PREFACE

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It is a pleasure to see you all here. We have been planning a meeting of this type for a long time. It is perhaps particularly appropriate to meet in this very new building of the Rehabilitation Institute of Chicago and in the Magnuson Amphitheater. Professor Magnuson was a member of the original Committee on Prosthetic Devices, which arose out of a meeting in the next Northwestern University building, the Gothic-style Thorne Hall. A meeting there in January 1945 was supposed to standardize artificial limbs and to pick the best available artificial limbs and components. The meeting ended in chaos with nobody agreeing on the parts to include. The only uniform agreement was that there ought to be better limbs than those available. When Dr. Paul Klopsteg, who was a professor in the Technological Institute at Northwestern, reported this to the National Research Council as their delegate to the meeting, he was told to go ahead and develop a committee to improve artificial limbs. That led to the Committee on Prosthetic Devices, whose descendants are still here and still active. One of our first meetings of the research projects in the artificial limb program had been in the same Thorne Hall in January 1946. It is fascinating that we are now meeting in a much newer building of more modern architecture, and at a much higher elevation; I hope that this change is symbolic.

This conference, then, in a sense is a revival of some old meetings organized by NRC groups now represented by the Committee on Prosthetics Research and Development. It is fitting that Mr. Wilson, the Executive Director of CPRD, and a number of members of the staff are here with us.

I should like to introduce a couple of our own staff: Earl Lewis is Assistant Director of the Research Center for Prosthetics and has been deeply involved in the organization of this meeting. Mr. Howard Freiberger, Electronics Engineer on our staff, is Rapporteur.

The primary purpose of this meeting is to review the program as a whole in the light of the current state of the art, the VA's needs (which are not necessarily those of other groups), and the foreseeable trends,

especially trends that can be accelerated. We hope that we can encourage cooperation among the various projects and among the various disciplines involved in this very peculiar marginal field that Prosthetics and Sensory Aids represents.

For example, clinical gait analyzers could be useful not only for evaluating amputees and orthosis wearers, but also they would be useful with the blind rehabilitation sections in evaluating whether a blind person with a long cane has a good normal swinging gait or whether he walks with a typical blindism with his head back and reaching out with the tip of his toe to touch the ground to make sure that there *is* some ground ahead of him. Also, one can imagine using the electromyographic control systems, which have been used for the control of artificial arms as means of seeing whether a newly blind person is gripping the cane with unusual tightness, because he is scared stiff, or whether he is just holding it in a relaxed way. Similarly, one could study grip on the optical probe of a reading machine. One could see whether he is becoming fatigued in using it because of the intrinsic difficulty in learning the code, even from Harvey Lauer, or whether he is wasting muscle energy in gripping the probe with exceptional tightness. Thus, there are interrelationships between prosthetics and sensory aids that may not be completely obvious. But conversely, of course, we hope that some of the sensory aids work will help to provide sensory feedback in artificial limbs, for spinal-cord-injured patients, and so on. All of us can learn from each other and make intelligent contributions in discussions of each paper.

I would hope also that we can encourage transition from the research stage through design, development, evaluation, redevelopment, and ultimately into prosthetics education, such as Dr. Compere's school and the other two schools that are available at NYU and UCLA, and through the intramural seminars which Earl Lewis operates for the Veterans Administration, and, of course, through the papers in the literature in general, including the Bulletin of Prosthetics Research. Hence, designers could get drawings and early models, where indicated, into Mr. Staros' hands, so that he could go out on bid, get larger quantitites of models for broader evaluation, and eventually launch the device into the commercial market. Thus, developed from concepts of Ed Wagner, General Strong, and Ted Dennison, we have a systematic, orderly way of providing transition from early ideas through to a routinely used device, used not only in this country but throughout the world.

We welcome the cooperation between our program and the several other sponsored programs in the United States and are particularly happy that Joe Traub of the Rehabilitation Services Administration is here. There are also programs under the Office of Education and other agencies. It is important that all these groups work together.

We would like to encourage some focusing on early payoff devices and techniques at this meeting. You know there are many interesting, but fringe, ideas. All of us, I think, run the risk of becoming so diversified with numerous intriguing ideas that we never quite can pin down any one of them. It is important to try to focus on a few things, making sure to take them out while we are laying the ground work for other ideas.

Finally, we hope to improve the administrative side of the program. Mr. Thomas Conners of our office, a prosthetics representative, who is concerned particularly with budgeting aspects and reporting contractual matters, will be available. You may talk with him about that side. You will probably be hearing from him by correspondence and telephone. It is desirable to get persons acquainted. Finally, we hope that this meeting will encourage personal friendships, beyond the long standing friendships that some of us have had for a quarter of a century.

We are proud of the accomplishments of the program in the past. A collection of both items and techniques of fitting has reached wide use. We are also happy that we inadvertently made some improvements in economy. Mr. William H. Talley, in his editorial in the Bulletin of Prosthetics Research in 1968, demonstrated that he had saved over $28,000,000 in operating costs as a result of our spending $20,000,000 in research, so that's a worthwhile record. One can argue that we cannot afford not to have more research! We hope in similar ways better prostheses would lead to further true economies by making many handicapped people better adjusted to life and to the world. Thank you very much.