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ABSTRACT

The Task Force on Women, Minorities, and the Handicapped in Science and Technology was established by the U.S. Congress in Public Law 99-383 with the purpose of developing a long-range plan for broadening participation in science and engineering. Public hearings were held in Albuquerque (New Mexico), Atlanta (Georgia), Baltimore (Maryland), Boston (Massachusetts), Chicago (Illinois), Kansas City (Missouri), and Los Angeles (California) between Fall 1987 and Spring 1988. The final report of the task force was produced in December, 1989. This document is the verbatim transcript of the meeting. Co-Chair Dr. Ann Reynolds conducted the meeting. Included are: (1) An opening statement; (2) Task Force member introductions; (3) a report of the Subcommittee on Higher Education; (4) a description of the Task Force; (5) a statement by Governor Deukmejian of California; (6) a report of the Subcommittee on Pre-College Education; (7) a report of the Subcommittee on Research Support; (8) a report of the Subcommittee on Employment; and (9) a report of the Subcommittee on Social Aspects. (CW)

TASK FORCE ON WOMEN, MINORITIES, AND THE HANDICAPPED IN SCIENCE AND TECHNOLOGY

EXECUTIVE SESSION

REPORT OF PROCEEDINGS of a meeting of the Subcommittee Task Force on Women, Minorities and the Handicapped in Science and Technology held on the 13th day of January, 1988, at the California State University, Dominguez Hills, Carson, California and presided over by DR. ANN REYNOLDS, CO-CHAIR.

PRESENT:

Co-Chair

Dr. Ann Reynolds, Chancellor
California State University System
Long Beach, CA

Members Present

Dr. Howard Adams, Executive Director
National Consortium for Graduate Degrees in Engineering, Inc.
Notre Dame, IN

Mr. James A. Biaglow, Project Engineer
NASA Lewis Research Center
Cleveland, OH

Dr. Alan Clive, Office of Personnel and Equal Opportunity
Federal Emergency Management Agency
Washington, DC

Dr. Mary E. Clutter, Division Director
Cellular Bioscience
National Science Foundation
Washington, DC

Dr. Joseph Danek, Deputy Director for Research and Improvement
National Science Foundation
Washington, DC

Mrs. Jill Emery, Deputy Director of the Women's Bureau
Department of Labor
Washington, DC

Mr. Herbert Fernandez
AFWL/NTS Kirtland AFB
Albuquerque, NM

Ms. Stella Guerra, Director of Equal Opportunity
Office of the Secretary of the Air Force
The Pentagon
Washington, DC

Ms. Penelope M. Hanshaw, Deputy Chief Geologist
for Scientific Personnel
Department of the Interior
Reston, VA

Mr. Norbert Hill, Executive Director
American Indian Science & Engineering Society
Boulder, CO

Mr. James Jeffers, Chairman
Baord of Trustees
Community College of Baltimore
Baltimore, MD

Dr. Harriett G. Jenkins, Assistant Administrator
Equal Opportunity Programs
National Aeronautics and Space Administration
Washington, DC

Ms. Antionette G. Joseph, Associate Director
Field Operations Management
Office of Energy Research
Department of Energy
Washington, DC

Dr. Shirley Malcom, Program Head
Office of Opportunities in Science
American Association for the Advancement of Science
Washington, DC

Mrs. Barbara Morgan, Teacher
McCall, ID

Mrs. Shirley Peterson, Administrator of the Office
of Employment Security
Department of Labor
Washington, DC

Mr. Raul Ernie Reyes, Director
NASA Quality Assurance
Kennedy Space Center, FL

Dr. Miguel Rios, Jr., President
Orion International Technologies, Inc.
Albuquerque, NM

Ms. Gloria R. Sabatini
Washington, DC

Dr. Lawrence Scadden, Director Rehabilitation
Engineering Center
Electronics Industries Foundation
Washington, DC

Ms. Sonia Mejia-Walgreen
Mansfield, MA

Ms. Vera (Nina) Winkler, Deputy Director
Planning & Evaluation Service
U.S. Department of Education
Washington, DC

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CLOSED SESSION

MS. KEMNITZER: Even begin some of the subcommittee reports in the interest of time. On that score, if you recall, each subcommittee was to bring 50 copies of their 2-page recommendation set. So we can pass them around to all of the Task Force members.

TASK FORCE MEMBER: OK, I didn't get that message.

TASK FORCE MEMBER: I didn't either.

MS. KEMNITZER: It was in the memo that we sent out at the beginning of [INAUDIBLE]. If you don't have 50, this is the time we can make 50.

TASK FORCE MEMBER: OK, I have 22, 25 [INAUDIBLE]

MS. KEMNITZER: Please, if I could ask Mary Ann and Mildred to take care of any copying that needs to be done.

I have Shirley down to speak first, so let's make her 50 first. Shirley Malcom.

Let me say just a few more housekeeping things. Dr. Reynolds has invited us to her home for a dinner this evening, and the bus will leave here at five o'clock.

Tomorrow the actual hearing will be at the Humanities and Fine Arts Building, that's A103 at Dominguez Hills. If you of course are on the bus, it's easy, you just get on the bus and you are taken there.

If you have a car, you need to use parking lot 3A.

TASK FORCE MEMBER: The bus is leaving when, Sue.

MS. KEMNITZER: 8:30. We will have lunch served to us at Dominguez Hills. That will be paid for out of the famous

or infamous food fund. And so your contribution to the food fund goes for the lunch for this hearing and the next two hearings.

Dr. Reynolds is being very gracious and hospitable [INAUDIBLE] for dinner.

TASK FORCE MEMBER: What was the room number for the meeting tomorrow.

MS. KEMNITZER: A103, also known as the recital hall. The lunch will be in a different building, but we will just play follow the leader to get into that.

So we have the higher education subcommittee. Has everyone got that?

Bill and Howard, if you don't mind me changing the program, it might make sense to go forward with yours since everyone has a piece of paper before them.

DR. DANEK: All right.

MS. KEMNITZER: I should just ask--I'm sorry--does anyone have any logistics type questions or concerns or [INAUDIBLE].

DR. CLUTTER: Are there any new people here today?

MS. KEMNITZER: Yes. Dr. Reynolds will welcome but I will introduce them as well. As you recall, the Department of Labor has been asked to join the Task Force, and we are very pleased to welcome at this meeting the participation of their two representatives, Jill Emery, who is the Deputy Director of the Women's Bureau, and Shirley Peterson, who is the head of

the Office of Employment Training.

So, please, especially this evening at the social event, take the opportunity to get acquainted. Jill has agreed to serve on the pre-college education subcommittee, and Shirley has served on the employment subcommittee, indeed, has already volunteered to do part of the work for this [INAUDIBLE].

So we very much welcome your contributions.

DR. CLUTTER: Is there time to go around and have us introduce ourselves, and say what committee we're on. Norbert, may I ask you to start?

MR. HILL: Sure. My name is Norbert Hill. I am from Boulder, Colorado. I direct the American Indian Science and Engineering Society and I serve on the higher education subcommittee.

DR. CLIVE: I'm Alan Clive, with the Federal Emergency Management Agency and, along with Claire Freeman, who is not here today, I co-chair the social factors subcommittee.

MR. BIAGLOW: I am James Biaglow, NASA, Lewis Research Center, Cleveland, Ohio and I am a member of the employment committee.

MR. JEFFERS: My name is Jim Jeffers. I am Chairman of the Board of Trustees of the Community College of Baltimore and am on the higher education committee.

MS. MEJIA-WALGREEN: I am Sonia Mejia-Walgreen and I'm on the subcommittee on higher education [INAUDIBLE].

MS WINKLER: I'm Nina Winkler. I am from the

Department of Education and I am on the pre-college and on the higher ed committees.

DR. DANEK: I'm Joe Danek. I am from the National Science Foundation, and I am on the--[INAUDIBLE] what the title is [laughter]--higher education group.

DR. ADAMS: I am Howard Adams. I am Executive Director of a program called GEM [PHONETIC], located at the University of Notre Dame, and I am on the higher education subcommittee.

MS. GUERRA: I'm Stella Guerra, and I am Director of Equal Opportunity for the Air Force and I am on the employment subcommittee.

MISS SABATINI: I'm Gloria Sabatini from Washington, DC, and I am on the subcommittee on social aspects.

MRS. PETERSON: Shirley Peterson, Department of Labor.

DR. JENKINS: Harriett Jenkins, NASA, and I am on the research support committee.

MS. LEWIS: I'm Louise Lewis, with the U.S. Office of Personnel Management, as a representative for Curtis Smith.

MR. CHRISTOPHER: And I am Jim Christopher, with the U.S. Office of Personnel Management, also taking information back to Curtis Smith, and he is on the employment subcommittee.

MRS. EMERY: And I am Jill Emery, with the Department of Labor.

MS. HANSHAW: And I'm Penny Hanshaw, with the U.S.

Geological Survey, in Reston, and I am on the employment committee.

MS. BACON: I'm Pam Bacon, with NASA's Education Affairs Division, and I have been kind of filling in for Barbara in the pre-college subcommittee.

MRS. MORGAN: I'm Barbara Morgan, a teacher from McCall, Idaho, and I am on the pre-college committee.

MR. REYES: I'm Ernie Reyes. I'm with NASA. I am the Director of Quality Assurance at Kennedy Space Center and I serve on the pre-college education subcommittee with Shirley Malcom.

DR. CLUTTER: I am Mary Clutter from the National Science Foundation. I co-chair the research subcommittee.

MS. JOSEPH: I am Tony Joseph from the Office of Energy Research in the Department of Energy, and I co-chair with Mary the research committee.

DR. MALCOM: I'm Shirley Malcom. I am the Program Head of the Office of Opportunities in Science of the American Association for the Advancement of Science and I co-chair with the Assistant Secretary of Health and Human Services Stephanie Lee-Miller the pre-college committee.

MR. FERNANDEZ: I am Herb Fernandez, from Albuquerque, New Mexico, presently at the [INAUDIBLE] [laughter], and I guess we still have an ad hoc committee on national agenda.

DR. RIOS: I'm Miguel Rios from Orion International

Technologies and I am on the committee on social factors.

DR. SCADDEN: I'm Larry Scadden from the Electronic Industries Foundation in Washington and I am on the pre-college committee.

MS. KEMNITZER: Thank you very much. Good idea. Thanks, Mary.

Now, Joe and Howard, may we hear about the progress your group has made.

DR. DANEK: Sure, I have been elected to be [INAUDIBLE], although I certainly hope that my--you notice that I have them all around me. [laughter] [INAUDIBLE]

The subcommittee on higher education attempted first to try to take a look at the organizations. We have made recommendations for basically four groups, that is, for the Task Force, what we think the Task Force ought to do at the present time; for federal and state governments and what we think might be said there; the higher education institutions, colleges and universities; and to industry.

And suffice it to say that one of the main themes throughout the entire paper, and I think one of the main themes which occurred at all of the meetings is that all of these people need not to be on separate sheets of paper but have to be connected together in some way or another.

Otherwise, I think they are not going to be successful. Many of the recommendations are connected and overlap one another.

Some of them are general. Some of them are specific. We have attempted for the most part to provide general recommendations under categorical statements about what ought to be, and then at a later time, once we reach some kind of agreement among the group here on what ought to be.

And as we then add, underneath those general recommendations, specific examples of programs that are operating or should be operating, and in many cases giving you titles of the programs and the names of the programs, so that anyone looking at the recommendations could go and find specific examples of how you might implement those recommendations, rather than simply just making them.

We hope that it is a good start. We were told that it was two pages. We did get one thing right, we did have 50 copies.

We felt that it was probably more important to add and to delete, rather than add, so we do have more than two pages. For that, I will apologize.

What I would like to do, I think, is to provide just somewhat of a philosophical background on it. The recommendations come from a number of I think factors or characteristics that have come out of the programs that we have heard to date.

First of all, it is very clear that people think that early introduction to science and engineering is absolutely critical. Early involvement of a high school or elementary

children with colleges and universities, with faculty, is absolutely critical.

It is pretty clear that the faculty at universities, or universities as actors, can't simply--and federal agencies--cannot continue to play a kind of a very passive role.

It is clear that a much more active approach towards bringing minorities and women and the disabled in science is necessary. We have heard that in numerous public hearings and from a number of people.

It is also very clear that quality people with quality programs is absolutely essential. Without either one, you are not successful.

It has also become clear that longitudinal programs are absolutely critical. That institutions must view themselves as a whole and present comprehensive programs. We have heard from many people that recruitment is only the beginning, and a good recruitment program without a very strong retention and nurturing program is ineffective.

So the comprehensive nature of programs is absolutely critical.

It is clear that mathematics plays a very strong role. That sex and ethnicity and disability [INAUDIBLE] need to be dis bility fair and not biased.

It is also clear that a very strong and high visibility is needed for programs to be successful.

It also is clear that more money is needed on the

part of the federal government, and there are recommendations on specific types of financial aspects.

While more money is needed, it is also very important to state that the money may need to be of a better quality, or a different sort of quality, because it is clear that some of the financial aspects of reporting scholarships don't tie women, minorities and the handicapped to the infrastructures of the department. So we made recommendations on the type of support.

Within the federal government, the recommendations tend to suggest that there is beginning to be an awareness of the issue and of the needs, that the problem is not solved.

But it is also clear that there is a lack of coordination. There is also a lack of real data about exactly how much money is going into various groups and disciplines for women, minorities and the disabled, and that more work needs to be done there.

And essentially that what we need to do is to do a better job in coordinating, and then to listen to what we are hearing on the outside and then to help build and foster through this Task Force some rather well-conceived progra.s, which would assist in solving some of the problems.

I will just run through some of these Task Force recommendations. Is that what you would like us to do? OK. And I guess the easiest way might be to go through each of these, and then to open up a discussion of, let's say, Task

Force before we go on to federal and state government.

We are not quite sure how to go about setting quantitative goals and what they ought to be and what their basis should be.

We do know that women and minorities represent 60 to 70 percent of the U.S. population and that they represent 18 percent of academic Ph.D.s--women--and 3 percent minority Ph.D.s, for academic position.

We think that there ought to be some changes there. We think that the Task Force ought to take a look at setting quantitative goals for increasing this both for students and for faculty. We should put some numbers to our recommendations.

I think the Task Force ought to contact all the higher education associations and societies and begin to find out what they are doing and begin to ask them to take a more active role in making visible among their membership what the problems are.

We would like to see that these plans are implemented over the next 12 to 24 months.

We think that OMB, which now has a selected number of special analyses that go along with the President's budget--and I'm not sure what they are right now--Mary, do you know? Is it A through K or L?

DR. CLUTTER: Something on that.

DR. DANEK: Something on that.

DR. CLUTTER: Special analysis.

DR. DANEK: Special analysis A through K are special sections which are, which supplement the U.S. budget, the President's budget. What they do is they address certain critical issues in the government, which crosscut agencies.

One special analysis K, which is R&D, has been described to be the entire R&D effort within the government, within each agency, what everyone's doing.

We think that there ought to be a special analysis for the whole issue of human resource development with particular attention to women, minorities and disabled.

We think that sets in place a whole series of actions that go through some of the recommendations which results in better coordination, better planning of initiatives, and more awareness on a government-wide basis of who is doing what and what the problems are.

We have seen a lot of local groups who are doing things. We think they should be encouraged and the Task Force ought to take a position on supporting federal and state efforts to produce some of these exemplary programs [INAUDIBLE].

We also don't have a definite recommendation here on a media plan, but we do think that the Task Force needs to take a look in the next few months exactly what it is going to do to really raise the visibility of the issue.

We suggest the inclusion of selected industry leaders

now in terms of developing that plan.

We also recommend that a survey of federal agencies be done to determine the extent of federal involvement, and that we do a catalog of exemplary programs at universities and colleges.

Those two things are in process right now. Shirley Malcom is doing a survey of universities and colleges, exemplary programs, and we will, the Task Force itself is doing a survey of federal agency programs.

We think that when all of the things that we have heard and all of the opportunities that we have heard alluded to, that had listened to [INAUDIBLE].

Exemplary programs that we think the Task Force should consider setting up a federal clearinghouse [INAUDIBLE] information on exemplary programs as we think them up, not just [INAUDIBLE].

I'll stop there and ask at this point if any of my colleagues on the subcommittee would like to comment or else open it on up to discussion.

MS. WINKLER: On the special analysis, the economic report of the President is coming out this year, it might have a section, a section [INAUDIBLE], on human capital. So there is a little bit of [INAUDIBLE] should be done now, which is a good bill.

And I know that other folks in the White House are collecting information about what is going on in science and

technology. I know it is a draft report circulating around [INAUDIBLE] now on that subject.

So it is not like it would just be something [INAUDIBLE].

MS. KEMNITZER: May I suggest that we work through all of your recommendations and then discuss them, because I am sure they are interrelated.

DR. DANEK: OK. Let's--I don't need to go through all of these, I mean everybody can read them [laughter and comments].

With regard to the next group would be the federal and state government. We think that no matter what you do you cannot get by with recommending increased funding. We don't--we think it would be inappropriate.

We think that there is a real need for more scholarships, fellowships, loan forgiveness programs, mentor programs, and a whole array of other things which focus on trying to get more people from the high school through the graduate school into the science and technology pipeline.

We think that it is very critical that in designing those programs that special attention be given to science and technology fields that in which minorities, women and the disabled are in fact highly underrepresented.

We think that that starts to be--we think that a task force or some blue ribbon group should be put together that looks at the issue every five years and reports to the White

House through whatever mechanism deemed appropriate to help get into the fields in which people are underrepresented, and also to do a comprehensive review of the programs that make adjustments on a [INAUDIBLE] basis.

Besides helping students individually with financial support, it becomes very clear that unless recipients of the financial support are integrated into the departmental infrastructure and made part of the old boy network, the financial support is not as valuable.

We think that things ought to be done, that when financial support is provided, that mechanisms are [INAUDIBLE] that that does occur.

We think that there should be some control demonstrations and projects which are supported which teach ethnicity, which try to develop materials which are sex fair and ethnicity fair and unbiased toward disabled.

We think that certain pilot projects, particularly regarding the disabled, are necessary. Or that one specific example might be for the state governments or the federal government to work more directly with residential schools to identify disabled individuals with talent and potential and try to move them into science and engineering.

We think regional centers for collecting information, for evaluating intervention programs, and for receiving and implementing exemplary initiatives are needed on the regional level.

We think that one of the major ways to cause and to make change over a long-term period would be to provide a grant program which would enable universities and colleges to really thoroughly do a self analysis of what their strengths and weaknesses are, where their recruitment, where they fall down, where they can development retention programs, and provide [INAUDIBLE] for those assessments, and then open it up to competition for implementation awards which would implement one major university campus's 5-10 year improvement programs, in which they would significantly increase their recruitment of minority and retention and graduation of minorities, women and disabled.

We think that there is a real need to provide grants for building linkages and alliances between stronger institutions and institutions that have had--that may be research strong, but institutions that have a strong record of moving minorities into science and engineering.

This is one of the major themes at the historically black colleges and universities' annual meeting, that is building alliances.

We think there should be grants to encourage the development of specialized high schools in math-science programs which put talented kids on the college campuses as early as possible to begin building a network between the high schools and colleges.

With regard to [INAUDIBLE], that takes care of

overall financial kinds of recommendations.

With regard to agency recommendations, we basically think that each agency should be required to develop a 10-year plan for making changes.

We think that those agencies that have a strong role in mathematics, science and other kinds of technical education ought to have focal points for minorities, women and the disabled.

There ought to be offices which are responsible for insuring that the agency objectives are met.

For those agencies, such as the Department of Education, state vocational agencies, and other groups which have not traditionally been active in science, but more active in general programs of support for women, minorities and the disabled, we think that they should have focal points for the science and engineering point of view, so that there is a strong emphasis on science and engineering.

I think overall in the federal government, in terms of what we are doing and how we are doing it, better data is needed. We made specific recommendations with regard to disabled and trying to do something about the U.S. census for 1990, to modify it to get better data on disabled persons.

The agencies ought to set program targets and integrate activities into regular programs, but we don't exclude the fact that in certain areas, targeted programs, specifically for the groups of interest are necessary.

We think the federal government ought to take a much greater role in dealing with state governments and the governors in providing incentives, in setting forth a strong leadership point of view, so that state governments and legislators can look at their universities.

One specific example is the Ohio State University example, which has a major plan for change over the next five years. New Jersey also has a major plan. We think other states also have those.

Higher education--again, more money, more kinds of outreach programs, much more comprehensive programs.

With regard to--much greater interaction among groups, programs to involve school districts, community colleges working with the universities. We feel very strongly that people have said that these programs need to be integrated in [INAUDIBLE] and continuous in scope.

We think that--with regard, this also, this one here relates also to something under assessments and curriculum. It is very clear that scientists and science educators are getting science, but they are not getting much with regard to counseling and nurturing.

Scientists is being asked to be a nurterer now with regard to women and minorities and the disabled. School counselors, vocational rehabilitation people are getting a lot of nurturing and counseling techniques, but they are getting no knowledge about science and engineering and about

opportunities.

So we think that there ought to be much more integration in the kind of activities that go on in universities between researchers, communicators and rehabilitation counselors and school counselors.

MS. KEMNITZER: Joe, may I ask you, please, could we stop for a moment and greet Dr. Reynolds and the governor, who are now with this. And in fact, I will turn the, our proceedings over to Dr. Reynolds.

DR. REYNOLDS: We are awfully pleased to have Governor Deukmejian with us today from the mighty state of California. He is on a tight schedule. He has given CSU and higher education and interests such as this one a great deal of his time.

I thought perhaps we might, most pointedly address the issue--I wanted to indicate people in addition to the commission members who know why they are here and to the governor what exactly is happening here.

This is the federal Task Force on Women, Minorities and the Handicapped in Science and Technology. It was sponsored originally by Senator Orrin Hatch, who initiated the legislation which established the Task Force.

The White House Office of Science and Technology Policy Director, Dr. William Graham, asked me and Mr. Jaime Oaxaca, Corporate Vice President of Northrup Corporation, to co-chair this group and call the first meeting of the Task

Force.

Members of the Task Force are representatives of the research and development agencies of the federal government, such as defense, NASA, energy, National Institutes of Health, the National Science Foundation, plus the Department of Labor, and leaders from business and educational institutions.

The purpose of the Task Force is to develop a long-range plan to broaden participation in science, engineering and technology.

The sponsors have recognized that the changing demographics in the nation require attracting those traditionally underrepresented in science and technology to careers in those fields.

Emphasis for the Task Force is on increasing federal employment and federal research awards to women, minorities and the handicapped, with the attendant questions about the quality and quantity of their educational preparation.

The Task Force plan will be presented to the President, the Congress, and the head of each participating agency in July of 1988.

Then we will report again in December 1989 on federal agencies' implementation of the recommendations.

A key part of the Task Force work has been to identify exemplary programs to encourage women, minorities and the handicapped in science and technology. That is the reason that the public hearings are now being held around the country.

Tomorrow we will hear about several excellent California projects, including testimony from Eugene Cota-Robles of UC Santa Cruz, Nancy Kreinberg of the Lawrence Hall of Science, and James Rosser of the California State University, Los Angeles.

I would like now to call Task Force members attention to the handout I think that is in front of each of you--Governor, there is a copy under the agenda there--prepared in conjunction with the Office of Research from the Governor's office.

I hope each of you has had a chance to look through it. There have been massive efforts in this state since Governor Deukmejian assumed office--it would be exactly five years ago this month--on a variety of issues.

At our very, very first meeting, when I first met Governor Deukmejian and we began to talk about the future of the California State University, he urged our strong work in access for minorities to higher education as being the real future of this state, and many other agenda items for this issue as well, including teacher education, preparation in the sciences, quality teachers for our schools so that many more youngsters will be successful in school and achieve the preparation they need for life, for higher education and to be good citizens.

The items that he has put particular interest and attention to are in front of you. In the interests of time, I

will assume that each of you will that document carefully.

To give the Governor an idea of the interesting flavor of this group, then I would like to do something that we have not done probably as often as we should which is go around and identify everybody.

We usually sit with big name placards in front of us. So could I trouble each of you to indicate your name and your affiliation, and maybe just one sentence about your commitment and intent.

MR. HILL: My name is Norbert Hill. I am with the American Indian Science and Engineering Society, and our goal is to increase the number of American Indian scientists and engineers throughout the country.

DR. CLIVE: My name is Alan Clive. I am with the Equal Opportunity Division at the Federal Emergency Management Agency, and I am primarily interested in making sure that my 7-year-old daughter gets accepted when she gets involved in science.

MR. BIAGLOW: James Biaglow from NASA, Lewis Research Center, Cleveland, Ohio, and I am particularly interested in making sure that there are more handicapped scientists around in the future and they don't slowly disappear as they are doing now.

MR. JEFFERS: My name is Jim Jeffers. I am Chairman of the Board of Trustees of the Community College of Baltimore, and I share in the same concern for issues relating to

disabilities as Jim.

MS. MEJIA-WALGREEN: I am Sonia Mejia-Walgreen, Southeastern Massachusetts University, and we are interested in kinds of more of this in particular in the Massachusetts State University System.

MS. WINKLER: I'm Nina Winkler, Deputy Director for Planning and Evaluation at the U.S. Department of Education, and I am here to represent Secretary Bennett's very strong interest in improving the quality of the curriculum at all levels of education, especially in scien..

DR. DANEK: I'm Joe Danek. I'm the Division Director for the Research, Initiation and Improvement at the National Science Foundation, a division that is responsible for enhancing the participation of women and minorities and disabled persons in science and engineering careers and in NSF programs.

DR. ADAMS: I'm Howard Adams and I am Executive Director of the National Consortium for Graduate Degrees for Minorities in Engineering, Inc., which is a national program across the country. We have nine schools in your state, five which are state-supported and three are priva e.

Cal-Berkeley, UCLA, Cal-Davis, Ca -Santa Barbara, and Cal State-Northridge, Southern Cal, Cal Tech and Stanford are all members of the consortium, and our goal is to get students into graduate school at the master's level and hopefully push them on Ph.D. programs.

MS. GUERRA: I'm Stella Guerra and I am the Director of the Air Force Equal Employment Opportunity Program, which is a little over a million people between our military and civilian. We are particularly interested in making sure that we utilize our most precious resource--our people--in providing equal opportunity.

DR. REYNOLDS: Betty Vetter isn't an official member, but she is our chief statistician. Dr. Vetter.

DR. VETTER: [INAUDIBLE] [laughter].

DR. REYNOLDS: Tell us your affiliation, Betty.

DR. VETTER: I'm with the Commission on Professionals on Science and Technology in Washington, and we are concerned with the demographics. We try to keep track of how many there are and how many women there are and how many handicapped and black and so forth.

MISS SABATINI: I'm Gloria Sabatini from Washington, DC. I am a health and public affairs consultant and I serve on the boards of the [INAUDIBLE] Institute of Technology, which awards associate degrees in science and technology, and also [INAUDIBLE] University.

MRS. PETERSON: I'm Shirley Peterson with the Department of Labor, and perhaps you are familiar with the Workforce 2000 initiative that Secretary Brock began some time ago and is now being carried on by our new secretary, Ann McLaughlin, and the kinds of issues we are talking about here, particularly in connection with the overall picture of the

change in demographics.

DR. JENKINS: I am Harriett Jenkins, Assistant Administrator for Equal Opportunity Programs at the National Aeronautics and Space Administration--NASA. I am interested in integrating the work force with talented minorities, women and handicapped individuals, and also helping to increase the resource pool for the year 2000 and the allied people who will be able to help us explore space.

MS. LEWIS: I'm Louise Lewis with the U.S. Office of Personnel Management. I am here as a representative for Curtis Smith, who is a member of the Task Force.

MR. CHRISTOPHER: I am Jim Christopher, also with the U.S. Office of Personnel Management representing Curtis Smith, and of course the Office of Personnel Management has a great deal of involvement in and interest in developing minority opportunities with the federal government, all federal agencies.

MRS. EMERY: Governor, my name is Jill Emery and I am the Deputy Director of the Women's Bureau of the Department of Labor, and we are very proud to have the only cabinet secretary who is a woman.

MS. HANSHAW: I am Penny Hanshaw, a geologist for the U.S. Geological Survey. I run a graduate minority intern program for geologists and geophysicists and geochemists and I am active, through the various professional societies in earth science to help them in their efforts to get more minorities

and women in earth science, which is very underrepresented, more than almost any other science.

MS. BACON: I'm Pam Bacon with NASA's Educational Affairs Division. I have been sitting in on the Task Force the last couple of months as a substitute. Our division works for programs from elementary through university programs, and are focusing very hard on trying to help solve some of these issues.

MRS. MORGAN: I am Barbara Morgan, secondary teacher from McCall, Idaho. I represent public school teachers and, of course, we are working with the people who [INAUDIBLE] in the year 2001.

MR. REYES: I'm Ernie Reyes from the NASA Kennedy Space Center. I am the Director for Quality Assurance. My aim is to have a pipeline start up and stay up for the technologists that we need for this nation's effort.

I might add--Barbara doesn't say that--but there are a lot of days when we want to [INAUDIBLE].

DR. CLUTTER: I am Mary Clutter. I am Director of Cellular Biosciences at the National Science Foundation. I have just completed a 2-year assignment as Science Advisor to Eric Walk, the Director of the Foundation.

And we are interested in equal access to research careers for women and minorities and disabled persons.

MS. JOSEPH: I'm Tony Joseph from the--I am Associate Director in the Office of Energy Research in the Department of

Energy, and in addition to supporting some university programs, I also have responsibility for education programs through the department's national laboratories, including the Lawrence Livermore Laboratory, the Berkeley Laboratory, and the Stanford [INAUDIBLE] Accelerator Center, and trying to keep up with Secretary Harrington.

He has all kinds of ideas on how to expand these programs, particularly [INAUDIBLE] students, including having high school students now have a research experience, was his idea that this will help keep them in the pipeline [INAUDIBLE] quite a success.

DR. MALCOM: I'm Shirley Malcom. I am Head of the Office of Opportunities in Science of the American Association for the Advancement of Science an a past Chair of the National Science Foundation Committee on Equal Opportunities in Science and Engineering where this whole Task Force issue or discussion got started. [laughter]

MR. FERNANDEZ: I'm Herb Fernandez, formerly with the Air Force Weapons Lab in Albuquerque, a long-time activist with the League of United Latin American Citizens--LULAC--and serving on the New Mexico Commission on Higher Education, and hopefully we can learn from California how to bring up the 2-year institutions to 4-year institutions, and that's become a very critical issue in New Mexico.

DR. RIOS: Governor, I'm Miguel Rios. I'm happy to say I am a product of three fine California universities, USC,

Cal State-L.A., post-doctoral work at Cal Tech, and also served a tenure on the faculty of Cal Poly at Pomona.

Currently, I am President of Orion International Technologies, based in New Mexico. We are a high technology R&D firm and very heavily on [INAUDIBLE] and state-of-the-art technology for the Department of Defense.

And I am here because I have always been involved in trying to enhance the participation of minorities in science and engineering.

DR. SCADDEN: I'm Larry Scadden, born and educated in California, was part of the brain drain to Washington [INAUDIBLE] [laughter]. I am the Director--I work with the Electronics Industry Association and Foundation as Director of Rehabilitation Engineering.

Our goal is to promote the production and distribution of accessible consumer products, and to work for the training and recruitment of scientists and engineers from underrepresented groups.

MS. KEMNITZER: I'm the Executive Director of the Task Force. My name is Sue Kemnitzer, also a Californian. My main concern when I began this was the possibility of enhancing opportunities for young people, and I certainly continue to share that concern, but now realize more than ever the national importance of our work, that is, how this relates to the economic competitiveness and national security.

DR. REYNOLDS: Governor.

GOV. DEUKMEJIAN: Well, my name is George Deukmejian. [laughter] I am a public employee. [laughter] And I want to, first of all, thank you, Ann, for inviting me to come here today, and I am delighted to welcome all of you who are here, especially those of you who are here from out of the state of California.

I know that under the able leadership of Chancellor Reynolds, the same kind of leadership that she demonstrates day in and day out and week in and week out as head of our outstanding California State University System that I am very confident that this Task Force will do some excellent work, and I am certainly going to be looking forward to having further discussions with her as your proceedings go forward and to hear some of the recommendations that come out of your deliberations.

I was informed that you wanted to meet California's most popular politician. Unfortunately, we could not arrange for Mayor Clint Eastwood [laughter], but in his place I will attempt to stand in for other political leaders of our state.

I think you know that we are really blessed in this state to have tremendous diversity--diversity in terms of our cultural diversity, with very significant communities, ethnic communities, minority communities, and of course a large number of women as well.

We have tremendous, marvelous diversity in our economy. As a state that holds leadership in a number of

fields, whether it is in agriculture, whether it is in the entertainment field, whether it is in tourism, or in aerospace, or in high technology and the like.

And we are truly, truly blessed here with all of the tremendous advancements that have gone on before us and that has made California truly an economic power in the world. We currently, this past year, we surpassed Great Britain to become the sixth largest economic power in the entire world.

And we also have a continued growing population. We are growing faster than most other states, and our estimate is that by the year 2000, California will be twice as large, in terms of population, as the state of New York.

I am a former New York stater and I can always remember growing up there that New York was always, of course, the most populous state. That's not going to hold true in the future.

What I would like to point out also is that we have more scientists and more engineers working in California today than any other state, and in fact, we even have more than the two states of New York and Texas combined, and we expect to have a continued increase, continued growth.

And those industries and the demands for individuals who have the education, the background, the experience to be able to handle the kinds of tasks and jobs that are going to be available in these years to come.

And our higher education system is doing a marvelous

job in terms of making the kinds of programs available to those who are interested and those who have the talent to move into those fields, and at the same time, we are taking steps in our K through 12 public school area to try to encourage much larger numbers of young people to enter those fields.

We realize that we are in very, very strong competition, not only with our sister states, but in tremendous competition with our foreign trading partner nations, and that if we are going to stay on top, that we are going to have to have a greater number of highly skilled individuals who are going to be able to take the more sophisticated, the more technologically raised level jobs that are going to be available.

And so we recognize the tremendous importance of putting greater emphasis in this area of science and technology and engineering, and we also know that with the diversity that we have in our population, with the diversity that we have in our cultural society in this state and the growing numbers of individuals from a variety of ethnic communities, that it means that we have got to be able to let these individuals know that we are going to do everything we can to make sure that no one and no group is left behind in the growth tha- is going to continue to take place in California.

And so, you expect to hear a little chamber of commerce type of pitch from the governor of the state and I hope that I have given it to you.

That also is intended to say to you, and to those of you from other states--and I know that the other states, because I meet with the governors all the time--that they are very interested in competing, being more effective, trying to do the best that they can to insure a growing economy in their state and to be prepared for what is, what we are seeing as a significant change that is taking place in the nature of the economy of the United States.

And so all of us, I think, will benefit from this kind of competition. Competition in the private sector has long been one of the hallmarks that has helped the private sector and helped the United States to become the great nation that it has.

And I think that those of us who are in state government--and it will also apply to local government--must also realize that we are in competition and that that is healthy.

And If we--by knowing that there are people out there [INAUDIBLE]. And to come off with a stronger result. And so I am very, very pleased to have an opportunity to meet with all of you, and we are going to continue our best effort to try to insure that individuals who have particular disabilities, individuals who come from minority communities, and of course, women throughout the state will likewise have a good opportunity to be a full partner in this effort of ours.

And so with that again I want to thank you for the

work that you are doing and to hope that you will enjoy your stay and your visit here in California, and by the way, you happen also to be in a particularly special city, as far as I am concerned, because this happens to be my home city.

As well as spending time in Sacramento and the capital, this is where my home is, and so I hope you will enjoy your visit in Long Beach as well.

With that, I--thank you very much.

DR. REYNOLDS: Thank you very much, Governor.

[APPLAUSE]

DR. KEMNITZER: Joe was giving us the recommendations from the higher education subcommittee.

DR. DANEK: We are on page 4, item 2, move to item 3. This reiterates [INAUDIBLE] about building alliances and developing exemplary projects and partnerships, only instead of being on the federal government side, it is listed on the university side.

With regard to self assessments, curriculum and core content, we think there need to be some changes. Again, another recommendation that universities do self studies and do separate reviews of the current situation for minorities, women and the disabled, we think that introductory science courses need to be looked at very carefully.

There currently is an attitude that their only purpose is to weed out all but the very best. And we think that these programs can be somewhat modified in order to be

able to pick out individuals with potential, rather than just simply weed them out early in the stage.

A comment made by Tony Joseph: We support early research experience at a very early age, as early as possible, high school, should be part of the curriculum.

And again, statements about integrating the work of prparatory programs of all people who influence the choice points of women, minority and the disabled.

With regard to interactions, this again repeats what was stated under the federal government, that universities need to develop more comprehensive, coordinated programs.

The second statement talks about bringing people onto the campus as early as possible.

There are duplicates, obviously, because if you are going to expect the university to do some of the things, you expect that the federal government would provide some funding for it.

In terms of other kind of general statements about universities, I think there is a real need to provide incentive for faculty who work with women, minorities, and disabled, and do outreach in the same way that we provide incentives for researchers.

University communities must serve as focal points, or serve as leaders bringing the message, so to speak, of what the [INAUDIBLE] is to state legislators.

There really is a--much better information is needed

for disabled and American Indians with regard to their needs, barriers and entry into science and engineering.

The greater interaction between what goes on at counseling centers, greater interaction between scientists and being a part of that. A stereotyping image, the stereotyping problem is still a major problem, both within the academic community, in terms of what their expectations are for a minority, women and disabled, and also among the groups themselves, in terms of what they anticipate their expectations, what they can do.

With regard to industry, we made some rather general statements, that industry ought to recognize its responsibilities, that they ought to be providing more summer internship support, which may be connected with the fellowships that are provided.

Technical contractors and subcontractors under federal industrial contracts would be held more accountable for [INAUDIBLE] minorities, women and disabled.

That industry participate more fully in some of the cooperative programs that we have talked about, and that we now seek industry input right now with the subcommittee by recommending that a subgroup of leading industry figures be convened to help us go forward with this action, particularly with the media plan that we had recommended for the Task Force on page 1.

I'll stop at that point and open up the discussion.

DR. MALCOM: I would like to mention that page 3 is the recommendation regarding data and data entered into the census, data on disability. We are working on that right now. The prickliness is holding a session within two weeks an invitational conference with the American Statistical Association and National Science Foundation--it is funded by NSF--and the people from the Census Bureau, to try to frame the disability questions and the different methodologies that might be used when you are trying to getting at the case, those data.

And I think that the thing that was most, that we w keenest on about this entire thing is that it coming at a time when it does have a possibility of influencing the [INAUDIBLE] the questions that will come out of the census.

DR. REYNOLDS: Thank you, Dr. Malcom. Are there...

DR. DANEK: Excuse me, there is no [INAUDIBLE], by the way.

DR. REYNOLDS: Joe, I missed all of your report, and I'm sorry and I will go through it real carefully. In the Los Angeles area, there has been a real success with magnet high schools, and we have done a fine arts high school and are now doing a high school of science and technology. Is that in here?

DR. DANEK: Yes.

DR. REYNOLDS: OK, their track record across the nation is pretty good.

DR. DANEK: Provide grants to encourage the

development of specialized high schools in math and science.

DR. REYNOLDS: Great.

DR. DANEK: That bring students to the college campus.

MS. WINKLER: I also think that [INAUDIBLE] in the elementary and secondary because magnets also provide [INAUDIBLE].

DR. DANEK: That was, by the way, that was a late, that specific statement was a late edition to this draft, put in by Fran Colea[PHONETIC] here when I arrived in California.

DR. REYNOLDS: Other comments or questions. OK, we go on now to what one?

MS. KEMNITZER Pre-college subcommittee.

DR. MALCOM: We had [INAUDIBLE] hopefully a 2-pager which is an overview. OK, we had a much longer document, but decided to give you the slimmed-down model here, the short form 1040A, 1040-EZ, as opposed to the other one.

And this, let me just say that this particular document came out of the need to really help people conceptually go between the need for the recommendation and the strategies that were laid out.

This is something that was identified in our meeting, and we--as a matter of fact, Nina said, "It's hard to find which particular need this thing is addressing."

And so by streamlining it and in putting it into a different format. If you want the longer version, I can make

the longer version available to you by mail and send it to you, along with some other things.

One of the things, we know that there are lots of ideas that are floating around out there because there are lots of exemplary programs that are floating around out there that are addressing all kinds of needs.

But it's--at some point in the discussion in our committee, the question was raised, what is the most important?

And I will just, without any hesitation, Larry Scadden said, "We must improve overall quality of mathematics and science and technology education within the schools."

That is the bottom line. We must make the system work better for women, minorities and disabled students. And so this is our first recommendation, and to address the need of improving the overall quality of this education.

And one of the things that, in looking at the research, one of the things that is quite clear is that that cannot be done piecemeal, because that is the system's problem.

And so, our recommendation is to support system-wide change by states and localities. But that is so big, we had to then subdivide that into more manageable strategies to let people know what we were talking about.

For example, to provide support for local assessment needs identification in science, mathematics and technology education for priority setting. Planning and implementation, technical assistance leading to restructuring of the system.

Having been involved in one of those in my home school district, I know the power of them, and advocate them, even though it's not here, because this is not something, we're not reflecting, just my own individual views, but they are views that [INAUDIBLE], or that the power of having parental involvement and local industry involvement of such an assessment, and not just university researchers coming in from the outside looking at it, because you leave a political base to support changes that must take place once the researchers have gone home.

And it is a very, very powerful model for looking at what is right and wrong within a system and then also for laying out the priorities, and then to stay with it long enough to actually get the funding for those.

We also, in the strategies, talk about financial incentives and assistance on a competitive basis, from the federal government, to implement this restructuring, because what incentive will there be in a system turning itself upside down.

And the third strategy that we pulled out--and as I am saying we are pulling these out from a whole bunch of strategies that we had talked about in the longer piece--is the whole issue of supporting science, math, technology magnet schools in most, especially in the most heavily minority impacted districts.

It was pointed out that right now the magnet program

is a program that is aimed as a mechanism for assisting in desegregation, and for those school systems where it is impossible for them to desegregate because they are 90-plus percent minority, that that program has not been made available to those districts.

And so the very thing that might help to fix the system as an educational model, because it is a desegregation strategy that we believe that there is a problem there. There is a need to look at that and to bring that into [INAUDIBLE].

The next need that was laid out by the group is that of leadership and commitment to bring all the different players to the table together and all of the groups essentially rowing in the same direction to support the plans for the Task Force.

And then, and the budgets that are needed to implement the plans. And I think that there we talked about Presidential leadership, we talked about leadership of each department and each agency, about their own individual planning process that they will necessarily have to go through to choose what, out of all of the possible things that they could do, that it makes sense for them to do, given their [INAUDIBLE] resources, their facilities resources, their mission, and the like.

We also spoke to the need, in some cases, for having Congressional authority for a training function, because not all of the agencies actually have this.

And so, that need to go from the legislative

authority to allowing an agency to undertake activities that essentially support a steady supply of personnel that they will need to continue to do business.

The other recommendation that falls under this particular category is administration, calls for administration and Congressional support for our plan to allow up to one percent of any federal R&D contract to be utilized in activity to support the work of the Task Force and then to be recoverable [INAUDIBLE].

We also talked about the possibility of partnerships that match the resources of states or localities, business, industry, foundation and charitable sources with federal dollars.

For example, you have in California, the Mason program, and I was going to say that Masons is the first example of a local program essentially going statewide.

OK, if you have that, and you have both localities putting in money, you have states putting in money, you have business and industry putting in money, and they have essentially already gone through the process of assessing and saying that this is something that [INAUDIBLE] are investing in, then let's have the federal government as a partner in that particular process, and have some kind of a mechanism by which monies can float in partnership with existing funds from the other sources.

The next need that we stated is support for out-of-

school initiatives that encourage school participation in science, mathematics and technology fields by the target groups.

And there, the specific, there are not a lot of detailed recommendations under this because quite frankly we see that the particularly agencies and departments ought to have the option of coming up with their individual plans and then maybe these out-of-school activities will flow from that planning process.

And there, there are examples that are provided in the longer document.

The new initiative that is laid out here is the support for the establishment of a network of science and mathematics, especially in minority communities--like libraries, essentially, but a different kind of a thing that will provide access to computers, equipment, books, materials and tutors, all focusing on science, math, technology in non-school hours.

Also, science camp, work with museums and science and technology centers.

The next need that is expressed here is for strong early beginnings to support science, mathematics and technology education in school, and this speaks to the need to have these particular disciplines integrated into, and incorporated into early childhood education programs, which means that we actually need such things, because there are not, there's not a

whole lot to choose from right now.

And to expand the system of early childhood education in more general areas, a general increase in the education of especially 4-year-olds, brought about in, because a lot of different social factors, not just the research, would suggest there is a whole lot of learning that a 4-year-old could do, but also in addressing the need for early education to make up the experiential differences, especially for disadvantaged and disabled children.

But then the other issue being that of child care and the needs, real needs for child care.

But we had not addressed the child care issue per se, leaving that for the social factors. We [INAUDIBLE] with the social factors group. I will just address the ones that have got the educational components that relate to early childhood.

The next need that was identified was to increase the effectiveness of existing programs so that they support education of target groups in science, mathematics and technology education.

I want to clarify something on the first recommendation because that is, Ernie pointed out to me that that can have, that has several meanings within Hispanic communities.

Expand programs aimed at providing compensatory education for existing [INAUDIBLE] to include enrichment activities for dual literacy. Now dual literacy by here is

dual literacy has appeared in several of Carl Holman's articles, that speaks to the fact that reading, writing and arithmetic are not really enough, that they are necessary but they are not really sufficient for life in a technologically-based society, and that there needs to be something else, something more--problem solving, the ability to handle incomplete information, and to analyze critical thinking, higher order kinds of thinking skills, and that that is the other piece of the literacy.

But it also has other kinds of meanings. I just want to clarify what it meant in this particular context.

The other is to look at the science, math and technology education programs to determine whether, how well the existing programs that are aimed at those disciplines, how well they are addressing the target groups.

And then to look at the programs that are aimed at the target populations to see the extent to which they incorporate a focus on science, mathematics and technology inclusion.

In the other documents, we brought out the question of the things that already exist, what do we have to worry about in terms of the things that already, the programs that are already in place, and then looked at the whole question of new initiatives.

And these fall under the category of there are already things here. Let's just make them work, so that they

support all of these kinds of goals at the same time.

And the last need was, that we identified, was more effectively involving parents and institutions within communities in efforts with the schools in support of the mathematics, science and technology education for their children.

Now, that, in a way it seems like it is the fuzziest, you know, you involve parents and these kinds of things.

However, I wanted to bring this to you by way of example. This is something that we did along with the college board, it is a pocket-sized booklet. It is not intended to stand alone. It is meant to be used in conjunction with parent workshops and we are providing and developing kits of materials to show different kinds of groups how you run these parent workshops--purchase, community groups, advocacy groups, youth-serving groups, schools themselves, whomsoever willing that can come--is that what it is?

And the title of it is, "Getting to the Equation, Math and Science, Parents and Children." And I have brought some so that I can share them with you, because there are things, the research says it, and the experience proves it, that there are things that parents can do, especially in monitoring the course-taking patterns of their children, and making sure that they don't get trapped incorrectly.

DR. REYNOLDS: Does that [INAUDIBLE]. Dr. Danek and Dr. Malcom, did I miss one [INAUDIBLE]?

MS. KEMNITZER: No, that's part of Joe's.

DR. REYNOLDS: These are really first-rate. I am really impressed with them coming forth here. Any questions now on the pre-college level recommendations.

DR. ADAMS: I just had one comment, and it flowed out of the conversation that we had in Kansas City, and that is whether or not a group like this wants to make a small recommendation that we put back some requirements at the pre-college level.

That everybody have to go through science, math, every year.

DR. REYNOLDS: It is a good point. We reinstituted in California, which had really gotten--forgive me for this bad choice of words--but loosy goosy. I mean, anybody who can do it in California will.

It started with a 4-year--can you imagine this state did not require English in high school? You could go through high school and not take English. Don't you all remember having to take English, read all that stuff and all those things? Don't you all remember reading "Hiawatha" in the ninth grade or something like that?

In any event, we--and "Lady of the Lake."

MS. KEMNITZER: Could I couch this in terms of a question? Secretary Bennett just a few weeks ago came out with a suggested curriculum and Nina Winkler finally brought us two copies of the advance version here. It will be out soon in

final version.

But we might consider endorsing this, or endorsing it with some elaboration. Do you have any thoughts on that?

DR. REYNOLDS: Let me finish what happened. So we went ahead and implemented for the state of California, including a bill that went through that intensified the high school graduation requirements. We did a bipartite thing of what one has to take now to be eligible for college, which is somewhat more than what one has to do to graduate from high school.

It has had a profound effect. At last count, two years ago, 28 states had done the same thing. So over half--and I would assume more, I would assume it's well over half the nation--so in coming up, Jill, I think that's a very good suggestion.

We ought to have the data, which, Frank, you may have on how many states--or Dr. Lindall probably has--how many states have strengthened and now have a science, one year of science requirement in high school.

It is probably over half the nation, the rest of the nation, I would think we would all agree.

DR. MALCOM: I think it is summarized in a time for results, in the government's report card.

The problem--I mean I say that even as this particular book says take math and science education, because if you stop taking it, you really do [INAUDIBLE], if you are

going to take the SAT, it is going to effect your [INAUDIBLE].

But the problem is that in a way it is almost too simplistic because take--take four years of what? OK? And then the other issue is that we don't even have the teachers in order to teach enough.

If everybody started taking this stuff, we would go into a major crunch mode with regard to qualified teachers, which is one of the reasons that we kind of back away from that--I back away from that, I back away [INAUDIBLE]

MS. WINKLER: Two subcommittees--I mean it is something the commission ought to think about, Task Force ought to think about. The [INAUDIBLE] committee and secondary committee said we ought to do federal things. The post-secondary committee said we are going to look at all the players.

I think as a Task Force [INAUDIBLE], because I think not many of the people here are not going to say that this commission is going to be strongly in favor of the good science course offerings, but I think across all of our reports, we will probably really want to make sure that we are consistent about who are we talking about and who are we advising on here.

I personally prefer the broader speaking, not just to the federal government because there is so much interdependence and interaction and coordination needed.

But there is a lot of things that could be in Shirley's report that are not there, because that it was a

federally focused report, and I think that probably is number one on the list, and probably a number of other things.

DR. MALCOM: But let me just say this, and that is that I have seen a lot of recommendations about increasing the numbers of courses. It is a very simplistic and easy way out, and it does not solve the underlying issues.

By going to a strategy that says a total assessment, you will immediately discover that all of these particular pieces are contingent, OK?

It gets you to where you want to go. It provides a framework for getting there to realize that you aren't going to get there unless you deal with the entire system.

Now the thing is that I, that we start here with a federal, kind of a federal policy options, and I think that any task force that is federal in its nature is going to have to speak first to itself before it can then branch out and talk about the other players, and about what is possible here to support the actions of other players.

I think that the states have already gone on record that they are ready for movement. The states are ahead. They have already made the changes.

The question then is what can the federal government do to support the leadership that is being exhibited on the state level, and then how can that be encouraged and to be strengthened.

And I think that that's why I get nervous about

endorsing James Madison High School because then what that essentially does is flies in the face of local control, and state's determining--I mean you can't have it both ways. You can't go down a model like that, and on the other hand say that a state needs to be able to set up for itself what makes sense for itself, which is in the framework of its own needs and its goal.

MS. WINKLER: What the James Madison curriculum does, is not just those courses, and--we might not want to go this far--but what is interesting about that document, once we get enough copies for everybody to get, which is a real problem right now, is it doesn't just biology, it goes quite specifically into what should be included in biology.

And in algebra 1, what do you teach in algebra 1? Topic by topic. It is like a fairly detailed syllabus, and I don't know whether--I think in there it says, that really decided what was in each section, and he did say people are going to disagree and there is going to be local differences, but this is just my personal view of what I think, and I don't dictate curriculums in states, and I know that.

And maybe we don't want to dictate curriculum to the states eith

I think it would be quite proper of us to at least make, take some sort of position on the need for strengthening science and math in public schools.

DR. REYNOLDS: Isn't some of our work done for us--

and I think maybe we have less dissension on this one than we think. As you remember, with heavy NSF support, there was a complete revision, for example, of the high school biology curriculum, and all those materials produced.

And if you go out and look nationwide now at what is taught in high school biology, happily it is not uniform. It can have an environmental cell biology tilt or, you know, other tilts.

But the nation's science teachers--help me, Joe and Mary--it was 15, 20 years ago, wasn't it?

DR. DANEK: Right.

DR. REYNOLDS: That all that happened.

DR. CLUTTER: I called out a [INAUDIBLE].

DR. REYNOLDS: I worked on the yellow version, and that all happened. And so the status of American high school biology is pretty good. It really is, as long as the youngsters get in the class and take it, there is really pretty good agreement.

The math thing is now honing in to good agreement. You know, most of us are moving towards requiring two to three years of high school math, and that's defined. It's algebra and pre-calculus and so forth and that's pretty well defined.

Similarly, for chemistry, there was a big nationwide chemistry effort and a big nationwide physics effort.

The crux we found in going through all this is you have to lean a little bit to make sure the schools are giving

laboratories. They try to get cheap and not do laboratories.

So I'm wondering if perhaps we couldn't use this and some of the other good examples, affirm that many of the states have moved in this direction, but indicate all states should, indicate that there have been these other nationwide movements to specify curricula.

We think that the resultant choices and autonomy there are admirable, but it is important that laboratories be taught, and it is important that people attain math to a certain level.

Would that compromise kind of get us where we are trying to go? And it fits with the Madison.

DR. MALCOM: I think that instead of the James Madison, though, I really think that that has been politicized beyond the point of being useful to us in this particular--I think we need to glean instead on what the scientific and mathematics communities are saying about where they need to go.

The Mathematical, Sciences Education Board at the Academy is undertaking a major and total reform in rethinking of the mathematics curriculum, and the Project 2061 is an attempt to say what the goals ought to be in science, mathematics and technology education.

And that is an effort that is coming from the communities, and that's one of the reasons that I think that that is the...

DR. DANEK: But isn't there a way of applauding the

secretary?

DR. REYNOLDS: Exactly.

DR. DANEK: Concern and interest in integrating science and mathematics in the Department of Education without specifically endorsing the curriculum?

DR. JENKINS: Yes, that's what we want, yeah.

DR. REYNOLDS: As epitomized in the James Madison report.

DR. JENKINS: By the way, will the members of the committee get copies of his full set of recommendations, because all we have seen is what was in the press.

MS. KEMNITZER: Yes, Nina handed this to me about...

MS. WINKLER: I could only get two out of public affairs, and they only had five. [INAUDIBLE mumbling and comments].

DR. JENKINS: I do think that the issue of better math and science, or more math and science would probably need to be addressed by this group, because I have been hearing three years, two years, one year, and maybe it is going to be content.

And if there are other groups, these kind of groups, that are also coming up with recommendations, perhaps that can help us in either minimum or a range or something else. Because I hear too many people saying increase it, and they are not talking about the quality, and we will be here a decade from now still talking about we need to have better math and

science.

MS. WINKLER: I think one other thought is, there's two sort of things we need to look at. One is the roles and the other is how you get there, and I don't think we should leave either one out.

A better curriculum, however specified or non-specified, is a goal, the things Shirley is talking about are means to the goal, and I think we should have both, I really do.

I don't think a lot of actions without [INAUDIBLE] will mean as much if we announce, gee, we think there should be, you know, more Bunsen burners, that really doesn't tell you much. That is a means to an end. We should have both points touched.

What do people think about what I am saying, differences between just having a federal, what federal agencies should do relative to what all the different players in the private sector, state and local government [INAUDIBLE]?

MR. REYES: I think we are too preliminary in trying to assess and sign up an agreement. I would like to get the subcommittee's reports, digest them and then normalize them, and then agree to disagree on what points we have.

Do we need a goal? And do these support the goal?

Some of you ladies and gentlemen are in a fast track and some of us are just putting on our shoes, trying to take [INAUDIBLE] and get our spikes on.

So, I would appreciate having the time to digest everybody's report. I think Shirley has the long version. She gave me the short form, but there is more verbiage and there is a lot of good stuff, and I think we all need to get a copy and read that, read your subcommittee.

For all free thinkers. There is a lot of very [INAUDIBLE] people here, very smart, very [INAUDIBLE], and you all have a viewpoint from where you come from.

I think we need to let all the chips go on the table and then normalize it. And then we will know where there's differences and where we have to go from.

DR. REYNOLDS: I think that is a good point, and why don't we try to do a little bit of that. Let's get through all the drafts, as we've suggested--Alan has a comment he wants to make--get all these out to everybody, then you can focus comments and recommendations back to the chair of each subcommittee, and keep moving from there.

Is that agreeable with everybody? Alan.

DR. CLIVE: I just wanted to say one thing further on Connie Brooks high school. They know that is James Madison High School where Our Miss Brooks used to teach.

DR. REYNOLDS: Eve Arden thanks you. [laughter and comments].

DR. CLIVE: In all honesty, I thought, frankly, that that is why the name was chosen.

MS. WINKLER: No, later on it was going to be Publius

High School which is from the Federalist Papers, I guess, and he thought that would sound too elite. So they came out with James Madison because this is the year of the Constitution and all that.

DR. CLIVE: At any rate, I think it is important that we be exposed to the critics of the whole James Madison approach before anything come out of this committee in the way of recommendation.

On the plane coming out here, I was reading a review of the "Ravage, Finn[PHONETIC] Study: What Our 17-Year-Olds Don't Know," by Deborah Myer, who is the Director of something called the Central Park East School in New York and a recipient of one of the MacArthur genius awards--so therefore she is a woman of some standing--which basically trashed Ravage and Finn and by implication James Madison.

And we have three more shots at hearings, and if something could be done to round up some of the folks who are critical of these studies, I think this is an important point of view.

I won't pretend to summarize a very sophisticated and multilayered discussion in this review, but it is not the first I have seen that is critical of the Blum, Hersch, Ravage, Finn school of education by what appears to be content alone.

And I would just like to make sure that we have the full spectrum of thought on this before we say anything as a body.

DR. REYNOLDS: OK, yes.

MRS. MORGAN: I would like to ask a question about the magnet schools, that this subcommittee has addressed that. It seems like when you walk into those classrooms, they are still mostly male, and I wonder if somehow we could add a little bit more to that recommendation.

MS. WINKLER: You mean the students?

DR. REYNOLDS: I think that is a good point.

MRS. MORGAN: It is still the math and physics and the chemistry classes and they are white males. Biology classes have a few more women...

DR. REYNOLDS: Good point. The recommendation ought to have a sentence added. It should be ensured that the choice of students for these schools represent female--equally represent male and female.

MRS. MORGAN: Not only just the choice for the schools, but for the specific classes, because you really get women in the biology classes [INAUDIBLE].

DR. REYNOLDS: Good point, that should be modified.

MRS. MORGAN: The other thing that I wanted to say, and it's probably because I come from a rural area, but none of us really have addressed reaching those populations as well. It does not include minorities as much as inner cities or the large cities, but it does include a lot of women. They get trapped in...

DR.REYNOLDS: That's a good point. As we have

implemented the high school requirements, we have been a little bit worried about some of the rural locations, because some of those schools may no have a big enough class to produce a full load for a chemistry teacher or a physics teacher.

MRS. MORGAN: Or when I hear you talk about Bunsen burners, my goodness, if we could have Bunsen burners in our school we would be delighted. We have the science and technology companies there to work with us.

DR. REYNOLDS: Well, what we have been trying to address--in fact, I'm sorry all of you couldn't be at the board meeting because that was addressed, for example, by our Stanislaus campus.

We are doing television interactive teaching with rural schools to provide those kinds of [INAUDIBLE], to provide math courses and science courses and also language courses, where the numbers of students are too small to support a science teacher, a language teacher.

So that should be addressed as well. It's a good point.

MRS. MORGAN: And it is still targeting women and getting women into those fields. I was especially intrigued by the research about how women [INAUDIBLE] by working in team-type situations and hands-on [INAUDIBLE] and then being able to watch a TV program...

DR. REYNOLDS: Some evidence that girls function better in girl-only classes at certain ages in math. That is

one of the experiments we intend to try at our math, science and technology if I can convince everybody over there.

We may teach the girls in math in girls-only classes to get them to be more responsive, see if it works. It needs to be tried. So those are, that's a good point.

I saw Betty nodding on that one.

DR. VETTER: Lots of studies show that.

DR. REYNOLDS: Other comments on those two. We'll keep moving along on the reports. Have you all had a break? Do you need a stretch break, or everybody doing OK? Can we keep? What?

MEMBERS: One more report. One more report and then we will be rewarded.

DR. REYNOLDS: All right. I didn't know what your framework has been. OK, next will be...

DR. CLUTTER: I think I'm next.

DR. REYNOLDS: Research, Dr. Clutter, thanks.

DR. CLUTTER: Now, I am going to hasten to say that this is simply an outline for our report, and it is certainly not the final report, because our charge was to produce, I thought, an outline of recommendations, and we aren't supposed to have a report ready until June, unless we have changed the schedule.

SEVERAL MEMBERS: Excuse me, was there a copy made. We don't have the outline.

DR. CLUTTER: Well, we've sent around [INAUDIBLE

comments].

DR. REYNOLDS: What does it look like?

[Laughter and comments]

DR. REYNOLDS: Mary, it is now reaching people, you can go ahead.

DR. CLUTTER: And so what we have done is simply to outline what we intend to put into the report, and we will appreciate any suggestions from you.

But I will go through the outline. I gave a rather lengthy report, I think, at our last meeting, and so some of this will be repetitious. But the findings and recommendations aren't.

We have decided to limit this report to research, support for research of scientists and engineers, women, minorities, and physically disabled.

So it is not going to include fellowships. It is not going to include anything else, employment, anything else. Only addressing research support.

So the report will talk about existing programs, the current status of research support offered by the federal government, and as we were able to collect the data, and believe me, it is rather difficult, data from states, private sources.

But when you hear some of the statistics I am about to report you will see that that is almost negligible when you are talking about research support, so I am not too upset about

not having very much information.

We will talk about exemplary programs, and we have heard about some of those already and I am not going to talk about them today.

Dollars invested, gender and ethnic data--primarily we are interested in recommendations for new programs or increased emphasis on a selected group of current activities, and we want to think about a long-range plan for action.

We start out the report by talking about what the national R&D effort actually is. How much money is involved in R&D in the United States?

I am going to update these figures, but in 1987, almost $125.2 billion dollars were involved in R&D, and 48 percent of that came from the federal government and 48 percent from industry and the rest from a scattering of other institutions.

But if one looks at that whole amount of money, most of it goes into development, and only $9.5 billion goes into academic R&D, and even less just for research support.

So we have decided in this report...

DR. REYNOLDS: Excuse me, Dr. Clutter, when you say development, give me three headings under there of what you mean.

DR. CLUTTER: Well, for example, weapons development.

DR. REYNOLDS: OK.

DR. CLUTTER: Three headings, uh...

DR. REYNOLDS: Weapons, weapons, and weapons. [laughter].

DR. CLUTTER: OK, so I think that we are going to limit ourselves to research support, mainly basic research in academic institutions. We have the breakout for how much of support goes into each of the disciplines, and then we also talk about how much comes from each of the federal agencies.

The next part of our report will deal with how many scientists and engineers there actually are in the country and where we can find them.

And since we are interested mostly in research or entirely in research, we are going to limit ourselves to those people with Ph.D.s unless we hear that somebody objects to that. Very little research support goes to anybody who doesn't have a Ph.D.

Now I will say in the case of engineers that's not quite true. If we separate the two, I think we will be all right, and just limit it to Ph.D.s for the sciences and bachelor's through Ph.D. for engineers, unless somebody--yes.

MRS. MORGAN: Can I ask a question about the funding?

DR. CLUTTER: Yes.

MRS. MORGAN: Are you allowed to comment on this?

DR. CLUTTER: Yeah, except these numbers aren't hard numbers. I just wanted to give you an idea of what we are dealing with and we will update them.

MRS. MORGAN: Well, I mean are you allowed to comment

on them? What does it mean?

DR. CLUTTER: What do you mean? What does what mean?

MRS. MORGAN: When you talk about that level of funding, is it enough? Is it not enough?

DR. CLUTTER: Well, I would say that it is not enough, but I don't think that we are going to address that issue specifically. I think we are interested in women, minorities and disabled, and so we might make a suggestion about whether that's enough.

MS. WINKLER: If you want to have a relative thing, the budget of the Department of Education is $20 billion, and here you have got $125 billion going for research, and development.

DR. CLUTTER: Actually it is only about $6 billion for research.

DR. DANEK: I think the total investment for the U.S. government is something like about, was about $60-65 billion.

DR. REYNOLDS: In research.

DR. DANEK: For research and development, of which about $8 billion was basic research, of which about $4 billion was performed by universities and colleges.

MEMBER: And the other $4 billion?

DR. DANEK: And the other $4 billion by federal agencies themselves, like NIH, industry participants and other groups. So it is about 68 [INAUDIBLE].

MEMBER: OK, that's going to be a reference point,

yeah.

DR. DANEK: And the federal government's budget is what, total?

DR. CLUTTER: Well, it's unfair to look at it that way.

MR. JEFFERS: May I ask a question about your decision to restrict your look to Ph.D. programs?

DR. CLUTTER: Yes.

MR. JEFFERS: Now is this primarily as a data gathering approach restriction that you're taking, or would also be a restriction that you employ in making recommendations?

DR. CLUTTER: Well, we are talking about support for research programs. And most people who are qualified to lead a research program these days have a Ph.D. I don't see any reason to include in that population the people who don't get research support.

MR. JEFFERS: Well, let me make my point, and that is that if you're looking at the way things are, I agree with you. If you are looking at the way things perhaps ought to be, then maybe you don't want the restriction.

Many programs offer training in scientific areas that...

DR. CLUTTER: But this isn't training.

MR. JEFFERS: No, I understand that, I understand that, but I assume at some point in your report, you are going

to say something like, somebody should do something. Is that correct? Somebody should provide additional funding of research in certain areas. You are going to make a reccmmendation, and you may wish to recommend that research funding be directed to enhance opportunities for women, minorities and the disabled in technical areas in research activities.

DR. CLUTTER: OK, well, that was a question that I wanted to ask, actually, because...

MR. JEFFERS: I'm certainly glad I did. Now...

DR. CLUTTER: I actually brought it up before, because do we want to talk about scientists and engineers who lead research programs, or are we interested also in talking about technicians for industry, for example?

But do they get research support directly?

DR. JEFFERS: Well, but the people who get the research support might be required to hire them as technicians to assist in that research.

DR. CLUTTER: Right, exactly, exactly.

DR. JEFFERS: Exactly. So, if you...

DR. REYNOLDS: There the data are the very best. Speaking as a former graduate dean at the University of Illinois, if we could only have used our minority data for our technicians, we would have looked great.

Our minority data for our women and minorities and handicapped were atrocious as PIs. Our minority data for

technicians was wonderful.

MR. JEFFERS: But therein lies one of the major problems because one wants to move those groups of individuals to higher levels of eduation.

DR. REYNOLDS: But I think the question is, should that group be in the data base, and I guess I would argue with Dr. Clutter, they shouldn't be, because the representations there are good. They are good in almost every research university you look at.

Where we are really falling down is women, minorities and the handicapped in the PI category where funding is going.

DR. CLUTTER: Yeah, the principal investigator category. But you have a good point.

DR. REYNOLDS: Is that--are we dealing with that properly or are we missing?

MR. JEFFERS: No, that's not my question. My question is what you are going to include in the data base. I am not arguing for any point of view.

DR. CLUTTER: No, I know.

MR. JEFFERS: My argument, my argument entails the third page where you start talking about recommendations.

DR. CLUTTERA: Yes, right, right.

MR. JEFFERS: And if you restrict your data it may inhibit your ability to make appropriate recommendations.

DR. CLUTTER: Well, I don't think I am going to make any recommendation about technicians on grants. But, however,

I think that you have a good point, and I think it belongs to perhaps the employment subcommittee. You know, that's something that they could address in talking about the technical work force of the country.

[INAUDIBLE COMMENT]

DR. CLUTTER: Yeah, exactly, because I can imagine several recommendations that we might make there.

MR. FERNANDEZ: Madame Chair?

DR. REYNOLDS: Yes.

MR. FERNANDEZ: We discussed this at the last meeting, as I recall, and you said this was just a preliminary paper. We got to just a couple of things. One of the big problems that we talked about was, how do you identify the total dollars going to the universities for research?

And we sort of implied here we are not doing very good.

DR. CLUTTER: No, this is just a statement of fact.

DR. REYNOLDS: I tell you what, why don't we let Doctor--as the Chair, I am going to rule on something. Let's let Dr. Clutter get through the whole position here, because she is trying to give you a research data base and then give suggestions.

Then after she has done all that, then I will take everybody who wants to say anything about the report. But let's let her get through the whole strategy. Could we do that? And then we will come back to everybody who has a

question, because I--I mean her point in the beginning is that the report will have a data base, and she is telling you the nature of the data base.

DR. CLUTTER: That's the point, yes, thank you.

DR. REYNOLDS: OK, thank you. Then go ahead, and then we will take all the questions.

DR. CLUTTER: All right, thank you. We want to make the point that women comprise just a small number of the, of all employed scientists and all engineers.

And I know those numbers are wrong and Betty knows the right ones, but it is something like, 24 percent and 4 percent.

Black Americans comprise 3 percent of scientists and 2 percent of engineers.

Hispanic Americans comprise--and there is a mistake here--it is 2.3 percent of all, of all employed scientists and engineers.

DR. REYNOLDS: About what of all engineers? Take the 45 out...

DR. CLUTTER: It is 2.3 of everything.

DR. REYNOLDS: And take the 45 out of it.

DR. CLUTTER: Of all employed scientists and engineers. But we will get the right data, and I think that we can break that out actually. I just didn't have that [INAUDIBLE].

And finally, American Indians comprise less than one

percent of scientists and engineers.

Then we will [INAUDIBLE]. Once we have established our baseline data, then we will talk about the special programs--federal, industry, states and other--with the exemplary programs.

DR. REYNOLDS: Give us an example of an exemplary program.

DR. CLUTTER: Well, I will give you an example of an exemplary program which is close to my heart, and that is Career Advancement for Women.

DR. REYNOLDS: OK.

DR. CLUTTER: It's a National Science Foundation program. In fact, it gets back to one of the other things that came up a little bit ago when somebody talked about child care.

And I think it was last week in Science, in the journal Science, there was a wonderful letter from Carl Jurasic[PHONETIC], who is a professor of biology at--if he is still a professor--of biology at Stanford, and he talked about my mom, the scientist, or something.

And he talked about the fact that at a point in time when women really ought to be having children, women who have just gotten their Ph.D.s and have just finished their post-doc, this is time they should be having children.

But if they are ever to advance in a research career, they have got to be publishing papers and doing all of those competitive things.

And so he was making some very good suggestions about what we need to do, and this exemplary program that I am talking about gives a woman at that point in her career a $50,000 cash award which she can use for anything she wants, which could be child care, taking time off to have a child, whatever it takes to advance, etc.

It's not research support. Anyway, but that is--it is research support. But there are others.

There are a number of exemplary programs, but not a whole lot.

Let me go on to say that then we're, the rest of the report then will be divided into our findings. Then we have identified some issues and we will have some recommendations for action, followed by a long-range plan which isn't in this outline.

So our findings are that most but not all agencies have special programs for minorities. Now this is for research support.

But not all agencies provide targeted research support, OK? There are--I think every agency, as [INAUDIBLE] pointed out, has to have an HBCU program. That's part of the White House initiative.

That is a very small program. I don't know how much of that actually is research support.

But anyway, I think that every agency has some programs. We found that only one agency has special programs

to support women scientists and engineers' research--interesting.

MEMBER: Which one is this?

DR. CLUTTER: National Science Foundation. [INAUDIBLE QUESTION] Well, the Career Advancement, but anyway, we have a few programs.

DR. DANEK: Three--one program called Visiting Professorship and another one called Reseach Opportunity Awards which has two parts for advancement and planning grants. The total of those two programs come to about $10.5 million.

DR. CLUTTER: But interesting, only NSF out of all the federal agencies has women in the programs. Kind of interesting--and the only reason NSF has them is because of legislation. Let's go on.

We talked about the re. process last time, and there is evidence that establishe. at when women, minorities and physically disabled people are taking part in the review process, funding things, they get more of the rewards.

But we found that minority scientists and engineers are in such short supply that agencies compete for their service on advisory committees. And sometimes it is deleterious to their careers.

We found also that there were very few women of high disability and those that there are, are in constant demand. But few of them are on the highest level advisory boards.

We also found that identification of physically

disabled is a very, very serious problem, and any positive action is precluded until we can somehow come to grips with that.

We also found that NIH's programs targeted for minorities have been very successful in attracting and supporting minorities' research, but that is in the life sciences area.

Now, one that my secretary left out and I read on the plane coming out--number 8, and I will just read this to you, it is a very important one, Betty Vetter would kill us.

Data collection is a serious problem. Agencies cannot identify women, minorities, and physically disabled reliably. So it follows that they cannot provide accurate budget figures on the support of the research [INAUDIBLE].

So it is going to be impossible for us really to get good figures because nobody collects the data. NSF probably does the best job, we have fairly good data.

DR. DANEK: We are going to get some results on, [INAUDIBLE] has proven that, positive identification kit.

DR. CLUTTER: We'll do what we can. You have all seen the questionnaire that we're distributing.

OK, so the main issues that we see now are access to reseach funds, participation in the selection process, the impact of the special programs, the adequacy common degree of overlapping coordination of the special programs, and I might add, just of all the programs, identification of physically

disabled scientists and engineers, and finally the data collection bullet was left out.

So our recommendations at this point in time are, number one, that OSTP, the Office of Science and Technology Policy, with our science advisor who has pledged support, should instruct agencies to collect and maintain data in easily retrievable form on support for the research of women, minorities and physically disabled scientists and engineers--not only for special programs, but also for mainstream programs.

Secondly, better coordination of the federal programs is needed, and we're suggesting that a FECCSET--now that is a federal coordinating committee for science, engineering and technology--should be established.

And that, these committees are established by the science advisor, by the way--should be established to provide high level visibility and accountability for--and I have abbreviated--WMH science and engineering activities.

Now, Tony Joseph has pointed out to me, and we all know it, sitting around the table, that these FECCSETs have not enjoyed a lot of success.

I mean at the present time [INAUDIBLE COMMENT FROM SOMEONE ELSE]--well, I am just going to go on, at the present time, people don't even bother to show up for the meetings, and that is a rather serious situation.

QUESTION: Mary, what's a FECCSET?

DR. CLUTTER: But we're talking about--it's a federal coordinating committee. It is run out of the science advisor's office, and there are a number of FECCSETs. There was one on biotechnology. I mean, there are a lot of those. There was one on supercomputers--different areas, supercomputing. Yes, different areas.

And so what we are suggesting is that we need better coordination and what better way to do it than have the science advisor set up a committee.

And so I think we are addressing this to the future, for the next science advisor.

Third, every federal science agency should establish an advisory committee on equal opportunities in science and engineering.

Now, we may have some problems with that, because some people simply think of these as simply EEO kind of [INAUDIBLE].

But an advisory committee can be whatever the head of the agency wants it to be, and so we can make that a little bit stronger.

We think that--number four, all special programs should be evaluated for their effectiveness. There are a number of them now that have not been evaluated. We want to know--have they been effective? Were they effective?

But also mainstream programs should be examined for their efficacy in supporting. I mean before we do away with

all the special programs, let's find out whether the mainstream programs are doing any good.

And then I think we need to construct a timetable for mainstream. I mean we can't have special programs from now until the end of time. We may have some special programs this decade and maybe we will need a different set of special programs in the year 2000.

But there should be some sort of goal and timetable for these things and some phase-out period perhaps suggesting.

Seven, NIH type programs that have been successful for the life sciences should be established at other agencies and targeted for other disciplines, and we suggest the engineering receive top priority.

And finally, because ombudsmen have been very successful in the Department of Energy, we suggest that in fact, Tony suggests that I take out the word "appointed" and write in "designated." Ombudsmen should be designated by each agency, by each major program at each agency, I would say by the agency head, to provide guidance for women, minorities and physically disabled applicants.

And I think you had one more. And Tony has--on the plane coming out, we discussed some of these, and Tony added a couple more. I don't know if you wanted to bring those up now or not.

MS. JOSEPH: We realize that these are beginnings of the Task Force.

DR. REYNOLDS: And these are solid implementable. If an agency head knew he or she had to do this tomorrow, he or she could execute these and then start work on the problem.

OK, questions and comments. Let's--on the whole report. Nina, and then Miss Sabatini.

MS. WINKLER: The data collection is a theme that is running through a lot of these, as is evaluation. In most agencies, and in most cases, I would say OMB would be required to somehow be on board since they approve all your data collection instruments, and thereby effectively [INAUDIBLE] anyone they don't like. I worked at OMB, I know how easy it is to do that.

I don't know, how does the OSTP--do they have independent data collection? Do they have independent authority to require [INAUDIBLE]?

DR. CLUTTER: No, they tell NSF to do it.

MS. WINKLER: OK, so then NSF would go through OMB. So only our recommendations should affect OMB, then, because they don't, if they don't do a directive, then it doesn't really happen usually.

DR. REYNOLDS: We can clean that up in the language, yeah. That's a good suggestion.

MS KEMNITZER: I would note that Norine Noonan, who is on the Task Force, and indeed is with us in spirit, writes the special analysis on R&D. So we have a very immediate linkup with that process.

DR. CLUTTER: I wish she would come to a meeting.

MS. KEMNITZER: She came to the employment subcommittee.

DR. DANEK: If you tie the data collection to the creation of a special analysis, it all fits together. You have to do it because it is part of the President's message every year.

DR. REYNOLDS: OK, then I have on my list Miss Sabatini, Mr. Hill and Mr. Fernandez. Miss Sabatini.

MISS SABATINI: I notice that page 1 and 2 you have data where you include industry, private sector, from page 2, the bottom, on it is all federal agency recommendations.

DR. CLUTTER: Right, right. It is because I don't have any data yet from industry. We mean to add that. That's a good point.

MISS SABATINI: OK, then maybe you should say, you know, we're going to get some findings.

DR. CLUTTER: No, I--yeah, absolutely, we want to get whatever we can from industry, that I know it's...

MISS SABATINI: And that I know there is data available from industry, but you have to go and find it. You can go to organizations like the Pharmaceutical Manufacturers Association, a national association [INAUDIBLE].

Also, when you are talking about national R&D effort, I'm a little puzzled, when you talk about research and development, it is so vague to me--these statements are so

vague--because, for instance, within the pharmaceutical industry, 98 percent of their research [INAUDIBLE] is funded by the industry, and only--96 percent--and only 4 percent by the federal government. So the data is skewed [INAUDIBLE] get some backup statistics to amplify [INAUDIBLE] because some of the [INAUDIBLE] is heavily weighted in the private sector, and that's where we should go.

DR. CLUTTER: Well, OK, let me just say that in some preliminary discussions that I have had with Roland Schmidt from GE. He said that they don't really support individual support individual research programs for women, minorities and the handicapped, that they are really supporting more what you call development.

But I think what I need to do is provide a much better definition here.

MISS SABATINI: Yeah, because there is a difference, and that was another thing that I was a little concerned about, because there is a lot of basic research, there's applied research, and then there is development in industry.

DR. CLUTTER: Right, but you can't get at any of the, any data that will tell you how much of that is given to women or minorities, etc.

MISS SABATINI: You can get it by just looking at [INAUDIBLE] and what grants they give. [INAUDIBLE] monies are a corporate giving function where they can separate out. You are going to find out it's terrible, but at least we'll find

out that grants are not being--and that some of the higher institutions. The American Association of Colleges of Pharmacy has data also on, in academia, on how many grants and what types of grants are given in the academic area, and I'm sure that.

DR. CLUTTER: Do you think that you could get that data for me?

MISS SABATINI: Sure, I can [INAUDIBLE].

DR. CLUTTER: Because that would really be helpful.

DR. REYNOLDS: OK, Mr. Hill.

MR. HILL: I have had a concern about how we use the term "mainstreaming." Are we in a position to try to make everybody the same, which I would think would be wrong, in sort of an educational melting pot, rather than an educational stew where the richness and the diversity of everybody is OK.

You need potatoes and you need meat and you need peas and tomatoes in one stew, it's OK, and that what this society is about.

DR. CLUTTER: We're not addr t question.

MR. HILL: When you are talking .. timeline for mainstreaming, I just, I would like to make sure that when...

MS. WINKLER: I mean making sure like women take [INAUDIBLE] with everybody else for the usual grants instead of having a separate kind or something.

DR. CLUTTER: Yes, right.

DR. REYNOLDS: I think what they are just trying to

do is make sure, take what Mary is alluding to, and what I agree with, you want to have a sunset on these programs because sometimes institutionally, you institutionalize separateness or special programs forever and forever.

The goal is really to have people--women, minorities and handicapped--very well represented in the mainstream granting of programs. You don't want to have a program forever and ever for women, is what you were referring to there.

DR. MALCOM: May I just suggest, though, that one of the refinements of that particular [INAUDIBLE] is that we put some kind of statement in about triggers because you could say, well, that means that over time alone, the time alone would be the thing that will cause an end to the program as opposed to meeting interim goal steps which are triggered, moving toward that level, and that could actually be uncoupled from the timeline.

But you need a trigger at a sooner point in time. Then you can move to a different step in the phasing out process. So I would encourage we [INAUDIBLE] a more vigorous front end kind of action that says if you want to get rid of the program, you have to do a lot of [INAUDIBLE] to try to...

DR. REYNOLDS: Or more important if you want to absorb the money from the program into your budget and have more money, the quicker it moves, the quicker you get your hands on that money.

DR. MALCOM: That's right, that's exactly.

DR. REYNOLDS: Mr. Fernandez, did you have a comment?

MR. FERNANDEZ: I feel a little concerned about this report. I think we have done a great job in gathering the data. I think this is one of the areas where we can have the greatest impact on what the federal government [INAUDIBLE], including private industry.

But just a couple of comments in regards to the dollars versus the numbers of people that you might wind up talking about.

If we really believe the dollar value, which [INAUDIBLE] said was what, approximately $1.25, $.2 billion.

DR. CLUTTER: No, no, no, no. What I am saying is that the real dollar figures are closer to about 6--OK? Relating that, if we want to relate that to the population of scientists and engineers...

MR. FERNANDEZ: But let me follow my trend of thought here.

DR. REYNOLDS: OK.

MR. FERNANDEZ: There is a large expenditure, dollar-wise, by industry and federal government, to that tune of $1.5 billion dollars. If you look at the production of Ph.D.s in the United States, by the numbers, it is a very, very small percentage, especially for minorities and women.

So I think we can disassociate the granting of R&D dollars to universities by private industry and what is going on in federal labs, if we are going to impact minorities and

women and handicapped in the future, by just taking to the numbers that we want to, says loads as far as Ph.D.s.

One of the questions that has come up recently is do we continue the process of granting research grants to the universities on a one-to-one basis, individually, or should we [INAUDIBLE] techniques where it is a team effort, so that you can bring more graduate assistants as part of the team that will eventually make them Ph.D.s but not [INAUDIBLE].

DR. REYNOLDS: So are you suggesting some more special programs?

MR. FERNANDEZ: Not necessarily, but I think that as you go along towards May that you might be thinking of what are general policy issues that you might make statements about, in how you allocate those dollars to the universities, national labs, federal labs, that you might think long-term and decide on the total pipeline of master's and Ph.D.s.

MR. HILL: That's one of the things in...

DR. REYNOLDS: That's the commitment.

MR. HILL: [INAUDIBLE] looking for the sentence you can include in the research grants that will [INAUDIBLE] women, minorities and the handicapped. One is that you give them free money when they are graduate students through their research grant with the graduate students if they are women, minority and handicapped. But they don't get that money if they are not.

And go on from there--there are half a dozen ideas

that are already in the discussion process, but not very many of which have been [INAUDIBLE] yet.

MR. FERNANDEZ: Right, but the bottom line, if we can make great impact when we go to talk in the context of both [INAUDIBLE].

DR. CLUTTER: Yes, OK, let me just say I didn't give you a list of all of the exemplary programs, but there are a number that offer incentives to include women, minorities, and particularly disabled on the research grants.

Also, the National Science Foundation wants to mount a huge effort on science and technology centers, which is the kind of thing you're interested in.

And so that will be one of the programs that we can talk about just something that now exists, and we might want to make a recommendation that we have more of these, or whatever.

DR. REYNOLDS: We really need to finish this one up, because time is really moving on, and in this Sybaritic paradise we call California, you are going to experience between five and six the world's worst [INAUDIBLE]. You will be on the most heavily travelled freeway in the United States during that hour. Trust me. So we [laughter], you really want to move out on the freeway.

OK, very quickly, Dr. Malcom and Ms. Guerra, and then we have got to move on to the next report.

DR. MALCOM: This is a quick one, and that is that I think that someplace we have to think about the structure of

the research funding at its--the relative impact of different kinds of--it's the extension of what we were just talking about--the relative impact of different kinds of funding mechanisms.

For example, centers versus individual investigators versus mark, NIH mark kinds of, or NBRS kinds of funding and its relative impact on these different groups.

DR. DANEK: I think the issue of "mainstreaming" and "targeting" is very important. I would like to make a point on that at some other time.

DR. REYNOLDS: OK, good, Ms. Guerra.

MS. GUERRA: One of the things that I would recommend to your subcommittee, Mary, is that they have a recommendation that involves the [INAUDIBLE] because I feel that research so often, at times especially when you're talking about funding, the need is what establishes the dollars that go to research, and we see it especially in the scientific and the medical professions.

But I think that would be something that would be worthwhile coming from your...

DR. CLUTTER: Yeah, I think that that's a good suggestion.

DR. REYNOLDS: Thank you. Let's move on now to the next one, which is employment. Ms. Guerra.

QUESTION: Number?

DR. REYNOLDS: Yeah, number four. You're on. No

break. We don't have time for a break anymore. I'm sorry.

MS. GUERRA: Like the previous subcommittee, ours was going to be revised. This is what the draft of one that needs to be refined and [INAUDIBLE] and a lot of other things.

We had a meeting, we had several meetings, but we found that when it is time to really put things down on paper, it gets to be a very difficult task, and how to [INAUDIBLE] on their subcommittees.

But I apologize for the typing. We went through a couple of drafts [INAUDIBLE] and there are still some typos, and you will be receiving a corrected one in the mail.

So based on three premises, in dealing with the issues of employment, and we think in terms of that everything that happens in the pre-college and the early school years or the college in research ultimately leads up to people being employed in this country.

But in this particular set of recommendations we are talking about, first, the fact that in the coming years we are expecting women minorities and handicapped individuals to make up the main portion of the employment, the [INAUDIBLE] resources.

Secondly, the federal government, like the private industry, private sector, will need another increase in number of people in the scientific and technological fields, as well as facing--to remedy facing critical shortages in certain skills.

And thirdly, the wide mix of programs, resources and support will enable women, minorities and the handicapped people to help the federal sector meet its demands.

So based on these three premises, we have worked with five, focused on five specific areas. The recommendations will deal with the systemic changes that are needed. How can you change the system? Because we feel that so many things that we face are built into the system.

Another one is public [INAUDIBLE], then recruitment, retention, and awareness of the public relations, the awareness, how do you educate the public to understand what are the needs, what is the supply and the demand needs for this nation.

So, focusing on that, we proceeded from the vantage point that we were interrelated with other subcommittees, but in essence we are trying to create a cradle-to-grave approach, or a life cycle approach, and as I said, there's [INAUDIBLE] to facing the employment issues in this nation.

OK, this extended--the extended systemic changes, we are looking at the need for broad flexibilities in identifying and implementing changes that will remove administrative burdens, excessive burdens on the agencies, because we are talking mainly about federal employment in this set of recommendations.

How do you reduce the paperwork? And how do you improve the employment opportunities, which also include the

career-broadening programs, the career ladders, and the programs for minorities, women and the handicapped.

So, we also recommend that there is a definite need to establish a clearinghouse, an advisory board, and I think that will tie in to other subcommittees' recommendations, too.

And this is to keep people from reinventing the wheel, and already in the four hearings that we've had, we have seen a lot of efforts that are very duplicative of other efforts, but there are all going so many different directions, and there is a need to disseminate this information and at the same time to coordinate this effort at a national level.

Changes in the public law. The committee supports the passage of the Civil Service and Education Act, and I am glad to see OPM people here, because this is one of the very strong recommendations that OPM--there are so many things that deal with women in the federal government that unless you have OMB, OPM, and those regulatory agencies--Equal Employment Opportunity--you are not going to really be able to create the changes that we need in order to improve numbers and representation of these groups that we are working on.

But talking about things that must be changed, whether it is laws, policies and directives. Already, for instance, in the federal government, when we deal with engineers and scientists, direct power authority has probably been one of our biggest assets for hiring for the federal government.

But we feel that the simplification and passage and full implementation will, again, give the agencies more flexibility in order to establish good management practices, and not just good management practices, but practices that can be targeted for very specific demands.

The major provisions of the Act allows for are the pay binding, and we are going to have somebody from China Lake that will be testifying tomorrow. The paid-for performance, the simplified classifications of the different series, and if you have dealt with employment, you know that it is very cumbersome, especially when you get into job classifications, and the special pay rates.

Special pay rates are things like, for instance, in the area of Los Angeles, or in the area of hiring minor--not minorities, but scientists and engineers, we have been able to become a little more competitive with private industry, which is something that we need to have if we are going to go out and have some successful recruitment for the federal government.

And actually when we talk about things like the paid bindings, and we are talking about, as you will hear tomorrow, it is having certain groups and classifications where people can move within a series as far as promotions, instead of going from GS 2 to GS 5, GS 7, you go up the ladder. And this, again, rewards performance.

The White House a few years ago during this administration has the initiative, the reform for management

initiatives, asking agencies to look at ways that you can improve your management practices and encourage agencies to come up with ways, and this is what Navy instituted at China Lake.

The Air Force is now instituting some--that is, the [INAUDIBLE] share here in California that again will allow people to benefit from good productivity, and it is a sharing of the profits.

And that is still being worked out in unions and OPM and the different government agencies that regulate our authorities.

In recruitment, talking about, we need recommendations from how do you draw your own? How do you prepare people in the agency with enough flexibility to establish programs to train people to prepare [INAUDIBLE] of the ladder, of the two careers, and in this case, we are talking about into the scientific and engineering fields.

How do you have those built-in both [INAUDIBLE] without and in the agency.

We are talking about interagency partnerships is another recommendation. Special recruiting efforts to establish national recruiting campains, job fairs, particularly when there are agencies that have missions that are so similar.

The federally funded scholarships [INAUDIBLE] in the Department of Defense, there has just been one [INAUDIBLE] that we have been able to call our own. Those in the study

programs, the internships, the summer employment programs, which allow us to identify and attract promising young people that hopefully will stay within the federal government after having had the experience.

Retention is another area that we are making some specific recommendations, and this is an area where someone else also is working on some recommendations to come to the committee.

I understand after I called my office after arriving here that they arrived today. So this report will be expanded.

But in addition to streamlining administrative procedures and supporting passage of the Simplification Act, we also recommend that there are certain actions that be considered as recommendations for the Task Force.

To establish a national special awards program to recognize people within outstanding federal or the federal agencies for specific achievements in science and technology.

To develop and monitor career pathways.

To support the lateral agency agreements.

To create a national publication that highlights the achievements of the federal employees, and I know that we have got several already, whether it is in management skills, and I don't know that we have anything that is targeted for the technologies and the scientific and engineering fields in the federal government.

One of the things that we are doing also is doing a

survey of those agencies that are represented in this Task Force, asking for various specific things like, what are you doing for the future for employment in your critical changes and what focus do you have?

And we hope that out of those things that will come from the agencies, we will have additional recommendations.

And we request also as a recommendation is to request the Office of Personnel Management establish an office to work with the national clearinghouse or the advisory board in coordinating and supporting the programs.

Another one, and lastly, is the public awareness and the support. This is really something that we feel that unless you appeal to the public, I [INAUDIBLE], even though you might have equal opportunity and programs like that, until people are really prepared to compete in our society, we will not reach any semblance of equal opportunity.

How to educate or create the awareness with the American public? We have expended or we have discussed the recommendation that we need a new public awareness program, something that is targeted to the schools, not just at the high school or the college level, but starting at a very early age, and doing this through the advisory board, whether it's TV ads, whether it's newspaper articles, whether it's magazines or whatever it takes, to create--and a lot of agencies are already doing this.

I know that the Air Force has this program and it has

been very successful for us. The adopt-a-school program, but to do it at a national level.

To establish with an early science program that is talking to primarily a primary and junior high schools, and as I said, we would overlap very much into the educational areas.

But if we're talking about how to do, create the awareness of what this really the picture of employment in this nation, you do need to start with the very young, and I think we all agree on that.

And, the last one that we have written here, is the development of the intern programs in the support agreements between the agencies. I would love to entertain questions.

DR. REYNOLDS: Thank you.

MS. GUERRA: But there is so much in this area, and so much of it we have, that we have discussed at our meetings has also been presented by the other subcommittees.

DR. REYNOLDS: Thank you very much. Nina.

MS. WINKLER: I think this is just excellent. There are common things, stuff that we can really do. I have one thought to add it to buried in one of these. In my office, we try to recruit social scientists and statisticians, not real scientists, I guess, but one problem we have is that we will, we are just ecstatic when we find someone, often they are women or minorities--I don't think we've found any handicapped ones lately, we would be happy if we found some.

Then we have to send the names over to OPM, and it is

always name number four or five on a list that is topped by three losers that other agencies have gotten rid of, and it drives me crazy after I have gone through all this recruitment to--of real smart young people who are actually willing to come into the federal government for a career there, they have the technical skills and everything.

And because the system is designed to protect so many people, it doesn't, it gets in your way, when you really want to try. And somehow that extra bureaucracy, there must be some other way of protecting people that did not actually get in the way of...

MS. GUERRA: Well, until we create more waivers in some of this employment areas, I think we will never overcome the problem because it is very [INAUDIBLE] higher quantities. The schedule [INAUDIBLE] have been very helpful in the scientific...

MS. WINKLER: Oh, they're wonderful because...

MS. GUERRA: We also hear that Los Angeles and that we have a problem recruiting secretaries, so we've been able to compete with private industry and change the pay for secretaries, and we've been able to do that based on geographical needs.

But those needs also apply to the science and technology areas.

DR. KEYNOLDS: Ms. Morgan and then Dr. [INAUDIBLE].

MS. MORGAN: I like your recommendations that covered

the areas. And I just need a couple points on the adopt-a-school programs. I'm wondering when you say especially for schools that emphasize science and technology. It's great that you're giving this [INAUDIBLE], but I wonder if the disparity gets bigger and bigger between those that have and those that don't have.

MS. GUERRA: You know, and this recommendation was based on, but my experience has been [INAUDIBLE] really pushed on this adopt-a-school program, which is that I feel that the Air Force, and I'm speaking of my agency, we're a lot more than just airplanes and weapons. We are jobs and we are money to the community.

And so this is for the--but we will just take a school and--or different sections on an installation will adopt different schools, and these are mostly elementary schools.

And when I say, especially for schools that emphasize science and technology, I think these are the areas where we need to actually go to the school and get them to [INAUDIBLE] emphasizing the science and technology.

MS. MORGAN: And I get the feeling from this that it sounds like you're already, that you are one of those schools that already have...

MS. GUERRA: No, and I [INAUDIBLE], as I said, it's [INAUDIBLE] to a lot of clarification. It is really to get schools to emphasize more science and technology and this type of thing.

But if you went to the hearing--and I was not there in Kansas City, but I am very familiar with the program of what Air Force is doing to help. In San Antonio, we have got tutoring programs, and the University of Texas and those students that are--that has been very, very successful.

And the number of students that have actually graduated--but these are tuturing programs where people that have good backgrounds, that you don't always find parents that have those backgrounds, tutoring the kids after school, and in this case, 77 percent of the kids went on to school, and a large--56 percent of the ones that went on to higher education went ahead and chose engineering or fields that require math and science.

MS. MORGAN: I want to make another point, from a teacher's point of view, these recommendations target children and students. And there are a lot more students and children than there are teachers, and oftentimes you can reach those groups through the teachers, and I think--another problem is we have as teachers is we are insulated.

We are so busy in our own classes that we are insulated from the real world, and that teachers can have more experience, then they are invited in for a summer of internship rather than just science and engineering students to be invited in [INAUDIBLE]. I think you are going to get a lot more effective teaching as well.

MS. GUERRA: I also feel very strongly that

[INAUDIBLE] level, effective student learning.

MS. MORGAN: Right.

MS. GUERRA: That's good, and I also will add one on counselors.

MS. MORGAN: Absolutely.

MS. GUERRA: Need to be very much aware what are the needs and the important.

MS. MORGAN: And stick them with [INAUDIBLE].

[INAUDIBLE COMMENT]

MS. GUERRA: Well, I was told very clearly that we should just include the federal government.

DR. REYNOLDS: Because I think we really need to address somewhere the science and technical work force needs of the country.

And getting back to your suggestion about the technical work force, and the training of technicians. I don't mean the report should talk about training, but what are the needs and what are the opportunities?

MS. GUERRA: [INAUDIBLE] federal government do mirror the private sector.

2DR. REYNOLDS: Well, but there are some specific recommendations that this committee might make, for example, about the employment of women, minorities and physically disabled in universities.

DR. REYNOLDS: In the university research science enterprise.

2DR. REYNOLDS: Yeah.

MS. GUERRA: I would like nothing more, and this is what we had argued in last week. I brought up that we will look at another [INAUDIBLE]. It will be strictly that this is what the Task Force would be doing.

And, Sue, if you will clarify that.

MS. KEMNITZER: Mary, as I recall--we've been over this ground a couple of times--but as I recall we decided that the employment subcommittee would just deal with federal employment, to take exemplary programs from the other sectors.

But the research support committee would make whatever comments were pertinent about those employed in the institutions that receive the research dollars.

DR. REYNOLDS: Well, I have kind of a little bit mixed feelings. We ought to probably put a few sentences in, in the employment section, on university employment. I really think we should.

On the other hand--I just finished a 2-day board session. We had a lengthy session on our own employment of male, female, black, Hispanic, all types of faculty, and our record doesn't look good, although it is better than the rest of the nation.

The trustees beat up on us and on the presidents, as they should. And you all know the problem. We had a professor in the academic senate sitting there who is a history professor at Sacramento, which is a growing institution.

They have not hired a new full-time Ph.D. in the history department in 18 years. All of the enrollment growth has been in science and technology. That's where all the hiring has been, and we would kill for a black, female Ph.D. in computer science.

Nine were produced last year, and we're, you know, out there beating the bushes for them. There's nine, there's nine--I looked it up.

DR. VETTER: That was the men and the women together.

DR. REYNOLDS: OK, maybe it's, all right, help me, Betty, what are...

DR. VETTER: [INAUDIBLE] eight males, black.

DR. REYNOLDS: All right. OK, nine were produced...

DR. VETTER: You're not going to find your black female. There is only one of them.

DR. REYNOLDS: All right, and the point being, there are other hiring action programs in the universities, states across the nation lean on that problem as well. So I think we should be cognizant of it, but I don't think it needs to be the main focus of the employment.

Will that deal with your concern, Mary?

DR. CLUTTER: I think we should make a statement of some sort in this report.

DR. REYNOLDS: Make a statement, yeah.

MR. REYES: You can make several statements, but you are going to get skimpy data. You come from an area that is

very close. We are in the middle of academia, and you have got your data for us there.

But back when we first started this crusade, we said we were going to look at federal employment because that's where we had data, that's where we had agencies, that's where we had people to collect that data.

It is going to be very difficult to go out to industry to get the data from even their General Electric engines or other pharmaceutical.

DR. REYNOLDS: We haven't been able to do it.

DR. JENKINS: May I ask at least we check with the Department of Labor and see if we can at least get federal contract for work force data.

DR. REYNOLDS: All right. Sue, can we do that?

DR. JENKINS: Because that is related to the dollars that we can control and there is supposed to be a requirement at OFCCP, I believe--I assume they are still doing those EEA-1 reports, where they had to tell what they were doing in affirmative action, what the makeup of their work force profiles happened to be, and how they were trying to help their [INAUDIBLE].

So maybe we should at least explore that effort.

MS. KEMNITZER: Yes, I agree. We have a witness tomorrow who is going to walk us through some of that process.

DR. REYNOLDS: All right, OK.

MS. KEMNITZER: And then we'll, since our poor Labor

Department people, first meeting [INAUDIBLE].

DR. REYNOLDS: Other suggestions for Ms. Guerra and her very good report.

MRS. EMERY: I was just going to suggest that you can also tap the Small Business Administration because they handle procurement for all of the agencies, in terms of what percentage goes to women and that kind of thing.

MEMBER: Do we have a representative here from that group?

MRS. EMERY: No.

MEMBER: Are you representative of that group?

MRS. EMERY: No, I was there at one time, so I know that you can get that information there.

DR. REYNOLDS: Nina, can we go back then to the mission statement. It just seems like if we look at only federal and extend that, say, federally, spot it through grants, and contracts and grants would include universities, I guess, contracts.

There are, for example, federal rules on the Office of Civil Rights and the Department of Education. It concerns itself with what goes on any institution, I guess, that gets departmental funds.

What happens in the school systems, for example, and I think universities, too. I'm not sure if they are even involved with [INAUDIBLE]

MEMBER: Too many programs that still fall under your

[INAUDIBLE].

MS. WINKLER Right, but that might be a good source to get a much broader picture than just, say, our OMB house, civil service folks.

MS GUERRA: And I think, too, that if we survey agencies to see what they are doing to prepare for the future in these areas, it would be very worthwhile to seek what is the private sector doing, because after all, we are competing for the same labor pool, always.

DR. REYNOLDS: It is, that's true.

MS. KEMNITZER: And then I think that we might have some good recommendations or ideas that come from private sector to make to the federal government.

DR. REYNOLDS: Yes, Dr. Malcom.

DR. MALCOM: I hate to, you know, drag out time out, but I think that the private sector is talking about these [INAUDIBLE]. We had the discussion early on that what the Fortune 500, their level of awareness and their level of commitment, their level of involvement is very different from that of small business where he predominates in terms of the actual numbers of people that are put into jobs.

And we can get numbers about what, how much IBM or Amoco or what have you are putting into, for example, in the minority engineering effort, or other kinds of things like this, but in terms of saying that the private sector, I think we would have real problems, because that other end, which is

what most of it actually is, is going to--I just don't think we are going to have the base to talk about it.

MS. KEMNITZER: Well, I'm not talking about the numbers and what they had, whether it's in funding [INAUDIBLE], we're interested in the ideas as to what are you doing to grow your own? What kind of partnerships are you forming with the community colleges, with the universities to prepare people...?

DR. REYNOLDS: How are you on the lookout for manpower, in other words? And I think--OK, that fits with what Dr. Malcom is saying, that we really--and we probably can't even get honest--I think you are absolutely right. Can you imagine trying to get the hiring statistics from MacDonald's, for example?

DR. VETTER: That one was [INAUDIBLE] [laughter].

DR. REYNOLDS: The turnover rate, you know.

MS. WINKLER Another thought just occurred to me on this. On the pre-college group, they talked a little bit about teachers, and it kept bothering me, and I think I finally figured out why. I think it would be very interesting to talk about teachers in math and science in relation to other employment opportunities that they have.

One of the things that the federal government is real scared to say, but probably should be said by somebody at some point is, why don't, if math and science graduates can make more money than English and history graduates in the private sector, and maybe even in government, why shouldn't they in

teaching?

And that is a bomb politically, I know, because the teachers' unions would not like it at all, [INAUDIBLE] proposed it, but it is being muttered around the country in little dark corners right now, and I think at least one way to at least consider it is to look at where these kids are going when they graduate from college with these desirable degrees, especially the minorities and the women, who are--there's so few of them.

Are they being sucked up by industry and getting $10,000 a year more than they would get as a teacher? One of the most useful contributions we might make to that debate would be that sense of contact, that certainly within the education community, I haven't seen much of that context brought into that discussion.

DR. MALCOM: They talked about some of it in the [INAUDIBLE] Task Force Report.

DR. REYNOLDS: Yeah.

DR. MALCOM: I was a member of the Task Force on Teaching as a Profession, and there are some of those numbers that are in there. One of the things that I will try to do that is we move to something like a Rochester [INAUDIBLE], where the base of all teachers is actually raised, where there is a performance requirement that is placed on those teachers and teachers can make up to $70,000 a year as a lead teachers.

But lead teachers must go into the most difficult classes to teach. Seniority does not allow them to move into--

they give up seniority rights.

MS. WINKLER Yeah, I was just thinking about math and science per se...

DR. REYNOLDS: But it's also, Nina, though, a little--it's a little bit of--we've struggled with it a lot, too, as we've done teacher ed reform. It is a little bit of a double-bitted ax, as my grandfather used to say, in that I think it is really very clear to the nation--I think it has really appeared enough in the media--that one reason for the nursing shortage, which is really about to rear up and overtake us--you think we've got problems with this Task Force, you ought to be on a Task Force dealing with the growing nursing shortage in this nation.

Because, so teaching and nursing used to be populated by women. There is no doubt at all that the teaching ranks and the nursing ranks have been diminished in both the quality and quantity of women they get.

And so is the Catholic sisterhood, because of the enormous opportunities that have opened up to women, the talented women. They have just moved into other areas.

On the other hand, the real way to solve that and you have alluded to some of that in some of these discussions, and Dr. Malcom was alluding to it, is simply to get those salaries up there. And year-round schools and a bunch of other things like that will help that.

Because I don't think we want to retrace that

history, in a way.

MS. WINKLER Now, but I think to talk about it in the context of where else these people can go is maybe more useful than simply making a statement saying, just a general statement out of context without teachers.

I think teachers in terms of the [INAUDIBLE] employment opportunities, because we are going to be talking about that, would be interesting.

MRS. MORGAN: I think if you...

DR. REYNOLDS: Yes, there's that teacher.

MRS. MORGAN: Put that emphasis on science and math teachers, your next task force is going to be on how come the scientists and the mathematicians can't read or write.

DR. REYNOLDS: Dr. Sabatini, we need to move on to Alan's report.

MISS SABATINI: Well, again, I have to put in--this is a good report, and I think all you have to do here, all of what you said is. This is a national crisis, similarly a federal crisis, and all you have to do is incorporate into your recommendations, wherever you have something like [INAUDIBLE] agencies and private industry, inter-agency and private industry partnerships, very easy to establish national recruiting campaign [INAUDIBLE], work with professionals.

You have go to to include private industry in here, and I don't mean "private sector." I mean private industry as you described it in your opening paragraph.

This is just as much of a national crisis in private competence because that, and they do have some very good suggestions there. There is a little, just a little application to include private industry, encourage partnerships with private industry.

And so I think that...

DR. REYNOLDS: OK, we will try to figure out some acceptable wording under our mandate and...

MS. JOSEPH: I would highly recommend you keep the jewel that you have and look at it as a model after you revise it, and get into the complicated areas that you're talking about where the data alone is going to be hard to get.

And then come back [INAUDIBLE] from the standpoint on its focus, it has...

DR. REYNOLDS: As is, as is.

MS. JOSEPH: Explanations that right now are current and good ones. It is an incredibly good piece on the federal part that we understand and that, you know, we follow.

I think it is going to be a jungle when we try to broaden it, and even say to the same recommendations can easily apply to the private sector.

MISS SABATINI: Well, you see, I'm from the private industry sector.

MS. JOSEPH: You're from...

DR. REYNOLDS: OK, could we, could I suggest this...

MISS SABATINI: I think this is a good paper that

doesn't need modification. It just needs a few little words added to it.

DR. REYNOLDS: Yeah, everybody likes the paper very much, Ms. Guerra. I think it is very clearly focused. We will work with Sue wherever we can to indicate the private sector commitment, but there are some limitations because of our mandate that Ms. Guerra was working under very accurately.

So we will do our best, but everyone has to recognize those limitations, and thank you, it is an excellent presentation.

Joe, we have just got to move, OK, real quick one.

DR. DANEK: Well, I think the one point, though, is the federal government is providing $60 billion worth of research and development money, and we have a responsibility to say something about this issue.

There are only $4 billion of it is performed by universities. That means $56 billion...

MS. KEMNITZER: That's why I say through the research subcommittee, which is where the $60 billion comes from, we should make some points.

MS. JOSEPH: Research contracts [INAUDIBLE], grants for universities...

DR. REYNOLDS: All right, we will make sure it gets in there somewhere. Right, Sue?

MS. KEMNITZER: Yes.

DR. REYNOLDS: OK, I trust that we will. OK, let us

move ahead. The interest in these is really high and they really are first-rate. Social factors, Alan.

DR. CLIVE: Our report is rather longer on rhetoric and shorter on recommendations than others. Claire and I believe that this was not inappropriate. In our sense, our subcommittee serves the function of the little boy who cried out that the emperor has no clothes.

In other words, we are stating that which is painfully obvious, that which if left uncorrected will have terrible consequences, but which is being willfully ignored by many, including perhaps the emperor.

So, we spend the first half of our report simply repeating our belief that the primary factors that are retarding the progress of our targeted groups are simply the same old forces that have been at work elsewhere in society.

Indeed, if our report looks like it is a document from the 1960s or even the 1940s, I make no apologies, because that is the nature of the society we are in.

If we are having to say the same things now that we could have said in '68 or '48, that is the problem precisely. So we suggest the consequences of continuing to cling to the kind of outmoded beliefs about women, minorities and people with disabilities.

And then we offer some recommendations which are in some cases deliberately vague because we knew we would be overlapping what the other committees were doing, because we

have a piece of each committee's mandate in a sense, and it would come as no surprise if we are saying some of the same things.

Our point of view, perhaps, is slightly different because each of these recommendations we see as a way to get at the underlying social factors and to begin to change the climate.

Perhaps the thing that should have been said in this report, which was not said, was the length of time that that is going to take, because we do not expect results in the next five years, the next 10, perhaps in some instances not in the next 20.

But we must begin and we must keep at it.

Our recommendations, in brief, are that--and again, this is something that I heard from at least, more than one subcommittee--that we do something to institutionalize the importance of this issue, and to attain leadership at the highest level, an executive order from the President to do some of which was discussed in regard to the OMB and the agencies.

We think that that would be the most effic ent way of handling this and getting the President's attention.

The commitment to--or recommitment--to an end to intolerance. That was a hard one for me to write, and it is left vague because it comes out of the decades of listening to commercials about National Brotherhood Week and the good work of the Roundtable of Christians and Jews.

And realizing that we are told by a well-known think tank that hate crimes are on the rise in this country as never before, which means that there is a tremendous amount of work that needs to be done.

And frankly I would welcome suggestions on how to make that recommendation more concrete. I referenced the Civil Rights Restoration Act there, primarily because, if you will recall in our first meeting Congresswoman Schneider spoke of it in rather glowing terms.

And I think it is important to start someplace.

Our recommendation on scientific literacy of course overlaps just about everything that everybody else has said.

But again our point of view is slightly different and I don't think it is elaborated as much as I would have wanted to, but I was trying to stick to the 2-page limit.

What really concerns me here is that we have a nation that begins to really be comfortable with science, that begins to think in scientific terms, because barring a third world war that will reduce us to the stone age, we can be sure of two things in the future.

There is going to be nothing but more technology, and it is going to be technology that we can't even begin to grasp today. We don't even know what it is, but it is going to be here.

Oh, and the third thing, it will be here sooner than we think. So, we must be prepared as a nation to be able to

live with this world, to accept the fact that the future is now.

Then, we do look at the issue of day care, and here our aim, once again, is to begin to shift the general thinking of society. We want to make it acceptable, ultimately, I think, unremarkable that women are doing the kinds of things that we want them to be doing.

And we believe that affordable and adequate--and those two go together, they cannot be separated--affordable and adequate day care be provided.

I want to return to the recommendation on scientific literacy because I want to mention a brief reference, which really, again, much more could have been said about, and this has to do with the burnishing of sciences image.

And here what I really had in mind--what we discussed at the last meeting of our subcommittee--was the fact that science has got an image problem.

All you have to do is look at "Dr. Science" every week on television, and the fact that people still believe in astrology to the extent that they do.

Again, we have heard other subcommittee chairs speak about this problem--the necessity to nurture minorities, the necessity to begin to think about different ways of doing science.

Well, that's got to be done both in terms of getting interest revived--not revived, but in terms of pervading the

nation with interest in science.

We must be using role models from our target groups to show members of those target groups that, yes, it is possible for them to attain as well.

The issue of what I would, called in an earlier draft of this, the orphan devices for the handicapped act, is another issue. This computer that I have here is developed essentially by two or three people.

It is a one-horse outfit now that is run by one guy, and the difficulties that he has had in developing this and in marketing it would be ameliorated, I believe, if there was some kind of assistance.

IBM has got all kinds of initiatives for the handicapped, but I have to tell you, I have never seen any of them, and perhaps when we get to Atlanta, I would very much like to see somebody from IBM.

MS. KEMNITZER: Yes, we have them on the docket already.

DR. CLIVE: Yeah, because frankly I, in real life, in my real life as a handicapped person, I haven't seen anything that IBM has done for me that, put frankly, I could afford.

MS. KEMNITZER: I have the same problem. I don't mean to make it too [INAUDIBLE].

DR. CLIVE: So we therefore look to you to help us flesh some of these recommendations out, to offer more recommendations.

One that I will just mention in closing that I didn't say anything about because, frankly, I didn't know how to phrase it was, I wanted to say something about the diversity of our society.

The Governor paid tribute to the ethnic, racial diversity of California, and I will certainly, I have no reason whatsoever to question his sincerity in so doing.

It strikes me, however, that in many instances the discussion of diversity in this society takes on a ritual character, and that we don't really make the case for the strength that diversity gives us.

For example, we all went into a tizzy last year when the Prime Minister of Japan essentially said that because of the fact that we are a diverse society, we are second rate. And he was forced to apologize.

But we know very well that that is a view that is held fairly widely in Asia. Societies that are homogenous are better, they think.

I think we should do something to try to pinpoint what it is that makes us, that is a positive contribution of our diversity, and get the word out to our own people, so they will come to understand.

But as I say, that's something that I could not myself get beyond the point of a homily, and I felt that there were enough homilies in this report as it was.

So, further deponents sayeth not [laughter].

DR. REYNOLDS: Thank you, Alan. Nina, then.

MS. WINKLER: I think that our report of the Task Force should highlight, very importantly, probably something extremely quotable and a very strong statement about some of these things that we have run across that Alan is talking about, the concept, how he does it very well, we do not need a nation of Einsteins.

We need a nation that everybody is comfortable with math and science.

We need some very hard-hitting statements about those things which basically are questioning widely held assumptions, and that one of our jobs as a Task Force, I think is to blow those out of the water to the extent that we can.

And probably one of the best contributions that committee can do , subcommittee can make, is to help us in crafting that statement, because I think it will be, it might be one of the things that gets people's attention when the report is released, and I think it is a very key part.

DR. REYNOLDS: Good point, and, Alan, I am depending on you for a phrase that would be better than "A Nation at Risk," which I am now tired of, and would like something.

MS. WINKLER: Sexy new title for our report?

DR. REYNOLDS: That's right. We're depending on you for that, and I agree with you on that.

MS. WINKLER: I also would like to nominate Alan Clive as our official phrase-maker.

DR. REYNOLDS: Phrase-maker. Mr. Reyes.

MR. REYES: I agree with you. "A Nation at Risk" is not the name of the title for our story. I think it may well be "The Quest for Excellence,"

We're looking for quality, we're looking for productivity, but the positive thing I wanted to add here, we need to change the cultural thinking.

And I read this this afternoon when I got in the lobby of the hotel. I'm going to take this back. I'm going to take it to the migrant community in central Florida. I'm going to take it to the black community--we have some strong church groups in central Florida.

And right across from the Space Center is where it starts to go up and branch out across the whole U.S. of A. We need to understand that parents have to change the way they think.

I am a [INAUDIBLE] of schooling because of my parents. My father said you are going to get an education. The way I [INAUDIBLE] is in education. He worked like hell to get me to the right high school, because there was two sets of books in El Paso, one for the kids on the south side of the tracks and one on the other side.

This little book tells it all. Alan, I think you did well, but I think your folks and yourself need to read it, because I think this is the formula for changing the culture. It really is.

?: This is the parent education thing.

DR. REYNOLDS: The parent education thing.

MR. REYES: Absolutely.

DR. REYNOLDS: I have to also add, though, to Mr. Reyes' comments, we had speaking to us today in this room the President of Cal State-L.A., who will testify tomorrow.

Cal State-L.A. has more minority students than it does white students. It is one of the few institutions of higher education in the United States that does. It has a large black enrollment, a large Hispanic enrollment, and a huge Asian enrollment.

And he pointed out--and he is a black President--he pointed out, very interesting, I had never heard him say this before, that in his opinion, the Asian students and the Hispanic students did far better in general education courses and had a greater grasp of what I--I can't remember the words he used--cultural history because of their bilinguality, and their having mastered and lived in two cultures.

And I think Alan was getting at some of that, that we should also give enormous credit for the multicultural strengths that people have. It is not something that we should be trying to mask or cover up in any way. It is a wonderful enrichment.

And I believe Governor Deukmejian with all his heart recognizes that and was trying to indicate that for this state. Well, yes.

DR. ADAMS: I tried to summarize what I heard us say today in some broad kind of parameters, and I thought I would share that with you.

I think we have been talking about pipeline problems and we need to address that. We have been talking about curriculum choice issues and we need to address that, where if you don't take--I still say if you don't take science and math in the seventh grade, then you can't get it in the eighth and you're lost. So it depends on what curriculum [INAUDIBLE].

We talk about growing [INAUDIBLE]. We keep talking about having some family and we're never going to have it, because we don't grow it. I argue that with my colleagues at Notre Dame, because I asked them why we don't have any black priests, and they said if you can find any, and I said we make priests [INAUDIBLE].

So, universities are not going to have any faculty until they grow some. So I don't know, university professors and presidents and chancellors and big people like that will tell you that. Until you make some, we are never going to have any.

We need a [INAUDIBLE] base that we can evaluate what we are doing and we don't have one. And I mean--you all talk about Jefferson High--what's this school, that's a high school. You all cannot even tell us [INAUDIBLE] education. So I don't know why you all [INAUDIBLE] [laughter].

We are going to say to the Department of Education

that one of the responsibilities that they have is to tell us what the status of education is in this country.

I mean all that other stuff is very fine, but I would strongly recommend that we say that.

We need a clearinghouse for getting information to people. We got all--the reason people don't make good choices is they don't have good information. It's inaccurate, it's old, it's, you can't read.

I mean if you want to get something to the black folk who cannot read, you have got to write it so they can read it. You don't do that. You have got [INAUDIBLE] resources.

We have got things--we know what works. Some of it is very simple. This [INAUDIBLE] sale--you don't need to sell this to persons, give it to them. That's what you have to do. We don't need to go discover this again.

If I put a [INAUDIBLE] grant in, they would give me something to make this with. But if I would take this to them and ask them to pay for it to give it to her, they won't do that.

DR. MALCOM: But I have 100,000 copies. [laughter]

DR. ADAMS: OK, we need to learn its resources. Finally, we need to have some kind of campaigning that says that this is urgent, and I want to tell you, Betty and I were at a meeting last week, the Deans'--what's it called--the Deans' Council, the Council of Engineering Deans.

And one of the funny things that went through the

whole meeting all the time was, was that as we talked about faculty, they didn't realize that that was urgent.

Did you get that? I mean I left that meeting and I did not sense that.

DR. REYNOLDS: We need new engineering deans.

DR. ADAMS: I thought I--I sort of summarized what I saw. Here they are saying, I think, that's sort of the focus that we have got to get up on the top of this table someplace as we put all this stuff together because I don't know, I mean, you know, in my travels and talking to people--I just picked this up today out of the Times.

The heading was "Wanted: Fresh Homegrown Talent." You know, we keep writing about this thing, but we don't put any money into growing the talent. And so you're not going to have any. We are not going to have computer science people.

But at the same time, last week a young lady called me from the University of South Carolina with a 4.0 in chemical engineering, who had no reason to go to graduate school. She had a 4.0 graduating this year. No money and nobody told her that, you know, this...

DR. REYNOLDS: Send her, just tell her...

DR. ADAMS: I know, we can do that, but she happened to know to call Howard Adams, I mean. You see what I am saying?

DR. REYNOLDS: Yes.

DR. ADAMS: You know, I got the phone call. But this

is a whole university. There can't be that many people at the University of South Carolina with a 4.0 in chemical engineering. Just can't be that. This is a black female--rare as, you know, just as rare as a cheetah.

And we don't have any way of flushing her out and getting her on and getting [INAUDIBLE].

So I'm saying we sit around here talking, but the world is going on by here, and we're not doing much. This thing is serious.

DR. REYNOLDS: Dr. Adams, would you endorse a Presidential Executive Order.

DR. ADAMS: Yes, could be...

DR. REYNOLDS: I assume from that rousing speech. How--let's all nod, everybody nod...

MS. JOSEPH: I think you better find out who the President is going to be first. In this presidency, it would be written wrong. I mean it would written very different from the consensus of this group. Once an executive order starts being written, this kind of recommendation has no control over it. The White House staff has a great deal of control over it.

I think I would wait and see who got in, if we [INAUDIBLE] [Several people speaking at once].

DR. REYNOLDS: This is a good topic for the cocktail hour. Bartenders are assembled. All that lies between us is 30 miles of the 405. So let's do it. Thank you.

[Executive session adjourns at 5:10 p.m.]