

**HEARING ON ASSISTIVE DEVICES FOR
AMERICANS WITH DISABILITIES**

HEARING
BEFORE THE
SUBCOMMITTEE ON SELECT EDUCATION
OF THE
COMMITTEE ON
EDUCATION AND LABOR
HOUSE OF REPRESENTATIVES
ONE HUNDREDTH CONGRESS
SECOND SESSION

HEARING HELD IN WASHINGTON, DC, MAY 10, 1988

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HEARING ON ASSISTIVE DEVICES FOR AMERICANS WITH DISABILITIES

TUESDAY, MAY 10, 1988

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON SELECT EDUCATION,
COMMITTEE ON EDUCATION AND LABOR,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:10 a.m., in room 2257, Rayburn House Office Building, Hon. Major R. Owens (chairman of the subcommittee) presiding.

Members present: Representatives Owens, Bartlett, and Jeffords.

Staff present: Laurence Peters, Bob Tate, Pat Laird, Jillian Evans, and Gary Granofsky.

Mr. OWENS. The hearing of the Subcommittee on Select Education will come to order.

Today we are considering assistive devices for Americans with disabilities.

Modern technology has leaped ahead of national policy and legislation for people with disabilities. There is an urgent need for the Congress and the Government to run fast and catch up with technology.

Very practical and profitable dividends will result from this long overdue effort to maximize the utilization of technology by Americans.

In addition to creating a better life for millions of individuals, the national economy will benefit from the participation of a new cadre of highly motivated and talented workers. The national treasury will benefit by the taxes paid by this new work force. And the Nation's taxpayers will benefit from the millions of dollars of Social Security payments that will be saved.

This hearing is vital to the process of delivering the people with disabilities in this Nation from the Stone Age neglect of the benefits of technology. The Nation that placed a man on the moon has an obligation to put the state of the art for disabled people within the reach of every citizen who needs it.

The technology of today has freed many disabled people from a life of dependency by enabling even those with the most severe physical impairments to participate fully in education, employment and community activities. Particularly innovative are electronic communications devices which aid those unable to speak in expressing themselves.

Environmental control devices permit mobility impaired persons to operate telephones, kitchen and other household appliances. Spe-

cially adapted writing aids allow those with limited hand function to control the use of pencils, paint brushes or crayons.

However, many such assistive devices used in educational, recreational and employment settings are not available to most disabled children or adults because there is not a centralized system to link the technology to those who need it. Today's hearing will explore ways to promote widespread availability of assistive devices.

We'll look at how and whether the cost of such devices are prohibitive, and how to go about solving that problem. We'll look at what devices exist, what companies make such devices, how to disseminate information about these devices, and what role the States have in coordinating such services leading to the distribution of these products.

There is legislation pending in Congress which addresses many of these concerns by calling for a comprehensive approach that would allow States to develop the capacity to provide technology and related assistance, create a national information referral network, and promote applied research development and training. This kind of approach would ensure that existing technology and future advances would be more accessible to people with disabilities.

If disabled Americans are to take control of their lives and work toward full democratic participation in society, they must be afforded the means of doing so.

Access to appropriate assistive devices is a key determinant to whether disabled Americans become active participants in society, able to achieve their highest potential in all the areas of life's endeavors, or whether they are forced into helpless dependency.

Disabled Americans no longer have to be prisoners of their impairments. Through the miracles of modern technology, it is possible to bring in a wider range of disabled people who have so far been shut off from a variety of opportunities.

We must do everything that we can to get these assistive devices into the hands of Americans with disabilities so that they can begin to master their own fates.

I yield to the ranking member, Mr. Bartlett, for an opening statement.

[The prepared statement of Hon. Major R. Owens follows:]

OPENING STATEMENT OF CHAIRMAN MAJOR R. OWENS

Modern technology has leaped ahead of national policy and legislation for people with disabilities. There is an urgent need to run fast and catch up with technology. Very practical and profitable dividends will result from this long overdue effort to maximize the utilization of technology by disabled Americans. In addition to creating a better life for millions of individuals, the national economy will benefit by the participation of a new cadre of highly motivated and talented workers. The national treasury will benefit from the taxes paid by this new work force. And the Nation's taxpayers will benefit from the millions of dollars in Social Security payments that will be saved. This hearing is vital to the process of delivering the people with disabilities of this Nation from the stone age neglect of the benefits of technology. The Nation that placed a man on the Moon has an obligation to put the state-of-the-art in technology for disabled people within reach of every citizen who needs it.

The technology of today has freed many disabled people from a life of dependency, by enabling even those with the most severe physical impairments to participate fully in education, employment, and community activity. Particularly innovative are electronic communications devices which aid those unable to speak to express themselves; environmental control devices which permit mobility-impaired persons to operate telephones, kitchen and other household appliances; and specially adapt-

ed writing aids which allow those with limited hand function to control the use of a pencil, paint brush, or crayons.

However, many such assistive devices used in educational, recreational, and employment settings are not available to most disabled children or adults because there is no centralized system to link the technology to those who need it.

In today's hearing, we will explore ways to promote widespread availability of assistive devices. We will look at how and whether the costs of such devices are prohibitive and how to go about solving that problem. We will look at what devices exist; what companies make such devices; how to disseminate information about these devices; and what role the States have in coordinating services leading to the distribution of these products.

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If disabled Americans are to take control of their lives and work toward full democratic participation in society, they must be afforded the means for doing so. Access to appropriate assistive devices is the key determinant to whether disabled Americans become active participants in society, able to achieve their highest potential in all areas of life's endeavors, or whether they are forced into helpless dependency.

Disabled Americans no longer have to be "prisoners" of their impairments. Through the miracle of modern technology, it is possible to bring in a wider range of disabled people we have so far been shut out from a variety of opportunities.

We must do everything we can to get these assistive devices into the hands of disabled Americans so that they can begin to "master their own fates."

Mr. BARTLETT. Thank you, Mr. Chairman.

I particularly want to thank you, Chairman Owens, for holding these hearings, so that the subcommittee can look at ways to get technology out and look at this technology itself. We want to get this technology to every disabled person who can benefit from that technology.

This technology exists, but it is neither widely accessible nor widely known.

I hope that the testimony from this hearing will provide us with at least some of the answers on how to obtain technology related assistance for people with disabilities. I don't believe that the answer to the problem is to create another bureaucracy at either the Federal or the State level, though.

Congressman Jeffords and I are working on another approach, which we have shared with Chairman Owens and are working on with him and with this subcommittee. This is an approach that would be in a piece of legislation that would establish and expand the existing capacity of agencies and other entities within States to help persons with disabilities acquire information about technology and obtain assistance in purchasing, using, maintaining, adapting and upgrading technology products.

Our proposal's goal would be to provide direct assistance to States, establishing a national information and referral network, support research and development activities, recognize and promote initiatives in the private sector, and provide a demonstration loan program for persons with disabilities to obtain a job, or for employers who wish to hire persons with disabilities.

These activities are essential if the Federal Government is going to impact the use of Federal and non-Federal dollars in a complementary way which promotes access to technology for persons with disabilities.

The role of the Federal Government in providing technology related assistance to persons with disabilities should be to increase coordination among existing services, systems and manufacturers that currently provide assistance to persons with disabilities.

If the Federal Government is going to serve as an effective catalyst, a comprehensive approach is necessary if we want to reach every person with a disability that could use technology related assistance.

I want to welcome all of our witnesses to the subcommittee today, and I'm confident that the testimony that we hear today will be able to tell us if we're moving in the right direction.

I'm particularly pleased that Dr. Al Cavalier, a fellow Texan, is testifying before us today. Dr. Cavalier is the director of bioengineering at the Association for Retarded Citizens in Arlington, Texas. He and his staff have been instrumental in taking existing technology and adapting it to the needs of people with multihandicaps, especially those with mental retardation.

One of the problems that exist in providing technology to people with disabilities is that many providers do not know what exists, or how to adapt a piece of equipment to a particular individual need. Dr. Cavalier will demonstrate today how adapting existing technology can open new doors for mentally retarded people and allow them to lead a more independent and productive life.

Information about and access to technology can have a dramatic effect on a disabled persons' life. For most of us, technology makes things easier, but for persons with disabilities, technology makes things possible.

Technology allows a person with disabilities to transcend limitations and become a full participant in their education, their job, and their community. Technology can provide eyes for persons with visual impairments, ears for the hearing impaired, and a voice where there was once silence.

We as lawmakers, parents, providers, teachers, physicians and employers must find the key to unlock the door to technology accessibility.

In addition, providers, teachers, and employers must be trained in the procedures to use and maintain assistive devices. Technology is useless to people with disabilities if no one can teach them how to use it, maintain it, or upgrade it.

This hearing is the beginning of that process, and I hope that witnesses can provide the subcommittee with the information we need to help people with disabilities obtain technology, which will improve their lives.

I thank the Chairman for the time.

Mr. OWENS. I yield to Mr. Jeffords for an opening statement.

Mr. JEFFORDS. Thank you, Mr. Chairman, and I deeply appreciate the holding of these hearings.

Many of our colleagues took an important step on April 29 when we introduced the Americans with Disabilities Act of 1988. The ADA will cause many of the forms of discrimination against persons with disabilities to be lessened and eventually eliminated.

This hearing today is another important step. We will have an opportunity to learn about, and to share with others, the positive effects of technology on the lives of persons with disabilities. Tech-

nology will play a critical role in removing barriers associated with handicaps and discrimination.

Thus, now is the right time to collect the facts about technology and to develop the right Federal role in promoting and understanding the availability and use of technology by persons with disabilities.

We know some facts already, and have used them to shape a tentative Federal role in the proposed legislation, the Technology Related Assistance for Persons with Disabilities Act.

The testimony that we receive today will let us know whether or not we are on the right track.

Would it be appropriate to establish a competitive grant program for States to assist service providers to increase their capacity to help persons with disabilities acquire the use of technology?

How important is a national information and referral network in technology? How can the Federal Government encourage greater private sector involvement in research and development in limited markets? Would it be useful to educate employers in the benefits of technology in the workplace, and is a revolving loan program a viable way to increase funds for the purchase of technology by persons with disabilities and their employers?

As you know, we have tackled these central questions in our draft legislation. I anticipate that the testimony that we receive today will help strengthen our draft and make us able to work with our Senate colleagues to be able to introduce and pass technology legislation during the remaining days of this Congress.

We could choose to wait, or to take a piecemeal approach. We could assume that Federal intervention is not needed, and we could assume that the need for technology by persons with disabilities is overstated.

If we wait, will we receive credit for caution? If we respond with limited solutions, will we be viewed as advocates for equity? If we say targeted Federal assistance and direction is not part of the answer, will we be part of the solution?

If we contend that the magnitude of the need is a reflection of speculation and not fact, will our credibility be unchallenged?

Quite simply, the answers are no.

Mr. Chairman, by holding this hearing, you have given us an opportunity and a basis for momentum, and a challenge to deliver. Working together, we can.

Mr. OWENS. Thank you, Mr. Jeffords.

Our first panel consists of Mr. Tommy Dormer, Ms. Janice Adams, Ms. Margaret Bibum, the Deputy Director of Deafpride, Judge Leonard Suchanek, and Mr. Howard Stone.

Will you please take seats?

Most of you have submitted written testimony, and that written testimony will be entered in its entirety into the record. We hope that you can confine your oral remarks to just the highlights of your testimony.

There will be bells ringing after 7 minutes, and we'd like you to conclude your testimony at that time.

Our first witness is a very busy young man, and will have to leave shortly after he testifies. We're going to take his testimony

and question him first, and then continue with the rest of the panel.

Mr. Tommy Dormer is assisted by his mother, Mrs. Dormer.

**STATEMENT OF MASTER TOMMY DORMER, ASSISTED BY
KATHLEEN ABRAMS, SPEECH PATHOLOGIST**

Master DORMER. Hi.

My name is Tommy Dormer. I am in the first grade. I talk by using this machine. Technology helps me do my schoolwork. I would like to tell you my story that I wrote with the computer. The title is: "The Computer Helps Me."

The computer helps me to think. I like the computer. It helps me to write and to do my schoolwork. It helps me a lot. I love the computer.

I need a computer to do my work. I can play games on the computer. I can draw pictures on the computer. I can make something and give it to a friend.

Please help other children like myself who cannot talk. Now my mother will tell you something.

Mrs. DORMER. Good morning.

My name is Veronica Dormer. This is my son, Tommy Dormer.

Mr. OWENS. Could you sit and have a chair next to the microphone?

For those of you in the back who couldn't hear, Tommy has told us that his name is Tom Dormer, and he's in the first grade. He says, "I talk by using this machine. Technology helps me do my schoolwork. I will tell you a story that I wrote with the computer. The title is, "The Computer Helps Me.'"

The computer helps me to think. I like the computer. It helps me to write and do my schoolwork. It helps me a lot. I love the computer.

I need a computer to do my work. I can play games on the computer. I can draw pictures on the computer. I can make something and give it to a friend.

Please help other children like myself who cannot talk. My mother will tell you something."

And now, Mrs. Dormer.

Mrs. DORMER. Yes.

This is my son, Tommy Dormer.

Eight years ago, when the neurologist called me into his office and told me that Tommy has cerebral palsy, and would not have total control of his body, at the time I felt cheated.

Well, today---

Mr. OWENS. Would you move the mike a little closer?

Mrs. DORMER. Well, due to technology Tommy now writes me notes. He writes his favorite cousin letters. He tells me who his best friend is. He cheered for the Redskins when they won the Super Bowl.

The best thing of all is when Tommy, who cannot talk, tells me "Mommy, I love you."

Well, there's a lot more that Tommy would be able to do if he could just get the things that he needs.

Thank you.

[The prepared statement of Tommy Dormer follows:]

STATEMENT OF TOM DORMER AND HIS MOTHER, MONTGOMERY COUNTY, MD

Tom Dormer:

Hi, My name is Tom Dormer. I am here on behalf of all children who need technology. I am in the first grade. I talk by using this machine. Technology helps me do my school work.

I will tell you a story I wrote with the computer. The title is: *The Computer Helps Me*

The computer helps me to think. I like the computer. It helps me to write and to do my schoolwork. It helps me a lot. I love the computer.

I need a computer to do my work. I can play games on the computer. I can draw pictures on the computer. I can make something and give it to a friend.

Please help other children like myself who can not talk. My mother will tell you something.

Mrs. Dormer:

Eight years ago when the neurologist called me in his office and told me my child had cerebral palsy and he would not have total control of his body, I felt cheated. Well, today, due to the use of computer technology:

He now writes me notes

He writes letters to his favorite cousin

He tells me who his best friend is

He cheered for the Redskins when they went to the Super Bowl

The best thing of all is when my child who cannot talk says, "Mommy, I Love you!"

Without the use of technology, how else could he have done that.

Well, there is a lot more Tommy is capable of doing if we could afford to get him the equipment he needs.

Thank you.

Mr. OWENS. Thank you.

Now, Tommy, we hope that you grow up and write books.

What is your favorite television show?

Mrs. DORMER. His favorite television show is The Cosby Show and Alf.

Mr. OWENS. What's your favorite football team?

Master DORMER. The Redskins. Go.

Mr. OWENS. The Redskins. [Laughter.]

Mrs. Dormer, what is the cost of this device? Speak into the mike, please.

Mrs. DORMER. This is over \$3,000. It was bought by the Society for Underprivileged Children. They were very generous.

Mr. OWENS. Now, the computer here also——

Mrs. DORMER. No, this is his voice.

When it's attached to the computer in school, this is when he writes and draws or does other things that a regular computer would do.

But, without this attached to it, it's not able to do that.

Mr. OWENS. Did you opt to pay any portion of that cost?

Mrs. DORMER. Not for this, no.

Mr. OWENS. But what would a computer cost?

Mrs. DORMER. I'm not sure of the price of computers. They're in the thousands of dollars.

They have one that they have an hour a day on, in school. That's what he used.

This is what he uses at home and in school.

Mr. OWENS. What is the possibility of his getting a computer for home use?

Mrs. DORMER. Right now, the possibilities are bleak. We cannot afford it, and there is no organization out there that would help us, if you just make a little over \$8,000. We just can't afford the prices of this computer.

Mr. OWENS. There's no place where you can get help, you say, because——

Mrs. DORMER. No, not with what I make.

I don't make a whole lot, but if you're a little over \$8,000, they think you're above the poverty bracket.

You don't get help that way. You have to be really poor to get anything.

His chair was bought through my insurance company, which paid 80 percent. I paid the other 20 percent of that, and that's talking about 20 percent of \$7,000.

Mr. OWENS. You paid 20 percent of \$7,000?

Mrs. DORMER. Yes.

Mr. OWENS. I see.

Any questions from panel members?

Mr. BARTLETT. I have several questions, Tommy.

My first question is, I hope someday you'll consider rooting for the Dallas Cowboys. [Laughter.]

They're a good team, also.

Master DORMER. Go Redskins. [Laughter.]

Mr. BARTLETT. That was Go, Redskins, Go.

Mrs. Dormer, I wonder if you could elaborate a bit. How did you find this device; where did you—how did you determine that this was the device that Tommy needs? Were there other devices that you considered and were able to compare this kind of adaptive device versus other things that are available?

Mrs. DORMER. The psychologist who tested Tommy for placement in Montgomery County Public Schools——

Mr. BARTLETT. On the school staff?

Mrs. DORMER. Yes.

He found out at the time that he needed some sort of communication. He had difficulty testing him, even though he was capable. So we went out to seek aid in getting him a device, and that's when he went to the Society for Underprivileged Children, and they bought the device.

Mr. OWENS. Did the Society sit down, or the psychologist, and walk through a catalog or some kind of engineering with you? Did you consider other devices? Or did someone just tell you that this was the one, and you got it?

Mrs. DORMER. He told me what it was doing, and I was very pleased. I left it entirely up to him.

When he got the machine, he brought it to me and showed me all the things that it could do. I was very pleased with that.

Mr. BARTLETT. This was the Society for Underprivileged Children, or the psychologist?

Mrs. DORMER. The psychologist.

He went through the Society for Underprivileged Children.

Mr. BARTLETT. So, so far as you know, you don't know of any other devices? You didn't yourself consider or examine other devices that would have——

Mrs. DORMER. I only knew about the computer in school at the time. But the computer could not talk.

I didn't know about these devices until they put them to me.

Mr. BARTLETT. So this is the only communication device that you considered, then, as far as—the psychologist told you that this was what you needed, and this was what you got?

Mrs. DORMER. That's what he got.

Mr. BARTLETT. That's what he got.

Mrs. DORMER. But in the school, they're looking at other devices right now, because there is a lot more out there since this talker.

Mr. BARTLETT. Was there a catalog? Did the psychologist have a catalog or some kind of network? Do you know?

Mrs. DORMER. With this machine, you only have two types right now. You have the Light Talker—that's what Tommy has—and you have the Touch Talker. He can't use the Touch Talker because he can't use his hands.

Mr. BARTLETT. The—you paid, tell us again how you financed it. The Society financed the entire thing, but you paid 20 percent of the wheelchair?

Mrs. DORMER. The wheelchair is what his physical therapist and his orthopedic doctor thought he needed, so they submitted that to me, and I submitted it to my insurance company. They agreed yes, he needs it, and they paid 80 percent after my \$100 deductible. But the other 20 percent is up to me.

Mr. BARTLETT. That therapist was paid for by whom? The insurance company? Or did you go out and hire the therapist?

The therapist who recommended the wheelchair.

Mrs. DORMER. This was at the Kennedy Center, where he goes for therapy. We go once a month, or sometimes twice a month. That's in Baltimore.

Mr. BARTLETT. When you considered this wheelchair, were there other types of wheelchairs that you looked at? Did you see any kind of a range of choices?

Mrs. DORMER. Yes.

There were other types of wheelchairs, but they're not moved in the same way as Tommy's moves.

They are hand devices or maybe mouth devices. He generally uses his head. That's the type that we thought was best for him. We're talking like three years ago, maybe four.

Mr. BARTLETT. So you did see some kind of a range of other options with the wheelchairs.

Mrs. DORMER. With the wheelchairs, yes.

Mr. BARTLETT. Were you able to see that wheelchair before you bought it?

Mrs. DORMER. Yes.

Mr. BARTLETT. Where did you see it?

Mrs. DORMER. We went into the—it was Fairfield Medical that we went into. They had one on display at Kennedy Center, and it wasn't the same sort that Tommy needed, so we went into Fairfield Medical, which was in Baltimore at the time, and they showed me the wheelchair.

But Tommy didn't have the controls and all that on it. But they showed us at this age, this is the type you would need for now, and then you would grow up in it.

Mr. BARTLETT. Back on the—you don't have a home computer. Then Tommy can't talk at home?

Mrs. DORMER. He talks at home, but he just can't write.

Like, doing his homework, I help him. I sit with him and write for him. He tells me what number on his Light Talker, and I write it. Sometimes, if he's not fast enough, I'll put the numbers out.

If he had a computer, he could sit and do his own papers on that computer.

Mr. BARTLETT. If some agency were to make available to you a low-interest loan, that you would pay back over 5 years or something like that, would that make the purchase of a home computer available to you?

Mrs. DORMER. That would be very helpful.

Mr. BARTLETT. Thank you, Mr. Chairman.

Mr. OWENS. Mr. Jeffords?

Mr. JEFFORDS. Mr. Chairman, I just have one comment.

Tommy, your smile has let us know what it's all about and has given me the incentive to move forward on our legislation.

Thank you so much.

Mr. OWENS. My final comment is go, Tommy, go. [Laughter.]

We want to thank you both, and we understand that you will have to leave now.

But we appreciate your appearing here this morning, very much.

Our next witness is Ms. Janice Adams.

Ms. Adams?

STATEMENT OF MS. JANICE ADAMS

Ms. ADAMS. I'm not sure if you can understand me. If you can't understand me, please stop me. All right?

Mr. OWENS. Yes, we understand.

Ms. ADAMS. On behalf of other deaf persons, and myself, I'd like to talk with you about different assistive devices. I have one here. This is called the Pal Operator. This is a phone device that is used by deaf people to talk on the phone.

There is a mouthpiece here, that's where you put the phone down. Then you tell them to turn it on, and the operator will come on and you hear it.

This machine can be used for communication. I can read out things from people who know how to type, and I can read what they send to me. This is a good way to communicate for people who don't know sign language because I can use it for the phone, but I have to turn the mode to telephone. It has to be put on telephone mode.

There's one problem. This machine is very, very expensive. It costs \$5,500, and only one company in this country makes TTY's like that. There isn't enough competition. Most deaf people can't afford it.

People would like to see the Government help people buy TTY's like that. It provides contact with the outside world and enables us to do business on the phone, and other things.

How many of you never use the phone? No one. We want to use the phone, too.

There are other devices that I would like to tell you about, such as the computer, such as an IBM computer for the blind. You have to have a regular computer, and then you can buy another machine that has a braille display, and that braille display costs about \$3,500, plus the computer, plus the software that's needed to make it work. So you can see that that is a tough bill to pay.

Do you have any questions?

Mr. OWENS. We'll take questions later on.

Remain seated, and we'll take questions when the panel is finished.

The next panelist is Ms. Margaret Bibum.

**STATEMENT OF MS. MARGARET BIBUM, DEPUTY DIRECTOR,
DEAFPRIDE**

Ms. BIBUM. Good morning.

I'm going to talk with you through an interpreter.

I am the deputy director of Deafpride, Incorporated, located here in Washington, D.C.

This is a community based organization working for the human rights of deaf people and their families.

This morning, my testimony will focus on the poor and the working poor deaf people.

Our technology has had many, many improvements during these last few years, and I won't go into depth as far as the different types of technology. We've seen some of that discussion this morning.

As Janice just said, it is expensive to be deaf and blind. It is also expensive to be deaf. That's been our regular expression. It is expensive to be deaf.

We have to buy a hearing aid, a TTY, a TV decoder, a special alarm clock that can be a type of vibrating alarm clock or a flashing light, a baby cry light, a door light, a phone light, and so on and so on.

Even for deaf people who have well-paying jobs, this can be an additional burden. For deaf people to use a telephone, we must have a TTY. For many deaf people who are poor or who are in poor families, many times that expense is just too much and not able to be afforded.

Many people are isolated from the community and are not able to call for emergency assistance, contact hospitals or schools, or associations.

A TTY can cost anywhere—the cheapest one—from \$150 to \$1,000 depending.

One of Deafpride's programs is called Project Access. That works primarily with low-income black deaf women and their families here in Washington, D.C.

The Project Access staff focuses on health care accessibility. Our work with black deaf women is on a daily basis, and we see many, many confrontations with access into these systems, because of a person's financial status.

I think that the best way to guide you through a black deaf woman's experience, as she becomes pregnant, for example.

The woman is pregnant. She goes to a government health-care center here in Washington, and that health center is pretty terrific. It provides accessibility, it provides TTY, and interpreter services. A deaf person advocate is on staff there, and you would think, Great. Wonderful.

But, when the deaf woman goes to her own home and tries to contact her doctor because she feels sick or she needs to discuss something about her pregnancy, she's stuck. She doesn't have a TTY herself. It's ironic: the health center may have a TTY, but she doesn't have one. How is she to contact her health care provider?

At the same time, that deaf woman may need to be abreast of information about health care, various issues, programs on TV related to health care issues—that would sound great. But to see this TV program related to health care issues, related to AIDS, related to pregnancy or whatever—her TV does not have a decoder. That TV decoder may cost \$199. Maybe that doesn't sound a lot—it's not as expensive perhaps as some of the Braille TTY equipment—but that can be a very extraordinary expense for a low-income person.

That deaf woman has given birth. She has to buy a baby cry light. So many times, that woman is not able to afford up to \$140. You may think again that is a very small expense, but for many women, they're not able to afford it.

Where does this deaf woman live? Does her front door have a flashing light for the doorbell? No, she can't afford it. Does she live in a security building? How does she know who's flashing the light, who's pressing the doorbell downstairs?

Here in Washington, D.C. it's said that the landlords must provide for a doorbell a flashing light, a visual smoke alarm. But many deaf people don't know about this law. They are not aware of their legal rights.

What I've tried to do in this short time that I have here this morning is to lead you through the life of a typical deaf woman here in Washington, D.C.

She is trying to get access. Some deaf people do have the technology. I have a TV decoder. I have a flashing light on my doorbell. I have an alarm, a vibrating alarm clock. But still, again, that's not an exactly perfect situation.

The TTY is fine. I'll call a hospital. Most hospitals will have their TTY's in the emergency room. They don't have a TTY at the information desk. Just last week my friend had to be carried to the hospital. How was I to contact the hospital? I had to contact an interpreter who contacted the hospital.

Most—you know about the law 504, which provides that Federal agencies and those that receive Federal funding are to provide access. But so many hospitals and other facilities do not provide access, or their access is very limited.

Related to the TV decoder, so many of our programs now are captioned, but that's not enough. You understand, my local news program—I have to wait and stay awake until 11 at night to see Channel 7 with the captions. I would be very tired in the morning when I wake up, but this is here in my capital city.

I realize this morning that my testimony is very condensed. I could sit here for a week and explain really in depth what life is

like for us. But I want you, please, to keep in mind that we do have this wonderful technology.

But for many of us, who are poor, who are very limited in income, there is still—although we have this wonderful technology—many of us are not able to get these things.

When you consider your allocation of funds, please keep in mind the access needs of the poor and the working poor deaf people in this city and all over the country.

Thank you.

[The prepared statement of Margaret Bibum follows:]

TESTIMONY OF MARGARET BIBUM, DEAFPRIDE, INC.

Good morning. My name is Margaret Bibum, Deputy Director of Deafpride, Inc. Incorporated in Washington, D. C. in 1972, Deafpride is a community-based organization which works for the human rights of Deaf persons and their families. The organization's empowerment and advocacy programs bring together a diversity of people to work for individual and institutional change. Today, I am here to speak for Deafpride's constituency and for myself as a Deaf woman. My husband and son are both Deaf.

Technology has made many, many advances over the past few years. I will not detail all the different technological miracles that are available today, or still being developed. In my testimony today, some of my focus will be on the needs of a specific segment of the deaf community, poor or working poor Deaf persons. They may include Deaf children, Deaf parents or Deaf senior citizens.

A familiar quote in the deaf community is "it is expensive to be Deaf". By the time we have bought hearing aids, TDD's, television decoders, special alarm clocks, baby cry lights, door lights, smoke alarms, etc., one can understand why. Even for those Deaf persons who have well-paying jobs, these assistive devices are an extra expense.

For the Deaf person to use the telephone, he or she needs to purchase a TDD (Telecommunications Device for the Deaf). For many poor or working poor households especially, this often is beyond the family budget. Therefore the Deaf person is isolated from the community. He is unable to call for emergency assistance, hospitals, schools, social service agencies, their place of employment and so the list goes on. TDDs can cost anywhere from \$150 to \$1,000, depending on its capacity.

Television, for many years, has been off-limits to Deaf persons. As a Deaf person, I am not able to follow television programs without use of a Decoder. Today when so many TV programs are closed captioned, I am able to watch these programs with my decoder. It means that my family has more access to information as well as be able to enjoy shows and news programs, along with hearing people. Especially for my son, I see the advantages of closed-captioning on his development in reading and writing English. Also, as a family, we are able to watch captioned programs such as the CBS news at 6:30 p.m. However, for too many families, the decoder is not available because it costs around \$199, way out of reach for many families on fixed incomes.

In its final report, published February, 1988, the Commission on Education of the Deaf states that too many Deaf persons do not have access to captioning. It further states that each television set should be fitted with a decoder module, so that all persons can receive close captioning. The FCC should mandate that manufacturers include the decoder module in all new TV sets. It has been recommended by the COED that present federal funds which are allocated to decoder development should instead be used for the distribution of free decoders to persons who are deaf.

One of Deafpride's programs, Project Access, works with primarily low income Black Deaf women and their families in the District of Columbia. Project Access staff work in the area of health care access. In our work with these Deaf women, we often encounter many barriers to total access because of the deaf person's financial status.

Let me take you through a health situation involving a Black Deaf woman in Washington, D.C. The woman, who is pregnant, is a patient at a government health center which is providing accessible health services through the provision of sign language interpreters and a Deaf patient advocate. So far, wonderful! However, when that Deaf woman is in her home, she needs to contact her doctor at the health center because she is feeling sick. The health center has a TDD. However, the Deaf

woman herself does not have a TDD. How, then, can she communicate with her doctor?

The deaf woman is instructed, during her prenatal care, regarding the importance to be informed on various health-related issues. She is encouraged to read and watch television programs relating to health. However, she does not own a decoder for her TV set. Yet, another barrier to access because of low income.

By now, the Deaf woman has given birth to her baby. She is told she needs to have a baby cry signal to alert her when her baby cries. This is yet another additional expense.

Let us think about where the Deaf woman lives. Does her front door have a flashing light? If she lives in a security building, how does she know if someone is ringing her door bell? By law, in D.C. the Landlord of the dwelling unit shall "provide a visual alert system in which a deaf or hearing-impaired person resides." This was signed into law by the Mayor on December 10, 1987. For many Deaf persons, however, this law is largely unknown, so that they are once again unable to receive their full legal rights to access.

What I have just done is try to help you "experience" what many Deaf residents of the District of Columbia face daily. However, some deaf persons, including myself, do have a TDD, Television decoder, flashing door and phone lights, vibrating alarm clock, etc. That sounds wonderful! But is it so wonderful? Let us look at the TDD situation. Almost all hospitals in the District of Columbia have TDDs. However, it is often placed in their emergency rooms. The Information Desk often does not have a TDD. My Deaf friend was recently rushed to a hospital here in D.C. I had to call that hospital through an interpreter to find out where her room was and how she was progressing.

I have a television decoder at home. Many programs are captioned, but many more are not. True, I can watch CBS captioned news at 6:30 p.m., however, to watch the local news captioned, I have to stay awake until 11 p.m. to watch Channel 7!!

My rented townhouse in D.C. is equipped with a door light and visual smoke alarm system. Maybe the reason for this is because my Landlord is Deaf!!

All government agencies, both Federal and local, must be mandated to have TDDs in their offices in order that Deaf consumers can call them. We know Section 504 of the 1973 Rehabilitation Act mandates all federal agencies to provide access to their programs. However, Congress should watch that this law is being adhered to.

I hope that, through my testimony this morning, I have shared with you many of the problems that Deaf persons face, despite sophisticated technology. I am asking that Congress should always consider the access needs of poor and working poor Deaf persons when allocating federal funds. Deafpride is always ready to assist in any way possible to ensure that Deaf persons receive their basic rights to live in a just and equitable society.

Thank you.

Mr. OWENS. Thank you.
Judge Leonard Suchanek.

STATEMENT OF JUDGE LEONARD SUCHANEK, BOARD OF CONTRACT APPEALS, GENERAL SERVICES ADMINISTRATION

Judge SUCHANEK. It's a pleasure to be with you this morning.

I have submitted a lengthy statement of some 10 pages, which I invite you to peruse.

Let me take just a couple of minutes to summarize that statement. In the first few pages, I discuss a recent law that was passed by Congress relating to the accessibility of electronic equipment. This discusses the guidelines for Federal procurement that are being issued in compliance with that law—guidelines that are being promulgated by the General Services Administration and the Department of Education.

On pages four and five of the paper, I point out that although accessibility to electronic equipment is essential, and extremely important for the disabled, that it's necessary to look at the entire environment. Specifically, I state—and I'll read this to you: "We need to reeducate"—this is referring to the Government—"personnel

specialists in areas such as job placement, assistance and classifications."

The point that I'm making is that change must come from more than one direction. Technology is only one of the issues affecting employment of the handicapped.

On page six, I refer obliquely to my own experience at the Board of Contract Appeals. When I was appointed Chief Judge of the General Services Administration, I was determined to make the General Services Administration Board of Contract Appeals into the finest administrative judicial tribunal in the Federal Government. And so, it was important for me to bring into that office all of the advances in technology, not only for everyone else, but as far as I could for myself as well.

In fact, our office was the first office—you'll be interested in this—in the General Services Administration to become fully automated. That was in 1980 and 1981.

Because of my own experiences, during the coming years, in 1983 I began a series of discussions with various officials in the Agency, and as a result of those discussions, the Administrator of the General Services Administration in early 1984 established what became known as the Inter-Agency Committee for Computer Support of the Handicapped, and appointed me chairman of that committee. Incidentally, I'm still chairman of that committee.

Since that time, since March of 1984, the committee has grown. It is now the largest interagency committee in the Government dealing with the disability area. It has 24 member agencies. All of the representatives on this committee are from the senior managers in the ADP area of these various agencies.

I discuss at length the goals of the committee. If you take a look at pages seven and eight, we think that as a result of the work of the committee, we've made tremendous advances in the Government.

Finally, on page 10, I refer back again—actually at the bottom of page 10—to the idea that technology is not a complete answer. I speak specifically to an initiative begun by the committee on conjunction with the Office of Personnel Management last October. I state that since October, we have been working with the Office of Personnel Management to improve policies and procedures relating to the employment of personal assistants for disabled Government employees.

I'll be pleased to answer any questions that you may have.

[The prepared statement of Hon. Leonard J. Suchanek follows:]

TESTIMONY OF JUDGE LEONARD J. SUCHANEK

Handicapped Americans have come a long way, from the days when the blind peddled pencils in subway cars, the deaf exchanged sign language cards for pennies and those confined to wheelchairs did not "work" at all. Today, technology has provided a means to place the disabled on the employment rolls instead of on the welfare rolls.

It is our hope that one day, the technology that enables a handicapped person to function in the work place will be as common as the word processor, the personal computer, or the typewriter. We must convince employers that hiring handicapped workers does not mean reduced productivity.

We can do it! We are well on the way to this goal with the passage of Public Law 99-506. This law is the re-authorization of the Rehabilitation Act of 1973 which contains a new section, Section 508, that addresses electronic equipment accessibility.

This new section is tremendously important. I shall quote just two paragraphs to you.

The first paragraph says this: "The Secretary [of Education], through the National Institute on Disability and Rehabilitation Research and the Administrator of the General Services [Administration], in consultation with the electronic industry, shall develop and establish guidelines for electronic equipment accessibility designed to insure that handicapped individuals may use electronic office equipment with or without special peripherals."

Now, this is the second paragraph: "Beginning after September 30, 1988 the Administrator of General Services shall adopt guidelines for electronic equipment accessibility established under subsection (a) [which is the first paragraph I quoted] for Federal procurement of electronic equipment. Each agency shall comply with the guidelines adopted under this subsection."

This tells us that all future federal government procurements of electronic equipment must include the guidelines for accessibility. If the guidelines are effective, then the procurement of accessibility technology will be an everyday occurrence because accessibility will become a consideration in every procurement.

I urge you to study the initial guidelines. As you review them, note that they are merely a draft, just a beginning, and are currently under review by government, industry, and academia.

All of us, as Americans, have a vested interest in these guidelines. Government is relying on technology to increase productivity, and many fear that accessibility could stem its growth. Business worries about separate product lines for the Government, increased demands, research and development, and the potential of lost business. The disabled community sees the guidelines from a different perspective. It is not enough to have guidelines which really don't stretch the state of technology or expand the scope of technology from just the IBM personal computer and its clones to the full range of information technology. Federal employees can already obtain accessibility aids to achieve reasonable accommodation. If the guidelines don't establish a foundation for full access to all information technology in the work place, then they don't really do much good at all.

Currently, the agencies responsible for the guidelines, GSA and the Department of Education, are collecting comments from selected reviewers. Within the next several months GSA will publish a draft of the new Federal Information Resources Management Regulation, FIRMR, providing procurement guidance from GSA. It is expected that the draft FIRMR will generate a great deal of comment. All of the comments will then be analyzed and a revised guidelines document will be prepared.

Up to this point, I have focused on the issuance and effect of the guidelines because our ultimate concern should be with employment. I am convinced that the guidelines can broaden the spectrum of employment possibilities for the disabled, and open up this untapped resource to meet the needs of the Government in the future. I am not so much concerned with the 1980's as the 1990's. If the guidelines are effective, then the computer designs already on the drawing board will incorporate these new technologies and employment prospects will improve. This will benefit employment applicants with disabilities and the Government as a whole. If the guidelines are too weak, then the gap between the vendors of accommodation aids and major computer vendors will grow. This is because technological breakthroughs will lead the major vendors on paths that fail to accommodate the needs of handicapped users. Personally, I am confident. I have been involved with policy issues relating to users with disabilities and computers since 1983. I have seen a great deal of good work done. Senior federal managers are interested, and I believe the final guidelines and FIRMR regulations will lead the way for the public sector. The federal community should be a model for the private sector as well as for state and local governments.

Despite this progress, we still have a long way to go. Regulations on the books don't do the job alone; they are implemented by people. We must interest the first and second line federal manager in employing users with disabilities. Already, agencies like SSA and IRS and companies like IBM have recognized that hiring handicapped individuals makes good business sense. That's the message we must preach. But it is not enough. We need to re-educate personnel specialists in areas such as job placement, assistance and classification. The point I am making is that change must come from more than one direction. Technology is only one of the issues affecting employment of the handicapped. We must create the environment where the federal manager or the business manager feels confident about the decision to hire a handicapped worker.

Also, remember we still face the challenge of educating handicapped users of the possible impact of technology on their current jobs as well as on their career potential. The technology is there today. It is to a disabled jobseeker's benefit to understand and try the accommodation technology relating to his disability. The ability to say "I can do that job" will impress potential employers and will bolster the jobseeker's confidence.

You will be hearing more about the guidelines in the next several months. They will be the focus of the Interagency Committee for Computer Support of Handicapped Employees computer conference in October 1988. I personally invite you to attend. I can guarantee that you will be treated to a spirited exchange of ideas.

Let me now brag a little about the achievements of the GSA in developing technologies for users with disabilities. At GSA we use the term, "computer accommodation," to describe this work.

I am proud to say that the initiatives for computer accommodation at GSA originated at the GSA Board of Contract Appeals. When I first began using computers to produce Braille I did not have an appreciation for the lack of policy and technical initiatives in the area of computer accommodation. Yet as recently as 1984 there were no established policies. This is not to say that computer accommodation did not exist. There were several agencies that were involved in computer accommodation at that time; but it was only on a case by case basis. There were no information exchanges, support mechanisms, or procedures. So, in most cases, it was a continual rediscovering of the wheel. Each manager had to do his own research, fight the struggles of procurement, and provide his own technical support and interface to the equipment already used by the agency.

In 1983 I had several meetings with high level GSA officials to discuss the status of computer accommodation. As a result of these meetings, in 1984 the Administrator of GSA issued two orders creating the Interagency Committee for Computer Support of Handicapped Employees and the GSA Clearinghouse on Computer Accommodation, which is known by the acronym COCA. Since 1984 I have served as Chairman of the Interagency Committee.

The goal of the Committee is to advance the management and use of information technology in order to promote the productivity and achievement of disabled employees.

The Committee advises GSA on government-wide policy relating to the development and use of information technology to benefit disabled employees. The Committee also sponsors activities to induce federal agencies to adopt information technology that will encourage the hiring of the handicapped, and once hired, improve their productivity.

Twenty-four federal agencies and departments comprise the current membership of the Committee and it is still going. The representatives to the Committee are from the highest levels of Government. Each representative has been designated by the head of his member agency or department.

Because of the size of the Committee, I have found that the best way to achieve committee objectives is through the creation of working groups. This allows committee member representatives to gravitate to those areas of committee work that are best suited to the representatives' particular talents or interests.

The committee has four working groups: Policy, Information Technology Initiatives, International Initiatives, and Symposium Management. I shall not elaborate on the responsibilities of each working group at this time, but I do want to give you some examples of the work that the committee has done. To do this, let me describe an initiative in each working group. The Policy working group played a significant role, in the review of the guidelines which I discussed earlier. I believe that our Policy working group had a major impact on the final content of the initial guidelines.

The Information Technology Initiatives working group had its major impact on the internal information resources management departments of the member agencies and departments by encouraging the heads of agencies to establish support structures for their own users with disabilities. Currently, fourteen of the twenty-four member agencies and departments have a formal support structure to deal with their internal computer accommodation technical issues.

The International Initiatives working group has been the slowest moving of the four working groups. It was first necessary for the U.S. Government to have its own policies in place before we could share them on an international level. I can tell you in all honesty that the guidelines have inspired interest as far away as Japan. I believe that once the guidelines are formalized, the International Initiatives working group will really take off.

Finally, we come to the Symposium Management working group. The Committee symposium has been a highlight of the committee. We started off small and had two hundred attendees the first year. Our last symposium had over eight hundred attendees. Last June we were a major participant in the Federal Computer Conference. As I mentioned earlier, the guidelines will be the focus of this year's symposium, so I expect to break last year's attendance record.

Over the years, the attendance at our symposium has become approximately a 50-50 mix between information resource managers and users with disabilities. It is gratifying to see federal managers take an active interest in disability issues. I believe that this year's symposium will continue in this direction in that many of our attendees will be federal managers and procurement personnel.

Over the years, the attendance at our symposium has become approximately a 50-50 mix between information resource managers and users with disabilities. It is gratifying to see federal managers take an active interest in disability issues. I believe that this year's symposium will continue in this direction in that many of our attendees will be federal managers and procurement personnel.

Now what about COCA? COCA started small. Until April 1988, COCA was managed by the Board's system manager, and staffed by one full-time analyst, and a college co-op student. But even with this small staff much was accomplished. COCA was the first information technology center devoted solely to disabled users. Here, federal employees could, if you will, play around with or experiment with, accommodation hardware and software; they could learn what other agencies or users have done; and they could obtain information about the state of the art in microcomputers. COCA has responded to over 300 requests for information, implemented over 30 hands-on solutions, and made presentations at numerous conferences. Today, COCA is recognized as an authority in the field of computer accommodation. Right now, GSA Information Resources Management Service is reviewing COCA with an eye to strengthening its role in the computer accommodation arena.

Finally, I should briefly mention two initiatives in which I am now personally involved as Chairman of the Interagency Committee. We are working with the Department of Education and the Government Printing Office to establish a procedure by which government agencies can obtain selected publications in large print, braille or recorded disk. Our objective is to make important Government publications accessible to the visually impaired. Also, since October, we have been working with the Office of Personnel Management to improve policies and procedures relating to the employment of personal assistants for disabled government employees. These initiatives emphasize the importance of creating a "realistic" environment for the employment of users with disabilities in the Government.

Mr. OWENS. Thank you very much.
Mr. Howard Stone.

STATEMENT OF MR. HOWARD STONE, DIRECTOR, SELF HELP FOR HARD OF HEARING

Mr. STONE. Thank you, Mr. Chairman.

I appreciate the opportunity of being with you this morning. My name is Howard Stone, but most people call me Rocky.

I am profoundly deaf, with a 110 decibel loss in both ears. But with the aid of assistive listening devices and good speech reading skills, I manage to function as a hard of hearing person in the hearing world.

I also have high constant shrill ringing of the ears, which is called tinnitus, and I'm blind in my right eye. But since public perceptions generally tend toward the obvious, clearly my problem is that I'm overweight. [Laughter.]

However, I'm the executive director of Self Help for Hard of Hearing People—SHHH. Literature is attached to my testimony today describing that organization.

I would like to demonstrate how assistive technology has contributed to changing life circumstances for me personally and by extension how it could change the lives of millions of other persons with disabilities.

At age 19, I became severely hearing impaired. Nevertheless, I was able to acquire a good education and experience a satisfactory career. At age 49, I became profoundly deaf, and a telephone was denied to me. In 1975, I retired at the age of 50.

As assistive listening devices developed from 1978 onward, I began to find improved ways of coping with my hearing loss and remaining in the mainstream of the hearing world. Induction audio loops, infrared systems, radio broadcast systems, FM and AM, became available to individual consumers in the 1980's. They gave me a new lease on life.

Although the method of sound delivery differs, all of these systems operate on the principle of improved speech to noise ratio. They take speech directly from its source into the listener's ear, thus eliminating most background noise.

My hearing aid, in contrast, only receives speech after it has traveled through the space separating you from me. The amplified hearing aid picks up whatever noise might be in that space.

The hearing impaired person often can hear the sound of speech, but cannot understand it. Assistive listening devices go beyond the hearing aid and permit persons like me to function in circumstances where previously we could not.

I am on several boards of directors. The Veterans Administration's Merit Review Panel, several research advisory boards and several consumer advisory boards. Most have over 25 members. I take this FM system with me, and I either place the transmitter in the center of the table or ask the speaker to hold it six inches from his or her mouth. I wear this receiver—I could not function without it.

I'm scheduled to travel more than 75,000 miles this year. When I stay at a hotel, I cannot hear the door knock, the telephone ring, or the fire alarm. Although the private sector is gradually responding to these needs, I cannot yet rely on them. I carry a visual alert system with me.

By simply plugging in the device, and attaching a transmitter to the door, I can be alerted by a flashing light that there is someone at the door, that the phone is ringing, or that there is a fire alarm.

Too often in the past I have been writing or reading in my room only to find out later that the building had been vacated in a fire or bomb threat while I serenely went about my business.

The visual alert system offers me safety and peace of mind, as well as the ability to answer the phone or the door. It can also be used to wake me up in the morning. Similar devices can be used in the home.

Although I cannot carry on a conversation on the phone, I can structure my calls in a way to successfully complete two-way communication of some messages. To enable me to do this, I carry a small device which slips over the earpiece of the phone and amplifies the voice of the speaker. Importantly, it also provides hearing aid compatibility to any telephone which is incompatible.

In the office, I frequently use a TDD (telecommunications device for the deaf). My job is telephone intensive. Unfortunately, not too many people have TDD's, with the result that I require an oral interpreter to carry on conversations in the other calls.

My church is equipped with an induction loop which is used in conjunction with hearing aids having an induction switch, commonly referred to as a T switch.

I watch television with closed captions and enjoy it. Prior to current levels of captioning, I did not enjoy television viewing. On occasion, I can also use an infrared listening system to facilitate the use of my auditory nerve while watching television.

Mr. Chairman, I have been describing usages of technology. But more importantly, I have been describing how a person who is disabled can continue to contribute to society.

Self Help for Hard of Hearing People would not be where it is today, changing thousands of lives for the better, if I did not know about and have access to this technology.

Demographics show us the future need to keep competent persons in the workforce longer, as our labor reservoir of young people shrinks. Yet older persons are losing their hearing faster than ever before.

Because of the lack of knowledge or access to assistive technology by themselves or by their employers, many are being forced out of their jobs or are relinquishing them voluntarily.

Mr. Chairman, the proposed legislation will develop awareness, permit access and bring all elements of society together in a focused effort to improve the contribution of persons with disabilities in the workforce, in their communities, to their families, and to themselves. It may even reduce the requirement for me and others like me to carry a suitcase full of gear wherever I go.

It is legislation truly worthy of our support.

One final comment: SHHH is developing a program called Access 2000. This is designed to make all places in the United States accessible for hearing impaired persons by the year 2000 which should be accessible to them.

Thank you and your subcommittee for inviting me to share my experience with you today.

[The prepared statement of Howard E. Stone, Sr., follows:]

STATEMENT OF HOWARD E. STONE, SR., REPRESENTING SELF HELP FOR HARD OF HEARING PEOPLE, INC. (SHHH)

Good morning Mr. Chairman, Subcommittee members, Ladies and Gentleman. I appreciate the opportunity of being with you this morning. My name is Howard E. Stone. Most people call me "Rocky". I am profoundly deaf (a 110db loss in both ears), but with the aid of assistive listening devices and good speech reading skills, I manage to function as a hard of hearing person in the hearing world. I am the Executive Director of Self Help for Hard of Hearing People, Inc. (SHHH). I will attach literature describing our organization to my testimony.

Today, I want to demonstrate how assistive technology has contributed to changing life circumstances for me personally, and, by extension, how it could change the lives of millions of other persons with disabilities.

At age 19 I became severely hearing impaired. Nevertheless, I was able to acquire a good education and experience a satisfactory career. At age 49 I became profoundly deaf and the telephone was denied to me. In 1975 I retired at the age of 50.

As assistive learning devices (ALDs) developed (1978 and beyond) I began to find improved ways of coping with my hearing loss and of remaining in the mainstream of the hearing world. Induction (audio) loops, infrared systems and radio broadcast systems (FM and AM) became available to individual consumers in the 1980s. They gave me a new lease on life. Although the method of sound delivery differs, all of these systems operate on the principle of improved speech to noise ratio. They take speech directly from its source into the listener's ear, thus eliminating most background noise. My hearing aid, in contrast, only receives speech after it has travelled

through the space separating you from me, and the amplified hearing aid picks up whatever noise might be in that space. Hearing impaired persons often can hear the sound of speech but cannot understand it. ALDs go beyond the hearing aid and permit persons like me to function in circumstances where previously we could not.

I am on several Boards of Directors, the VA's Merit Review Panel, several Research Advisory Boards and several Consumer Advisory Boards. Most have over 25 members. I take this FM system with me and either place the transmitter in the center of the table or ask the speaker to hold it six inches from his or her mouth. I wear this receiver. I could not function without it.

I am scheduled to travel more than 75,000 miles this year. When I stay at a hotel I cannot hear the door knock, telephone ring, or the fire alarm. Although the private sector is gradually responding to these needs, I cannot yet rely on them. I carry a Visual Alert System with me. By simply plugging in the device and attaching a transmitter to the door, I can be alerted by a flashing light to someone at the door, a ringing phone, or a fire alarm. Too often in the past I have been writing or reading in my room only to find out later that the building had been vacated in a fire or bomb threat while I serenely went about my business. The Visual Alert System offers me safety and peace of mind, as well as the ability to answer the phone or the door. It can also be used to wake me up in the morning. Similar devices can be used in the home.

Although I cannot carry on a conversation on the phone, I can structure my calls in a way to successfully complete two way communication of some messages. To enable me to do this I carry a small device which slips over the ear piece of the phone and amplifies the voice of the speaker. It also provides hearing aid compatibility to any phone which is incompatible.

In the office I frequently use a TDD (Telecommunication Device for the Deaf).

My church is equipped with an induction loop which is used in conjunction with hearing aids having an induction switch commonly referred to as a "T" switch.

I watch television with closed captions and enjoy it. Prior to current levels of captioning, I did not enjoy television viewing.

Mr. Chairman, I have been describing usage of technology, but more importantly, I have been describing how a person who is disabled can continue to contribute to society. SHHH would not be where it is today—helping change thousands of lives for the better, if I did not know about and have access to this technology. Demographics show us the future need to keep competent persons in the work force longer, as our labor reservoir of young persons shrinks. Yet older persons are losing their hearing faster than ever before. Because of lack of knowledge or access to assistive technology, by themselves or by their employers, many are being forced out of their jobs or are relinquishing them voluntarily.

Mr. Chairman, the proposed legislation will develop awareness, permit access and bring all elements of society together in a focused effort to improve the contribution of persons with disabilities to the work force, in their communities, to their families and to themselves. It may even reduce the requirement for me and for others like me, to carry a suitcase full of gear wherever I go. It is legislation truly worthy of our unstinting support.

Thank you and your committee for inviting me to share my experience with you today.

Items demonstrated or shown: FM listening system; VAS—Visual Alert System; Amplifier—compatibility device TDD; Induction loop—picture; Closed captioning—picture.

Attachments: SHHH fact sheet, brochure, and journal.

SHHH FACT SHEET

More than 25,000 persons have joined SHHH since 1980.

220 chapters and groups are meeting in 43 States, with more continuously forming.

Members in 17 countries including two National Offices (USA and Australia) and an affiliation in Canada.

10 full-time paid staff with a full-time volunteer Executive Director. 3 part-time paid staff.

16 States where OPERATION SHHH is being implemented. (Anti-Noise/Hearing Conservation Program for Children).

218 SHHH volunteers working in 135 nursing homes in 42 States and Canada.

Shhh, A Journal About Hearing Loss, published bi-monthly in 43,000 copies and over 200,000 readers.

Large print edition of Shhh in process. (Funding required)

Extensive publications list from which to learn about many aspects of hearing loss, its complications and possible accommodations.

Two international conventions held with two more in process (1988, Rochester, N.Y.—1989, Bethesda, Maryland—Tenth Anniversary celebration).

Training programs, workshops and conferences—an ongoing experience.

SHHH travel tours geared for hard of hearing people.

Working closely with major organizations involved in the problem of hearing loss.

Assistive Listening Devices Demonstration Center.

An inventory of places with assistive listening systems (PALS) in the U.S. Some 20,000 PALS are located in places of worship, theaters, community centers, libraries, etc. and allow hard of hearing people to participate in events not otherwise accessible to them. Upon request, hard of hearing travelers will be provided information about PALS at places in their itinerary.

Distinguished Service Award for 1987 from American Speech-Language-Hearing Association.

Mr. OWENS. Thank you very much, Mr. Stone.

I want to thank all of the witnesses. Your written testimony, of course, could tell us a great deal, but your presence here today has communicated so much more.

I have one basic question that I want to ask. I apologize for focusing in just on costs, but that's what the Federal Government probably could help with most—costs.

Getting the technology and being able to pay for it is not the only answer, as several of you have pointed out, but certainly it is the beginning to the answer to a lot of those problems.

Mr. Stone, your suitcase full of gear, that very impressive set of devices that you have—what does all that cost?

Mr. STONE. Well, all of these costs vary greatly.

An FM system can cost from \$400 to \$800. This particular system cost \$800.

Infrared systems vary depending upon the individual and the size of the room, for large room listening. An individual infrared set can cost anywhere from \$125 to \$300.

Audio loop systems are by far the least expensive. For \$150 or \$120 you can loop your television or your office in such a way that your hearing aid can be the most useful factor in communicating in a different way. That's an inductive mode rather than a microphonic mode.

TDD's, as the young lady before me mentioned, range anywhere from \$150 to \$1,000. This one, as you can see, has a tape on it, as well as the visual readout. That cost about \$350.

So, there are tremendous ranges, and by the legislation that you are designing to coordinate not only means of access but to develop and weed out duplication that it would in all probability lead to—I think the prices will come down significantly.

When people know they exist, and know how to find them, and when they have means of purchasing them, then the law of supply and demand will come into play and bring those prices down much more.

Mr. OWENS. Have you stayed in a hotel which had some of those devices available, so that people don't have to carry them around with them?

Mr. STONE. Yes.

What we're trying to do is to persuade industry and the hotels to purchase the visual alert system so that the individual does not have to bring it with them, or buy it.

The Holiday Inn Corporation has committed themselves to all their corporate hotels having this system. You simply ask for it at the desk. Hampton Inns also—every one has one of these systems.

Gradually, other corporations are beginning to catch on. But the big problem in our country is that it's so large. Dissemination of information is a major problem for organizations such as ours.

If we had the help and support of the Government in developing awareness of what systems were available, where, and for how much, it would make a great deal of difference to many of us.

Mr. OWENS. Thank you.

Judge Suchanek, you said your unit was the first automated with full accessibility.

Can you tell us a little bit about the cost there?

Judge SUCHANEK. Well, in 1980, we automated the entire office. In that process, we also brought in automation for myself, and the major component in that system was a Braille printer. This was purchased in 1981. At that time, it was considered to be a high-speed Braille printer, and it cost about \$15,000. We wore that printer out in about five years and then went to another printer that prints Braille on both sides of the page.

With a discount, that cost us somewhere around \$32,000.

Mr. OWENS. That's \$32,000?

Judge SUCHANEK. Yes.

And we print for myself, as well as for others, on the average of between 200 and 300 pages of Braille a day.

Mr. OWENS. Thank you.

Ms. Bibum, you mentioned a hearing device the cost of which was between \$150 and \$1,000. How is there such a disparity in cost? What do you get for \$150 versus \$1,000? Can you get an adequate one for \$150; what is the difference that you're purchasing?

Ms. BIBUM. It depends on the capacity of the machine itself. For example, the cheaper machine will be smaller. It's called a Mini-Com. I have that one at my home. There's no paper or tape, as this one over here has a paper tape. It has paper in it for the printer, and this one here costs about \$300 or \$350. I'm not sure exactly.

The cheaper one doesn't have the paper. The \$1,000 one is a more advanced computer type. So it depends on the capacity. Some of them have memories. Some have an answering machine combined within the TTY. That's a more sophisticated machine.

The one that I have at home is very satisfactory. I wish that it had paper in it, because I have to run and get a piece of paper to take down messages, but it's also portable as well.

Mr. OWENS. Thank you.

I think Ms. Adams mentioned a machine that's before her. I think that one cost \$5,500, and there's only one manufacturer. Am I correct? There's only one manufacturer in the world that makes it?

Ms. ADAMS. I don't know about the world.

Mr. OWENS. In this country, there's only one manufacturer?

Ms. ADAMS. Yes.

Mr. OWENS. There's another device?

Ms. ADAMS. Yes.

Mr. Owens: A device that goes with that computer that would read it out?

Ms. Axness: Well, it has different options. You have one called VersaBraille, and that costs around \$8,000, but it's already a computer, and it can connect to other computers for more power.

They also have the option of—we also have other options called the IBM, meaning Braille space Display Program—I think that's the B. That's only Braille output that's connected to an IBM computer or maybe an Apple computer.

There are a lot of options for which the prices may increase or decrease. They should decrease if we have the increased competition because we have only limited manufacturers, like for the Braille printer, the cost is extremely high.

Mr. Owens: Thank you very much.

Ms. Axness: You're welcome.

Mr. Owens: Thank to Mr. Bartlett.

Mr. Bartlett: Mr. Chairman, that excellent panel has provided us with some very good information.

Let me ask each of the panelists a broad question. This is a technology issue.

The technology that you've shown us today, as well as that in general, how would you characterize the availability of knowledge about technology for particular disabilities? Were you able to—for the actions that you use—find out about the technology in easy ways? Are disabled people in general able to find out about what is available? And what are the sources of that knowledge or information about available technology?

Mr. Stone, we should start with you, because you're in the business, at least in part, of providing knowledge about available technology.

How would you assess this?

Mr. Stone: Well, I'll tell you a brief story, Mr. Bartlett.

When I decided to found Self Help for Hard of Hearing People, the reason was that I thought I knew all about deafness since I'd had it for 40 years.

The first thing I discovered was that I don't know anything about it either. It took me two years of research and study and talking to people to begin to feel comfortable with the problem and to locate the resources concerning it.

Most of the assistive listening systems that I've described have only come on the market since the 1980's. The audio loop is an old device of European usage, but very limited in American usage.

FMI systems were not authorized by the FCC for individual use until 1982. They were previously auditory trainers in school settings.

Infrared was a German invention that came in the late 1970's and into the United States in the 1980's.

I had to be interested enough in an organizational sense to seek this information out. The average individual does not have access to that.

Because of our organization, we have 200,000 readers of our journal now, and those people do have access to the latest technology because we report on it. But ours is the only national organization for hard of hearing people who number over 11 million in the coun-