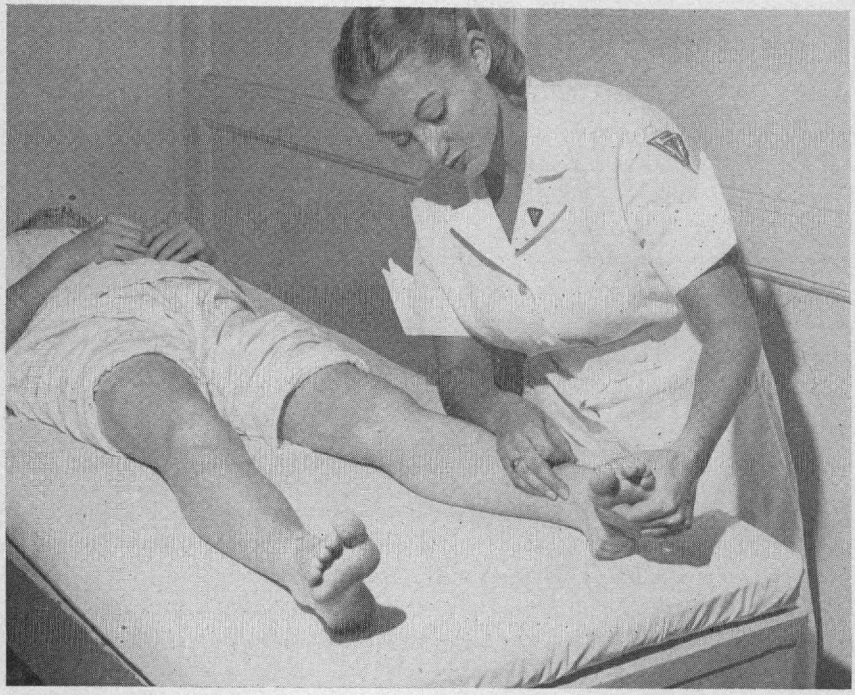

Figure 8.—Physical therapist doing muscle reeducation with a poliomyelitis patient in a crippled children's hospital.

can Physical Therapy Association and/or the American Registry of Physical Therapists; (2) have a baccalaureate degree; (3) have a minimum of 3 years of satisfactory general experience as a physical therapist; and (4) have United States citizenship. All recipients must agree to accept employment on the instructional staff of a school of physical therapy, either in the academic or clinical aspects of its program. This fellowship may cover tuition, an allowance for books, and a monthly stipend for maintenance.

Short-term fellowships are available to physical therapy instructors now employed in the approved schools. The applicant must be a member of the American Physical Therapy Association and/or the American Registry of Physical Therapists, and must be a member of the instructional staff of an approved school of physical therapy. Written approval of the proposed program must be obtained from the director of the school where the applicant is employed and sent to the National Foundation before the application can be submitted to the awards committee. These fellowships include tuition, traveling expenses, books, and a monthly stipend for maintenance.

The national scholarship program of the National Society for Crippled Children and Adults was set up to assist professional workers in acquiring specialized training for work with the cerebral palsied and is financed by Alpha Chi Omega, women's international sorority. The program began in the spring of 1948, and, by the middle of 1950, scholarships had been granted to 62 well-qualified applicants; some were physical, occupational, and speech therapists; others were orthopedists, pediatricians, and pathologists.

The Grand Lodge, Benevolent and Protective Order of Elks, established through its Elks National Foundation special grant awards in the field of cerebral palsy. These grants are available to qualified physical therapists for special advanced courses.

Scholarships frequently are available through the State crippled children's agencies for advanced study. State agencies may use Federal grants-in-aid funds from the Children's Bureau to provide graduate training for personnel participating in the care of crippled children.

Volunteers

Thirty-eight voluntary organizations representing the entire medical program are helping the Veterans' Administration to screen persons who can be effectively used in the Administration's service centers. These persons give volunteer help in the Veterans' Administration's hospital programs. The Veterans' Administration gives the original instruction to the selected persons who are trained for nonpaid volunteer jobs as companion escorts and assistants to physical therapists in the treatment of patients as well as for clerical jobs. After the

basic instruction, the volunteers may be given on-the-job training as assistants in physical therapy and in turn may go voluntarily to rehabilitation centers.

EARNINGS, HOURS, AND ADVANCEMENT

Earnings

A "reasonable minimum beginning salary for graduates of approved schools" before World War II was $1,500 a year. In 1951, the physical therapist under a Federal Civil Service appointment received a beginning salary of $3,410, with annual increases and opportunities for promotion to higher grades. A few persons reach a maximum of $6,940, depending upon experience and responsibilities. In the Veterans' Administration hospitals, quarters and subsistence are usually available at a relatively low fee.

The beginning salary for a junior assistant physical therapist without dependents in the commissioned corps of the United States Public Health Service in 1951 was $3,789 a year. She could advance to full-grade physical therapist with a salary of $6,111 a year. Periodic increases in the basic pay are given based upon years of active service.

As a second lieutenant in the Army or Air Force, a physical therapist in the Women's Medical Specialist Corps in 1951 received base pay of $2,565 plus $504 yearly subsistence. She could advance to the rank of major. A major with 10 years' service received annual base pay of $4,959 plus $504 yearly subsistence. If government quarters were not available, she would receive a quarters allowance commensurate with her rank. Each officer receives an initial cash allowance of $250 for uniforms.

In State crippled children's agencies in 1951, salaries of physical therapists varied with the responsibility of the position. The range in salary for staff physical therapists was $2,700 to $3,200; for physical therapy supervisor, $3,200 to $3,700; and for physical therapy consultant, $3,600 to $5,000.

In 44 public and voluntary agencies giving public health nursing services in April 1951, the median annual salary of 117 physical therapists was $3,379, according to the 1951 salary survey of the National Organization for Public Health Nursing. These salaries ranged from $2,280 to $5,774 and included salaries of supervisors and consultants in physical therapy, nurse physical therapists, public health nurse-physical therapists, and other physical therapists. Supervisors' and consultants' salaries were the highest and ranged from $2,662 to $5,039.

Salaries for physical therapists in voluntary agencies in 1950 varied with the type of agency. In rehabilitation centers, staff positions

carried salaries ranging from $2,800 to $3,600; supervisory positions, from $3,600 to $4,500. The practice of furnishing lunches and laundering uniforms varied with the center.

Salaries for the physical therapist working on special projects, such as for cerebral palsy patients, vary considerably depending upon the geographical location, the agency policies, and the responsibilities of the therapist. In voluntary agencies and hospitals in 1950 the beginning salaries for experienced persons averaged from $3,000 to $4,000. For directors of units, supervisors, and consultants, the salaries might range from $4,000 to $6,000. Some agencies have established policies on hospitalization, and health and accident insurance. For positions which require travel there is remuneration either on per diem or actual expense reimbursement.

Physical therapists receive salaries that compared favorably with those received by persons in other professions requiring somewhat similar qualifications of education and experience. In 1950, the average annual salary of all social workers in the Bureau of Labor Statistics survey was $2,960; of women social workers, $2,800. Teachers in public schools averaged $2,980 in 1949–50, according to an estimate of the National Education Association.

Hours and Other Working Conditions

The standard workweek for the physical therapist varied from 40 to 44 hours. The typical working day extends from 8:30 or 9 a. m. to 4 or 5 p. m., with perhaps a half day on Saturday. In most civilian work, the physical therapist may expect a vacation of 2 to 4 weeks. Physical therapists who are under civil service get 13, 20, or 26 days annual leave, depending upon years of service. Officers in the Public Health Service get 30 days' annual leave, as do Army and Air Force officers.

Advancement

Advancement opportunities for physical therapists are fairly good. Recent graduates of approved schools of physical therapy obtain beginning positions under Federal Civil Service at the GS–5 rating in the Veterans' Administration hospitals, in the United States Public Health Service hospitals, in the District of Columbia crippled children's program of the District Health Department, and in St. Elizabeths Hospital in the District of Columbia. In the Veterans' Administration, after 1 year of professional experience in administering physical therapy under medical supervision, physical therapists may advance to a supervisory position at the GS–7 rating. After 2½ years of experience of the type required for GS–7, 6 months of which must have included supervising or assisting in the supervi-

sion of a physical therapy section or unit or supervising physical therapists, the physical therapist supervisor may advance to grade GS–9. Persons appointed to the higher grades, GS–7 and GS–9, supervise and instruct therapists and aides at the lower grade levels. A few persons advance to GS–11.

Physical therapists in Federal agencies other than the Veterans' Administration may advance from the beginning position at grade GS–5 to GS–7 after at least 1 year of professional experience as a physical therapist under medical supervision. (See U. S. Civil Service Commission Announcement No. 169 (Appendix, p. 44).) Persons may be appointed to grade GS–7 provided they meet the training and experience requirements. All appointees in the Public Health Service begin at grade GS–5; it is possible to advance as high as grade GS–11.

In the State crippled children's program, physical therapists may advance from staff physical therapists to physical therapy supervisors and sometimes to physical therapy consultants under State civil service or merit system.

Physical therapists in the commissioned corps in the United States Public Health Service begin as junior assistant physical therapists. They advance to assistant physical therapists when they have completed 7 years of advanced education (after high school) and professional experience. They advance from assistant physical therapists to senior assistant physical therapists after 3 years in the assistant grade, and to full-grade physical therapists after 7 years in the senior assistant grade. A full-grade physical therapist has a rank equivalent to major in the Army. Some physical therapists then advance to senior physical therapists after 7 years in the full grade.

Physical therapists in the Army begin as second lieutenants, and it takes them 18 months to become first lieutenants. The next promotion is to captain. Officers are eligible for selection to grade of major after 14 years of service. One physical therapist is selected as chief of the physical therapy section, Women's Medical Specialist Corps, and serves in the grade of lieutenant colonel. Also one may be eligible for selection as chief of the WMSC in the grade of colonel. The rank and advancement of Air Force officers is the same as for the Army. Grade of appointment in the USAF Reserve is determined by the applicant's education and experience backgrounds and may range from the grade of second lieutenant to major.

In hospitals, the line of advancement for physical therapists is usually from physical therapist to senior or chief physical therapist to administrative supervisor. The latter two positions are often combined. Promotional opportunities are generally limited because of the financial situation of most hospitals and the low rate of turn-over

Figure 9.—Army physical therapist instructing an amputee in the use of prosthetic leg.

among supervisors. In small hospitals located in small communities promotion is limited because the amount of work requires only a limited staff.

ORGANIZATIONS

The American Physical Therapy Association is the professional organization of qualified physical therapists in the United States. When the Association was founded in 1921 by a group of World War I reconstruction aides, it was known as the American Women's Physical Therapeutic Association; by 1922 a new name, the American Physiotherapy Association, was selected for the Association; and in 1949 the organization's name was changed to its current one. The

Association began with 245 members. On September 1, 1951, 4,449 persons were members, of whom about 3,750 or 84 percent were women.

Since its inception, the Association has been concerned with maintaining high educational and professional standards for physical therapists; broadening the scope of training to meet the needs of the expanding field of physical medicine; developing and increasing advisory and consultant services; recruitment and guidance of students; placement guidance for members; distribution of informational and educational materials; promotion of closer coordination and understanding of the services of allied organizations.

Active membership is now limited to graduates of physical therapy schools and courses approved by the Council on Medical Education and Hospitals of the American Medical Association. Fifty-seven chapters of the Association throughout the country and in the Territory of Hawaii carry out the policies of the national organization at the local level. These policies are established by an executive committee of nine members and the House of Delegates. An advisory council of five physicians, including a hospital administrator and an educator, gives consultant service on all medical and professional policies.

The Association issues a monthly professional journal, *The Physical Therapy Review*. It holds meetings and a scientific conference each year.

PHYSICAL THERAPY BEFORE 1950

Physical therapy is as old as medicine. Hippocrates, a famous physician of the fifth century B. C., prescribed sun treatment and baths and exercise and massage. In modern times physical medicine, including the use of physical therapy, was making notable strides in England as early as the eighteenth century when the British surgeon and physiologist, John Hunter, was laying the first principles of muscle reeducation. Michael Faraday in 1831 opened the door not only to development of electric power and electromagnetic devices, but gave physical medicine a most important instrument for the development of electrophysiology and for the classic method of electrodiagnosis. Pathfinding contributions also have been made in the fields of electrotherapy, scientific use of massage and exercise, manipulation, graduated muscle exercise, applied physiology of radiant energy, modern balneotherapy and rheumatology.

In the United States, progress in the use of physical therapy was negligible up to the time of World War I. There were no physical therapy departments in hospitals and medical schools where the different physical methods could be correlated with each other and be a part of a general therapeutic regime, and where clinical and laboratory research could be conducted. But during the First World War

physical therapy experienced a healthy rebirth in Army hospitals in which broadly conceived physical therapy departments were installed in order to benefit the injured and disabled. A new corps of workers known as physical therapy aides appeared in Army hospitals directed by Dr. Frank P. Granger, Office of the Surgeon General. These women were civilian employees who were subject to Army regulations. The work of physical therapy aides after the war was continued in veterans' hospitals. During World War I there were slightly less than 800 physical therapy aides in service, almost 300 of whom were overseas. These women were throughly trained in physical education and supplemented that knowledge in special courses in massage and muscle reeducation.

At the outbreak of World War I there were no schools of physical therapy nor even any short courses. The first physical therapy course was organized during World War I at Walter Reed General Hospital with Miss McMillan and Miss Lehne the first buck privates to be sworn into the reconstruction department. By 1946, 14 institutions had established courses to meet the requirements of the Surgeon General's Office. The Army continued to graduate civilian physical therapy aides yearly between World War I and World War II. The civilian field of physical therapy profited after World War I by the physical therapy experience of the Army and the Navy that had demonstrated the value of systematic physical therapy and convalescent training to reduce disability and restore working capacity.

The rehabilitation movement gained impetus after World War I when the American Red Cross set up a program for training disabled veterans to reenter the competitive labor market. However, only a limited amount of the service was available to civilians. Projects similar to the Red Cross programs were provided for disabled civilians chiefly in large industrial centers. New Jersey was the first State to feel the need for this kind of service, and in 1919 five rehabilitation clinics or centers were established. Their work not only benefited a large number of physically handicapped persons but also demonstrated the value of the service so ably that physical therapy departments were established in several hospitals. Because of the developing interest in increasing rehabilitation opportunities for the disabled, other pioneer institutions were established such as the Institute for the Crippled and Disabled in New York City, the Curative Workshop of Milwaukee, and the Cleveland Rehabilitation Clinic.

Legal action was taken also that tended to stimulate rehabilitation of the handicapped. The Rehabilitation Act of 1920 provided for vocational rehabilitation to persons disabled in industry or otherwise and their return to civilian employment. By 1942 the annual grant under this act amounted to 2½ million dollars. The movement failed

to become an accepted part of medicine at that time, because it was restricted largely to guidance, trade training, and the purely vocational aspects of rehabilitation. Few provisions were made for physical restoration or reeducation of the physical disabilities of trainees.

The use of physical therapy in the care of crippled children had been initiated by Vermont in 1914 for poliomyelitis patients, but Ohio in 1919 was the first State to establish such services for all types of crippled children. A Nation-wide program was made possible after the passage of the Social Security Act in 1935. Through the provisions of this act great impetus was given to treatment programs for handicapped children thoughout the country.

Increased interest was taken in the training of physical therapists after the American Medical Association, upon request from the APTA, in 1934 assumed responsibility through its Council on Medical Education and Hospitals for the establishment of standards, ratings, and inspections of schools for physical therapy. In 1936, 13 schools were on the approved list, and 3 additional schools were approved before World War II began.

Number and Distribution of Physical Therapists Before World War II

The American Registry of Physical Therapists estimated the prewar number of physical therapists at 3,100, of whom about half were qualified. Fewer than 50 of these qualified persons were men. Some 2,500 of these physical therapists worked full time and 600 part time in the physical therapy departments of approved hospitals. Some were employed by orthopedic surgeons or in public health or social service agencies serving crippled children, injured workers, and others who needed physical therapy treatments. Those physical therapists employed in hospitals usually had access to a wider variety of equipment and tended to be less specialized than those working with a particular physician or agency.

Before World War II, approximately 150 women a year were graduated from approved schools for training physical therapists. Since the occupation was a young one, withdrawals because of death or retirement were few, probably less than 1 percent a year; withdrawals for marriage were greater. The net annual increase in the number employed in the occupation before the war was approximately 125 to 130 persons.

Wartime Changes

Even though physical therapy had its rebirth during World War I, the Second World War with its many wounded needing treatment by physical agents as well as by surgery and medicine created an urgent need for trained physical therapists. The war suddenly increased the demand for physical therapists in military installations and

created a shortage of services available to civilians. The Subcommittee on Physical Therapy of the National Research Council in 1942 estimated the immediate demand for additional personnel in this field at 1,154, including 778 for the Army Medical Corps, 292 for civilian hospitals, 70 for Veterans' Administration hospitals, and 14 for the United States Public Health Service. Using these figures and estimating additional wartime needs in these and civilian hospitals and agencies, Dr. John S. Coulter and Howard A. Carter concluded that 6,076 physical therapists would be needed during the war. They pointed out, however, that this need was based upon a medical rather than an economic concept and did not imply that the need necessarily would become an effective demand through the financing of these positions.

Later, these estimates appeared to be conservative. In 1944 the Army's need for physical therapists was still acute. In one of the large military general hospitals, Walter Reed, a fifth of all the patients were referred to the department of physical therapy. At one of the great civilian centers, the Mayo Clinic, approximately one-twelfth of the patients admitted are directed to the physical therapy section. The Civil Service Commission, faced with calls from the Veterans' Administration and the United States Public Health Service, as well as with calls for trainee positions in Army hospitals, was urging qualified women to apply for its examinations for the student, apprentice, and junior grades, as well as for the full grade of physiotherapy aide. By May 1945, the Medical Department in the United States Army included 1,000 physical therapists in its program. At the beginning of the war qualified physical therapists were classified in the Army as physical therapy aides working under the auspices of the Civil Service Commission. However, in March 1943 they were reclassified as military personnel and commissioned in the Army as medical department physical therapists with relative rank of second lieutenant or above. About the latter part of 1944 they were given full rank with commissions ranging from second lieutenant to major.

The Navy established an office in the Bureau of Medicine and Surgery in 1944, to develop, place in operation, and direct a rehabilitation program for the Medical Department of the Navy. The program included physical and occupational therapy, education and training, educational and vocational counseling, physical training, recreation, social service in its broad meaning, and for persons returning to civilian life, assistance in their problems of readjustment.

Achievements of the armed services and the Veterans' Administration in rehabilitating men disabled in battle, together with manpower shortages on the home front, stimulated a considerable wartime expansion of public programs for the civilian disabled. The Barden-

LaFollette Act of 1943 broadened the provisions of the Vocational Rehabilitation Act of 1920 and greatly increased the amount of available Federal funds for the rehabilitation program. Grants-in-aid were extended for vocational rehabilitation of all disabled persons including the blind and the mentally and emotionally retarded and by providing any service, including physical therapy, necessary to render the disabled capable of engaging in a remunerative occupation or becoming more advantageously employable. The work of the Baruch Committee on Physical Medicine, created in November 1943 (Note: Disbanded in 1951) for the advancement of the science of physical medicine increased the demand for physical therapists in the United States by stimulating the establishment of community rehabilitation centers and hospital departments, by bringing about an increase in the teaching of the branch of medicine, by providing fellowships for physicians wishing to specialize in physical medicine and rehabilitation, and by establishing three major centers of physical medicine and rehabilitation at medical schools at Columbia University, New York University, and the Medical College of Virginia, as noted previously. Some industrial plants found a program of physical therapy an aid in maintaining wartime production records. It kept workers in condition and returned the injured to their jobs with a minimum loss of time. In the industrial clinic at such large companies as Kaiser Shipyards and the Ford plant, physical therapy remained in 1947 as part of the permanent program.

Increasing the supply through training.—A number of new training centers for physical therapists were opened to meet the increasing demand. By the spring of 1944, approved schools numbered 27, and a year later there were 32 approved schools including the schools with emergency courses. Before Pearl Harbor there were only 16 such schools, 3 more than the 13 that appeared on the first list published by the American Medical Association in 1936. From the regular courses offered in approved schools 190 students were graduates in 1943, 23 percent more than the 154 who finished their training in 1941. In addition, a 6-month emergency course approved for training physical therapists for work in Army hospitals was well under way, and in 1943, 235 physical therapists were trained in 17 of the schools under this new program.

The Navy has trained enlisted men and women in its Hospital Corps as assistants to conduct physical therapy treatments under the supervision of a physical therapist or a medical officer. This training is not designed to qualify these personnel for registration as physical therapists but to meet Navy needs.

In spite of these increases, the estimated needs of the Army and Navy for trained physical therapy personnel were over twice the number supplied by the schools. In 1944, 288 physical therapists were grad-

uated from the regular course and 344 from the emergency courses, totaling 632; this was far short of the needs for military, veterans', and rehabilitation services. The American Medical Association in 1944 urged universities, medical schools, colleges, or hospitals, having suitable facilities in physical therapy, to consider the establishment of acceptable programs in this field.

Even before the war, a number of scholarships and loan funds were made available for training in physical therapy through the National Foundation for Infantile Paralysis, the Kellogg Foundation, and the Rosenburg Foundation. The American Physical Therapy Association, the National Organization for Public Health Nursing, and the Kellogg Foundation handled applications.

Since 1922, training in Army hospitals has been available to selected graduates of a school of physical education or to college graduates with a major in physical education. From 1938 to 1943 the Army has made its selections of persons who are to receive this training from lists prepared by the United States Civil Service Commission on the basis of its examinations for student physiotherapy aides.

In October 1943, the Medical Department of the Army made training courses in physical therapy available to certain enlisted members of the Women's Army Corps who could meet the minimum educational requirement of 2 years of college with emphasis on the biological and natural sciences, or who had completed an approved course in physical education. In addition, certain other requirements were prescribed. (See Training section of this bulletin, p. 27.)

During the latter part of the war period additional physical therapists were needed in Army hospitals, and enlisted women of the Women's Army Corps without the educational background usually required were selected for training in general hospitals designated to train physical therapists. These students were chosen from training schools for medical department technicians and sent to physical therapist training schools for a 4-week course of instruction. Upon completion of this training they were classified as physical therapists and assigned to Army hospitals to supplement the staffs of physical therapy departments.

Limited scholarships in approved emergency courses for women promising to enter Army service were offered by Pi Beta Phi Sorority. Three civilian training schools (the State University of Iowa Medical School, the Cleveland Clinic Foundation Hospital, and Mayo Clinic) charged no tuition for the regular curriculum, and two civilian schools made no charge for the emergency course. Tuition fees averaged $212 for the regular and $132 for the emergency curriculum. The most common tuition charge was the same for both courses—$200.

During the last 9 months of 1945 the National Foundation for Infantile Paralysis awarded 338 physical therapy scholarships under its

$1,267,600 therapy training program. The scholarships financed courses of from 9 to 12 months at physical therapy schools approved by the American Medical Association at leading universities throughout the country. (See Scholarship section of this report.) This program was stimulated by the 1944 poliomyelitis epidemic. However, recipients of the scholarships were not committed to work exclusively with poliomyelitis patients.

Training volunteer assistants.—The use of volunteer assistants to relieve the civilian shortage has not been so prevalent in this occupation as in nursing. However, in 1945 the Polio Emergency Volunteer Program was initiated by the Women's Division of the National Foundation for Infantile Paralysis to assist the physical therapist and nurse in applying hot packs and performing other routine duties. A training syllabus was prepared by the Joint Orthopedic Nursing Advisory Service and the American Physical Therapy Association. Forty-five thousand women have been trained under this program.

APPENDIX

Minimum Requirements for Entrance to a School for Training Physical Therapists Approved by Council on Medical Education and Hospitals of the American Medical Association

For 1-year course: Graduation from an accredited school of nursing *or* graduation from a college or university with a major in physical education or with the required science courses or 2 or 3 years of college with science courses (courses in the laboratory physical, biological, and social sciences suggested); or

For 2-year course: Two years of college with science courses; or

For 4-year degree course: High-school graduation.

Requirements for Registration as Physical Therapist by the American Registry of Physical Therapists

Graduation from an approved school of physical therapy, plus an examination.

Requirements for Active Membership in the American Physical Therapy Association

Graduation from a school or course approved by the Council on Medical Education and Hospitals of the American Medical Association.

Minimum Requirements for Beginning Civil Service Position as Physical Therapist in United States Public Health Service, the Children's Bureau, and Saint Elizabeths Hospital, in Washington, D. C., and in United States Public Health Service Hospitals Throughout the United States and in Puerto Rico and the Virgin Islands [1]

(As taken from Announcement No. 169 (Unassembled), issued April 19, 1949. Amended April 10, 1951. No closing date.)

Age: Eighteen years of age or over but under 62 (waived for veterans and also for certain war service indefinite employees).

Education and Experience:

Applicants must have successfully completed one of the following:

1. Graduation from a school of physical therapy which met the standards established by the American Medical Association at the time of their graduation. Applicants who graduated prior to 1936 must be graduates of a course of physical therapy approved by the American Physical Therapy Association at the time of their graduation; or

2. Four years of successful and progressive technical experience in physical therapy, under medical supervision, in a hospital, sanitarium, clinic, or in the office of a licensed doctor of medicine who is an orthopedic specialist or who is

[1] In November 1951 the beginning salary on this position was $3,410 per year (grade GS–5).

specializing in physical medicine. This experience must show that the applicant has an understanding of the fundamental theories of physical therapy treatment and of their proper application, and must have included work in electrotherapy, hydrotherapy, actinotherapy, and massage; and muscle reeducation, therapeutic exercise, and all other aspects of body mechanics as a means of therapy. Applicants must also have had experience in performing diagnostic tests, including voluntary (manual) muscle tests, electrical muscle tests, and tests for peripheral vascular disease, such as skin temperature tests or oscillometric tests and determination of sensory patterns. For some positions applicants must also have had experience in fever therapy or with crippled children; or

3. Any time-equivalent combination of 1 (Education) and 2 (Experience), above.

Physical requirements: A physical examination will be made by a Federal medical officer before appointment.

Minimum Requirements for Beginning Civil Service Position as Physical Therapist in Hospitals and Regional Offices of the Veterans' Administration Throughout the United States and in Puerto Rico [1]

(As taken from Announcement No. 233 (Unassembled), issued July 11, 1950. No closing date.)

Age: Eighteen years of age or over but under 62 (waived for veterans and also for certain war service indefinite employees).

Education:

Applicants must be graduates of schools of physical therapy approved at the time of their graduation by the American Medical Association. Applicants who graduated prior to 1936 must be graduates of a course of physical therapy approved at the time of their graduation by the American Physical Therapy Association.

Applications will be accepted from students who are enrolled in a school of physical therapy approved by the American Medical Association who are within 3 months of completion of their training; such students who are qualified in all other respects may receive provisional appointments prior to completion of the training, but may not enter on duty until they submit proof of graduation from an approved school.

Physical requirements: A physical examination will be made by a Federal officer before appointment.

Minimum Requirements for Appointment as a Physical Therapist in the Women's Medical Specialist Corps Reserve, Army Medical Service, United States Army (with the pay and allowance of a second lieutenant of $2,565 annually, plus $900 for quarters if government quarters are not available, and $504 for subsistence)

General requirements: Female citizen of the United States; no children or dependents under 18 years of age; physically qualified; and between 21 and 45 years of age.

Education and experience: Applicants must have completed not less than 3 years (90 semester hours) including satisfactory courses in the biological and

[1] In November 1951 the beginning salary on this position was $3,410 per year (grade GS–5).

physical sciences *and* a course in physical therapy, both of which are acceptable to the Department of the Army.

Minimum Requirements for Appointment as a Physical Therapist in the USAF (WMSC) Reserve (with the pay and allowance of a second lieutenant of $2,565, plus annual subsistence pay of $504, plus $900 quarters allowance if government quarters are not available)

General requirements: Female citizen of the United States; no dependents under 18 years of age; physically qualified; between 21 and 45 years of age.

Education and experience: Applicants must have completed not less than 90 semester hours with major emphasis on the biological sciences or physical education in a college or university and a training course in physical therapy, both of which are acceptable to the Surgeon General of the USAF.

Schools Providing Training for Physical Therapists Approved by Council on Medical Education and Hospitals of American Medical Association, March 1952

Children's Hospital Society,
Los Angeles, Calif.

College of Medical Evangelists,
Loma Linda, Calif.

Stanford University,
Palo Alto, Calif.

University of California Medical School,
San Francisco, Calif.

University of Southern California,
Los Angeles, Calif.

University of Colorado Medical Center,
Denver, Colo.

Northwestern University Medical School,
Chicago, Ill.

University of Iowa,
Iowa City, Iowa.

University of Kansas, School of Medicine,
Kansas City, Kans.

Bouve-Boston School of Physical Education, in affiliation with Tufts College,
Medford, Mass.

Simmons College,
Boston, Mass.

Boston University, Sargent College of Physical Education,
Cambridge, Mass.

University of Minnesota,
Minneapolis, Minn.

Mayo Clinic,
Rochester, Minn.

Washington University School of Medicine,
St. Louis, Mo.

St. Louis University School of Nursing,
St. Louis, Mo.

Albany Hospital,
Albany, N. Y.

Columbia University,
New York, N. Y.

New York University, School of Education,
New York, N. Y.

Duke University, School of Medicine,
Durham, N. C.

Cleveland Clinic,
Cleveland, Ohio.

D. T. Watson School of Physiatrics,
Leetsdale, Pa.

University of Pennsylvania School of Auxiliary Medical Services, Division of Physical Therapy,
Philadelphia, Pa.

Hermann Hospital,
Houston, Tex.

University of Texas, School of Medicine,
Galveston, Tex.

Medical College of Virginia,
Baruch Center of Physical Medicine,
Richmond, Va.

University of Wisconsin Medical School,
Madison, Wis.

Medical Field Service School,
Brooke Army Medical Center,
San Antonio, Tex.

Clinical affiliates:
(1) Fitzsimmons Army Hospital, Denver, Colo.
(2) Walter Reed Army Hospital, Washington, D. C.
(3) Letterman Army Hospital, San Francisco, Calif.

Some of the Principal General Rehabilitation Centers in the United States, March 1952

Cleveland Rehabilitation Center,
2239 East 55th Street,
Cleveland, Ohio.

Curative Workshop of Milwaukee, Inc.,
750 North 18th Street,
Milwaukee 3, Wis.

Institute for the Crippled and Disabled,
400 First Avenue,
New York, N. Y.

Institute of Physical Medicine and Rehabilitation,
New York University—Bellevue Medical Center,
400 East 34th Street,
New York 16, N. Y.

Institute of Physical Medicine and Rehabilitation,
Peoria, Ill.

The Kabat-Kaiser Institute,
Vallejo, Calif.

The Kabat-Kaiser Institute,
Washington, D. C.

Kessler Institute for Rehabilitation,
West Orange, N. J.

Morrison Rehabilitation Center,
San Francisco, Calif.

New York State Reconstruction Home,
West Haverstraw, N. Y.

Okmulgee Rehabilitation Center,
Okmulgee Branch,
Oklahoma A. and M. College,
Okmulgee, Okla.

Portland Rehabilitation Center,
Portland, Oreg.

Rehabilitation Center for the Disabled,
American Rehabilitation Committee,
28 East 21st Street,
New York 10, N. Y.

Rehabilitation Center of Liberty Mutual Insurance Co.,
691 Boylston Street,
Boston, Mass.

The Rehabilitation Institute,
3600 Troost Street,
Kansas City, Mo.

Tuskegee Rehabilitation Center,
Tuskegee Institute,
Tuskegee, Ala.

Washington Rehabilitation Center,
708 Fourth Avenue,
Seattle, Wash.

Woodrow Wilson Rehabilitation Center,
Fishersville, Va.

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