Let's take the issue of combined technology. Take the British Prestel, the home information system. There's big competition in this area right now. You've got CCTV firms looking at it as a potential market; you've got people like Mattel toys who make Barbie dolls looking at it. They show the product that the consumers show. You've got people saying, "It's a telephone company responsibility." You've got data base suppliers thinking that this is the way they're going to sell their services. It's a hot item at the moment, and there's a lot of proprietary money invested in this--identifying markets, and identifying preferences. When it's that highly competitive in the technology, it's going to be tough bringing people together. Take, for example, the chips that Texas Instruments makes. They will make you a chip for an instrument that talks or does different things that you may want done; but it's a $100,000 investment. They've got some proprietary interests which is part of the profit system.

I think I'm offering another reason rather than a solution. I think that's the problem that's got to be overcome, and there's got to be some coordinating force. It may not be in these highly competitive areas that you can get solutions; it may have to be somewhere else. I really don't know the answer. But that's the marketplace we find ourselves in.

KORNBLUH: Any other comments from our illustrious panel or the fine audience?

test these things much as Consumers' Reports tests various devices. And they print them up and there's a wide distribution of this literature made available to consumers. So that's a different kind of market.

They have been very involved in the development of communication aids for speech-impaired individuals. I might mention, as one example of international cooperation, the center in Sweden and one in Canada and a few in the United States have agreed to work cooperatively--at least, through exchanging research information and conferencing on applications; because it's small scale and relatively modest in scale we think we can learn from that system in terms of other technology transfers.

HEIL: I think I could add something. I've been interviewed twice in the last year and I will be again next Tuesday by a research firm, a foreign national communications supplier which wishes to remain anonymous. There is a surprise when people from the continent come here and interview businesspeople about supplying communication devices. There tends to be a general feeling over there of extreme government subsidy. There is not, in my opinion, too much in the way of communication devices. But the tendency over there seems to be more awareness of the social responsibility of meeting the needs of disabled people. But perhaps somewhere along the line they're suffering also from the ability to produce the products in the field of communications.

DOUG MOORE: I'm Doug Moore, Director of Research for the American Foundation for the Blind. I would like to just mention the work that's being done in Japan which, I feel, is extremely significant and extremely important. Under the direction of Dr. Schwada at Osaka University, the Japanese Government has committed, I think, 14 million yen over a three-year program to generate a talking device--excuse me--a walking aid for the blind, or as we would call it, an electronic travel aid device. The principles of operation of this device are very similar to the type of work that we're doing at the American Foundation; so we're very excited about the possibility of cooperating with the Japanese.

I would certainly say that, in my estimation, looking at England and other areas throughout the world, we should not slight Japan which is really putting a great amount of effort into research for the blind.

HEIL: It certainly would be interesting to compare the effect of the different Japanese culture and the different business and organizational structure in Japan to our organizational structure here in America. We do know, for example, that once you take a job in Japan, you're in that job for probably most of your life and sometimes it's difficult to separate the private and public sectors there--in the sense that the Government works very closely with private industry; perhaps even more closely than they do here--from some people's point of view. And there have been one or two publications showing how the Japanese industry operates with the Japanese

to help fit the disabled and for ease in getting in and out of clothing and also in the style of today.

Another area I'd like to talk about is the Minnesota Outward Bound Program which is a wilderness survival program. Every summer for ten days they have a special program geared to disabled people--deaf, blind, and paraplegics, and also those who work with them, whether they be therapists or just rehabilitation people or their attendants. Each one, at the end of their ten-day course, is sent out by himself in the wilderness for a day and a night to survive on his own. I think this is a large step in getting the handicapped involved in other areas besides business and industry. Other areas that we see are teaching visually-impaired people how to ski. Aspen, Colorado, has a program of this type. There's a "Ski for Life Program" that will be held there in February. They're going to be teaching paraplegics and other orthopedically-impaired people how to use skis--called pug skiing. They will also teach blind individuals how to ski. There are other areas as well. It's a separate part of technology from what we've been discussing today, but it is also an integral part and a very important part of technology in getting the handicapped integrated into society. Thank you.

KORNBLUH: One more comment, please. Okay.

MARGARET SCHAFER: I'm Margaret Schafer from the American Occupational Therapy Association. I was interested in the concern of cost and patient or client treatment and how they or we as a society pay. The Rehabilitation Institute of Detroit is

transferring of technological developments and modifications. With that in mind, we are doing a needs assessment so that we can look at where the transfers may be made. Finally, I would like to close with a word on the importance of consumer education. Many of us are disabled--but we may not know it, in the sense that, well, okay, maybe we are resigned to the fact that we cannot do certain things. Okay, so then that is the way it is. Maybe we may not be aware of resources or of laws or of certain grants and incentives that, if we were knowledgeable, could push and help fill some urgent needs. So along with the new developments and the transfers, we need consumer education for handicapped people and for all people who work with or live with the handicapped.

KORNBLUH: Well, a great deal has been said about what is being done and could be done. I'm going to take a different tack for the last half hour or so of this program. I just decided about ten minutes ago to do this. I suspect, I almost know, that there are many people here who have good backgrounds in many of the issue areas that are listed. What I'd like to do is sort of go down the line of issues. For example, if there is someone here from the panel or the audience who'd like to make a statement or a comment on any other issue which could be inciteful--and that's spelled "inciteful"--as well as enlightening, and contributory, I would like to encourage that. Bill, are you still there?

SPENCER: Yes.

conference they had in California where the people spoke up from the Independent Living Centers, who are mostly handicapped individuals themselves, on how to fight the daily battle of getting through the day and going to work and obtaining pleasure or whatever. And one man said, "What we need is a Whole Earth Catalog for the handicapped individual." I like that idea, because I remember the Whole Earth Catalogs with great pleasure. They had a great deal of good information in them. So we might pick on this idea.

Now, let me say a few things about where evaluation is now going on. It goes on in the Veterans' Administration, of course, because they are purchasers of equipment and, therefore, they have a great need to also evaluate it. But the bulletins which go out do not reach the handicapped community; they are more for the professionals within the Veterans' Administration or for professionals elsewhere. The Veterans' Administration, for example, commissioned a study which was done in conjunction with the Consumer's Union. There was a very good survey of what the priorities of the consumers are in terms of evaluation of equipment for the handicapped. Also, I read the study report; it was good and it gave a few leads. But it also takes a great deal of money. I think we have to start modestly and say, "We cannot evaluate all the many equipment parts which come out every year, but maybe somebody can select the most important ones."

The RSA, the Rehabilitation Services Administration, has now funded three units which are display centers in the sense of

KORNBLUH: Do you have any comments, please?

SPEAKER: At one point in my life I was pushing very hard for a very substantial national evaluation center, but as Helga said, to do that effectively would be inordinately expensive. As a fall-back position that I would support at this point, and, again, Helga mentioned it, is the delivery of rehabilitation engineering or the delivery of technical services to the handicapped--the delivery system. We need an effective delivery system operating in the country. By an effective system, I mean one which has built into it an information development capability with follow-up of how the devices are working, a coordinated key word protocol where information is developed systematically on the applications, and which is then fed into a central system made available through electronic and other means to all of the people who are involved in the delivery of services.

The evaluation becomes an integral part of the overall delivery system, and I hope that before we run out of time, Marvin, let's just talk about the delivery system because that's, for me, almost the top priority area.

KORNBLUH: I promise you we will. I'd like to go to Bill. Can you say a few words, Dr. Spencer, on Standardization.

SPENCER: Well, I chose Standardization to bring up two points. One, I don't think, until we have the right information base to design a proper evaluation system, that you can standardize. The second point I wanted to make and why I had

The Rehabilitation Engineering Delivery System is complex and many-faceted. It involves many kinds of professionals and institutions and includes, most importantly, the person with disability and his or her family. To be successful, all components of this system must function effectively both as individual units and as an interconnected network.

Now I define the system or try to, in terms of the "ers" and the "ors." These are the professionals in the Rehabilitation Engineering Delivery System, the consum-"ers," the persons with disabilities and their families, the practition-"ers," the physicians and allied health professionals including counselors who recognize the potential of a disabled person and who prescribe the specific devices, provide service, and arrange home modifications and the like. There are also administrat-"ors," the directors of staff and staff of Federal and State and local agencies, public and private, that have health, social, and vocational responsibilities for persons with disabilities. There are also manufacturers and distribut-"ors," members of firms and institutions that make equipment and services available to the handicapped, including builders. Furthermore, there are operat-"ors," members of companies that provide transportation, hotels, restaurants, recreation facilities that are accessible to persons with disabilities. Also, we can't forget the authorizers and providers, health agencies--for example, Medicare and insurance companies that must authorize purchase of equipment and services and provide

It seems as though there is a vital need for disabled people to be involved, and, just as vital, I think that all of us who are disabled need more training. We need to get directly into that delivery system. We need to be part of all these solutions and need to have needs met. I'm talking about the need for market studies and the need for industry and for Government and all this. I'm just curious if the National Institute of Handicapped Research is going to have any monies and if it is going to get disabled people in there or will there be monies to provide some of that self-help need for handicapped people? Maybe Dr. Spencer can answer this or maybe those things haven't been decided yet. Will there be money that will help to build those community support systems?

SPENCER: I'll try to answer, and then I have to wear my other other hat. I'm still Acting Director for the National Institute. We're currently in the process of budget review and budget justification. At the current level, I gave a testimony before the Senate oversight hearing on the performance of the NIHR. We are at a request level of $37 million with a present base budget of $31.5 million. Now, within that, there was the total of about $6 million in new monies given--the fixed obligations that we considered to be contracts and grants for our present R&D effort which was transferred from the Rehabilitation Services Administration to the new institute. It includes also some degree of reprogramming within the existing activity. The new money, as currently requested, is at a $6 million level.

I saw commercials for contraceptive devices which are used in some countries--not this country--the commercials, I assume. I didn't see one handicapped person represented in those commercials for millions and millions and millions of dollars of items; and I'm sure, for example, that handicapped people eat the food that's advertised, drive the cars that are advertised, use all of the other things that were advertised. And one way to get public awareness is to do specials where handicapped people are involved, but also to get handicapped people in the mainstream of all of our television and programs so that we could become adept and accustomed to those people being a rightful part of our society--entitled to access to the benefits of the society.

KORNBLUH: Thank you for that bit of awareness, Mary.

MARY SMITH: I'm Mary Smith. I'm with the Congressional Research Service here in the Library. I just wanted to remind the group that 1981 has been designated by the United Nations as the International Year of Handicapped Persons, and the Federal Government is organizing to recognize and have a lot of special projects that will take place during that year. Also, there will be an effort to spread the knowledge in this country and share this with countries in other parts of the world. I am hopeful that persons here can participate in that activity and help forward the kinds of suggestions that have been brought up. I think it's a good opportunity for the field of the handicapped.

aids and making them accessible to people and making people aware of the availability of these aids. So it's very important; and I'm very happy to have been a part of this wonderful meeting. Thank you very much. (Applause)

KORNBLUH: That ending couldn't have been any finer if I had prearranged it. I want to thank Bill Spencer in Texas. I want to thank our panel members for making the trips to participate. Some of you come from healthy distances such as California and Michigan. I want to thank the interpreters for the deaf. Thank you all, very much.

SPENCER: I was glad to attend, Marvin. And good luck, all of you.

U. S. Congress. House. Committee on Science and Technology. Subcommittee on Domestic and International Scientific Planning Analysis and Cooperation. Computers and the learning society. Hearings, 95th Congress, 1st session. Washington, U. S. Govt. Printing Office, 1977. 697 p.

U. S. Congress. House. Committee on Science and Technology. Subcommittee on Domestic and International Scientific Planning Analysis and Cooperation. Computers in health care. Hearings, 95th Congress, 2nd session. Washington, U.S. Govt. Printing Office, 1978. 475 p.

U. S. Congress. House. Committee on Science and Technology. Applications of space technology for the elderly and the handicapped. Joint Hearings, 96th Congress, 1st session. Washington, U. S. Govt. Printing Office, 1979. 168 p.

U. S. Congress. Senate. Committee on Human Resources. Rehabilitation amendments of 1978. Hearings on S 2600, 95th Congress, 2nd session. Washington, U. S. Govt. Printing Office, 1978, 870 p.

U. S. Dept. of HEW. Office for Handicapped Individuals. The White House conference on handicapped individuals. Summary of the final report. Washington, U. S. Govt. Printing Office, 1977. 140 p.

U. S. Dept. of HEW. Rehabilitation Services Administration. Functional Limitations: A State of the Art Review. Falls Church, Va., Indices, Inc., 1979. 69 p.

U. S. Dept. of HEW and the U. S. Veterans Administration. Rehabilitation Services Administration. Rehabilitation Engineering, a plan for continued progress. The Rehabilitation Engineering Center, University of Va. 1978. 54 p.

Weston, Jean K. The White House conference on handicapped individuals, awareness papers, vol. 1. Washington, George Washington University School of Medicine. 1977 466 p.

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REFERENCES

The following reference materials were consulted in organizing and developing the three panel/workshops and can serve as a basic set of materials with respect to technology for handicapped individuals.

Brown, Janet Welsh and Martha Ross Redden. A research agenda on science and technology for the handicapped. Washington, American Association for the Advancement of Science. 1979. 54 p.

Christy, Lo F., Gail Kelton-Fogg, Ruth Lizak and Cynthia Vahlkamp. Suggested approach for establishing a rehabilitation engineering information service for the state of California. Menlo Park, California. SRI International. 1978. 271 p.

Clements, John G. and Sherman E. Roodzunt. Congress emphasizes research rehabilitation. Bulletin of Prostethics Research, vol. 10 no. 31, Spring 1979. 8 p.

Pflueger, Susan. Independent living, emerging issues in rehabilitation institute for research utilization. Washington, 1977. 78 p.

Proceedings of the Rehabilitation Information Network Conference. Washington, The National Rehabilitation Information Center, Catholic University of America. 1978. 254 p.

Rehabilitation Services Administration. Telecommunications for rehabilitation. The Wisconsin Center. 1977. 39 p.

Report of the Workshop on Rehabilitation Engineering Education. University of Tenn., Knoxville. 1977. 85 p.

The Second International Learning Technology Congress and Exposition on Applied Learning Technology. Learning technology for the deaf. Proceedings vol. 3, February 14-16. Warrenton, Va., Society for Applied Learning Technology. 1978. 83 p.

U. S. Congress. House. Committee on Science and Technology. Report on the panel on research programs to aid the handicapped. 95th Congress, 1st session. Washington, U.S. Govt. Printing Office, 1977. 53 p.

U. S. Congress. House. Committee on Science and Technology. Research programs to aid the handicapped. Hearings, 94th Congress, 2nd session. Washington, U. S. Govt. Printing Office, 1976. 408 p.

KORNBLUH: I'd like to make a special note that Mary Smith is with the Education and Public Welfare Division of the Congressional Research Service of the Library of Congress and that she has been very, very active, long before I ever entered this area, in helping handicapped individuals; I think that you worked for HEW before that, is that correct?

MARY SMITH: Yes.

KORNBLUH: Again, I just want to make sure that everyone recognizes you and your name so they can participate and make suggestions. I think that she is involved in a great many excellent studies and programs to assist Congress and assist handicapped people. This particular set of workshops is only one kind of contribution.

Did I detect one more desire to comment? Okay. This is the very last. Ros, you have the pleasure and honor of really closing the participatory part of our workshop.

MS. ROSEN: Thank you, Marvin. I would like to tie in with Frank's comments on attitudes. We can develop services and technology, but attitudes affect the delivery of those services and developments. Those attitudes are very important. One of our greatest handicaps is not our individual disabilities, but the attitudes of other people to us. In closing, I would like to remind you of the old adage, "Give a man a fish, and he will depend on you for his meals; but teach him how to fish, and he will take care of himself." And that ties in with the provision of technological

to work out a methodology to bill the telephone customers of California $58 million to develop the needs for the hearing-impaired people of that State. However, I really question whether the people who live in California understand that there might be offsetting benefits from that. In my opinion, there will be a reduction of dependency in the lives of a lot of those people, and they'll be part of the group of productive people who are doing things. They'll also be paying taxes. These are offsetting benefits. The cost that we are afflicted with, at the moment, because we haven't done any of these things, is absolutely staggering. Nobody is computing benefits with costs anyplace that I can see. It's not being shared in the newspapers with America.

KORNBLUH: Thank you, Fran. Okay. We have two more concluding comments. Frank Withrow and Mary Smith. I know both of these people. Frank was one of our panelists on Educational Technology in our first session. That's only one of the many capabilities that Frank has. Go ahead, Frank.

FRANK WITHROW: Thank you, Marvin. I could not resist, after Fran's last comment. I feel obligated to comment on public awareness. I had an unusual experience yesterday. I spent the day watching what the American Association of Advertising had determined were the best commercials in the United Kingdom and the rest of the world as opposed to ours. And so I saw lots and lots and lots of commercials.

I think it's being demonstrated that any community of over 100,000 can support a rehabilitation engineering team of individuals who can bring services to those communities. We need not require that people go to these very few centers of excellence which are doing magnificent work, but which serve a very small fraction of the number of people who are in need.

Beyond these community teams which may be affiliated with community-based facilities or hospitals, I think it's important that the rehabilitation district offices around the country begin to utilize rehabilitation engineers as they have historically utilized medical consultants, psychological consultants, and others.

And this brings me to my last point which is, in order to do that, to establish community-based programs and to have engineers available as consultants, we need to train more engineers. We need to train people, establish this discipline, and promote the development of people who can be available to help.

KORNBLUH: John. You have a comment?

JOHN COLLINS: I'm John Collins. I'm with the Institute for Information Studies, but I'm really here as a citizen. I have some questions. I really agree that the whole service delivery system starts with the needs of the disabled people and it ends with those needs being met. There are also needs for all these things to be put together. But I have a question.

a conclusion and a requirement for the little meeting in North Africa involving a so-called underdeveloped country. It dealt with one of the most important, critical requirements for any change. In that underdeveloped country you deal with the most widespread and unbelievably devastating human problems associated with handicaps. Perhaps we can achieve bilateral information exchange from African and non-African countries which would promote the development, the availability, the distribution and the evaluation of equipment useful in different places, in different cultures, and in different climates for self-care, for work, and for family responsibility. Further, we should define requirements for equipment solutions from a functional means analysis of both common and unique requirements of various impairment groups and get away from trying to bind all solutions to medical diagnoses which in no way may reflect functional needs.

KORNBLUH: There's been a very favorable reaction, Bill, to your comments.

Jim, could you talk a little bit about Delivery Systems. You need not be exhaustive--maybe five minutes or so.

RESWICK: Okay. The Rehabilitation Engineering Delivery System; all I want to do, if I can do that, is to attempt a definition of the Rehabilitation Engineering Delivery System, because the first thing you have to do in dealing with any kind of a system is to define it.

the British Display Centers where you can see the equipment, where a handicapped individual can get immediate information on how does this hold up, or how practical is this bathroom for you, etc. And they are at the same time collecting feedback from the handicapped individual. And I think this should be organized in a much larger way in order to find out from the handicapped individual who purchases a piece of equipment, "How did it work out for you, what were the circumstances if it didn't work out?" Also, "What were the maintenance costs, how much difficulty did you have in getting repairs?"

I heard one blind individual talk about the electronic walking stick, and he said, "Mine is more often in the repair shop than I use it." The relating of experiences should be organized in a much larger way, and it could be organized very cheaply. It does not cost a lot of money because I'm sure that the handicapped individual would be eager to participate and give us something, especially if the information goes to organizations. So evaluation is very high on my mind, because if I think how uninformed a consumer I am when I have to buy a refrigerator, well, you know, it's not a matter of life and death. But in the handicapped life, it may be a matter of, "I can't buy another piece of equipment." I've read too often of how many pieces of equipment end up in closets and are not being used because they did not hold out what they were promised. Okay.

KORNBLUH: I remember that you had the only vote for standardization, is that correct?

SPENCER: Yes.

KORNBLUH: What I'm going to do is, first, elicit comments that you may care to make on Evaluation; then, I'm going to go to Standardization. We're just going to proceed and spend a few minutes on each issue as time permits. I feel it's useful, considering the nature of this audience, to expose more issues and get additional insights into the record. I also want to repeat that there'll be a committee print published of these workshops. It should be coming out sometime in February. All of what we've said will be printed in this committee print.

So let me continue with Evaluation, and read what I have written down. "How can technology to aid the handicapped individual be best evaluated so that informed choices on the most appropriate devices and systems be made?" Does anyone have a comment to add to that kind of issue? What we're focusing on is evaluation of the systems and devices to aid handicapped individuals.

MS. HELGA ROTH: I'm Helga Roth. I'm the Chief of the Clearinghouse on the Handicapped in HEW. Evaluation has been going on in small ways and in small measures in several places, and it's still going on and will be going on. The trick is really to tie it all together and then to make it available to the handicapped individual. I read the other day about a

going into a human factor study because it is concerned about why a patient is delayed in physical therapy and late for occupational therapy or going to the Prosthetics Department. All of these delays add to cost. They are employing an engineer from NASA to do a human factors study.

Someone earlier mentioned something about ADL, "Activities of Daily Living." I wanted to just mention that this same institute has three or four apartments across the street where they involve the handicapped person in finding the apartment, living in it, coping with it, etc.

KORNBLUH: Thank you very much. Ros has a comment to make, and I'd like to now ask her to do so.

MS. ROSEN: Thank you. Some of us have heard that there is a depression on. At least one may be on the way here, so we have to be very careful about how we want to spread our money. We want to put the money where it will be going the farthest, where it will be doing the most good for the most people. That means setting up our priorities; that, in turn, would call for a market analysis of the needs expressed by the people--by the parents of handicapped children and by companies that employ the handicapped worker. One form for your reference relating to deafness is the Deaf Community Analysis Company which is located in the headquarters of the National Association of the Deaf. It specializes in analysis. We need to bring them together with a pool of known needs. I know this may have been done before, but perhaps not with the involvement of a new frame for

Government which, in many ways, is quite different than the way we operate here with our Government.

Now, I don't know whether that's helpful or not with respect to providing devices and transferring technology for the benefit of the handicapped. It might be interesting to explore that.

SPEAKER: By the way, a study in mobility is being done by the three largest manufacturers of electronic equipment in Japan. I just wanted to mention that.

KORNBLUH: Sue, can I have some assistance, please. Thank you very much.

MS. SUE WALBRIDGE: I'm Sue Walbridge and I'm from Senator Stafford's office. I just have a couple of comments I'd like to make concerning technology outside of NASA and some of the other things that are going on in this country. One of them is technology dealing with dress designing and clothes designing for the handicapped. The October 31st issue of The Washington Star had an article on dress designing for the handicapped, clothes designing, and suits for men. What is most comfortable for a man in a wheelchair? What is the most comfortable dress design for women in wheelchairs? Some of the universities that are participating in this process are the University of Michigan, the Drexell Institute of Philadelphia, and the University of Houston in Houston, Texas. In conjunction with their home economics departments, they have been working in this area for several years. They have designed clothes

Prestel, the home information system of the British Post Office system, which was very early touted as, or advertised as, a means of helping the deaf, has not really materialized. I was surprised to learn that the British Post Office system is a quasi-profit-making organization in some of these aspects. But I think they're suffering, probably, from the manufacturing wherewithal, so they've got, maybe, the reverse product.

SPEAKER: I think that in technical application, they may have some things to learn from us. In public policy, we may have some things to learn from them.

KORNBLUH: You have another comment? Please.

SPENCER: Marvin, one thing that Sweden did may be of some interest to this group. It concerns the large need to distribute information. The Swedish Institute distributes its information through the telephone bill because everybody has a telephone.

KORNBLUH: That's interesting. Thank you, Bill.

SPEAKER: My concern arises from where economic policies seem to originate or more specifically the fact that industry has a concern about the cost of production and other related matters. However, we see industry becoming more and more concentrated and more in control of the marketplace and high profits. Shouldn't there be some sort of social commitment which, admittedly, may cut into their profits but may not do so significantly, in light of the extent of the marketplace they control?

KORNBLUH: Thank you for that relevant comment.

BOB SILBER: I'm Bob Silber from the Senate Subcommittee on the Handicapped. Dr. Galvin, I was wondering how other countries have dealt with the issue of social commitment to handicapped people and private industry's need to make a profit on a product in order to distribute it in the marketplace?

HEIL: You might look at that question, Don, from both the Eastern bloc and Western bloc, if there's a difference.

GALVIN: I'm glad you're fielding that. I hope you'll add some comments later on.

Obviously, there are some different philosophies of economics in operation in different areas of the world. But in both Eastern Europe and Western Europe there are varying degrees of more government participation in these kinds of investments. In the Eastern bloc countries it's almost entirely government-related research. The institutes and so on are, for the most part, direct government operations.

In Western Europe, there are certainly those countries which have subscribed for many years to national health insurance plans and that sort of political-economic philosophy--in Western Germany, in Sweden, in Denmark, and to some degree in England. They have established very substantial government-sponsored research institutes. I visited one in Stockholm last year which not only produces items but also tests and evaluates items. They have a standardization--a national standard system for various devices for handicapped individuals such as wheelchairs and so on. And they