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National Aeronautics and
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NASA

Symposium-77

Final Report

NASA

National Aeronautics and
Space Administration



NASA Symposium-77 Final Report

SUBMITTED TO:

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TABLE OF CONTENTS

	Page
I. INTRODUCTION.....	1
II. IMPLEMENTATION.....	2
A. Initial Organization.....	2
B. Physical Facilities.....	3
C. Registration.....	7
D. Student Coordinators.....	7
E. Program Content.....	8
F. Participation.....	9
G. Publicity.....	10
III. EVALUATION.....	10
IV. OTHER COMMENTS.....	18
V. PROGRAM CONTENT.....	20
VI. CONCLUSIONS.....	23
VII. SLIDE PRESENTATION.....	24
VIII. GUEST SPEAKERS.....	43

APPENDIXES

	Page
A. Planning Process and Scope of Work.....	49
Program Schedule.....	52
Contents of a Typical NASA Information Packet.....	59
NASA Publications placed in Exhibit Area.....	60
B. Map showing the location of the Federally Recognized Tribes in Oklahoma.....	61
Organizations Invited to Participate.....	62
Colleges Invited to send Representatives.....	62
High Schools Invited to Participate.....	63
Mid-Schools and Junior Highs Invited to Participate.....	65
Communications Listing.....	67
C. News Releases.....	108
D. Evaluation Form.....	114
High School Evaluation.....	115
Junior High School Evaluation.....	115
Teachers-Counselors Evaluation.....	116
Comments Taken from Student Evaluation Forms.....	117
Comments Taken from Teacher Evaluation Forms.....	119
NASA Personnel Evaluation Form.....	120
Evaluation and Comments.....	121
E. Biographical Data on NASA Speakers.....	123

FINAL REPORT
NASA SPACE SCIENCES
SYMPOSIUM

I. INTRODUCTION

On March 17 and 18, 1977, the Office of Indian Programs of the University of Oklahoma College of Engineering and the National Aeronautics and Space Administration (NASA) hosted an aeronautics and space sciences symposium in the Forum Building of the Oklahoma Center for Continuing Education (OCCE) on the OU campus. The symposium was funded by NASA under the terms of a pre-negotiated contract.

The primary objective of the symposium was to motivate American Indians and other minority youths and women to select science and engineering as viable career choices.

Other objectives were:

- (1) To explore the questions, "How can Aerospace Technology careers and aerospace activities be made more relevant to minorities and women?"
- (2) To provide an opportunity for key NASA officials to interact with teachers and counselors of the participating schools.
- (3) To stimulate a greater interest among American Indian organizations and students in NASA's research and development programs.
- (4) To help NASA's efforts in the recruiting of minorities and women into its work force.

- (5) To provide opportunities for minority aerospace scientists and engineers to interact with the minority community, particularly with youths at the junior high school and high school levels.

In effect, the goal of the symposium was to increase the number of minority students and women entering the technical work force and, therefore, available to meet equal employment goals.

The symposium gave the minority and women junior high and high school student participants the opportunity of hearing and meeting success models from the engineering and science community. For many of the students this was their first contact with a scientist or engineer.

These same scientists and engineers as well as other personnel from NASA's Office of Equal Opportunity Programs (EOP) also had the opportunity of interacting with the student group sponsors and minority student counselors from a number of Oklahoma's state colleges.

A "Teacher-Counselor Forum" was held each day. Teachers and counselors from the participating schools, parent sponsors, college minority counselors and NASA personnel met to discuss the problems related to counseling minority students towards study in technical areas.

II. IMPLEMENTATION

A. Initial Organization

In October, 1977, a meeting between NASA EOP personnel and the Director of Indian Programs of the College of Engineering was held. As a result of this meeting a proposal was prepared, submitted and subsequently NASA contracted with the OU College of Engineering for the

conduct of a two-day symposium. Mr. George Thomas, Director of Indian Programs was given the responsibility of project coordinator.

Notification of contract approval was not received until late February. However, to ensure success of the program it was necessary to begin the planning and recruitment of schools in mid-December.

B. Physical Facilities

The symposium was held in the Forum Building which is located just south of the University's main campus. The Forum is part of the Oklahoma Center for Continuing Education (OCCE) complex. Figure 1 shows the Forum's location in relation to the main campus.

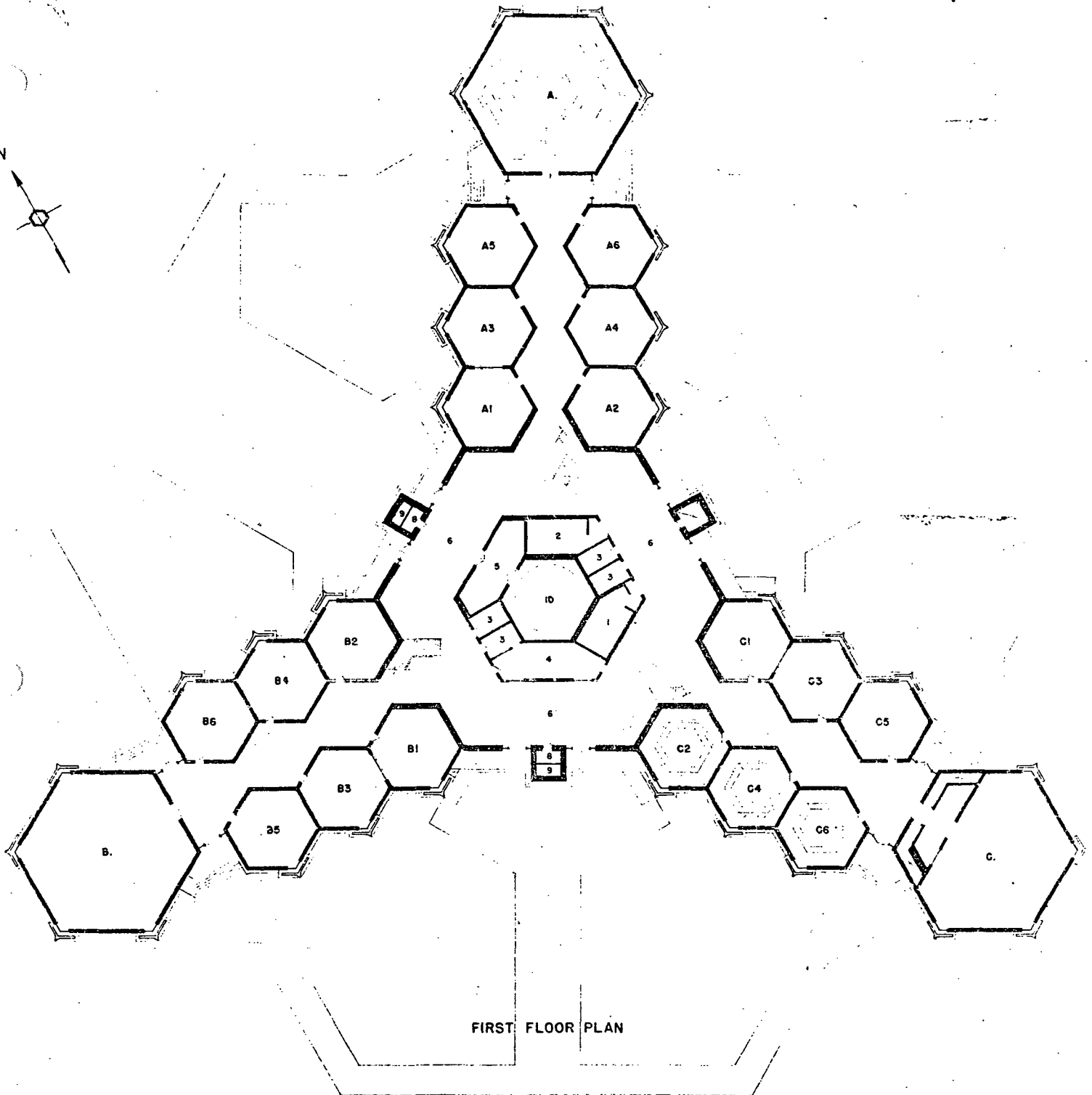
Figure 2 is a floor plan of the Forum. NASA displays were brought in through the east entrance and set up in corridors A and B.

Student groups entered the south entrance and waited in the central corridor while one of their sponsors completed the registration process.

The plenary sessions were held in the Forum Room which is located in the center of the building. All entries into the room are on the second floor. The room will normally seat only 500 people; therefore, to ensure adequate seating for the expected 800 participants, it was necessary to set up an additional 300 seats.

The stage, which was set up with a speakers' podium and table and chairs for panelists, is located in the center of the room with seating completely surrounding it. Figure 3 shows a view of the stage and a portion of the audience showing seating arrangement.

The Teacher-Counselor Forum and registration were conducted in two of the smaller conference rooms located in the first floor wings.



THE FORUM
CENTER FOR CONTINUING EDUCATION
THE UNIVERSITY OF OKLAHOMA
NORMAN

RICHARD N. KUHLMAN & R. C. DRAGOO, JR. — ARCHITECTS
REYNOLDS & MORRISON · WRIGHT & SELBY — ASSOC. ARCHITECTS

FEBRUARY 1959

SCALE 0 10 20 30 40 50 FEET

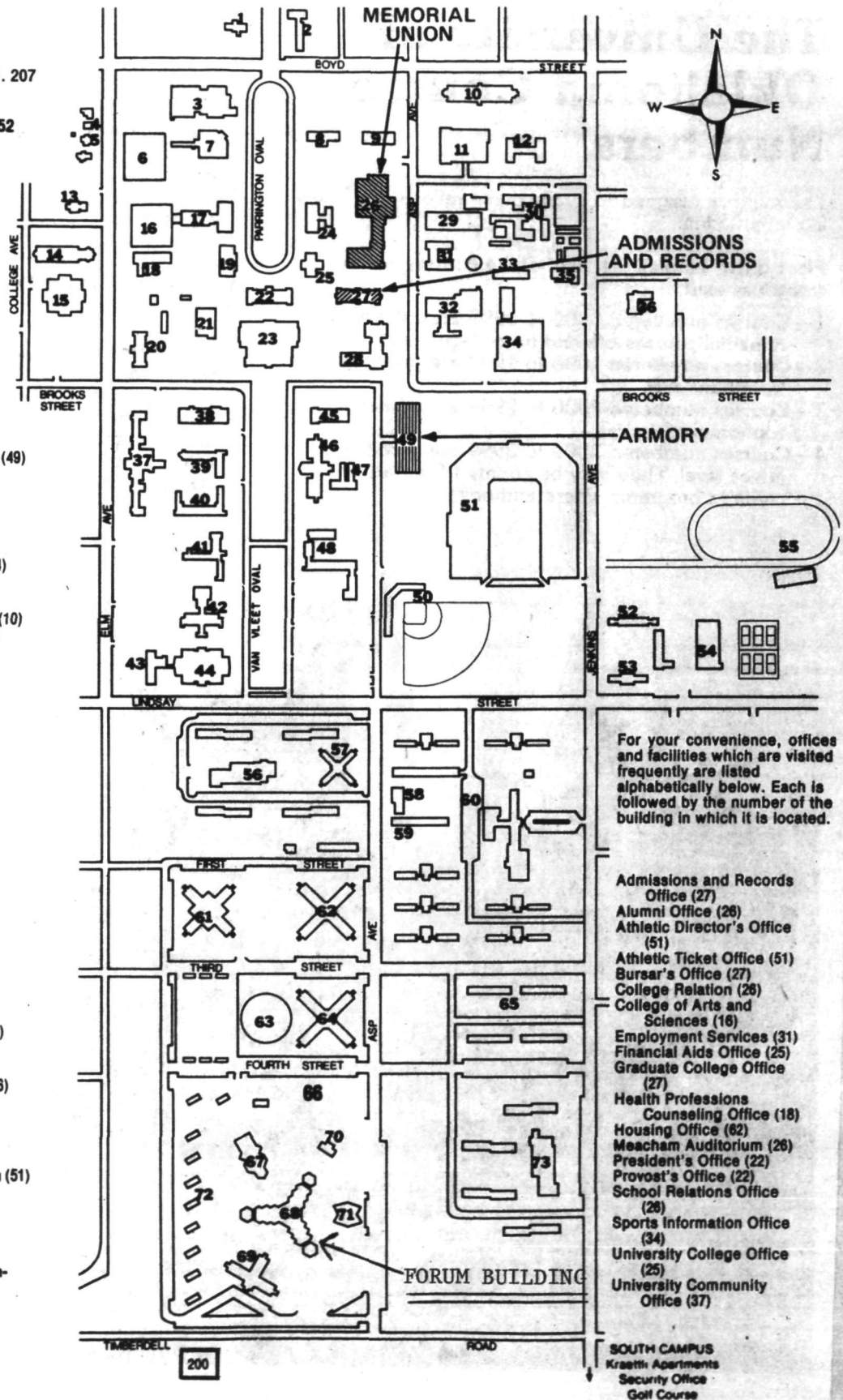
College Offices

- Arts and Sciences (16) Rm. 221
- Business Administration (28) Rm. 207
- Education (41) Rm. 112
- Engineering (10) Rm. 107
- Environmental Design (51) Rm. 252
- Fine Arts (3) Rm. 122
- Graduate (27) Rm. 313
- Liberal Studies (71) Rm. 226
- Law (200)
- Nursing (18) Rm. 303
- University (25) Rm. 100

Buildings

- AH* Adams Hall (28)
- EH Admin Bldg. Evans Hall (22)
- ADMN* Admin Bldg. OCCE (71)
- TEMP AF ROTC, Temporary (12)
- N101 Airport Operations, NC
- ARM Army & Navy ROTC, Armory (49)
- BESH Bessent House (5)
- BL* Bizell Library (23)
- BM* Botany-Microbiology (46)
- BH* Buchanan Hall (27)
- SC-4 Building 4, South Campus
- BHE Burton Home Economics (14)
- C Carnegie Building (25)
- CH Carpenter Hall (9)
- CEC* Carson Engineering Center (10)
- ACAC Child Development Lab. (13)
- COH* Copeland Hall (42)
- DAH* Dale Hall (44)
- DAHT* Dale Hall Tower (43)
- DH DeBarr Hall (17)
- ED* Education Building (41)
- ELH Ellison Hall (20)
- EL Engineering Lab. (31)
- FH Felgar Hall (11)
- FIH* Field House (34)
- FAC* Fine Arts Center (6)
- FORM Forum Bldg. OCCE (68)
- FJC* Fred Jones Center (3)
- GIH* Gitinger Hall (39)
- GH* Gould Hall (48)
- HRH* Hester Robertson Hall (37)
- HH Holmberg Hall (7)
- JH Jacobsen Hall (8)
- KH* Kaufman Hall (40)
- LC* Law Center (200)
- MH Monnet Hall (24)
- NH* Nielsen Hall (38)
- NEL Nuclear Engineering Lab (31)
- SH Old Science Hall (19)
- PH Pharmacy Building (18)
- PHSC* Physical Sciences Center (16)
- RH Richards Hall (45)
- SA Science Annex
- SBOX Shadow Box Boutique (4)
- JENK Social Work Bldg. (38)
- OMS Oklahoma Memorial Stadium (51)
- MUSE Stovall Museum (58)
- OMU* Student Union (26)
- WB Women's Building (21)

* Buildings accessible to handicapped students



For your convenience, offices and facilities which are visited frequently are listed alphabetically below. Each is followed by the number of the building in which it is located.

- Admissions and Records Office (27)
- Alumni Office (26)
- Athletic Director's Office (51)
- Athletic Ticket Office (51)
- Bursar's Office (27)
- College Relation (26)
- College of Arts and Sciences (16)
- Employment Services (31)
- Financial Aids Office (25)
- Graduate College Office (27)
- Health Professions Counseling Office (18)
- Housing Office (62)
- Meacham Auditorium (26)
- President's Office (22)
- Provost's Office (22)
- School Relations Office (26)
- Sports Information Office (34)
- University College Office (25)
- University Community Office (37)

SOUTH CAMPUS
Kraeth Apartments
Security Office
Golf Course



Fig. 3. A view of the stage and a portion of the audience showing seating arrangement.

C. Registration

All of the schools expected to participate were sent pre-registration forms. A copy of this form is included in Appendix B. The name of each student and sponsor who would be in attendance was requested. In order to arrange for adequate parking they were also requested to indicate if they would be arriving by bus or private auto.

From the returned lists a name tag was prepared for each registrant. On the days of the symposium only one student sponsor from each group was taken to the registration room where pre-registration lists were amended and additional name tags prepared as necessary for those students who were not listed on the pre-registration form. The sponsor was also asked to provide the mileage traveled to the symposium for later calculation of travel reimbursement. The sponsor then returned to her/his students and passed out the name tags. The group was then escorted to the seating area by one of the symposium's student coordinators.

Much confusion was averted by involving only one person from each group in the registration process.

D. Student Coordinators

Students of the University of Oklahoma American Indian Student Association (AISA) were very helpful and involved in symposium activities. The students stuffed 1300 information packets, folded and stapled 1300 symposium programs, hosted a reception for NASA personnel and served as coordinators at the registration. The students also made themselves available throughout the day to run errands and answer participants'

questions. The interest and participation of the AISA added much to the overall success of the symposium.

E. Program Content

The content of the program was designed to meet the symposium's stated objectives.

The plenary sessions were designed to inform the students of the educational demands and opportunities in science and engineering.

The majority of the speakers were minority men and women who told something of their educational and professional experiences. These speakers also served the important role of being identifiable success models.

The topics covered in the plenary sessions were:

1. "Efforts of Institutions of Higher Learning to Attract and Retain Minority Students and Women in Science and Engineering Courses of Study - The Commitment of the College of Engineering"
2. "Careers for Tomorrow - Motivation and Experiences in Preparing for A Career in Technology"
3. "An Overview of NASA and Future Implications for Careers in Science and Engineering - Are the Prospects Good?"
4. "American Indian Technology Needs for the Future - Resource Development - Self-Determination"
5. "Career Outlook in Engineering, Science and Technology Through 1985"
6. "Blazing New Trails for Indian Students - Trends for Functional Degrees and Emphasis on Science and Engineering Grants"

A forum was conducted for high school teachers and counselors and for college minority student counselors. The topic of this session was:

"Special Problems Encountered in Counseling Minority Students and Women Toward Careers in Technology"

The purpose of the Forum was to help in the identification of the problems associated with motivating minority students and women to prepare themselves for possible study in engineering or allied fields and to provide a mechanism for the exchange of information about how others have dealt with these special problems.

F. Participation

A total of 134 junior high and high schools were invited to the symposium and 46 participated. In addition, three organizations sent students. Two of these organizations were ones that attempt to recruit Indians into the health professions and the third was an Indian community center.

Of a total of 988 students who attended the symposium 443 were females and at least 263 were minority students. Both of these figures are low because the number of women was taken from the student roster of participants and if there was a question as to whether the student was male or female they were not counted as female. The number of minority students was taken from a comparison of the pre-registration and registration rosters, however, 15 of the schools that attended did not identify the students who were minorities which makes it impossible to determine the exact number in attendance. However, based on knowledge of the area from which several of these schools came and the schools' normal large enrollment of minority students, a conservative estimate is that at least an additional 100 minority students were in attendance.

There were 95 teachers, counselors and parents that attended the symposium as group sponsors.

Of the 12 colleges that were invited to send minority counselors and recruiters, five sent representatives. The representatives were invited to bring materials and place them in a room of the Forum that was reserved for recruiters and counselors. Also personnel from a number of departments on campus supplied information on various technical careers, and the Association of American Indian Physicians supplied pamphlets on health careers.

A list of all invitees and copies of correspondence are included in Appendix B.

G. Publicity

The University of Oklahoma Office of Media Information sent out news releases announcing the symposium to the state's newspapers. The College of Engineering Office of Engineering Relations prepared and sent out slides to all of the state's television stations to be used as public service announcements. Announcements were also given on a local radio program. Reporters from the Oklahoma Daily (OU's student newspaper) covered the symposium, and wrote an article which appeared on the front page of the March 18 edition.

Copies of this and other articles are included in Appendix C.

III. EVALUATION

The primary purpose of the symposium was to inform minority students and women of the opportunities in science and engineering and as a result to increase their numbers entering the technical work force. However, associated with conducting such a program, there are a number of side benefits to the hosting institute and NASA. All of these benefits are either directly or indirectly related to furthering

our efforts to increase women and minority representation in science and engineering.

From an institutional standpoint some of the benefits derived were the establishing of valuable contact with many of the state's high school teachers and counselors, presenting a large portion of the state's minority community with visible evidence of our university's efforts to serve minority students and introducing many potential students to our campus. The hosting of the symposium also allowed the university to demonstrate that it is committed to serving all segments of our society. Each of these benefits is important in our current and future recruitment efforts. For NASA the symposium helped to create a greater understanding of the role and impact its research and development programs have on our society. The symposium also demonstrated that NASA is not only interested in providing better career opportunities for minorities and women, but also is initiating and actively involved in programs designed to inform and attract greater numbers of them into science and engineering. NASA will ultimately benefit from an increased pool of minority men and women scientists and engineers available to enter their work force as a direct result of this and similar efforts.

The following evaluation is offered in the hope that it will be of help to NASA and other institutions in planning and conducting future symposiums.

With increased efforts on the part of various groups to attract greater numbers of minorities and women into one career area or another, it is difficult to find a woman or minority student in any school in Oklahoma that has not received letters from several colleges and

universities as well as having been visited by college recruiters and recruiters from particular professional organizations. Before they graduate from high school these students have seen films, been invited to and attended special career oriented programs, heard lectures and attended a number of career seminars. All of these activities are designed to inform and encourage minority students and women to consider any of a number of careers. Many of these students begin to get this type of attention when they are freshmen in high school, or even younger. By the time they are seniors they know all the speeches and all the arguments for going to college. They know of the opportunities for minorities in law, business, education, medicine, science, engineering, etc.

It is felt that these activities perform a useful function by providing the student with information about the educational demands and professional opportunities which they can use in making educational and career decisions.

In our state and throughout the nation there are a substantial number of gifted minority and women students who are interested in the sciences and who can get excited when learning about new scientific breakthroughs, working with a computer, seeing a hologram or hearing an astronaut tell of his experiences in space. Therefore, because these students are continually being told of the opportunities in the various professional areas, it is felt that a greater emphasis in activities such as the symposium should be placed on creating a sense of awareness of and appreciation for the wonders of our technological society. In addition, it is of equal or greater importance that during each symposium activity a woman or minority person who is

directly involved in the NASA programs being discussed have an active role. The students will know the person is a minority or female without being told and they will realize that he/she is a responsible, contributing member of the technological team. This is a more low key approach but one the students will understand and appreciate.

Adequate time should be allowed sometime during the symposium for an explanation of NASA's equal opportunity policies. During this time it should be stressed that NASA has an aggressive affirmative action program. This portion of the day's activities can be effectively accomplished in no more than 15 to 20 minutes. Rely on the NASA people and programs to excite and motivate the students, not on the fact that NASA is an equal opportunity employer.

Symposium planning got underway in the first part of January following the submission of a formal proposal for support. This gave only two and one-half months to put the program together. Coordinating the symposium was the responsibility of the Director of Indian Programs of the College of Engineering. The Director's secretary assumed the role of project secretary. No other staff was involved in initial program coordination. It is highly recommended that if possible someone be hired who can devote full time to the symposium. The responsibilities of two positions, both time demanding, can sometimes lead to details being overlooked.

Initially, 40 Oklahoma junior high and high schools with a significant minority student enrollment were identified. The principal of each school was sent a letter of invitation. Each principal was

asked to reply and send the name of a person within his school to whom all further correspondence was to be sent. Approximately one-fourth of the principals responded.

Although the principal or superintendent was the initial contact in all schools invited the best response came from minority counselors and math and science teachers. If these people can be identified within a school it is more productive to correspond directly with them after first contacting the principal.

Of the first 40 high schools invited to attend a number were scheduled to be on spring break during the week of the symposium. Luckily this did not create a major problem as it affected only a small percentage of the schools ultimately invited. When planning for a symposium, it would be wise to check the spring break scheduling in order to prevent this from becoming a major problem. This may be especially important if the participants are to come primarily from one area of the state, or one or two metropolitan areas.

Another consideration is testing schedules. Several of the local schools were giving nine-week examinations at the time of the symposium and were unable to participate; however, other schools were able to schedule around the tests. This was not a problem in the rural school districts, but it did prevent some of the local metropolitan schools from attending. Therefore, in planning, testing schedules should be considered if a substantial portion of the participants are expected to come from larger school districts.

Written communications are slow and sometimes people are slow to respond to a letter. Therefore, as the dates of the symposium

were approaching and commitments from a number of schools were still needed, it was decided to begin relying on direct telephone contact to fill the remaining slots. During the four weeks prior to the week of the symposium approximately 250 phone calls were made. This provided good results, because it allowed a much faster identification of the schools who had scheduling conflicts etc., and allowed us to invite alternate schools. By use of the telephone it was possible to determine in many instances with one call if a school would be participating. However, in most cases at least two or three phone calls were necessary before it could be learned if a school would be participating or not.

Unless a hosting institution has at least six months lead time, an extensive phone campaign should be planned.

When time before the symposium was within two weeks, commitments from a few schools were still needed. Several schools that hoped to be able to attend were still unsure if arrangements could be made. Therefore, to ensure meeting our contract obligations of getting at least 700 participants, it was necessary to invite additional schools in case some of our tentative schools were unable to attend. With just over a week left before the symposium most of the schools that had been unsure notified us that they would be here. In addition, several of the alternate schools made last minute commitments so the possibility existed of having more participants than could be accommodated.

In addition, we had tried to arrange it so that approximately half of the participants would be on campus each of the two days

since each day's activities were the same. But the most popular day turned out to be on Thursday or the first day of the symposium. Therefore, nearly 800 students came on the first day and only a few seats were left unoccupied in the Forum. On the second day only about 300 students attended.

It is recommended that the schools be invited as early as possible in order for them to determine if arrangements can be made. Possible set a cutoff date for registration. This date should be chosen so as to allow the hosting institution adequate time to contact alternate schools.

Schools identified as potential hosts for future symposiums should be contacted by NASA as early as possible in order to allow them to fully consider the possibilities and to have adequate time to prepare a proposal and to complete contract negotiations before the time consuming program organization begins. Adequate planning time is the critical factor in conducting a successful symposium.

The Director enlisted the help of the American Indian Student Association (AISA) to help with registration and in preparing information packets and brochures for the participants. A dozen or more students were on duty during registration. Because of the help they provided, registration went smoothly and during the two days no problems were encountered. It is recommended that student groups such as the AISA be called upon and encouraged to take an active role in this type activity. Most minority student groups look for activities such as this to become involved with and they represent a ready source of manpower.

Information packets were prepared for all participants. A list of the contents of a typical packet is given in Appendix A. These packets and programs were placed around the seating area in the Forum Room before the participants were seated to avoid the confusion and delays that may have resulted in passing the material out during registration.

The literature provided by NASA was placed on tables which were located in the exhibit area. A complete list of literature made available is given in Appendix A.

Below are listed a few of the problems we encountered during the symposium along with suggestions for avoiding them.

The air conditioning unit in the Forum was not working properly on the days of the symposium. With nearly 800 people in the room on the first day it became uncomfortable and this shortened the students attention span and caused them to become restless. It is suggested that it be determined if there is adequate heating or cooling available prior to the activity and if this is a potential problem it may require shortening the sessions to lessen the burden on the air conditioning and ventilation systems.

The students were allowed to re-enter the Forum room on their own after lunch on the first day. Because of the air conditioning problems and a lull in the activities many of the students became restless and began to get rowdy. It took some time in the afternoon session before the students were able to settle down and become attentive. On the second day the students were not allowed into the Forum room until just prior to the start of the session. When

they entered the speaker and panel were sitting on stage ready to get started. This prevented the problems encountered the first day. It is further suggested that the afternoon session begin with an "up beat" presentation to gain their attention and allow them to relax after their meal.

It was apparent throughout the first day that the program would have been more effective had the attendance been smaller or if it had been possible to break them up into smaller groups; however, the available facilities did not lend themselves to such an arrangement. The second day, with only 300 students present, went much better, partially because the ventilation system was not overloaded and it was much more comfortable, and partially because we had learned from the first day's experiences.

In order to avoid an embarrassing situation, assign someone to check and recheck the audio system and any other audiovisual aids to be used as part of a presentation. Whoever receives this assignment should have no other responsibilities, but should concentrate on ensuring the equipment functions properly when needed.

IV. OTHER COMMENTS

A poster was prepared especially for the symposium. It was done in four color and was very popular with the participants. This poster is shown in Figure 21.

Because of the length of the Symposium it was necessary to make luncheon arrangements. Luncheon was served in the Commons Cafeteria which is located directly behind the Forum. The students were given a choice of three main courses. It was possible to feed everyone in

less than 45 minutes.

Because the NCAA wrestling championships were being held on campus during the week of the symposium we were unable to make arrangements to have the campus police serve as security guards. Therefore, a private security firm was hired to ensure the displays were not stolen or damaged. The guards were on duty during the times when no symposium personnel were around.

The exhibits were set up in corridors A and B of the Forum Building. There was adequate room around the exhibits to allow easy viewing and for the east movement of the crowd. NASA personnel stationed themselves around the displays in order to answer student questions and explain the different NASA programs represented by the various displays. Many of the students were interested in talking to NASA people and learning more about the various programs - a practice that should be included in future symposia.

A very beneficial portion of the days activities was the Teacher-Counselor Forum. The free exchange of information that took place between university and high school counselors, teachers and NASA personnel was very helpful to everyone involved. It allowed those who participated to hear the experiences of others in dealing with problems of guidance counseling and teaching of minority students and women. For the most part the problems experienced were very similar; however, the method of dealing with these problems were sometimes very different. Although there were fewer high school teachers and counselors present than had been hoped for, those who did participate were very interested and took an active part in the Forum. And

even though there were only a few participants, the Forum was still effective; possibly more so in that the meeting almost had the look and atmosphere of a workshop where everyone was trying to be of help to the others. The Forum was a successful activity and similar efforts should be considered for inclusion in future symposiums.

Evaluation form comments and ratings from different levels of participants are included in Appendix D.

V. PROGRAM CONTENT

The basic design of the symposium was geared to giving the students information about as many of the technical areas as possible. The students learned something about the education requirements to become a technician, scientist engineer, and to enter the different career areas of the health sciences. For the most part the personnel involved in all program sessions were minorities and/or women. To allow the students to meet and hear minority and women scientists and engineers is a very important aspect of any program of this type.

Dr. William R. Upthegrove, Dean of the College of Engineering presented a keynote address on the morning of March 17 on the efforts of institutions of higher learning to attract and retain minority students and women in science and engineering courses of study. The Dean also spoke about the commitment of the College of Engineering to these efforts.

The first panel discussion was conducted by Jerry Elliott an Osage and engineer at Johnson Space Center. The topic of this session was "Careers for Tomorrow-Motivation and experiences in Preparing for a Career in Technology."

The panel was made up of two NASA scientists, the Director of the

Native American Program in Engineering Technology of Oklahoma State University, a minority student counselor from the OU Health Sciences Center and a minority woman engineering student.

This session was designed to provide the student with information on a broad range of careers. Each of the panel members made a brief presentation in which they told of their educational and professional experiences and in general gave the students an idea of the job they performed and what the students could expect as a university student and a professional.

After all of the panel members had made their presentations the students were asked to take a couple of minutes to write out questions for the panel, those questions that could be easily answered were answered directly by the appropriate panel member at that time. The students were asked to put their names and addresses on their question sheets so that if the panel was unable to answer all the questions in the time allowed the answers could be mailed to them. Many more questions were asked than could be answered in the time allowed. The questions asked ranged from the requirements to become an astronaut to the distance between stars to inquiries about various technical careers. This portion of the program was very well received by the students.

At the conclusion of the discussion the students were released to view the exhibits. A list of the exhibits is included in Appendix A. After lunch on March 17, Mr. Walton Youngblood of the New Mexico State Environmental Improvement Agency spoke about the American Indian Technology Needs for the Future - Resource Development - Self Determination. After Mr. Youngblood's talk a film entitled "A Better Life" was to be shown; however, a problem in the sound system prevented

its showing. On March 18 the film was shown. After the film a panel discussion was conducted. The panel was made up of the following people:

M.C.: Alfonso Ludi, Agency Wide Spanish Speaking Program Coordinator, NASA Headquarters, Washington, D.C.

Mike Garcia, Education Specialist, Jet Propulsion Laboratory, Pasadena, California

Shirley Whitfield, Community Relations Specialist, NASA Headquarters, Washington, D.C.

Alfred Clinkscales, Manager, Equal Opportunity Professional Recruiting Office, NASA Headquarters, Washington, D.C.

The panel discussed the existing and future career opportunities for scientists within NASA and private industry through 1985. The panel discussion was followed by a presentation by Dr. Owen K. Garriott who gave an overview of NASA projects and the future implications for careers in science and engineering. Dr. Garriott briefly described the Skylab mission on which he served, the Viking and Space Shuttle Programs. Dr. Garriott ended by answering student questions. Dr. Garriott's talk was very well received and was for many the highlight of the days events.

To conclude each days program a drawing was conducted for scientific calculators and NASA and OU College of Engineering T-shirts were given away each day to the students and two calculators only were given to the counselors.

On March 18 the program was essentially the same; however, the speaker after lunch was Mr. Cletis Satepauhoodle, Regional Coordinator of Indian Education, Dept. Health, Education and Welfare. Mr. Satepauhoodle talked about the trends and need for American Indian people to enter the more functional areas such as engineering, law and business. Each

afternoon a Teacher-Counselor Forum was conducted by Mr. Jack Miles, OU Indian Student Coordinator. The Purpose of the Forum was to address the special problems encountered in counseling minority students and women toward careers in technology. Others on the panel were:

Peter H. Chen, Deputy Assistant Administer for Equal Opportunity Programs, NASA, Washington, D.C.

Jerry Elliott, NASA Aerospace Engineer, Space Shuttle Program.

Eugene Raphael, Langston University Student Counselor.

Dr. Blanche Sommers, Director, Health Professions Counseling Office, University of Oklahoma.

The Forum was held in a small conference room in the Forum Building.

VI. CONCLUSIONS

The results from the various evaluation forms indicate that the program was beneficial and NASA should continue this type of effort. However, it is suggested that the programs should spend the majority of the time passing along more information about NASA programs and advances in science and technology rather than the career opportunities available to minorities and women.

VII. SLIDE PRESENTATION

The following series of pictures were reproduced from slides taken during the two days of the symposium. A copy of these slides were sent to each of the participating schools.

The pictures show the days sequence of events from arrival to the programs conclusion.



Fig. 4. As a slide this picture was sent to the state's TV stations to be used in public service announcements.



Fig. 5. South entrance of Forum Building.



Fig. 6. Registration.



Fig. 7. Sponsors distributing name tags during registration.



Fig. 8. Mr. Peter Chen - Equal Opportunity Programs, NASA, Washington, D.C. - welcomes students to symposium.



Fig. 9. Mr. Chen welcomes students to symposium.

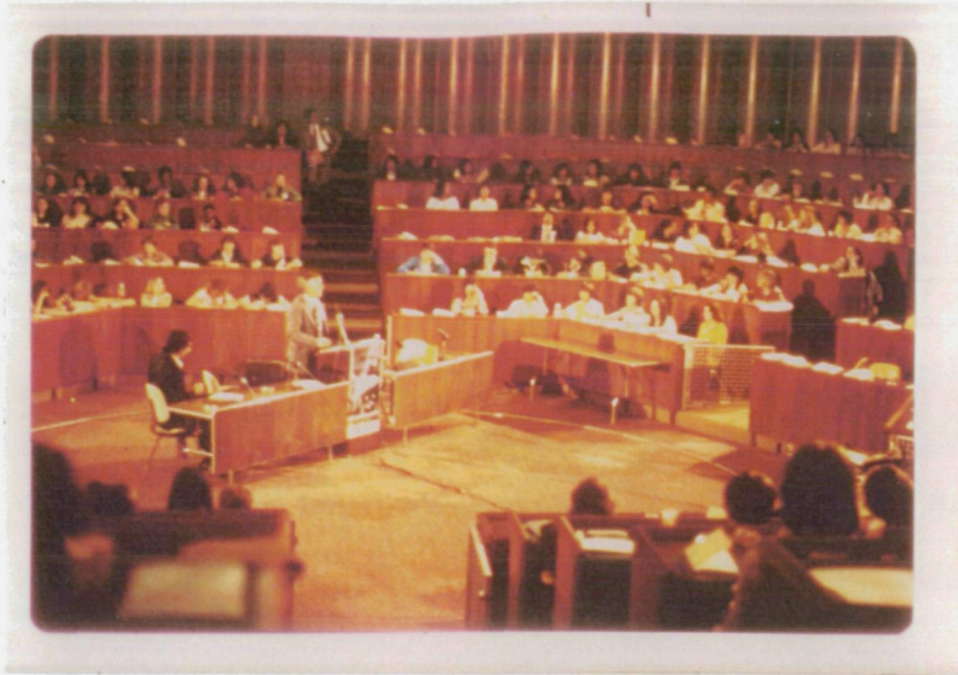


Fig. 10. Dean William R. Upthegrove of the College of Engineering presents keynote address on the morning of March 17.



Fig. 11. Dean Upthegrove.



Fig. 12. A view of some of the nearly 800 March 17, symposium participants.



Fig. 13. NASA photographers recording symposium events.



Fig. 14. Symposium participants looking through NASA information packets.



Fig. 15. Jerry Elliott - Johnson Space Center - M.C. of panel discussion - "Careers for Tomorrow - Motivation and Experience in Preparing for a Career in Technology."



Fig. 16. Margaret Wilson - OU College of Engineering student and participant in NASA Summer Intern Program tells about the "Double Bind - Being a Minority Woman Majoring in Engineering and NASA Experiences as a Summer Intern."



Fig. 17. John Kaskaske - NASA, Goddard Space Flight Center - participates in morning panel discussion.



Fig. 18. Students viewing NASA exhibits.

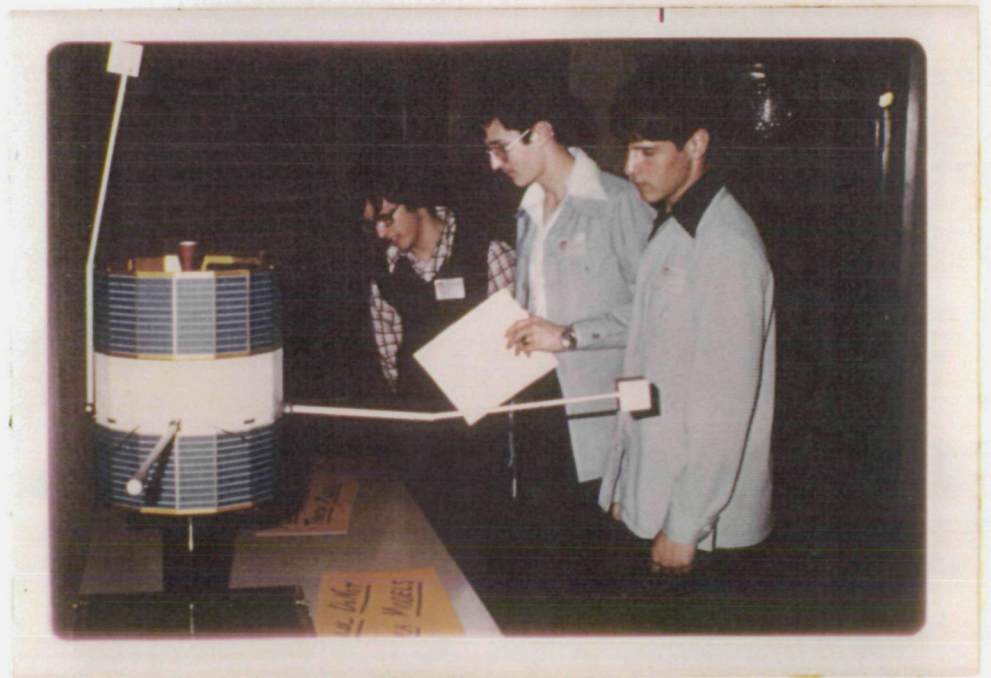


Fig. 19. Students viewing NASA exhibits.

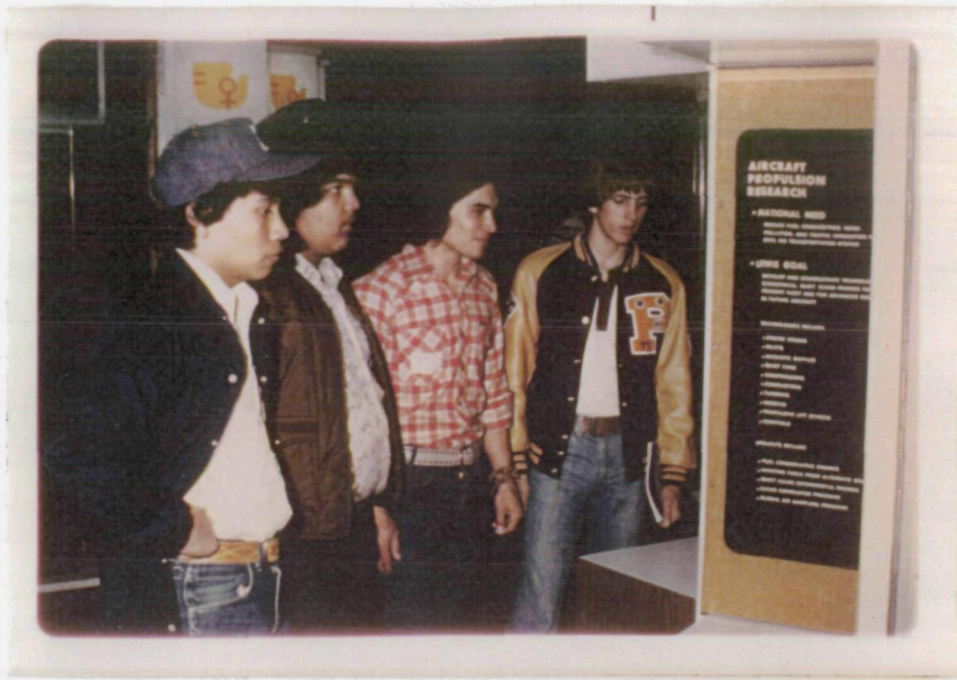


Fig. 20. Students viewing NASA exhibits.



Fig. 21. Students posing with NASA Symposium poster.



Fig. 22. Mike Garcia - NASA, Jet Propulsion Laboratory explains Viking exhibit to curious students.



Fig. 23. Mike explaining the workings of the Viking Lander to interested teacher.



Fig.24. Gilbert Chapman - NASA, Lewis Research Center - talks to interested students.



Fig. 25. Students viewing Space Shuttle exhibit.

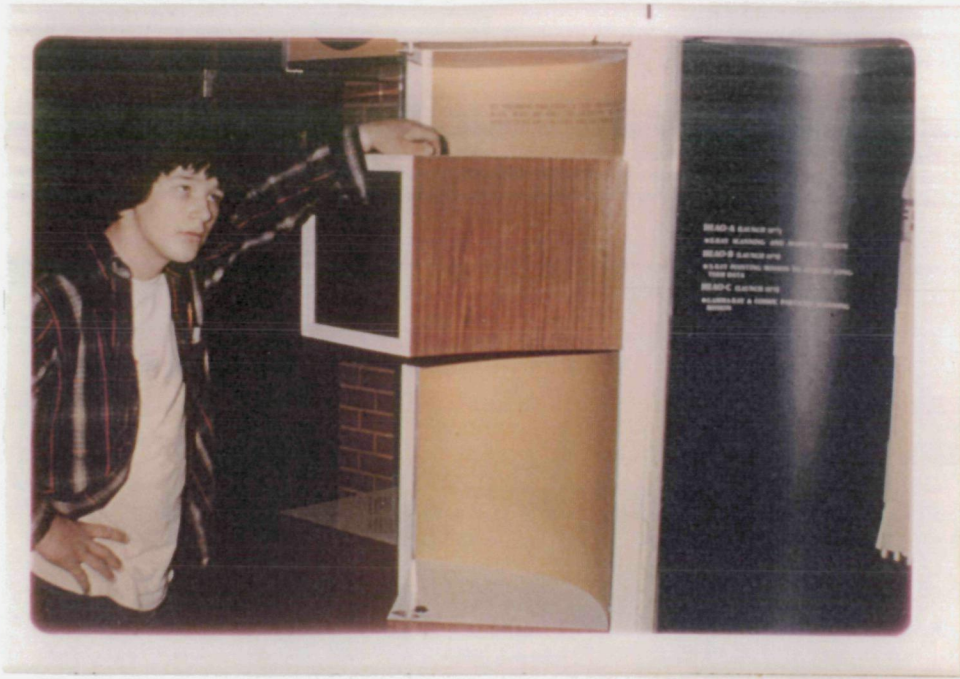


Fig. 26. Students viewing NASA exhibits.



Fig. 27. Students collecting NASA printed material.

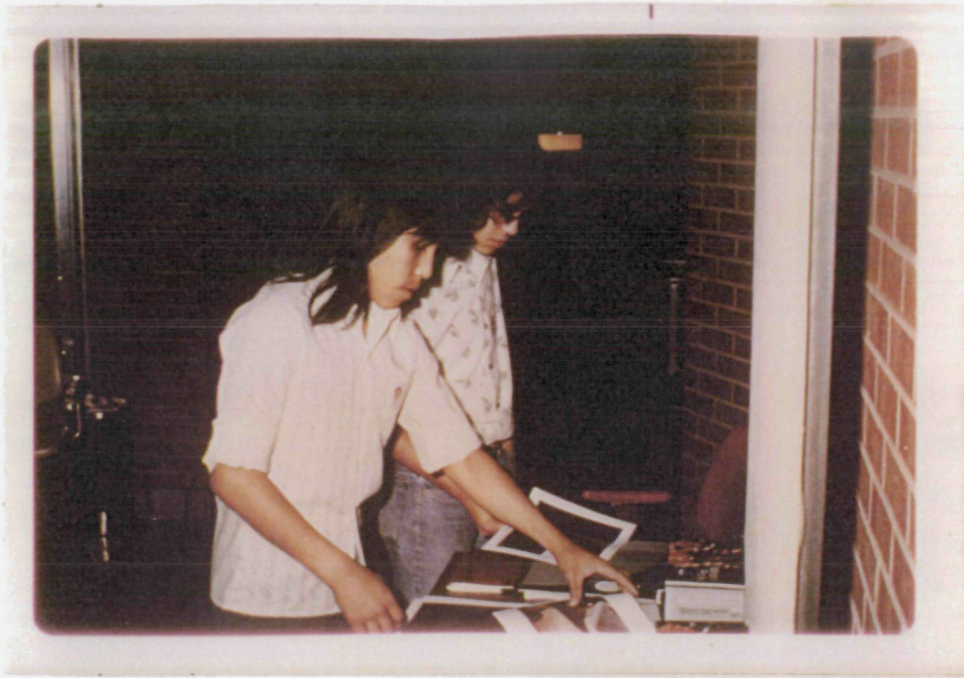


Fig. 28. Students collecting NASA printed material.



Fig. 29 Lunch time.



Fig. 30. Lunch time.



Fig. 31. Students relaxing before the start of the afternoon session.



Fig. 32. Hangin around.



Fig. 33. Mr. Alfonso Ludi - Spanish Speaking Program Coordinator, NASA Headquarters - M.C. of panel discussion entitled "Career Outlook in Engineering, Science and Technology Through 1985."



Fig. 34. Gilbert Chapman performs some chemical "magic" for the students.



Fig. 35. Dr. Owen Garriott - NASA Scientist - Astronaut and Director for Science and Applications, Johnson Space Center - presents keynote address.



Fig. 36. Mr. Cletis Satepauhoodle - DHEW Coordinator of Indian Education for Region Six - plays drum and sings traditional Indian songs.

Fig. 37. Mr. Satepauhoodle delivers keynote address during the afternoon session of March, 18.





Fig. 38. Peter "Rocky" Mac Donald, Jr. - President of OU American Indian Student Association - gets help with drawing from student participant.



Fig. 39. George Thomas - Symposium Coordinator presents SR-40 calculator to drawing winner.

VIII. GUEST SPEAKERS

The following series of pictures shows others who were involved in the symposium but were not included in slide set sent to schools.



Fig. 40. Dr. Barbara Uehling, OU Provost, Welcomes Students on the morning of March 17.



Fig. 41. Mr. Joseph Ray, Executive Assistant to the President, Welcomes Students on the morning of March 18.



Fig. 42. Mr. Walton Youngblood of the New Mexico State Environmental Improvement Agency presents talk on the "American Indian Technology Needs for the Future - Resource Development - Self-Determination."



Fig. 43. Shirley Whitfield, NASA, Community Relations Specialist, participates in panel discussion.

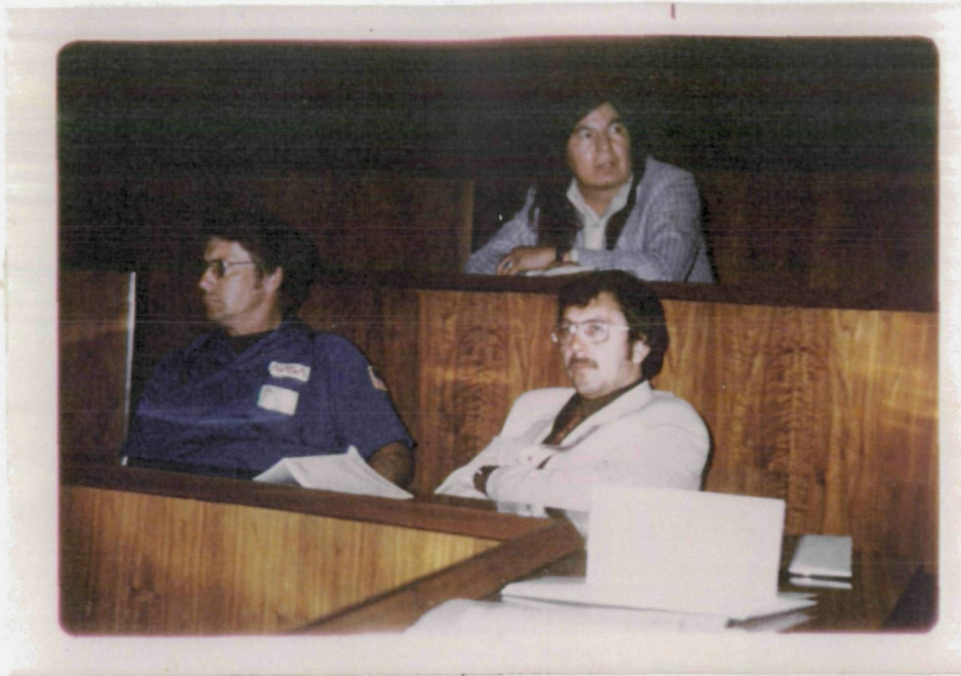


Fig. 44. Mr. Bill Neal (left) - NASA - was responsible for the set up of all displays.



Fig. 45. Dr. Ken Anderson, Director of Native American Technology Program Oklahoma State University, participates in panel discussion.



Fig. 46. Dr. Blanche Sommers, Director, Health Professions Counseling Office, University of Oklahoma, participates in panel discussion.



Fig. 47. John Sexton, Minority Student Counselor, University of Oklahoma Health Sciences Center, participates in panel discussion.



Fig. 48. Karen Johnson, former NASA Summer Intern student helps out during registration.



Fig. 49. Some of the Students of the American Indian Student Association (AISA) who helped during registration.

A P P E N D I X A

Planning Process and Scope of Work

In late October, 1976, NASA personnel met with representatives of the University of Oklahoma and the College of Engineering to discuss the possibilities of conducting a symposium designed to inform the states women and minority student population of the opportunities in science and engineering and thereby ultimately increase their involvement in NASA and the aeronautics and space industry. Present at this meeting were Mr. Alfonso Ludi and Shirley Whitfield, NASA Headquarters and Mr. Jerry Elliott from Johnson Space Center. Representing the University were Dr. Barbara Uehling, OU Provost, Dr. William R. Upthegrove, Dean of the College of Engineering and George Thomas, Director of Indian Programs for the College of Engineering. It was decided that the primary target population would be the states American Indian Students. It was also decided that OU was an ideal location for such a program because of its geographical location in the middle of the state with the largest Indian Population and because of the Universities experience and interest in serving the state's Indian people.

During the planning process the University of Oklahoma engaged in the following activities:

1. Contacted all parties involved
2. Acted as the clearing house for all arrangements
3. Contacted all schools
4. Arranged for all symposium support functions
5. Coordinated with NASA the specific speakers and exhibits for the Symposium
6. Made all media contacts in connection with NASA
7. Coordinated planning efforts with NASA staff

In addition OU was responsible for:

- A. Designating the staff and being responsible for overall direction of the symposium at the University of Oklahoma
- B. Arranging for all necessary symposium facilities
- C. Preparing all correspondence to participants and speakers and follow-up as necessary

- D. Arranging for all symposium support functions; including transportation of participants to and from the symposium as well as lodging for participants as necessary
- E. Developing the symposium program
- F. Coordinating with the NASA Technical Director concerning the specific speakers and exhibits for the symposium and submitting a final program plans to the NASA Technical Director for approval
- G. Coordinating total planning efforts with the NASA Technical Director
- H. Submitting a Final Report of the symposium to include:
 - 1. The utilization of staff
 - 2. Outline of symposium activities
 - 3. Description and comments on methodology, results, conclusions, and potential for conducting similar symposium in future

Symposium '77

**Career & Educational Opportunities
In Science, Engineering
& Technology.**

March 17 - 18



National Aeronautics and
Space Administration



College of Engineering

NASA/UNIVERSITY OF OKLAHOMA SYMPOSIUM ON
AERONAUTICS AND AEROSPACE TECHNOLOGY CAREERS

March 17-18, 1977

The Oklahoma Center for Continuing Education
University of Oklahoma

March 17, 1977

8:00 a.m. - 9:00 a.m.

REGISTRATION

Junior High School and High School Students; Counselors and Traders; Community Representatives; Federal Agencies and Private Organizations

9:00 a.m.

INTRODUCTION

M.C.: George Thomas, Director of Indian Programs, College of Engineering, University of Oklahoma

Topic: "Purpose of Symposium and Historical Background of Minorities in Technology"

WELCOME SPEAKERS

Dr. Barbara Uehling, Provost, University of Oklahoma

Mr. Peter H. Chen, Deputy Assistant Administrator for Equal Opportunity Programs, NASA, Washington, D.C.

9:30 a.m.

KEYNOTE ADDRESS

Dr. William R. Upthegrove, Dean, College of Engineering University of Oklahoma

Topic: "Efforts of Institutions of Higher Learning to Attract and Retain Minority Students and Women in Science and Engineering Courses of Study - The Commitment of the College of Engineering"

9:45 a.m. - 11:00 a.m.

PANEL DISCUSSION

"Careers for Tomorrow - Motivation and Experiences in Preparing for a Career in Technology"

PANELISTS

M.C." Jerry Elliott, NASA Johnson Space Center

INTRODUCTION: "Personal Qualities, Problems, Job Satisfaction, NASA Experiences, and Future Role with NASA"; Introduction of Other Panelists

John Kaskaske, NASA Goddard Space Flight Center

TOPIC: "Choosing a Career in Science - High School, College and NASA Experiences"

9:45 a.m. - 11:00 a.m.
PANELISTS (Cont'd.)

Gilbert Chapman, NASA, Lewis Research Center
TOPIC: "Choosing a Career in Sciences - High School,
College and NASA Experiences"

John Sexton, Minority Student Counselor, University
of Oklahoma Health Sciences Center
TOPIC: "Health and Life Science Careers"

Ken Anderson, Director, Native American Program In
Engineering Technology, School of Technology, Oklahoma
State University
TOPIC: "The Technician's Role in the Scientific
Community"

Margaret Wilson, American Indian, OU College of
Engineering student and Participant in the NASA
National Aerospace Fellowship Program
TOPICS: (1) "Double Bind - Being a Minority
Woman Majoring in Engineering."
(2) "NASA Experiences As a Summer Intern"

11:00 a.m. - 11:30 a.m.

BREAK

For review of NASA exhibits and Distribution of Literature

EXHIBITS

Staffed by NASA personnel - Questions and Answers on a
One-to-one Basis

(1) Marshall Space Flight Center Exhibits

- a. Solar Energy
- b. Space Shuttle
- c. Lageos
- d. Heao

(2) Goddard Space Flight Center, Greenbelt, Maryland

- a. Orbital Astronomical Observatory (OAO)
- b. Interplanetary Platforms (IMPS)

(3) Langley Research Center, Hampton, Virginia

- a. Table Models of Viking Lander and Aeronautical
Exhibits

(4) Lewis Research Center, Cleveland, Ohio

- a. NASA Research at LeRC
- b. Women at LeRC

11:00 a.m. - 11:30 a.m.
EXHIBITS (Cont'd.)

(5) Office of Equal Opportunity Programs, Washington, D.C.

- a. Women at NASA
- b. Audio Visual E.O. Exhibit

(6) Jet Propulsion Laboratory, Pasadena, California

- a. Viking Pictorial Display

11:30 a.m.

ASSEMBLE FOR LUNCH

Commons Restaurant

12:00 p.m.

LUNCH

1:00 p.m.

KEYNOTE ADDRESS

Mr. Walton Youngblood, New Mexico Environmental Improvement Agency

Topic: "American Indian Technology Needs for the Future - Resource Development - Self-Determination"

1:30 p.m.

PANEL DISCUSSION

TOPIC: "Career Outlook in Engineering, Science and Technology Through 1985:

FILM: "A Better Life"

QUESTIONS AND ANSWER PERIOD

PANELISTS

M.C.: Alfonso Ludi, Agency-Wide Spanish-Speaking Program Coordinator, NASA Headquarters, Washington, D.C.

Mike Garcia, Education Specialist, Jet Propulsion Laboratory, Pasadena, California

Shirley Whitfield, Community Relations Specialist, NASA Headquarters, Washington, D.C.

Alfred Clinkscales, Manager, Equal Opportunity Professional Recruiting Office, NASA Headquarters, Washington, D.C.

2:30 p.m.

KEYNOTE ADDRESS

Dr. Owen K. Garriott, NASA Scientist-Astronaut and Director for Science and Applications, Johnson Space Center, Houston, Texas

Topic: "An Overview of NASA and Future Implications for Careers in Science and Engineering - Are the Prospects Good?"

3:00 p.m. DRAWING
Scientific Calculators
NASA T-Shirts

3:20 p.m. ADJOURN

MARCH 18, 1977

8:00 a.m. - 9:30 a.m. REGISTRATION

Junior High School and High School Students; Counselors and Traders; Community Representatives; Federal Agencies and Private Organizations

9:30 a.m. INTRODUCTION

M.C.: George Thomas, Director of Indian Programs, College of Engineering, University of Oklahoma

Topic: "Purpose of Symposium and Historical Background of Minorities in Technology"

WELCOME SPEAKERS

Mr. Joe C. Pay, Executive Assistant to the President, University of Oklahoma

Mr. Peter H. Chen, Deputy Assistant Administrator for Equal Opportunity Programs, NASA, Washington, D.C.

10:00 a.m. KEYNOTE ADDRESS

Dr. Owen Garriott, NASA Scientist-Astronaut and Director for Science and Applications, Johnson Space Center, Houston, Texas

Topic: "An Overview of NASA and Future Implications for Careers in Science and Engineering - Are the Prospects Good?"

10:30 a.m. - 11:45 a.m. PANEL DISCUSSION

"Careers for Tomorrow - Motivation and Experiences in Preparing for a Career in Technology"

PANELISTS

M.C.: Jerry Elliott, NASA Johnson Space Center
INTRODUCTION: "Personal Qualities, Problems, Job Satisfaction, NASA Experiences, and Future Role with NASA"; Introduction of Other Panelists

10:30 a.m. - 11:45 a.m.
PANELISTS (Con't.)

John Kaskaske, NASA Goddard Space Flight Center
TOPIC: "Choosing a Career in Science - High School,
College and NASA Experiences"

Gilbert Chapman, NASA, Lewis Research Center
TOPIC: "Choosing a Career in Sciences - High School,
College and NASA Experiences"

John Sexton, Minority Student Counselor, University of
Oklahoma Health Sciences Center
TOPIC: "Health and Life Science Careers"

Ken Anderson, Director, Native American Program in
Engineering Technology, School of Technology, Oklahoma
State University
TOPIC: "The Technician's Role in the Scientific
Community"

Margaret Wilson, American Indian, OU College of
Engineering student and Participant in the NASA
National Aerospace Fellowship Program
TOPICS: (1) "Double Bind - Being a Minority Woman
Majoring in Engineering
(2) "NASA Experiences as a Summer Intern

11:45 a.m. - 12:15 p.m.

REVIEW OF EXHIBITS

Staffed by NASA personnel - Questions and Answers on a
One-to-One Basis

- (1) Marshall Space Flight Center Exhibits
 - a. Solar Energy
 - b. Space Shuttle
 - c. Lageos
 - d. Heao
- (2) Goddard Space Flight Center, Greenbelt, Maryland
 - a. Orbital Astronomical Observatory (OAO)
 - b. Interplanetary Platforms (IMPS)
- (3) Langley Research Center, Hampton, Virginia
 - a. Table Models of Viking Lander and Aeronautical Exhibits
- (4) Lewis Research Center, Cleveland, Ohio
 - a. NASA Research at LeRC
 - b. Women at LeRC

11:45 a.m. - 12:15 p.m.
REVIEW OF EXHIBITS (Cont'd.)

(5) Office of Equal Opportunity Programs, Washington, D.C.

- a. Women at NASA
- b. Audio Visual E.O. Exhibit

(6) Jet Propulsion Laboratory, Pasadena, California

- a. Viking Pictorial Display

12:15 p.m.

ASSEMBLE FOR LUNCH

Commons Restaurant

12:30 p.m.

LUNCH

1:30 p.m.

KEYNOTE ADDRESS

Cletis Satepauhoodle, Coordinator of Indian Education
Department of Health, Education and Welfare

Topic: "Blazing New Trails for Indian Students - Trends
for Functional Degrees and Emphasis on Science and
Engineering in Grants"

2:00 p.m.

PANEL DISCUSSION

TOPIC: "Career Outlook in Engineering, Science and
Technology Through 1985"

FILM: "A Better Life"

QUESTION AND ANSWER PERIOD

PANELISTS

M.C.: Alfonso Ludi, Agency-Wide Spanish-Speaking Program
Coordinator, NASA Headquarters, Washington, D.C.

Mike Garcia, Education Specialist, Jet Propulsion
Laboratory, Pasadena, California

Shirley Whitfield, Community Relations Specialist, NASA
Headquarters, Washington, D.C.

Alfred Clinkscales, Manager, Equal Opportunity Professional
Recruiting Office, NASA Headquarters, Washington, D.C.

3:00 p.m.

SPEAKER

Dr. William R. Upthegrove, Dean, College of Engineering,
University of Oklahoma

3:00 p.m.
SPEAKER (Cont'd.)

TOPIC: "Efforts of Institutions of Higher Learning to
Attract and Retain Minority Students and Women in
Science and Engineering Courses of Study - The Commitment
of the College of Engineering"

3:30 p.m. DRAWING
Scientific Calculators
NASA T-Shirts

3:50 p.m. ADJOURN

MARCH 17-18, 1977*

1:30 p.m. - 2:45 p.m.

COUNSELOR FORUM

Forum Conference Room

PANEL DISCUSSION AND OPEN FORUM

PANELISTS

M.C.: Jack Miles, Indian Student Coordinator, University
of Oklahoma

INTRODUCTION: "Special Problems Encountered in Counseling
Minority Students and Women Toward Careers
in Technology"

Peter H. Chen, Deputy Assistant Administrator for Equal
Opportunity Programs, NASA, Washington, D.C.

Jerry Elliott, NASA Aerospace Engineer, Space Shuttle Program

Jafus Cavil, Black Student Coordinator, University of Oklahoma

Eugene Raphael, Langston University Student Counselor

Dr. Blanche Sommers, Director, Health Professions Counseling
Office, University of Oklahoma

2:45 p.m. - 3:00 p.m.

BREAK

Informal Mixer

*Format and participants will be the same for both days; however, the
scheduled times will be one-half hour later on March 18

Contents of a typical NASA information packet.

Engineers' Council for Professional Development engineering series.

- Industrial engineering
- Mechanical engineering
- Metallurgical engineering
- Electrical engineering
- Civil engineering
- Nuclear engineering
- Aerospace engineering
- Chemical engineering
- Is engineering for you?

Portrait U.S.A. - Landsat

Landsat

The Viking Mission

New Horizons

Health Careers Handbook

Pad of Note Paper

Pencil

APPENDIX B

NASA publications placed in exhibit area.

Fuel Saving Aircraft

Technology Utilization House - "House of the Future."

Agriculture

The New Mars - The Discoveries of Mariner 9.

Minority Profiles

A variety of pictures taken on the Viking Mission.

NASA Film list.

ORGANIZATIONS INVITED TO PARTICIPATE

- *Tulsa Indian Youth Council
- *North Central Intertribal Health Careers
Creek Nation
- *Eastern Oklahoma Indian Health Careers Program

COLLEGES INVITED TO SEND REPRESENTATIVES

- *Langston University, Langston, Oklahoma
- *Oklahoma State University, Stilwater, Oklahoma
- *Central State University, Edmond, Oklahoma
- *East Central Oklahoma State University
- Northeastern Oklahoma State University
- Northwestern Oklahoma State University
- Oklahoma Baptist University
- *Oklahoma Panhandle State University

(Organizations & Colleges that sent representatives are starred)

HIGH SCHOOLS INVITED TO PARTICIPATE

- * 1. Ardmore High School, Ardmore
2. Battiest High School, Battiest
3. Broken Bow High School, Broken Bow
4. Broxton High School, Broxton
5. Byng High School, Byng
- * 6. Cache High School, Cache
7. Calumet High School, Calumet
8. Canton High School, Canton
9. Capitol Hill High School, Oklahoma City
10. Carl Albert High School, Midwest City
- * 11. Carnegie High School, Carnegie
12. Cave Springs High School, Cave Springs
- * 13. Central Innovative High School, Oklahoma City
- * 14. Chilocco Indian School, Chilocco
- * 15. Choctaw High School, Choctaw
16. Classen High School, Oklahoma City
17. Clinton High School, Clinton
18. Crooked Oak High School, Oklahoma City
- * 19. Deer Creek High School, Edmond
20. Del City High School, Del City
- * 21. Douglass High School, Oklahoma City
- * 22. Edmond High School, Edmond
- * 23. Eisenhower High School, Lawton
24. Elgin High School, Elgin
- * 25. El Reno High School, El Reno
26. Eufaula High School, Eufaula
27. Fort Sill Indian School, Fort Sill
28. Geary High School, Geary
29. Hammon High School, Hammon
30. Harrah High School, Harrah
- * 31. Hartshorne High School, Hartshorne
- * 32. Hobart High School, Hobart
33. Holdenville High School, Holdenville
34. Idabel Gray High School, Idabel
35. Jay High School, Jay
36. John Marshall High School, Oklahoma City

- * 37. Kansas High School, Kansas
- 38. Kingfisher High School, Kingfisher
- * 39. Lawton High School, Lawton
- 40. Luther High School, Luther
- * 41. MacArthur High School, Lawton
- 42. Midwest City High School, Midwest City
- 43. Mountain View High School, Mountain View
- * 44. Norman High School, Norman
- * 45. Northwest Classen High School, Oklahoma City
- 46. Oaks Mission High School, Oaks
- * 47. Okmulgee High School, Okmulgee
- * 48. Pawnee High School, Pawnee
- 49. Ponca City High School, Ponca City
- * 50. Putnam City West High School, Oklahoma City
- * 51. Red Rock High School, Red Rock
- 52. Riverside Indian School, Anadarko
- 53. Salina High School, Salina
- 54. Sapulpa High School, Sapulpa
- 55. Seiling High School, Seiling
- * 56. Seminole High School, Seminole
- * 57. Sequoyah High School, Tahlequah
- 58. Smithville High School, Smithville
- * 59. Southeast High School, Oklahoma City
- * 60. Star-Spencer High School, Oklahoma City
- * 61. Tahlequah High School, Tahlequah
- 62. Talihina High School, Talihina
- 63. Thomas High School, Thomas
- * 64. U.S. Grant High School, Oklahoma City
- 65. Varnum High School, Varnum
- 66. Vian High School, Vian
- 67. Walters High School, Walters
- 68. Weatherford High School, Weatherford
- 69. Weleetka Graham High School, Weleetka
- 70. Wetumka High School, Wetumka
- * 71. Wewoka High School, Wewoka
- 72. Wright City High School, Wright City

MID-SCHOOLS & JUNIOR HIGHS INVITED TO PARTICIPATE

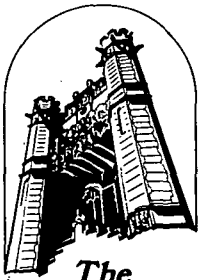
1. Anadarko Junior High School, Anadarko
2. Apache Junior High School, Apache
3. Ardmore Mid-School, Ardmore
4. Battiest Junior High School, Battiest
5. Broken Bow Junior High School, Broken Bow
6. Byng Junior High School, Byng
7. Calumet Junior High School, Calumet
8. Canton Junior High School, Canton
- * 9. Capitol Hill Mid-School, Oklahoma City
10. Carl Albert Junior High School, Midwest City
11. Carnegie Junior High School, Carnegie
12. Central Mid-High School, Norman
13. Clinton Junior High School, Clinton
- * 14. Concho Indian School, Concho
15. Cowert Junior High School, Wewoka
- * 16. Del Crest Junior High School, Midwest City
- * 17. Eisenhower Mid-High School, Oklahoma City
- * 18. F.D. Moon Mid-School, Oklahoma City
19. Geary Junior High School, Geary
20. Hammon Junior High School, Hammon
- * 21. Harding Mid-School, Oklahoma City
22. Hartshorne Junior High School, Hartshorne
23. Holdenville Mid-School, Holdenville
24. Hoover Mid-School, Oklahoma City
25. Houston Homan Junior High School, Eufaula
- * 26. H.W. Longfellow Mid-High School, Norman
27. Idabel Junior High School, Idabel
- * 28. Jackson Mid-School, Oklahoma City
29. Jay Junior High School, Jay
30. Jefferson Mid-School, Oklahoma City
- * 31. J.G. Whittier Mid-High School, Norman
- * 32. Kerr Junior High School, Midwest City
33. Kingfisher Junior High School, Kingfisher
34. Lawton Central Junior High School, Lawton
35. Lawton Eisenhower Junior High School, Lawton

36. Lawton MacArthur Junior High School, Lawton
37. Lawton Tomlinson Junior High School, Lawton
- * 38. Little Axe Elementary School, Little Axe
39. Millwood Junior High School, Oklahoma City
40. Monroney Junior High School, Midwest City
41. Mountain View Junior High School, Mountain View
42. Okmulgee Mid-School, Okmulgee
43. Pawnee Junior High School, Pawnee
44. Ponca City East Junior High School, Ponca City
45. Ponca City West Junior High School, Ponca City
- * 46. Rogers Mid-High School, Oklahoma City
- * 47. Roosevelt Mid-High School, Oklahoma City
48. Seiling Junior High School, Seiling
49. Smithville Junior High School, Smithville
50. Stilwell Junior High School, Stilwell
- * 51. Tahlequah Junior High School, Tahlequah
52. Thomas Junior High School, Thomas
53. Varnum Junior High School, Varnum
54. Vian Junior High School, Vian
55. Walters Junior High School, Walters
- * 56. Washington Irving Mid-School, Norman
57. West Mid-High School, Norman
- * 58. Webster Mid-School, Oklahoma City
59. Weleetka Junior High School, Weleetka
- * 60. Western Heights Junior High School, Oklahoma City
61. Wetumka Junior High School, Wetumka
62. Wright City Junior High School, Wright City

The following letters were sent to schools and organizations inviting their participation in the symposium. The letters were sent to:

1. Principals of 40 state high schools with Indian enrollments of 10% or more.
2. Director of the Tulsa Indian Youth Council.
3. Same as number one above.
4. Contact person within the invited schools.
5. Superintendents of school systems with Indian student clubs.
6. Superintendents of schools which have a United National Indian Tribal Youth (UNITY) chapter.
7. Principals of schools from expanded list of invited schools.
8. Presidents of Indian Clubs of invited schools.
9. Principals of Bureau of Indian Affairs (BIA) schools.
10. Community sponsors of Indian Clubs.
11. Contact persons with the Metropolitan Oklahoma City area schools having large minority student enrollments.
12. Principals of schools from further expanded list of invitees.
13. Eastern Oklahoma Indian Health Careers Program.
14. Indian student counselors in invited schools.
15. Indian student counselors in invited schools.
16. Principal of Little Axe Elementary School. Special invitation to the only local school with a substantial Indian student enrollment.
17. Education specialist for the Creek Nation.
18. Counselors and contact persons within schools with large minority student enrollments.
19. Student sponsors - Pre-registration.
20. Counselors and contact persons at invited schools that had not indicated their plans to attend or not to attend the symposium.

21. Organizations which had indicated they would be in attendance.
22. Memo. sent to sponsors of student groups expected to attend symposium.
23. Those who accompanied students to symposium.
24. Pamphlet which accompanied most letters.
- 25.-34. Miscellaneous correspondence.



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

December 20, 1976

Oklahoma University, in conjunction with the National Aeronautics and Space Administration (NASA), is sponsoring a Space Symposium tentatively scheduled for March 17, and 18, 1976 at the Forum Building on campus. The purpose of the program is to present career information to junior high and high school students in science and engineering. Schools from all parts of Oklahoma will be invited to participate. Although there will be a special emphasis placed on attracting American Indians, other minority students, and women, all recommended students will be welcome.

Your school is invited to participate in these activities. Schools within 125 miles of the Norman campus will attend the March 17 program, and those outside of the 125 mile radius will attend March 18 activities. Both programs will be identical in content. Further information and a formal program will be sent at a later date. We plan to take care of transportation costs and also feed the participants a noon meal while on campus.

If you feel that your school may be interested in participating in the Symposium, please provide us with the name of a contact person within your school to whom all future correspondence may be sent. For this purpose and your convenience, I have enclosed a self addressed, stamped envelope.

Please contact George Thomas, Project Coordinator, 202 W. Boyd, Norman, Oklahoma 73019, if you have any questions on the activity.

Sincerely,

Wm. R. Upthegrove
Dean

WUR/gr
Enclosure

Name of person to whom all future correspondence is to be sent _____

School _____

Title _____

Address _____

Name of person to whom all future correspondence is to be sent _____

School _____

Title _____

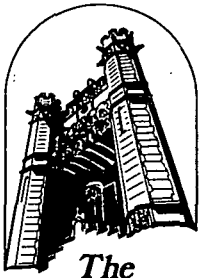
Address _____

Name of person to whom all future correspondence is to be sent _____

School _____

Title _____

Address _____



The
University of Oklahoma 202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 15, 1977

I want to formally invite you and 25 Indian junior high and high school students from your area to participate in our NASA Space Sciences Symposium on March 17-18, 1977, here on the O.U. campus. As per our telephone conversation of February 11, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. I will be sending you additional information as it becomes available.

If some of the schools we have invited are unable to send as many as 25 students, then it may be possible for the TIYC to send additional students to make up the difference. I will be calling you again two or three weeks before the symposium to determine if you will be participating and to answer any questions you may have. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

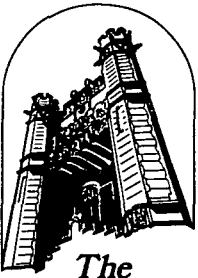
Thank you.

Sincerely,

George Thomas

George Thomas, Director
Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 15, 1977

In December, you received an invitation for your school to participate in a NASA sponsored space sciences symposium to be conducted on the University of Oklahoma campus on March 17-18, 1977. Although our final plans have not been formalized, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. A copy of our final schedule will be sent to you when available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

As mentioned in the enclosed pamphlet, your school is invited to select 25 students to participate in the symposium and because of the large Indian population in your area, we ask that a substantial number of Indian students be included among those selected to attend.

I will be calling you sometime during the week of February 21, to determine if your school plans on participating and to answer any questions you may have. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

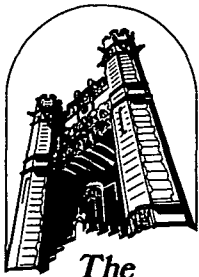
Thank you.

Sincerely,

George Thomas

George Thomas, Director
Indian Programs

GLT/gr
Enclosures



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 15, 1977

Your school has been invited to participate in a NASA sponsored space sciences symposium to be conducted on the University of Oklahoma Campus on March 17-18, 1977. The invitation was sent to your principal who then supplied us with your name as the person to whom all related correspondence should be directed. Enclosed is a pamphlet which will give you a better idea of the program format and content.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering, or a related area.

As mentioned in the enclosed pamphlet, your school is invited to select 25 students to participate in the symposium and because of the large Indian population in your area, we ask that a substantial number of Indian students be included among those selected to attend.

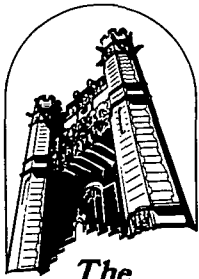
I will be calling you sometime during the week of February 21, to determine if your school plans on participating and to answer any questions you may have. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

The Weatherford junior high and high schools have been invited to participate in a NASA-sponsored space sciences symposium to be conducted on the University of Oklahoma campus on March 17-18, 1977. Although our final plans have not been formalized, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. A copy of our final program schedule will be sent when available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We have sent a letter to the president of the local Indian Club of which you are a sponsor, inviting the students to show an active interest in attending the symposium if their school chooses to participate. We would also like to invite you to accompany any of your students who may attend.

The program has been endorsed by Mr. J.R. Cook, the Executive Director, and Mr. Bob Tarbell, the National Youth Coordinator, of the United National Indian Tribal Youth (UNITY). A copy of their letter encouraging your participation is enclosed.

If you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas, Director
Indian Programs

GLT/gr

Enclosures



United National Indian Tribal Youth, Inc.

POST OFFICE BOX 101 • TELEPHONE: (405) 772-7411
WEATHERFORD, OKLAHOMA 73096

February 16, 1977

TO: SUPERINTENDENTS, CLUB SPONSORS, AND PRESIDENTS OF AFFILIATED UNITY
CLUBS IN OKLAHOMA

FROM: J.R. COOK, EXECUTIVE DIRECTOR
BOB TARBELL, NATIONAL YOUTH COORDINATOR

SUBJECT: SYMPOSIUM ON CAREER AND EDUCATIONAL OPPORTUNITIES IN SCIENCE
AND ENGINEERING March 17-18, 1977

We would like to take this opportunity to inform you of the upcoming Symposium on Career and Educational Opportunities in Science and Engineering which will be held on the campus of the University of Oklahoma on March 17-18.

The symposium is co-sponsored by National Aeronautics and Space Administration and the Office of Indian Programs of the College of Engineering at the University of Oklahoma.

This is an excellent opportunity to introduce junior high and high school American Indian students of career possibilities in science and engineering. The students will be able to hear and meet several American Indian engineers and scientists along with Dr. Owen Garriott who was an astronaut on the Skylab Mission.

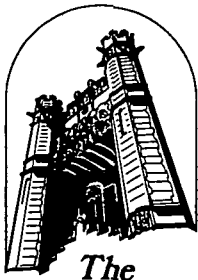
Mr. George Thomas, director of the symposium, is a talented and dedicated individual who is pledged to conducting a first-rate event.

You will notice in the enclosed information that travel expenses will be provided as well as the noon meals.

We totally endorse this symposium and encourage you to insure that your school is well represented at this outstanding event.

Bob Tarbell

J.R. Cook



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

The Varnum junior high and high schools are invited to participate in a NASA-sponsored space sciences symposium to be conducted on the University of Oklahoma campus on March 17-18, 1977. Although our final plans have not been formalized, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. A copy of our final program schedule will be sent when available.

The primary purpose of the symposium is to encourage more young people from our state to enter the sciences and engineering. And because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

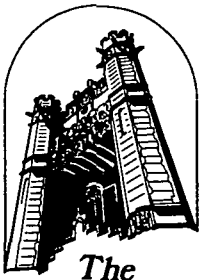
As stated in the enclosed pamphlet, your school are invited to select a total of 25 students to participate in the symposium and, because of the Indian population in your area, we ask that a substantial number of Indian students be included among those selected to attend. The program has been endorsed by Mr. J. R. Cook, the Executive Director, and Mr. Bob Tarbell, The National Youth Coordinator, of the United National Indian Tribal Youth (UNITY). A copy of their letter encouraging your schools' participation is enclosed.

I will be calling you sometime during the week of February 21 to determine if your school plans on participating. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

GT/sah
Enclosures



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

As per our telephone conversation of February 15, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. Although our final plans have not been formalized, I will be sending you a copy of our final program schedule when it becomes available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

Although each school we have invited has been asked to send 25 participants, some will be unable to do so; therefore, if your school participates, we ask that you consider sending at least a bus load of students to help us offset the difference.

As we discussed in our conversation, rather than pay your mileage and driver, the program will present a gift of comparable value to your science department.

I will be calling you sometime during the week of February 21 to determine if your school plans on participating. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

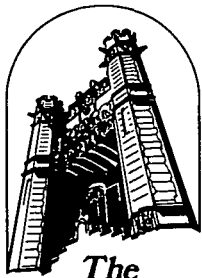
George Thomas

George Thomas

Director of Indian Programs

GT:sah

Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

Dear Club President:

Your school has been invited to participate in a NASA-sponsored space sciences symposium to be conducted on the University of Oklahoma campus on March 17-18, 1977. Although our final plans have not been formalized, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. A copy of our final program schedule will be sent when available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

A total of 25 junior high and high school students are invited to participate from your area. If your school chooses to participate, we hope that a substantial number of students from your Indian Club will show an interest in attending the symposium.

The program has been endorsed by Mr. J. R. Cook, the Executive Director, and Mr. Bob Tarbell, the National Youth Coordinator, of the United National Indian Tribal Youth (UNITY). A copy of their letter encouraging your participation is enclosed.

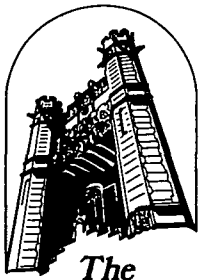
If you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

George Thomas
Director of Indian Programs

GLT/gr
Enclosures



The University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

As per our telephone conversation of February 15, I have enclosed a pamphlet that will give you a better idea of the NASA space symposium goals, format and content. Although our final plans have not been formalized, I will be sending a copy of our final program schedule when it becomes available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their under-representation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related subject.

Although each school we have invited has been asked to send 25 participants, some will be unable to do so; therefore, if your school participates, we ask that you consider sending at least a bus load of students to help us offset the difference.

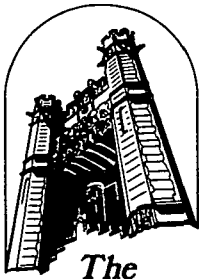
As we discussed in our conversation, rather than pay your mileage and driver, the program will present a gift of comparable value to your science department.

I will be calling you sometime during the week of February 21 to determine if your school plans on participating. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 16, 1977

The Geary junior high and high schools have been invited to participate in a NASA-sponsored space sciences symposium to be conducted on the University of Oklahoma campus on March 17-18, 1977. Although our final plans have not been formalized, I have enclosed a pamphlet which will give you a better idea of our program goals, format and content. A copy of our final program schedule will be sent when available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We have sent a letter to the president of the local Indian Club of which you are a sponsor, inviting the students to show an active interest in attending the symposium if their school chooses to participate. We would also like to invite you to accompany any of your students who may attend.

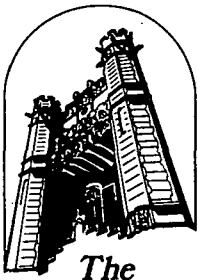
The program has been endorsed by Mr. J.R. Cook, the Executive Director, and Mr. Bob Tarbell, the National Youth Coordinator, of the United National Indian Tribal Youth (UNITY). A copy of their letter encouraging your participation is enclosed.

If you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas, Director
Indian Programs

GLT/gr
Enclosures



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 22, 1977

As per our telephone conversation of February 21, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. Although our final plans have not been formalized, I will be sending a copy of our final program schedule when it becomes available.

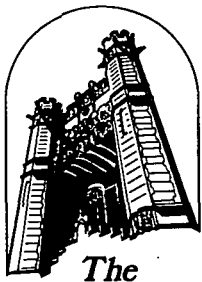
The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering, or a related area.

I hope it works out that it will be possible for you to work around the nine weeks testing schedule and bring a representative group of your Putnam City students to the symposium. I will be calling again sometime during the week of February 28, to determine if you will be able to participate. In the meantime, if you have questions, please write or call me at 325-2192.

Sincerely,

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 22, 1977

As per our telephone conversation of February 21, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. Although our final plans have not been formalized, I will be sending a copy of our final program schedule when it becomes available.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their under-representation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

As stated in the enclosed pamphlet, your school is invited to select a total of 25 students to participate in either the March 17 or March 18 activities and, because of the large Indian population in your area, we ask that a substantial number of Indian Students be included among those selected to attend.

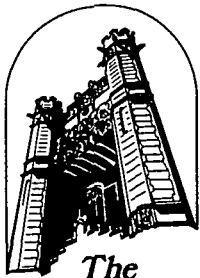
I will be calling you sometime during the week of February 28 to determine if your school plans on participating. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 24, 1977

As per our telephone conversation of February 23, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We invite you to bring a group of Indian students from the Tahlequah area to participate in the March 18 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you wish.

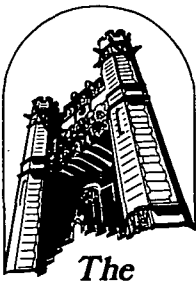
I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma 202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 24, 1977

As per our telephone conversation of February 23, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We invite you to bring a group of Indian students from the Pawnee area to participate in the March 18 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you desire.

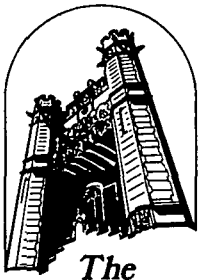
I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 24, 1977

As per our telephone conversation of February 24, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

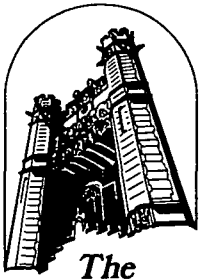
We invite you to bring a group of Indian students from Little Axe to participate in the March 17 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you desire.

I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 24, 1977

As per our telephone conversation of February 24, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

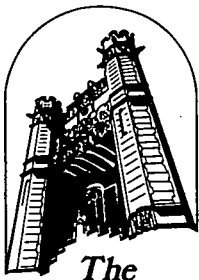
We invite you to bring a group of Indian students from Edmond High to participate in the March 17 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you desire.

I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 24, 1977

As per our telephone conversation of February 23, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We invite you to bring a group of Indian students from the Okmulgee area to participate in the March 18 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you desire.

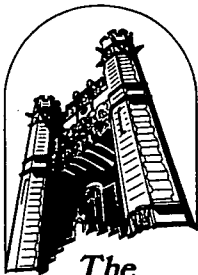
I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me collect at (405) 325-3192.

Sincerely,

George Thomas

Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 28, 1977

As per our telephone conversation of February 25, I have enclosed a pamphlet that will give you a better idea of the NASA space sciences symposium goals, format and content. I will be sending you a copy of our final program schedule sometime during the week of March 7.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a course of study in science, engineering or a related area.

We invite you to bring a group of students from Classen High School to participate in either the March 17 or March 18 activities. We are asking each school or organization to bring 25 students; however, arrangements can be made for you to bring any number of students you wish.

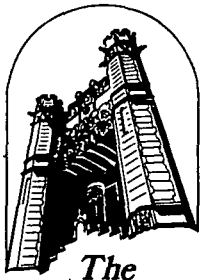
I will be calling you sometime during the week of February 28 to determine if you will be able to participate. In the meantime, if you have questions, please write or call me at (405) 325-3192.

Sincerely,

George Thomas

Director of Indian Programs

GLT/gr
Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

March 1, 1977

We are very pleased that your school will be participating in our NASA space sciences symposium.

Please fill out and return the enclosed student participation form sometime before or during the week of March 7 in order for us to complete your pre-registration process.

I will be sending you a map and a final program schedule the week of March 7. If you have questions, please do not hesitate to call. My number is (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

GT:sah

Enclosures

If your school or organization plans on participating in the NASA Space Sciences Symposium, please complete this form and return it as soon as possible to:

George Thomas
University of Oklahoma
College of Engineering
202 W. Boyd
Norman, Oklahoma 73019

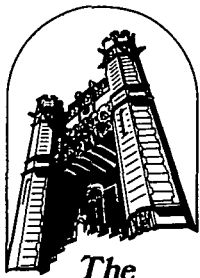
Name(s) of those who will be accompanying students.

Name	Title	Name	Title
1. _____		3. _____	
2. _____		4. _____	

Students who will be participating - Please place an asterisk next to the names of minority students. How will students be arriving? ___ school bus ___ private auto.

1. _____	16. _____
2. _____	17. _____
3. _____	18. _____
4. _____	19. _____
5. _____	20. _____
6. _____	21. _____
7. _____	22. _____
8. _____	23. _____
9. _____	24. _____
10. _____	25. _____
11. _____	26. _____
12. _____	27. _____
13. _____	28. _____
14. _____	29. _____
15. _____	30. _____

Names of additional students to be participating should be included on an attached sheet and returned with the original form.



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

March 3, 1977

The dates of the OU-NASA Space Sciences Symposium (March 17-18) are rapidly approaching, and we look forward to having representatives from your school in attendance.

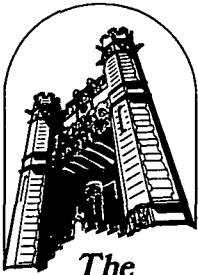
If it will be possible for students from your school to participate, please fill out and return the enclosed student participation list sometime before the end of the week of March 7.

It would also be greatly appreciated if you would call (collect if necessary) (405) 325-3192 to let us know you will be coming so that we may be looking for your student list.

Sincerely,

George Thomas
Director of Indian Programs

Enclosure



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

March 1, 1977

We are very pleased that your organization will be participating in our NASA space sciences symposium.

Please fill out and return the enclosed participant form sometime before or during the week of March 7 in order for us to complete your pre-registration process.

I will be sending you a map and a final program schedule the week of March 7. If you have questions, please do not hesitate to call. My number is (405) 325-3192.

Sincerely,

George Thomas
Director of Indian Programs

Enclosure

TO: Sponsors of Student Groups attending the OU-NASA Space
Sciences Symposium

FROM: George Thomas, Director of Indian Programs **GT**
University of Oklahoma, College of Engineering

DATE: March 9, 1977

Enclosed is a map showing the location of the Forum Building where the Space Sciences Symposium will be held. Bring your bus into the area marked "A" on the map. You will be met by members of the symposium staff who will escort you and your students to registration and direct your driver to the parking area.

We invite at least one of your group's sponsors to participate in a one hour Counselor-Teacher Forum after lunch to help us evaluate the symposium and share with us some of the experiences gained in dealing with the problems of minority students and women in science and math curricula. An informal mixer with refreshments will follow the meeting.

There will be a drawing at the end of each day's activities for scientific calculators and NASA tee-shirts. Calculators will be given away each day to two students whose names are drawn. A separate drawing will be held in which calculators will be given to two student sponsors.

If there is any change in the student roster sent to us prior to the symposium, please have the changes written out in order to help us speed up the registration process.

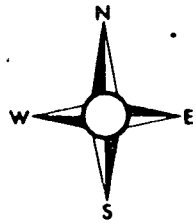
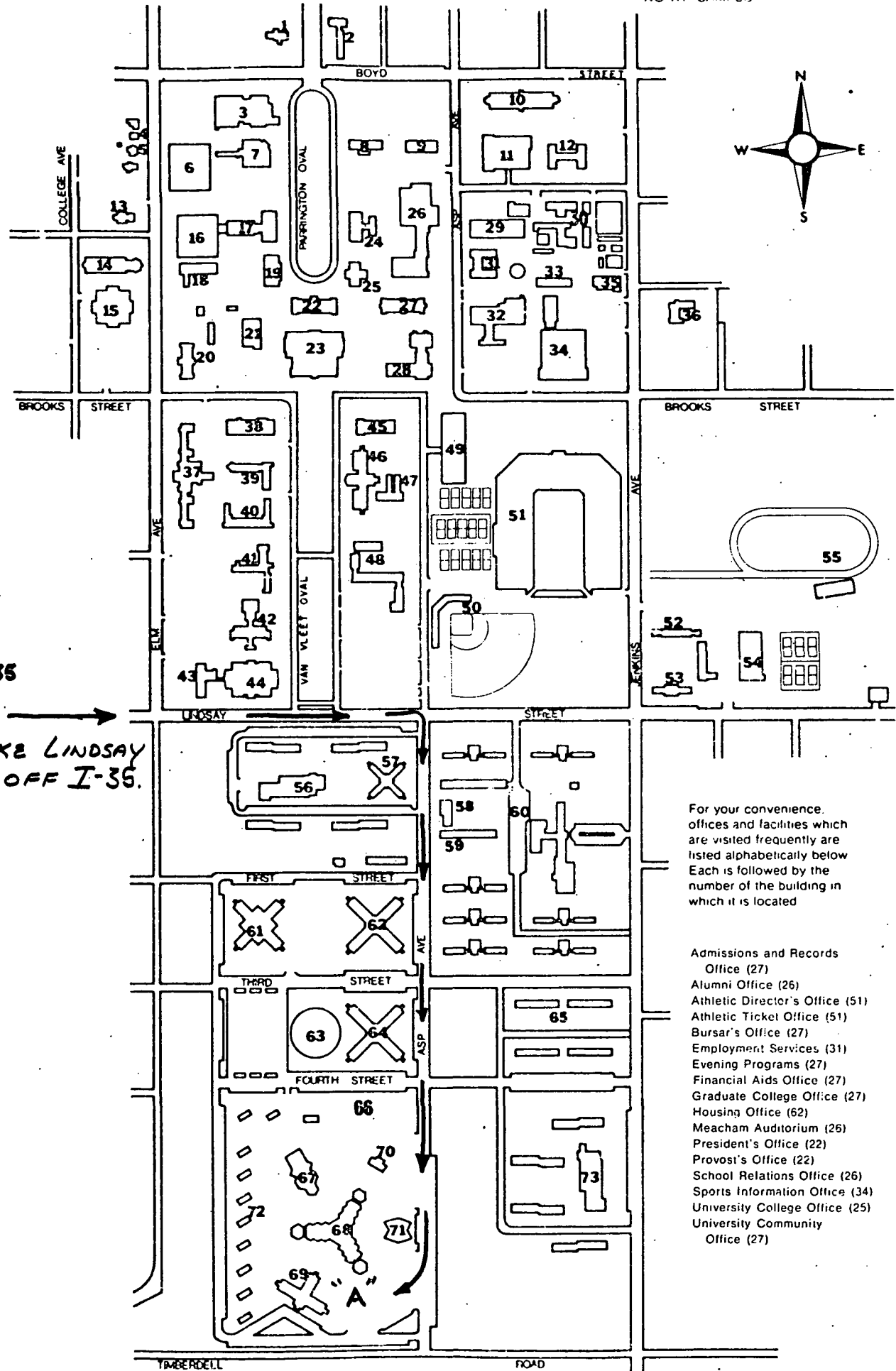
Enclosed is a NASA Symposium poster. A large four-color poster similar to this one will be given to each participant.

If you have additional questions, please call me at (405) 325-3192.

I look forward to meeting you and your students at the symposium.

GLT/gr
Enclosures

- Adams Center (81)
- Adams Hall (28)
- Administration Building (22)
- Administration Building-OCCE (71)
- Advanced Studies, Hall of-OCCE (70)
- Air Force ROTC-T-1 (12)
- Armory-Army and Naval ROTC (49)
- Art, Museum of (3)
- Art, School of (3)
- Baseball Field (50)
- Botany and Microbiology Building (46)
- Buchanan Hall (27)
- Burton Hall (14)
- Carnegie Building (25)
- Carpenter Hall (9)
- Cate Center (58)
- Child Development Laboratory (13)
- Chemistry (17)
- Commissary (54)
- Commons Restaurant-OCCE (87)
- Copeland Hall (42)
- Cottages-OCCE (72)
- Couch Center Cafeteria (83)
- Couch Center North (82)
- Couch Center South (84)
- Cross Center (73)
- Date Hall (44)
- Date Hall Tower (43)
- DeBarr Hall (17)
- Drama Building (6)
- Education Building (41)
- Ellison Hall (20)
- Engineering Center (10)
- Engineering Laboratory (29)
- Evans Hall (22)
- Felger Hall (11)
- Field House (34)
- Forum Building-OCCE (60)
- Fred Jones Jr. Memorial Art Center (3)
- Gitinger Hall (39)
- Geology and Geophysics (48)
- Gould Hall (48)
- Greenhouse (47)
- Health Center, Charles Goddard (15)
- Hester-Robertson Hall (37)
- Hofmberg Hall (7)
- Home Economics, School of (14)
- Home Management House (5)
- Jacobson Hall (8)
- Jefferson House (53)
- Journalism, School of (42)
- Kaufman Hall (40)
- Landscape Office (35)
- Law, College of (24)
- Library, Bizzell Memorial (23)
- Monnet Hall (24)
- New Cate Center (57)
- Nielsen Hall (38)
- Niemann Apartments (65)
- Nuclear Engineering Laboratory (31)
- OU Storeroom (33)
- Observatory (59)
- Oklahoma Center for Continuing Education-OCCE (66)
- Old Science Hall (19)
- Pharmacy, College of (18)
- Physical Plant Complex (30)
- Physical Sciences Center (16)
- Physics (38)
- Richards Hall (45)
- Rupel J. Jones Theatre (6)
- Shadowbox Boutique (4)
- Social Sciences (44)
- Social Work, School of (36)
- Sooner House-OCCE (69)
- Stadium, Oklahoma Memorial (51)
- Stovall Museum of Science and History (58)
- Track Field (55)
- Union, Oklahoma Memorial (26)
- University House (1)
- University Press (32)
- Walker Memorial Tower (52)
- Washington House (52)
- Whitehand Hall (2)
- Wilson Center (60)
- Women's Building (21)
- Zoology (45)



To I-35
 TAKE LINDSAY
 EXIT OFF I-35.

For your convenience, offices and facilities which are visited frequently are listed alphabetically below. Each is followed by the number of the building in which it is located.

- Admissions and Records Office (27)
- Alumni Office (26)
- Athletic Director's Office (51)
- Athletic Ticket Office (51)
- Bursar's Office (27)
- Employment Services (31)
- Evening Programs (27)
- Financial Aids Office (27)
- Graduate College Office (27)
- Housing Office (62)
- Meacham Auditorium (26)
- President's Office (22)
- Provost's Office (22)
- School Relations Office (26)
- Sports Information Office (34)
- University College Office (25)
- University Community Office (27)

"A" - PARKING LOT, RECEIVING AREA. MAY HAVE TO PARK BUSES IN OTHER AREAS.

SOUTH CAMPUS
 Kraetli Apartments
 Security Office
 Golf Course

Amount of check was calculated as indicated below.

If you came by bus:

_____ (one way mileage)* X 2 X 20¢/mile = \$25.00 for Bus Driver =
\$ _____

If you came by auto:

_____ (one way mileage)* X 2 X _____ (No. of autos) X 15¢/mile =
\$ _____

*One way mileage taken from symposium registration form. If this information was not included on form, mileage was estimated from a map.

Thank you and your students for your participation in the OU-NASA Space Sciences Symposium. We were pleased to be able to make this opportunity available to the students of our state and sincerely hope that the symposium had a positive influence on all of those who attended.

To help us plan for possible future events of this nature, please have each of the symposium participants fill out one of the enclosed evaluation forms. We would appreciate it if you would then collect and return the completed forms to our office. A copy of the symposium program is enclosed to help refreshen the memories of those who may have forgotten the program sequence of events.

Also enclosed is a check to help cover the costs of transporting the students to the symposium. The attached note explains the payment schedule. If there has been a mistake made in the amount of this check please call as soon as possible so that we may correct the error. Our number is (405) 325-3192.

Thanks again for your participation. We enjoyed having you with us.

Sincerely,



George Thomas
Director of Indian Programs

Enclosures



National
Aeronautics and
Space
Administration

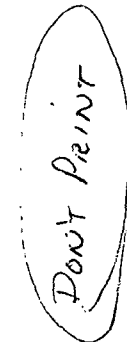
SYMPOSIUM

on

**The University of Oklahoma
Campus**

March 17-18, 1977

Symposium on
Career &
Educational
Opportunities in
Science &
Engineering



Cosponsored by



The University of Oklahoma
College of Engineering
Office of Indian Programs

SYMPOSIUM

The University of Oklahoma College of Engineering Office of Indian Programs and the National Aeronautics and Space Administration will co-sponsor a symposium directed at introducing American Indian, other minority, and women junior high and high school students to the career and educational opportunities in science and engineering.

YOUR SCHOOL IS INVITED

To nominate 25 students to participate in either the March 17 or March 18 program. We are emphasizing American Indian participation; however, all students nominated by your school will be welcome.

ROLE MODELS

Your students will have the opportunity to meet minority scientists and engineers.

ASTRONAUT

Your students will have the opportunity to meet and hear Dr. Owen K. Garriott, NASA scientist-astronaut and current Director for Science and Applications, Johnson Space Center, Houston, Texas. Dr. Garriott was an astronaut on the Skylab Mission and is a native Oklahoman.

EXHIBITS

Your students will have the opportunity to see NASA exhibits on solar energy, the Space Shuttle, the Mars Viking Project, technology utilization, and aircraft models in aeronautics research and development. NASA personnel will be stationed at each of these exhibits to assist the students in their operation and to answer questions.

CAREER INFORMATION

Representatives from several OU departments will have booths set up where they will pass out career information to interested students. There will also be representatives from various professional associations to answer student questions. In addition, each student will be given a packet containing information on a number of careers in science and technology.

COUNSELOR & TEACHER FORUM

A counselor or teacher from each of the participating schools will be invited to attend a brief open discussion near the end of each day's activities in order to help us evaluate the symposium and to receive information about where to write for additional materials on technical careers and current events in science and engineering.

EXPENSES

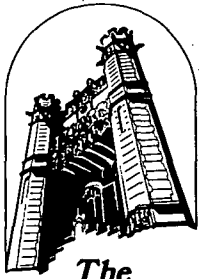
Schools sending students by school bus will be reimbursed 20¢ per mile for the round trip. The students will receive a free noon meal at the Commons Restaurant, which is located near the meeting area.

NASA SYMPOSIUM
March 17-18, 1977

The University of Oklahoma Campus

For additional information, write:

George Thomas
University of Oklahoma
College of Engineering
202 W. Boyd
Norman, Oklahoma 73019



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

March 8, 1977

College of Engineering
Office of the Dean

On March 17-18 the University of Oklahoma College of Engineering and NASA will conduct a space sciences symposium in the Forum Building on the OU campus. We expect 350-500 junior high and high school students from approximately 40 schools to be present each day.

The primary objective of the symposium is to encourage more young people from our state to enter the sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so they may be better prepared to pursue a course of study in science, engineering or a related area.

You are invited to participate in one or both days activities. In particular we would like for you to take part in the afternoon counselor and teacher forum. The sharing of your experience obtained in dealing with the special problems encountered by minority students in math and science courses would be a valuable contribution to the program.

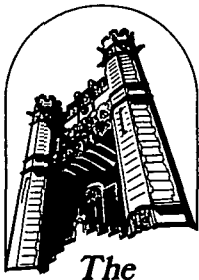
Please feel free to bring any recruitment materials you wish, especially those relating to special programs in math, science or health. Display space will be provided; however, it will be unnecessary for you to be on hand to disseminate the material unless you choose to do so.

If you plan to attend, please call me at (405) 325-3192, so we can prepare your registration packet. Your noon meal will be provided by the program.

Sincerely,

George Thomas, Director
Indian Programs

GLT/gr



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

March 9, 1977

TO: Paul F. Sharp, President
FROM: George Thomas, Director of Indian Programs
SUBJECT: NASA Space Sciences Symposium

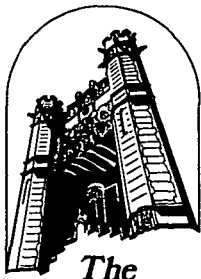
On March 17-18 we will be holding a Space Sciences Symposium jointly sponsored by NASA and the College of Engineering. The primary objective of the program is to motivate minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a university course of study in science, engineering or a related area.

We expect to have approximately 500 students in attendance on each of the two days. We would greatly appreciate it if you would say a few words of welcome at the start of the March 18 activities which will begin at 9:30 a.m. in the Forum Building at OCCE.

If you have any questions, please call me at 325-3192.

GT

cc: Wm. R. Upthegrove



The
University of Oklahoma 202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 28, 1977

TO: Barbara S. Uehling, Provost
FROM: George Thomas, Director of Indian Programs
SUBJECT: NASA Space Sciences Symposium

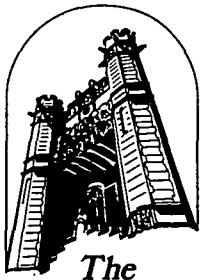
On March 17-18 we will be holding a Space Sciences Symposium jointly sponsored by NASA and the College of Engineering. The primary objective of the program is to motivate minority students and women to take math and science courses during their secondary school years so that they may be better prepared to pursue a university course of study in science, engineering or a related area.

We expect to have approximately 500 students in attendance on each of the two days. We would greatly appreciate it if you would say a few words of welcome at the start of each day's program. Also on hand to welcome the participants will be Mr. Peter H. Chen, Deputy Assistant Administrator for Equal Opportunity Programs from NASA Headquarters.

If you have questions, please call me at 325-3192.

GT

cc: Wm. R. Upthegrove



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 22, 1977

Engineers' Council for
Professional Development
Publications Office
345 East 47th Street
New York, N. Y. 10017

Gentlemen:

Please send 1300 copies of each of the nine engineering series brochures listed below.

Send billing to the attention of George Thomas, University of Oklahoma College of Engineering.

If you are unable to ship the brochures before March 5, please advise. My number is (405) 325-3192.

Thank you for your help in this matter.

Sincerely,

George Thomas
Director of Indian Programs

Engineering series:

70Aero
70ChE
70CE
70E
70EE
70IE
70ME
70MET
70NE

THE UNIVERSITY OF OKLAHOMA INTEROFFICE COMMUNICATION

To Paul F. Sharp, President Date March 14, 1977
University of Oklahoma
From Fred Sawyer, Director Subject NASA Film Interview
Engineering Relations 10:00 a.m., March 16, 1977

The Wednesday morning filming with NASA photographers will not be an interview per se, but a 3-to 5-minute presentation by you. The plan is to film it and, when editing is done, segment the presentation and intersperse in the film.

The attached copy contains points we would like for you to make. In addition, please present other University of Oklahoma material that will be image building. For your information I am enclosing a copy that Dean Upthegrove will use and a copy of the news release on the NASA program.

Having the presentation in your office will be fine. The photographers will be using fully portable equipment and will not have setup time problems.

Sincerely,

FLS/gr
Attachments

THE UNIVERSITY OF OKLAHOMA INTEROFFICE COMMUNICATION

To Woodrow W. Wiltse, Coordinator Date March 9, 1977
Parking and Traffic
From George Thomas, Director Subject Bus Parking for NASA Symposium
Indian Programs

On March 17-18, the OU College of Engineering and NASA will co-sponsor a symposium which will be held in the Forum Building at OCCE.

Student groups will be arriving by bus between 8:00 - 9:00 a.m. each of these days and departing around 3:30 p.m. There will be approximately 20 buses involved each day. After talking to your secretary, we are planning to park the buses in the lot near the Duck Pond on Lindsey. If this will create any problems, please call me at 5-3192.

GT

UNIVERSITY OF OKLAHOMA INTEROFFICE COMMUNICATION

COLLEGE OF ENGINEERING

OFFICE OF THE DEAN

To William T. Jones Date March 10, 1977
Chief of Security

From Wm. R. Upthegrove Subject Security Guards
Dean, College of Engineering

Bill,

As you may know, several valuable exhibits for the NASA Space Sciences Symposium will be placed in the Forum Building at OCCE on March 15. We are obligated to NASA to provide a security guard on duty during periods between March 15 and March 19 to protect the exhibits from damage and theft. I understand that George Thomas has had preliminary discussions of this need with Sergeant Mustoe. A copy of the time schedule they have tentatively worked out is attached. I would greatly appreciate your assistance in confirming arrangements. Charges for this service may be billed against the symposium account number 157-800.

We are very fortunate to receive NASA sponsorship which allows us to make this opportunity available to the students of our state. We appreciate your assistance in this matter which will help insure a successful program.

WRU/gr
attachment
cc: *George Thomas*

DATE

TIMES NEEDED

15 March, 1977

12:00 p.m. - 12:00 a.m.

16 March, 1977

12:00 a.m. - 8:00 a.m.

17 March, 1977

5:00 p.m. - 12:00 a.m.

18 March, 1977

12:00 a.m. - 8:00 a.m.

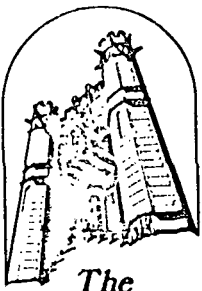
19 March, 1977

5:00 p.m. - 12:00 a.m.

12:00 a.m. - 8:00 a.m.

3:00 p.m. - 12:00 a.m.

12:00 a.m. - 8:00 a.m.



The
University of Oklahoma

202 West Boyd, Room 107 Norman, Oklahoma 73019 (405) 325-2621

College of Engineering
Office of the Dean

February 10, 1977

Mr. Peter Mac Donald
The Navajo Nation
Window Rock, Arizona 86515

Dear Mr. Mac Donald:

The University of Oklahoma College of Engineering and NASA will co-sponsor a symposium to introduce junior high and high school students to the opportunities available in science and engineering on March 17-18. Of the 1000 students expected to attend, approximately 600 will be American Indian. We would like to invite your participation in this symposium as a keynote speaker at our noon luncheon on March 17.

We are still in the planning stages for the symposium; however, I will send you additional program information when it becomes available. In the meantime, if you would like more details, please write or call me at (405) 325-3192.

Sincerely,

George Thomas, Director
Indian Programs

GLT/gr



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGIONAL OFFICE
1200 MAIN TOWER BUILDING
DALLAS, TEXAS 75202

OFFICE OF EDUCATION

March 9, 1977

Mr. George Thomas
Director, Indian Programs C. E.
University of Oklahoma
Norman, Oklahoma 73069

Dear Mr. Thomas:

I wish to confirm our telephone conversation of the morning. Mr. Cletis D. Satepauhoodle will represent the Regional Office of Education and address the NASA Symposium at 1:00 P. M. on Friday, March 18.

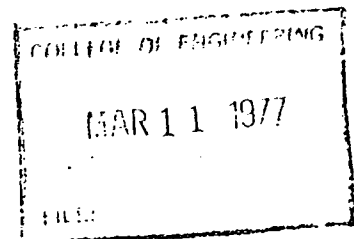
Mr. Satepauhoodle is Coordinator of Indian Education for our five state region. He is thoroughly knowledgeable about educational programs relating to Indian youth. I am enclosing a copy of his resume. As you can see he has had wide experience in working with high school youth, especially those from disadvantaged backgrounds.

I hope your conference will be highly successful.

Sincerely yours,

Harold A. Haswell
Assistant Regional Commissioner
Office of Planning and Special Programs

Enclosure





United States Department of the Interior

IN REPLY REFER TO:

Personnel

BUREAU OF INDIAN AFFAIRS
MUSKOGEE AREA OFFICE
MUSKOGEE, OKLAHOMA 74401

MAR 1 1977

Mr. George Thomas, Director
Indian Programs
The University of Oklahoma
202 West Boyd
Room 107
Norman, Oklahoma 73019

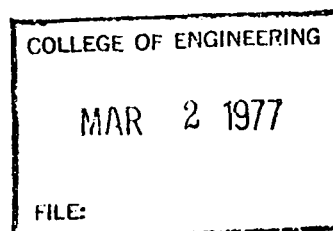
Dear Mr. Thomas:

This will acknowledge receipt of your letter dated February 4, 1977, which requested that Mr. David Baldwin be permitted to become involved in a symposium designed to motivate secondary and college level students to seek careers in science and engineering with emphasis on Indian recruitment to these fields.

Mr. Baldwin is in charge of the overall functions of the Osage Agency and is not an engineer. We can furnish, if requested, engineers from this office that are acquainted with the American Indian engineering field.

Sincerely yours,

Allen R. Nordwall
Acting Area Director



APPENDIX C

The following are copies of news releases sent to the newspapers in those towns which sent in pre-registration forms.



The University of Oklahoma
MEDIA INFORMATION

SYMPOSIUM ON SCIENCE, ENGINEERING
CAREERS TO BE HELD MARCH 17, 18
AT OU

NORMAN CAMPUS 900 Asp Avenue, Room 350
Norman, Okla. 73069 AC 405 325-2335

HEALTH SCIENCES CAMPUS BOX 26901
Oklahoma City, Okla. 73190 AC 405 271-4843

New ZIP: 73019

DM:sz/3-7-77

FOR IMMEDIATE RELEASE

CONTACT: Donna Murphy

(EDITORS: To date, schools indicating they will send students to the OU-NASA Symposium on Career and Educational Opportunitites in Science and Engineering are:

ARDMORE High School; CARNEGIE High School; CHILOCCO Indian School; CONCHO Indian School; EL RENO High School; HARTSHORNE High School; HOBART High School; KANSAS High School; LAWTON Eisenhower, MacArthur and LAWTON high schools; LITTLE AXE School;

Central Innovative High School, Del Crest Junior High, Jackson Mid-School, Roosevelt Mid-School and Webster Mid-School, all in OKLAHOMA CITY;

OKMULGEE High School; SEMINOLE High School, Sequoyah Indian School in TAHLEQUAH; TAHLEQUAH Junior and Senior High School; TULSA Indian Youth Council; WETUMKA Junior and Senior High School, and WEWOKA High School.)

NORMAN -- A visit to the space age and a look at science, technology, health and engineering careers will be offered 1,000 American Indian, other minority and women junior and senior high school students March 17 and 18 at the University of Oklahoma.

The one-day Symposium on Career and Educational Opportunities in Science and Engineering will be held twice and will feature a talk by former astronaut Owen K. Garrriott, National Aeronautics and Space Administration (NASA) exhibits and presentations by minority scientists and engineers.

The event is being sponsored by NASA and the Office of Indian Programs in the OU College of Engineering.

(more)

add 1 -- Career Symposium (OU)

"The symposium is directed at introducing American Indian, other minority and women junior high and high school students to the career and educational opportunities in science and engineering," said George Thomas, director of the Office of Indian Programs in the OU engineering college. "We are emphasizing American Indian participation; however, all students nominated by invited schools will be welcome."

Information sessions will be held throughout the day and will feature scientists, engineers and other professionals, many of whom are American Indians. In addition, representatives from several OU academic departments will set up booths to answer students' questions and provide information on academic programs, job opportunities and college life.

Students will view exhibits on solar energy, the space shuttle, the Mars Viking Project and aircraft models. NASA personnel will be on hand to assist in operating the exhibits and to answer questions.

As a sidelight, a forum will be held for accompanying counselors and teachers from each school. The forum will feature a panel discussion on "Special Problems Encountered in Counseling Minority Students and Women Toward Careers in Technology." Participants will include Jack Miles, OU Indian student coordinator, as moderator, and panelists John Sexton, Indian student counselor at OU's Health Sciences Center; Jafus Cavil, black student coordinator at OU; Al Ludi, NASA Spanish-speaking program coordinator; Jerry Elliott, NASA aerospace engineer for the space shuttle program; Peter H. Chem, NASA deputy assistant administrator for equal opportunity programs, Washington, D.C., and a counselor from Langston University.

Schools sending students by school bus will be reimbursed 20 cents per mile for the round trip, Thomas noted. In addition, the students will receive a free lunch.

For information, write George Thomas, University of Oklahoma, College of Engineering, 202 W. Boyd St., Norman, Okla. 73019.

For Release, Wednesday, March 16, 1977

The University of Oklahoma College of Engineering Office of Indian Programs in conjunction with the National Aeronautics and Space Administration (NASA) is sponsoring a Space Sciences Symposium for state minority high school students, March 17-18. The symposium will be held in the Forum Building at the Oklahoma Center for Continuing Education (OCCE) on the University's South Campus.

The primary objective of the symposium is to encourage more young people from our state to enter sciences and engineering. And, because of their underrepresentation in all technical areas, a major emphasis will be placed on motivating minority students and women to take math and science courses during their secondary school years so that they may be better prepared to study science, engineering, or a related program.

George Thomas, Director of Indian Programs for the College of Engineering, expects "approximately 1500 high school students representating 45 schools and organizations from all parts of Oklahoma to Participate in the two days' activities."

According to Thomas, student participants will have the opportunity to meet and hear Dr. Owen G. Garriott, a native of Edmond, who is a Scientist-Astronaut and Director for Science and Applications,

Johnson Space Center, Houston, Texas. The students will also hear several minority scientists and engineers from NASA and private industry describe their experiences in choosing a career in technology, and educational and work experiences.

There will also be exhibits on the Space Shuttle, the Mars Viking Project, Solar Energy and several others.

For additional information contact:

George Thomas, Director
Indian Programs
(405) 325-3192.

the Oklahoma Daily

Space shuttle travel planned to start soon

By STEVE McCLURE

Space shuttle travel will begin in two years, a former astronaut and OU student said Thursday.

Owen Garriott, scientist-astronaut and director for science and applications at the Johnson Space Center in Houston TX, spoke at the Oklahoma Center for Continuing Education in a symposium for minority high school students.

"We have been right on schedule if not a little ahead with the space shuttle program," Garriott said. Just recently, tests have been conducted flying the shuttle on top of a 747 jet airplane, and these tests were textbook perfect, Garriott said.

The shuttle is scheduled to be flown off a 747 and land at Andrews Air Force Base in July, he said.

"We are very confident with the progress obtained on the shuttle project and the shuttle should be operational by late

1979 for orbital flight," Garriott said.

The symposium at which Garriott was the keynote speaker, concentrated on increasing minority students' awareness of the opportunities for them in the aerospace industry.

The speakers and panelists included minority individuals who have been successful with the National Aeronautics and Space Administration. These persons told the students how they could make a successful career with the aerospace industry, Thomas said.

Garriott also discussed the projections using the shuttle to build large habitats in space.

The personnel of the space shuttle would be used to build solar energy sources which would be beamed to earth.

"A solar platform in space could convert enough energy to supply the needs of a state like Oklahoma," Garriott said.

Other projects planned by NASA in the future include towing asteroids from the sun's outer orbit to use as space platforms, Garriott said.

"This could be accomplished by two methods, the first being a solar sail which is a photon reflector and would use solar power to move the asteroid into an outer orbit of the Earth," Garriott said.

Another method of moving the asteroid would be to use a mass accelerator to move the object by chipping

off small pieces of it and causing the energy of this to move it, Garriott said.

After the asteroid is moved into orbit it could then be used to construct a relatively inexpensive permanent space platform, he said.

This platform could be used for a variety of scientific endeavors, Garriott said.

The symposium was jointly sponsored by NASA and the OU Engineering Department.

The overlying theme of the sym-

posium was to encourage students to continue studying math and science in high school and to consider a career in the different and varied fields of technology, Thomas said.

"We are trying to show the minority students the benefits to be had by entering fields of medical technology, engineering and physics, and then after graduation from college to find jobs in the aerospace industry," Thomas said.

The symposium stressed that NASA and the related aerospace industries are

now making a move to hire more minorities in all facets of the aerospace industry, Thomas said.

Garriott is a former resident of Oklahoma who attended OU in 1953. Garriott is best known for his participation in the Skylab program as a scientist-astronaut who went into space.

Garriott spent time in the space laboratory, Skylab, where he studied the effects of space flight for an extended time on the physiological and psychological health of the astronauts.

Friday, March 18, 1977

63rd Year, No. 128

Norman OK 73019

A P P E N D I X D

UNIVERSITY OF OKLAHOMA
Forum Building
Oklahoma Center for Continuing Education
March 17 - 18, 1977

"OU - NASA Aeronautics and Space Symposium"

Please rate each of the following presentations given. You may do so by placing the numbers 1,2,3, or 4 before each topic.

- 1 Valuable information
- 2 Somewhat valuable information
- 3 Not valuable information
- 4 Should be deleted from program

Rating of Program

- _____ 1. Panel: "Careers for Tomorrow - Motivation and Experiences in Preparing for a Career in Technology"
- _____ 2. Exhibit Viewing
- _____ 3. Panel Discussion: "Career Outlook in Engineering, Science and Technology Through 1985"
- _____ 4. Film: "A Better Life"
- _____ 5. Keynote Speaker: Dr. Owen Garriott, "An Overview of NASA and Future Implications for Careers in Science and Engineering - Are The Prospects Good?"
- _____ 6. Counselor and Teacher Forum

Rate by checking YES or NO

YES

NO

- _____ 1. If not in college already, do you plan to attend college?
- _____ 2. Do you think the conference will help you in making a career decision?
- _____ 3. If another activity such as this were to be held in the future, would you recommend that people attend it?

Make any comments or suggestions that you feel would help to make this type of symposium more in line with the needs of people in your category.

Please place a check after the category that describes your position.

- A. Teacher _____ Principal _____ Counselor _____
University _____ High School _____ Junior High _____ Grade School _____
- B. Student _____
University _____ High School _____ Junior High _____ Grade School _____
- C. Other (Please Specify) _____

COMMENTS:

(Use back of form if needed)

HIGH SCHOOL STUDENTS

Rating of Program

1	2	3	4
51	47	9	4
49	47	11	6
42	43	12	13
19	38	20	23
52	35	10	7

1. 87 checked YES, 15 checked NO to the question, "If not in college already, do you plan to attend college?"
- 2.
- 3.
- 4.
- 5.
6. 63 checked YES, 44 checked No to the question, "Do you think the conference will help you make a career decision?"

93 checked YES, 14 checked NO to the question, "If another activity such as this were to be held in the future, would you recommend that people attend?"

JUNIOR HIGH SCHOOL STUDENTS

Rating of Program

1	2	3	4
20	31	7	3
28	23	6	2
21	24	10	4
15	15	11	8
23	26	4	4

1. 61 checked YES, 4 checked NO to the question, "If not in college already, do you plan to attend college?"
- 2.
- 3.
- 4.
- 5.
6. 44 checked YES, 20 checked NO to the question, "Do you think the conference will help you make a career decision?"

58 checked YES, 7 checked NO to the question, "If another activity such as this were to be held in the future, would you recommend that people attend it?"

TEACHERS-COUNSELORS

Rating of Program

1	2	3	4	
4	3	0	0	1. 4 checked YES, 0 checked NO to
2	6	0	0	2. the question, "If another activity
4	3	1	0	3. such as this were to be held in the
2	3	1	0	4. future, would you recommend that
5	2	0	0	5. people attend?"
2	2	1	0	6.

Comments taken from student evaluation forms.

It was good.

It needs to be so people could understand it. it was a nice program and I enjoyed it.

I think that the trip was a good experience to me and I would reccomend it to others.

Needed more films and more demonstrations.

Excellent programs and exhibits.

I thought this was a really informative seminar for those interested in a aeronautical or space related career. I personally thought that the exhibits and discussions were very educational to those pursuing a space career and even to those who aren't.

I think you would have had more interest if you would have had space ships to have tours through and explain about the ships.

I thought that overall it was boring and there wasn't enough about science. I enjoyed Dr. Garriott's talk and I feel there should have been more of that type of thing.

I would have enjoyed it more if it had been about science. I'm sick of hearing Indians begging for more welfare checks. It was a bore.

Didn't go into enough detail about jobs for women. Too much discussion of Indians.

It was alright but it needs more interesting things. Some of the speakers spoke about the same thing over and over again.

It was surprizing of the information it gave me.

The program was very good. My opinion would be everyone should go to programs like this one.

The program was educational but boring.

The symposium was supposedly about NASA, not about the need of underprivileged people at NASA. I would enjoy working on the space program if I was wanted. But I took it that you didn't want white people. I would have enjoyed alot better if you would gave talks and explained more about the ships themselves. The keynote speaker was the best.

This was supposed to be a "aeronautics and space symposium" but it had very little to do with that. All most of the speakers talked about was how poor and underprivileged they used to be.

You left the impression that all the jobs at NASA were for Indians, whether they were educated or not. White people need not apply.

Very well organized. Film could have been better. Food excellent.

More displays and models.

The symposium was a valuable outlook into the future. I think that if these should be more symposiums I will attend and tell everyone to attend. Because there is no other way to get a sneak preview of what the future may hold and may hold for you. The symposium was a valuable asset in looking into my future. I think I should like to congratulate everyone responsible for the organization of the symposium. The speakers gave very exquisite talks; and had much information they aquired the attention of the audience.

The preceding comments are representative of those made on the symposium evaluation form.

Comments from a number of the students both male and female, minority and non-minority indicate a disappointment in the fact that more time was not devoted to discussion of the scientific aspects of NASA rather than about the efforts to increase the number of minorities in the technical work force.

These comments support the recommendation made in the evaluation section of this report to spend more time exciting the students with discussions on the wonders of science. Those students selected to attend are most likely to be interested in science and this type of activity should be used to reinforce that interest.

Comments taken from teacher evaluation forms.

It was a useful and educational symposium. Needed better coordination of efforts in film presentation. Our students enjoyed and profitted by attending.

Sponsors need to know emphatically that this program is geared for Indian Students. The accomplishments of successful Indian technologists is important, but more time could have been devoted to "careers" - not Indian careers. If it is discriminating to exclude non-Indians from the invitation, they should not be discriminated against at the meeting.

The scheduled time conflicted with our minority students from Jones Academy Indian School. I would like each of them to have the opportunity to attend.

NASA PARTICIPANTS

Evaluation

I. Please answer yes or no to the following:

Yes	No	
<u>3</u>	<u>0</u>	1. Was the event in your opinion properly coordinated?
<u>3</u>	<u>0</u>	2. Do you think the Symposium had a great impact on the students?
<u>3</u>	<u>0</u>	3. Do you think the students were motivated toward the science and engineering tracts as a result of attending the Symposium?
<u>3</u>	<u>0</u>	4. Do you think the Symposium was a success?

Participants were asked to comment on the following:

1. Were the objectives of stimulating the interest of minorities and women in NASA and the space industry accomplished, and how could they have been better accomplished?

More women in science on the program including teachers in the area.

There were positive indications that some students may have been stimulated to move into the areas we discussed, but I think there should be some type of follow-through program perhaps on a continuing basis.

Yes (See question 2)

2. How would you improve future meetings of this nature?

More science and engineering speakers i.e. those with this type background.

Improve the facilities sound system.

Allow time for small group sessions with role models.

Increase publicity announcements of the meeting/activities to the public.

Some type of working exhibits could be added. Perhaps one with which the students could interact. A computer simulation of a lunar or Martian landing, a spacecraft rendezvous, a space shuttle mission, or a computer quiz are a few examples. These electronic games are readily available for mini-computers equipped with cathode-ray-tube terminals. The game(s) could be selected to provide examples of a stimulating learning experience. The students can take turns at the controls solv-

ing the problems presented, and be left with the impression that science is fun and that the satisfaction of successfully meeting a challenge is well worth the effort expended.

3. Were displays and exhibits adequate, and are there ways in which this area could have been improved?

Increase the number of exhibits.

Have role models present at the displays to give information and answer questions.

Comment: Excellent help noticed by Indian youth group.

APPENDIX E

Peter H. Chen

Mr. Chen joined NASA in June 1975 to become the Deputy Assistant Administrator for Equal Opportunity Programs. He is responsible to the Assistant Administrator for supervising the effective development and monitoring of a national agency-wide Civil Rights Program, including Affirmative Action, Contract Compliance, Community Relations, Minority Business, Public Affairs, Special Projects, Data Systems and Reports and Complaints Processing.

Mr. Chen was formerly employed by the Brookhaven National Laboratory at Upton, Long Island, New York, where he served as Assistant and principal advisor to the Director of the Laboratory for Affirmative Action and Equal Employment Programs from March 1971 to May 1975.

Prior to joining the Brookhaven National Laboratory, Mr. Chen was employed by the Equal Employment Opportunity Commission as Deputy of the Washington, D.C. area office and later was reassigned as a Senior Technical Assistance Officer at Headquarters.

Mr. Chen has held several other positions within the Federal personnel management structure; including Salary and Wage Analyst with the U.S. Army and Bureau of Prisons; as well as extended service with the Navy in the Canal Zone, Panama, between 1960-67. In the Canal Zone, he served as Position Classification and Job Analyst for the U.S. Caribbean Command and still later was appointed Acting Director of Civilian Personnel for the 15th Naval District. While in the Canal Zone, Mr. Chen was honored as the "U.S. Citizen of the Year" in 1961.

He received his Bachelor of Science degree from Howard University, Washington, D.C. in 1952 and did post graduate work at the American University in Washington.

Jerry C. Elliott

Jerry C. Elliott is an Aerospace Engineer at Johnson Space Center, Houston, Texas. He was born in Oklahoma City, Oklahoma, an Osage Indian; and a graduate of the University of Oklahoma.

Mr. Elliott joined NASA in 1966. He is assigned to the Space Shuttle Level II Programs Office of Johnson. He has engineering responsibility for crew-related Government furnished equipment and multi-use mission support equipment. In 1974 and 1975, he worked at NASA Headquarters as a program engineer in the Apollo-Soyuz Test Project.

Mr. Elliott also served as a flight controller on Gemini, Apollo and Skylab missions. He is the author of a technical paper entitled "Dictionary of Computer Terms."

Michael Garcia

Michael Garcia is an Education Representative of the Jet Propulsion Laboratory. In this capacity he serves as a liaison between the Laboratory and the educational community at large. He has worked at JPL since July, 1973. Initially, he was employed as an academic part-time student worker, while completing his undergraduate degree. Upon completion of his Bachelor's degree in Industrial Arts in the Spring of 1976, he was employed in a full time capacity as a representative of the Educational Services Section of the Public Affairs Office. He is continuing his graduate work at California State University, Los Angeles working on a secondary education credential. He was born in Montebello in Southern California, and is single.

Gilbert B. Chapman II

Gilbert Chapman, Jr. is a Materials Engineer at NASA-Lewis Research Center in Cleveland, Ohio. He received a B.S. degree in mathematics from Baldwin-Wallace College and obtained a M.S. degree in Physics from Cleveland State University. While at Lewis he has worked in several areas. Beginning as a Propulsion Test Technician helping to do research on supersonic flight propulsion systems and high energy fuels. Later, he worked as a Physical Science Technician involved in materials characterization, using atomic emission spectroscopy to perform spectrochemical analysis. Now as a Materials Engineer, he continues working in the area of applied spectroscopy, doing research to develop improved methods of analysis. He is secretary of the Society of Applied Spectroscopy - Cleveland Section, and is a member of the National Technical Association, the National Physics Honor Society (Sigma Pi Sigma), and the American Chemical Society.

Alfred Clinkscales

Alfred Clinkscales was born in Abington, Pennsylvania and attended public schools there. He attended Morgan State College and Howard University Graduate School in 1960.

He worked for the Department of Transportation/Federal Highway Administration from 1968 through 1976 in the Staffing and Recruiting area.

He is presently Manager of the Equal Opportunity Professional Recruiting Office with the National Aeronautics and Space Administration since March 15, 1976.

He has had a distinguished career in all phases of Government Personnel Activities.

Shirley A. Whitfield

Shirley A. Whitfield is an Equal Opportunity Specialist in the Office of Equal Opportunity Programs at NASA Headquarters. She is a native of Washington, D.C. and attended D.C. Teachers College and George Washington University there.

Her present position entails assisting in the coordination of the EEO Contract Compliance Program and the EO Community Relations Program. She is responsible for maintaining surveillance of certain NASA installations to assure that designated affirmative actions and effective non-discriminatory employment programs are consistently implemented.

Ms. Whitfield also implements and serves as monitor of programs and projects conducted under contract to improve NASA/minority community relations.

Alfonso J. Ludi

Alfonso J. Ludi is the Agency-wide Coordinator for Spanish Speaking Programs in the Office of Equal Opportunity Programs at NASA. He has a B.A. degree in Economics and Political Science from New Mexico Highlands University and is a native of New Mexico. He has eleven years of personnel administration experience with the U.S. Bureau of Reclamation, the U.S. Federal Highway Administration, and the Office of the Secretary of Transportation's Personnel Policies Division. For the past three years, Mr. Ludi has been actively participating in NASA efforts to increase minority participation in engineering and higher education and has recently been designated as NASA's Point of Contact on Equal Opportunity Programs for the American Indian.

John Kaskaske

John Kaskaske is a Mathematician at Goddard Space Flight Center. He was born in Harrah, Oklahoma, a Kickapoo and Potawatomi Indian. He received a B.S. degree in mathematics and physics from Central State College, Edmond, Oklahoma. He has worked for the Analytical Logging Corporation of Oklahoma City and Aeronautical Chart and Information Center, St. Louis, Missouri.

At Goddard, he has been involved in orbit determination activities of unmanned spacecraft, such as Orbiting Astronomical Observatory (OAO), Interplanetary Monitoring Platforms (IMPS). His current assignment as orbital computations engineer involves planning orbital computation support of the International Sun, Earth Explorer (SEE) program.