THIRD NATHALIE BARR LECTURE

Captain Judith Bell-Krotoski, OTR, FAOTA

Hands Research and Success

Eric Moberg once said, if we pretend we have all of the answers and our work is easy for us, others will not follow because they will believe there is no need for them. He suggests we end our lectures with our unanswered questions, so that others might be challenged to answer them. So often in our lectures and reviews of our achievements, we tend to concentrate only on successes. By doing so, we deny two truths that are vitally important to success; that some of our greatest accomplishments come on the crest of failure, and that very often it is the person with perseverance who runs the farthest distance.

One of the best things I took from college were the thoughts of Madam Curie (Sklodowska). In earlier years, I had had strong feelings of how pitiful was her life and how surprised she must have been to find that her remarkable discovery of radium was to hasten the end to her own life. I thought that surely, had she known, she would have stopped the work immediately. Like a voice echoing from the past in answer to my unspoken questions, I found the following quote from her: "Life is not easy for any one of us, but what of that? We must have perseverance. . . . We must believe that we are gifted for something, and that this thing, whatever the cost, must be attained." One has to respect this degree of dedication, and I found respite in these words many times on many occasions.

ENCOUNTER WITH A MENTOR

I had not realized it then, but there was another rather historical individual who made an indelible impression on me. Having heard, early in life, stories of Albert Schweitzer, his missionary work, and his piano in Africa, I rather romanticized this figure in dreams of my own future. I wasn't aspiring to be a Florence Nightingale. These were the dreams of imagination and childhood, which even a child knows will be discarded one day. Then, when poring through the *Reader's Digest Magazine* around the age of 16, I read about a physician in India who had discovered that fingers do not just "drop off" in patients with leprosy (now called Hansen's disease) and that he was turning the whole image and treatment of the disease around by doing reconstructive hand surgery on these patients. I remember thinking, "What would it be like to work with a man like that—I'll never have such a chance in my whole lifetime." Here was a real Albert Schweitzer, and a giant of a person; but the *Digest* was still a magazine about some far-off place in India, and I was still very young.

Years later, I had a surprise in store when, upon finishing college and moving to Louisiana in 1969, I picked up a brochure for a workshop I was about to attend on "therapy research" sponsored by the Louisiana Occupational Therapy Association. I found there the name of Dr. Paul Brand. The magazine article I had read had long since been forgotten. I was astounded that this man's background seemed all too familiar, and that this was indeed the person of whom I had read. He had come from India to work in Louisiana. Now my working life was real, and this was a real person, with some very interesting ideas. Dr. Brand believed in therapists far more than other surgeons I had encountered; he actively encouraged other surgeons to use therapists, and he actually believed that therapists should do research.

My first interaction with Dr. Brand was not successful in my eyes. I was to experience his "unabashed anger and frustration" with the willingness of therapists and surgeons to accept inaccurate measurements and techniques. Visiting the United States Public Health Service Hospital in Carville, Louisiana for the first time, I was shown the hand volumeter that Dr. Brand and his therapists had been trying to perfect for over a year or longer. Helen Wood was explaining to me that Dr. Brand was still not totally happy with the volumeter because of the surface tension of water; that since water has a surface tension, one could not be sure the drops of water would stop at the same level for repeatable measurements. My response, "Did it really make all that much difference once the measurement was so close?", brought a resounding boom of a voice from behind me where Dr. Brand was standing. "Yes it makes a difference," he said, and I then had my first complete and unabridged lecture on the need for exacting and repeatable measurements. Many people think of Dr. Brand as a very mild-mannered man. I can personally assure you he has never been meek when it comes to objective measurements!

I've always considered it fortunate that Dr. Brand apparently did not recall the volumeter incident later when he was asked to be a surgical consultant to the surgery team where I was working at the United States Public Health Service Hospital in New Orleans, in 1971. We developed an interacting hand surgical and therapy program staffed by the Tulane Medical School surgical residents, drawing upon Dr. Brand's wisdom and surgical expertise.

I suppose I had always believed in research, in finding new things, exploring new mountains, and this is why Brand and other mentors such as he made their impression on me. I was surprised that college had not taught basic research design and always felt this missing from clinical programs. It seemed ironic to me that the college professional curricula in therapy did not include information on how to approach, organize, and study clinical problems. And how to develop more knowledge. The response in my program to my questions of research was that research was taught on a master's or doctorate level. I never believed that research should not be taught at the bachelor's level, particularly since so much of therapy practice is based on theory of practice rather than demonstrable established fact. Dr. Brand's push for more objective measurements, and for the therapist to be a part of a surgical team that would develop new knowledge and treatments, seemed to make sense.

EARLY WORK EXPERIENCES

If Dr. Brand's philosophy was not to cement my leanings toward investigative study in hand therapy, some of my first work experiences were. I experienced an affiliation at a place where surgery was done on the feet of children, but not their hands. It seemed to me the focus was on the wrong appendage. If the children couldn't walk and the parents had to carry them, that was a problem requiring surgery; but if the children could not do anything with their hands when they arrived at their destination, that seemed acceptable. There were many reasons given for not doing hand surgery. Surgeons seemed to realize that, to be successful, hand surgery required specialization beyond a normal surgical training, and the surgeons I encountered believed there would never be enough hand work to support a speciality practice in hand surgery.

One of my first work experiences was at a place that did do some hand surgery, and, in retrospect, good hand surgery, but the hospital's administrators at that time were not supportive of continuing education. They believed a therapist should be able to use what had been learned in college to operate and charge for a clinical program, and they did not want anything new or different. This philosophy obviously stifled communication and development of therapy practice. I was left looking for a position where therapy was free to grow, and I was free to learn.

A little over 10 years ago it was not easy to acquire new knowledge for surgery or therapy problems. The books did not include therapy correlated with surgery techniques, and existing surgical lectures were rarely open to therapists. In fact, many surgeons believed that therapists would not understand and would be bored with their meetings.

By comparison, in a New Orleans surgical and therapy program, with Dr. Brand's influence and his support of therapists, we were free to investigate problems and find solutions, and it was a breath of fresh air. With admonishments of "first, do no harm," we conservatively implemented and developed reconstructive hand surgery and therapy for a variety of orthopedic and trauma cases, particularly emphasizing early movement of tendons and techniques of tissue remodeling.

But not all surgeons had the same respect for therapists as Dr. Brand. Eventually, with personnel transfers and administrative changes, our program fell under the jurisdiction of surgeons who did not believe in therapists and who wanted to be responsible for the recognition our program had enjoyed. As quickly as it had begun, our program ended, but fortunately not before many patients had had

successful reconstructive surgeries, and we had learned a lot. We had had one very successful meeting specifically correlating hand surgery and hand therapy techniques in 1974. Dr. Brand continued to do surgery and study the hand at the Carville United States Public Health Service Hospital (now the Gillis W. Long Hansen's Disease Center), and occasionally in Baton Rouge, but no longer at our facility in New Orleans. Reluctantly I had to change my earlier position that I had never met a surgeon who would not support therapists once he saw the improvement therapy could make with hand surgery cases. I came to the realization that there will be some surgeons who will probably never support therapy, and if this is the situation, there are definitely times to leave.

A MATURING CAREER

A last-minute decision to attend an American Society For Surgery of the Hand (ASSH) meeting in San Francisco sped the next phase of my professional career. There I met Evelyn Mackin and Dr. James Hunter, an event that eventually resulted in my joining the Hand Rehabilitation Center in Philadelphia. I had attended one meeting of the American Association of Hand Surgeons (AASH) with a therapy colleague and had been impressed and somewhat embarrassed by the fact that apparently we were the only two therapists at the meeting. Having approached the organizers of the Association after the meeting with a plea for them to consider inviting therapists, I felt ready to brave a meeting of the "Society," which was looked on by both our residents and senior staff physicians as representing the authoritative leaders in hand surgery. According to our residents at the time, a member would have to die before one could become a member of the "Society," because it was limited to 300 members (which was true, although the surgeons in the "Society" had already decided to open the membership to other surgeons. Because so many additional surgeons were interested, another organization had begun, the American Association of Hand Surgeons).

After arriving at the 1975 ASSH Annual Meeting in San Francisco, I was stopped short by a memo taped to the door saying "All interested hand therapists please meet in room . . . ." Of course I went, and once again I had the feeling, as I walked through the door, of walking into the pages of a book; in this case Zancolli's Surgery of the Hand. One therapist said "Hello I'm Dr. Hunter's therapist," another Dr. Boswick's therapist, another Dr. Beasley's therapist, and so on. All I could say was that I was Dr. Brand's therapist, and I suppose that got me through the door.

These therapists had come together to discuss the response of members of the Business Meeting of the ASSH to a letter they had already drafted and sent to the Executive Council. The letter had petitioned the support of the ASSH for hand therapists. These therapists had been developing and collecting a lot of data for some of the published surgical papers and in some cases had helped with the writing; it was felt reasonable by the therapists to ask the support of the surgeons for recognition of the therapist's role. Of course, everyone knows "the rest of the story." The surgeons gave their positive response, and the American Society of Hand Therapists began. Right? Wrong. To paraphrase a well-known narrative, history will not record nor long remember what really happened. Contrary to what most of us now probably believe, the first response of the Surgery Society was not completely supportive.

The response from the Executive Council meeting was that, just because one therapist had been specifically trained in treating hand surgery cases and could be recognized as a hand therapist, this did not mean that all therapists—in particular the therapist across the street—had specialty training; therefore, they could not endorse all therapists. Just as all surgeons were not hand surgeons, not all therapists were hand therapists. The surgeons did say that they "enthusiastically supported" the idea of a Hand Therapy Society and indicated that they would reconsider the idea of endorsing a therapist group if they could help establish a society that would control the quality of its members. That was the birth of the Hand Therapy Society. Right? Wrong. What happened after that was a roller coaster of ups and downs that was to continue for several years.

ORIGINS OF HAND THERAPY

But the real beginning of hand therapy had started long before this. India may seem an unlikely place for such a beginning, but the concept has its roots there. Dr. Brand (Fig. 1) had returned to India, where he had spent his childhood, from medical school in England because there were no medical schools in India for the millions of people who needed physicians. Not believing all the reports that surgery could not be done on leprosy patients, he began to do reconstructive surgery for the first time on these patients. He found that they could heal just like any other patient. Then he realized that surgery alone was not enough. So long as a patient had deformed hands, he could make a living as a beggar. When his hands were made to look normal, by reconstructive surgery, no one would feed him, and he could starve to death.

Dr. Brand's first surgical experience with leprosy patients met utter failure, disillusionment, and discouragement. As well as doing the surgery, he discovered he must teach the patient to use his hands, and he developed what he called the New Life Center, in Vellore, to do just that. There he trained and worked with young Indian men and taught each to train other workers, each in a particular aspect of surgical hand rehabilitation (Fig. 2). When they learned one aspect, they would then learn another, and then another. Some, it was planned, would be trained to measure joints, others to move them, others to do splinting, etc.; then these individuals would rotate, so when the physicians would visit for surgery a whole team of workers would be available to measure and retrain surgical transfers. When therapy schools started, these

FIGURE 1. *Dr. Paul Brand shown here with Dr. Eric Moberg.*

FIGURE 2. *Early Indian therapists at the New Life Center. When therapy schools started, these young men were the first to enroll. They later became teachers themselves.*

young men were among the first to be admitted and to graduate, and later they became teachers themselves. What made this program different from any other that was developing was the interaction between the surgeon and therapist—a complete partnership, as well as the detailed records before and after surgery and therapy that were kept.

In addition to Brand, the associates responsible for carrying the concepts of the center forward were Dr. Salvapandian, first as an associate of Dr. Brand, and later a professor of orthopedic surgery, and Dr. Buultgens, who was a dedicated research assistant and who trained many hand surgeons and therapists. Dr. Mary Verghese was a paraplegic victim of a bus accident, trained as a physiatrist under Rusk. She returned to Vellore in charge of therapy. She was reportedly a great help in developing the program. A woman by the name of Ruth Thomas was the first therapist in charge of this program and was responsible for training many occupational and physical therapists in hand surgery cases (Fig. 3). Dr. Brand credits Ruth as having a vision of her own in training therapists to work specifically with hand and foot surgery, and she gave her whole life to this. Another therapist by the name of Paul Namasavayam reportedly trained enormous numbers of therapists. Therapy schools started, and The New Life Center thrived with surgeons, therapists, and patients working together as a team. A number of small hospitals were set up, each staffed with a physiotherapist whose responsibility was to identify patients with surgical problems. A hallmark of these facilities was that they were based on and around therapy. The therapists would identify patients for surgery and do the pre- and postoperative follow-up of hand surgery cases. The surgeons would visit periodically, screen cases prepared, and reject a few if inappropriate. When surgeons returned for the next visit, it would often be after the rehabilitation was complete, or to review cases for problems.

The whole idea at the time was viewed as a sort of "wildcat scheme" until it was finally reviewed by a group of experts and given validity by the World Health Organization. A group of scientists, leprologists, and hand surgeons was brought to Vellore by the WHO to examine the program. Drs. Dan Riordan, and Guy Pulvertaft were the hand surgeons in the group. The report of this meeting was published by the World Health Organization.

Dr. Brand received England's highest award, the Hunterian Award, for his work. So successful was the program that many other surgeons who were in communication around the world came to visit. Dr. William L. White started the stream of hand surgeons who would visit the India program. He arranged for a dozen top hand surgeons, many of whom later became Presidents of the American Society of Plastic and Reconstruction Surgeons, to visit on 3-month rotations. Among these were Drs. Peacock, Chase, Bevin, Randall, Masters, and Robinson.

FIGURE 3. *Hand Clinic in Vellore, India. A therapist by the name of Ruth Thomas (shown with patient) was the first therapist in charge of the therapy program at the New Life Center established by Dr. Brand. Here the surgeons with therapists would function as partners on a rehabilitation team.*

FIGURE 4. *Drs. Peacock and Madden established the Hand Center at Chapel Hill, North Carolina, which has been recognized as the first Hand Center in America where hand surgery was closely correlated with hand therapy in a rehabilitation team. Shown here is a 1966 staff photo. First row: Gloria DeVore, occupational therapist; Eli Hutton and Kay Hale, secretaries; Karen Henderson, student secretary. Second row: Elisha Denny, therapy assistant; Nelson Parker, vocational rehabilitation counselor; Jane Davis, physical therapist; Irene Hollis, occupational therapist; Johanna Cummings and George Hamilton, physical therapists..*

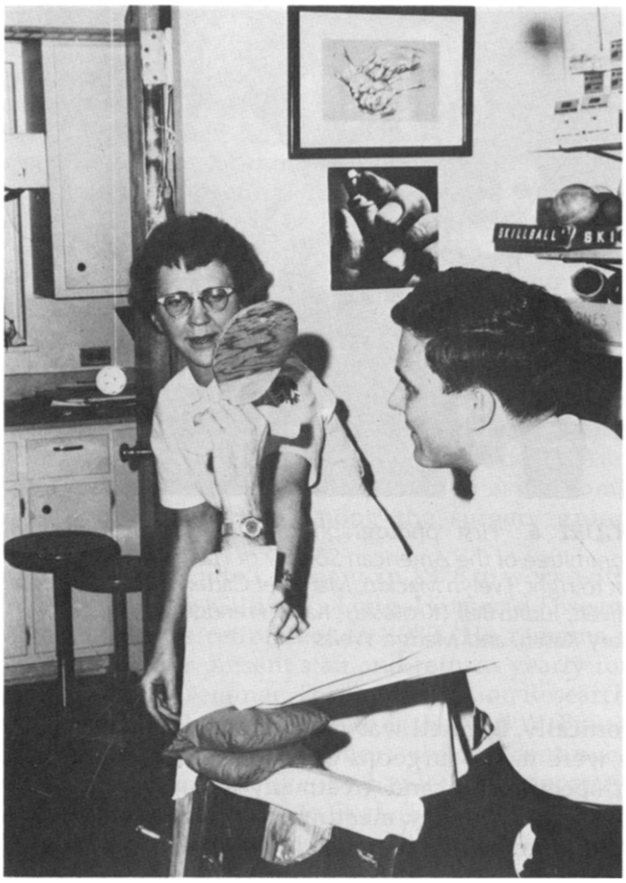

FIGURE 5. *Hand Clinic at Chapel Hill, showing Irene Hollis with Dr. Peacock.*

A coincidence in time was largely responsible for the transfer of the India surgical/rehabilitation concept to the United States. Dr. Brand and Mary Switzer, the first Commissioner of the Vocational Rehabilitation Administration under the Department of Health, Education, and Welfare, were recipients of the Lasker Award at the same time in 1960. On that occasion Dr. Brand had an opportunity to discuss rehabilitation at length with Mary Switzer. He found Mary to be an exceptional person who had sold the whole idea of rehabilitation to Congress. She played a tremendous role in rehabilitation and was quite enthused about the rehabilitation program in India. Reportedly she was already sold on the concept of rehabilitation with therapists playing a significant role when Dr. Earl Peacock submitted a proposal for a hand center in the United States. Mary Switzer, at Earl Peacock's request, was responsible for obtaining the funding for the Hand Center at Chapel Hill.

Drs. Earl Peacock and John Madden established the first United States Hand Center at the University of North Carolina at Chapel Hill. The earliest therapists at "Chapel Hill" were Bunny Bearden and George Hamilton. These were followed by Irene Hollis, and a little later Gloria DeVore and others (Figs. 4, 5). These therapists developed the therapy program at the Center and at the same time taught many therapists. The Center was responsible for the first two U.S. hand conferences to include the hand surgery/therapy concept.

After the establishment of the Chapel Hill Hand Center, developments in hand therapy in the United States became dynamic. Dr. Hunter and Evelyn Mackin visited the Chapel Hill Hand Center and returned to Philadelphia to begin the second U.S. hand center, the Hand Rehabilitation Center, Ltd. (from which came the first American book on hand surgery correlated with therapy techniques, *Rehabilitation of the Hand*—and which has continued to this day to promote this concept in other ways, including an annual meeting on hand surgery correlated with hand therapy). Karen Prendergast (Lauckhardt) visited the Hand Rehabilitation Center in Philadelphia and went to work with Dr. Robert Beasley in New York, who had also visited Chapel Hill and established his hand practice (which now holds an annual meeting sponsored by the Foundation for Hand Research). Gloria DeVore moved to the University of Arizona with Drs. Madden and Peacock and there continued to teach other therapists; she was one of the first hand therapists to go into private practice. Peggy Carter (Wilson) and Bonnie Olivett were two of the therapists who trained with her while beginning their own practice.

It is hard to say that anything good comes from a war, but World War II was instrumental in the beginning of hand surgery, and therefore the beginning of hand therapy. Bunnell, credited as the father of hand surgery, was a military surgeon. Many of the surgeons who trained at Valley Forge and other army facilities like Fort Sam Houston, later became some of the first hand surgeons, and they worked with military therapists on hand rehabilitation units.

FIGURE 6. *First photograph of Organizational Planning Committee of the American Society of Hand Therapists. From left to right, Evelyn Mackin, Margaret Carter (Wilson), Bonnie Olivett, Judith Bell (Krotoski), Karen Prendergast (Lauckhardt), Mary Kasch, and Madge Weiss.*

Ironically, Bunnell was not a supporter of therapists, as were many surgeons of the time, but he ushered in specific care and treatment techniques, and he presided at the first meeting of the American Society for Surgery of the Hand, in 1947. As surgery specialized, everything pointed to the value and need for specialized follow-up treatment for which hand therapy would supply an answer.

Helped by the surgeons' communication around the world through their organizations and associations, other international surgeons and therapists had their role, such as Cdr. Wynn Perry, and Nathalie Barr . . . the list is long. Worldwide, many surgeons, such as Eric Moberg, who were at first reluctant to endorse therapists, began to change their minds when they met therapists who learned about their surgeries, attended their meetings, worked closely with surgery patients, and began developing standard treatment procedures for surgical rehabilitation. It was both the quality of therapy developed and the support of the surgeons that made the concept a reality.

ORIGINS OF THE AMERICAN SOCIETY OF HAND THERAPISTS

Seven therapists made it to the doorstep of the meeting in San Francisco, not just six, as is often quoted. Bonnie Olivett, Peggy Carter (Wilson), Mary Kasch, Karen Prendergast (Lauckhardt), Evelyn Mackin, Madge Weiss, and myself (Fig. 6). Madge Weiss was present for the first organizational meeting. She volunteered herself to drop out of the group because she was not as experienced as the other therapists. We were all novices in hindsight, and I think there is some argument for calling her part of the original group.

There had been an instrumental meeting in Albuquerque in 1973 with many of the same therapists. Connie Johnson, a therapist who worked with Bonnie had attended the Albuquerque Meeting. Doctors George Omer, John Boswick, John Madden, Robert Wilson and H. B. Morgan, among others, were present at the meeting and supported the therapist's role in hand surgery. Gloria DeVore had attended the Albuquerque meeting and knew about the planned San Francisco meeting ahead of time, but did not attend because she was busy actively trying to become an Associate Member of the ASSH.

There were other talented therapists developing into hand therapists, including Mike Brown, Elaine Fess, Gloria Hershman, and Georgiann Laseter. Care DeLeeuw and others had previously ushered new techniques with polio victims and burns. Maude Malick had received recognition for the success of her program. There were others—many others. But, at some point, a decision had to be made. Bearing in mind that the charge by the surgeons was to set and hold standards on the "quality" of the therapists in the group, opening the organizing committee to too many therapists too soon could have defeated all efforts by resulting in too many fish in the kettle. If the committee were made larger, as soon as a few more therapists were added there were bound to be still others who would would feel left out. And the question remained, who had the greater right to be on the committee if others were chosen? In hindsight, one of the wisest moves by the organizing committee was its decision to limit the early organizing committee during the formative years to the six who had drafted the organizational plans at the San Francisco meeting. That so many other therapists wanted to join in attested to the fact that the society was an idea that was wanted and needed.

Having been fortunate enough to be on this Organizational Planning Committee, I would like to say that I witnessed decisions on the part of some of the therapists in this group, Bonnie Olivett in particular, that were unbelievably wise and far reaching. Many of the decisions—fortuitous decisions—were critical to the success of the Society and were made under pressure. Many have even been forgotten or will never be known. The Committee never set themselves up as being more than an organizing committee, one of the few unanimous decisions. By the suggestion of Bonnie, they decided the course to follow in answering the surgeons' challenge was not only to accept the surgeons' guidelines for membership in their own Society, but even to request the use of the surgeons' secretary to give us input and guidance. How better to gain the surgeons respect for our membership guidelines? The original goals the Committee identified are the same today, including education, research, and even certification.

Once the Committee identified initial objectives and guidelines, and basically decided to keep in communication, it planned to meet again at the next meeting of the ASSH held in New Orleans, in 1976. Information was exchanged with other interested therapists who were attending the hand surgery meeting. Then tragedy almost occurred, and the next

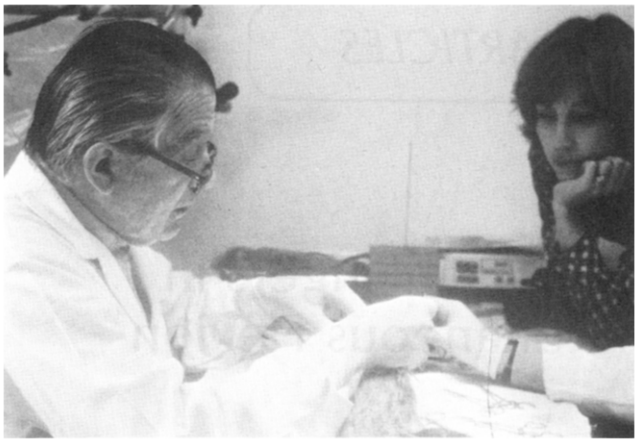

FIGURE 7. *Paul W. Brand Research Laboratory. Shown is Dr. Brand with visiting therapist.*

year ushered in the lowest point in the plan. The idea of endorsing the Therapist Society had been presented too soon, while it was still too new, to a summer business meeting of the ASSH and had been voted down. Reports abounded that even our supporting surgeons believed the idea of a Therapist Society a dead issue by the 1977 Annual Meeting of the ASSH, held in Phoenix, Arizona.

Some of the committee members and officers of the ASSH highly supported the goals of the proposed Therapist Society and became outspoken on our behalf. Communications with officers in the surgery society grew, and the six therapists on the Therapist Society's Organizational Planning Committee were invited to attend the surgeons' Business Breakfast, thus greatly increasing our visibility. At this point the Therapist Society's meetings were opened to other invited therapists who were chomping at the bit to get into the action, and by this time chomping to get to organizing therapists. All of the therapists were communicating, professionally interacting with surgeons within and outside the ASSH, and lobbying on behalf of the Therapist Society. Finally, in another fortuitous meeting of the Executive Council of the ASSH in Philadelphia, which followed member participation in a very intensive Rehabilitation of the Hand Meeting in Philadelphia, the surgeons on the Executive Council voted to endorse the American Society of Hand Therapists (ASHT) officially, and to give it seed money for incorporation. This was the formal beginning of our Society which was to have its first official meeting, made up of all founding members, in the spring of 1978, in Dallas, Texas.

One of the last decisions—and probably the most brillant—of the Organizational Planning Committee that I witnessed was to recruit some of the surgeons who had been lobbying against the formation of the Society for communications to and input into the Society. This was not my decision, be assured. But this move turned the tide on any final criticism, which was and could be more damaging to our efforts. And it beautifully turned opposition into an asset. Some previous nonsupporters among the surgery group became adamant supporters.

I was to return to Louisiana in 1978 to work with Dr. Brand at the Gillis W. Long Hansen's Disease Center, until his retirement in 1987. He remains a consultant to our present staff and returns yearly for our annual hand seminar. The Rehabilitation Research Department has been referred to as the Paul W. Brand Research Laboratory in his honor; while he continues to be professionally active, he has left an important legacy to the hospital and to us all (Fig. 7). Dr. Ronnie Mathews carries on his surgical work, and we continue to have a surgical program with close interaction between surgeon and therapist. Dan Riordan, long a collegue of Dr. Brand, is now a consultant to our Rehabilitation Research program. With his input we have come a full circle, as it was Dr. Riordan who did some of the earliest surgical reconstructive work at the hospital.

Life is not just freestanding successes; it takes perseverence. And I stand in awe of what we have accomplished. Most successes are in fact first framed with disillusionment and disappointment. There are few things in life I have been as proud of as this Society and some of the people I have met through it. I am glad to be a part of it, to struggle with it, and to grow with it and you. We have a right to be proud.