

STAFF NOTES

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

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4 June 1976

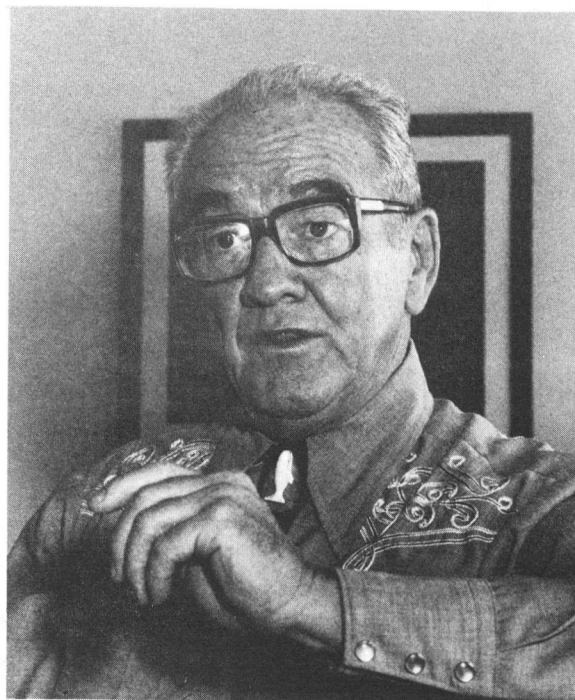
WALTER ORR ROBERTS MOVES OFFICES, DISCUSSES PLANS

The four oversized briefcases lined up by his desk only hint at the scope of the work of Walter Orr Roberts, past director of NCAR and president of UCAR. "And that's not even all of them," he laughs, pointing at the cases. "I've got two more at home."

This week Walt and his staff are moving downtown to the eighth floor of the Colorado Building from their offices in the Fleischmann Building and the Gamov Tower at the University of Colorado (CU). Walt's principal job at present is the directorship of the Program in Science, Technology and Humanism (S/T/H) of the Aspen Institute for Humanistic Studies, a position that he has held since January 1975. Walt's staff comprises Mary Wolff, associate program director; Roger Olson, research assistant; Nancy Mikesell, assistant for special projects; Jean Jamison, assistant to Walt; Gene Martin, secretary; and Gwen Gertzman, secretary. All of them work for the Aspen Institute, except for Roger, who works for CU. The phone number at the new office is 443-1230, and the address is 1919 14th Street, no. 811, Boulder, CO 80302. For the summer, Walt and Jean will maintain an office in Aspen.

The central focus of Aspen's S/T/H program, Walt explains, is to find ways in which humanity can produce and distribute enough food for the world's population as it grows exponentially over the next 30 years. From 1976 until 1980, the impact of climate catastrophes on food production will be evaluated, and ways in which the resulting human suffering might be lessened in the future will be explored. As they examine these complex problems, the S/T/H staff will be looking for new ways to focus the collective efforts of leaders of public action, people from the humanities, and members of the scientific, engineering, and business communities on policy alternatives--choices involving the humanistic use of scientific and technological knowledge to improve the quality of life for the world's people.

Much of the program's activity in the area of food and climate is carried on in cooperation with the International Federation of Institutes for Advanced Study (IFIAS), for which Walt is trustee and program chairman. The Aspen Institute and NCAR are members of IFIAS, a four-year-old organization that conducts transdisciplinary projects and presents policy alternatives to decision makers about world problems and their social, political, economic, and ethical implications. Walt directs



Walter Orr Roberts

an IFIAS project entitled "The Impact of Climate Change on Man," in which the Aspen Institute is a major partner. Activities of S/T/H now under way with IFIAS or separately include (1) *The Social, Moral, Legal, and Political Impacts of a Reliable and Credible Long-Range Climate Prediction System*, a study that will be completed this year by Michael Glantz; (2) *The 1972 Case: Drought and Man*, a study being conducted by Rolando Garcia in Geneva, Switzerland; (3) *Soil Resources of the Earth, Their Utilization and Preservation*, a conference funded by the United Nations Environment Programme, to be held in Samarkand, USSR, this month, with Walt and Victor Kovda of the USSR Institute of Soil Sciences and Agronomy as cochairmen of the meeting; and (4) *The UN Conference on Desertification*, to be held in 1977. Walt is serving as senior advisor to Mostapha Tolba, director of the UN Environment Programme, who is planning the conference.

(continued)

This week in *Staff Notes*. . .

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Another S/T/H project is the formation of a food and climate fund to be supported by a number of major U.S. corporations with interests in food and energy. The program will focus on the social, economic, political, and ethical implications of climate-food interactions and will be organized around specific policy issues and choices. Each year a systematic world survey will be conducted to identify one important food/climate problem for study. The following year, an independent study of that issue will be commissioned, leading to recommendations and assessments of the consequences of various alternative policy actions. In the third year, the program staff will try to get the findings into the public arena. Each participating company will be represented on a sponsors' advisory council, which will interact with the commissioned study authors, the program staff, and selected consultants, and which will help maintain a two-way information flow between the project and the sponsoring companies.

In addition to his Aspen Institute responsibilities, Walt is also an NCAR research associate, a trustee of the Fleischmann Foundation, and a professor of astro-geophysics at CU, where he maintains an office for meeting students. He is currently working with two graduate students. Walt

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Editor: Lynne Mesirov

Writers: Merry Maisel, Lynne Mesirov

Production Assistants: Janis Romancik, Peggy Wrenn

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is continuing his lifelong research, with Roger Olson, on the effect of variable solar activity on weather and climate. "There was a sudden break in the High Plains drought in March, but we don't understand why," Walt explains. "Roger and I are interested in pursuing the clue to this change, because on March 23 there was a huge outbreak of solar activity. We're pursuing the possibility of organizing a mini-International Geophysical Year to look intensively at the records of the sun and the weather from six weeks before this event to six weeks after." He adds, "Even though there were heavy rains, we're not sure that the drought pattern has ended. We'll only know that later, in looking back."

Being a director, scholar, adviser, internationalist, and organizer takes a lot of time and energy. To get an idea of just what Walt's schedule is like, *Staff Notes* asked him to describe his activities over the previous three weeks. His story went like this: On Monday, 3 May, he flew to Washington, D.C., to lecture at NASA headquarters on solar activity and the weather, and to visit, investigate, and authorize a grant for the Institute for Congress, on behalf of the Fleischmann Foundation. London was his next stop, to attend the presentation of the Marconi International Fellowship to Hiroshi Inose for his work in applying electronic techniques for traffic control and communications. The presentation, made by the Duke of Edinburgh, was held at the Royal Society of the Arts. Walt then returned to Boulder for one day. At lunchtime, he lectured on sunspots and drought to officials of the cities where the "Big Eight" universities are located. Next, he flew to San Francisco to address a meeting of the Eisenhower Exchange Fellows, to participate in a symposium on world food problems, and to consult with W. H. Freeman and Company, which is publishing the book that he is writing with Henry Lansford. The next stop was Reno, Nevada, for a two-day meeting of the Fleischmann Foundation, at which 100 grant applications were considered. Walt presented a report on his investigation of about 15 of the proposals. He then came to Boulder for a day, before leaving for New York City. In New York, he visited eight corporation executives to try to raise money for the Aspen Institute food and climate fund and attended a Carnegie Hall benefit concert and party. He also visited the Brooklyn Polytechnic Institute, which is applying for a Fleischmann Foundation grant to rejuvenate an old firehouse and convert it to a modern research center. Walt then went to Washington, D.C., to testify on "Living with Climate Change" before the Subcommittee on the Atmosphere of the House Committee on Science and Technology. He also consulted with Midar Corporation, of which he is a trustee, before returning to Boulder on 21 May. "Next month is even crazier," Walt says. His itinerary includes Reno, Aspen, the USSR, and Stockholm.

Despite the many disturbing aspects of our modern world, Walt remains an optimist. "I really feel that in spite of the growing complexity of life we can solve the serious political and institutional problems, avoid war, and feed the world." • LM

SOCIAL SECURITY SURVEYS DUE, MORE QUESTIONS ANSWERED

Contracts Officer David Waltman reminds us that the Social Security surveys that were distributed to all staff members are due back to him by Tuesday, 8 June, 1976. The Atmospheric Technology Division Staff Advisory Committee submitted six questions to Dave; these are answered below. Should you have any further questions, call Dave (ext. 77-769).

Q. We would like to see your chart of hypothetical cases comparing retirement benefits expanded to include the following:

First, new entries analyzing the *joint* benefits for married couples when:

- Both individuals work and earn comparable salaries.
- Both individuals work, but the wife earns half of what the husband earns.
- Only one of the individuals works.

Second, additional entries for some higher income groups (e.g., individuals with salaries of \$16,000 to \$18,000 at age 30). It is difficult to extrapolate from only two points.

A. Instead of expanding the chart with more parameters and assumptions, it is probably simpler and clearer to comment on what impact the above circumstances would have on Social Security costs and benefits.

First, the critical factor affecting a couple's benefit situation is the Social Security provision which entitles a couple to 50% higher benefits than a single person; the additional 50% is for the dependent spouse. Social Security (unlike private pension plans) can provide a much higher benefit-to-cost ratio for a couple than for a single person. This is because the additional 50% benefit is not contingent on a dependent spouse's previous contributions to Social Security; it is awarded simply because the dependent is married to a person entitled to Social Security benefits.

The extent of this advantage for couples over single persons depends upon the couple's employment situation. The highest ratio occurs when the dependent spouse never contributed to Social Security at all; in this case the ratio for the dependent spouse approaches infinity. On the other hand, if the spouse is entitled to benefits based on his/her own earnings and participation in Social Security, the benefit-to-cost ratio may decrease. If the spouse is personally entitled to benefits amounting to more than 50% of his/her partner's benefits, then the benefit-to-cost advantage of being married no longer exists. In this case the couple's benefit-to-cost ratio is the same as if each were a single person.

Second, expansion of the table to include higher incomes could not be accomplished in time for this publication. Unfortunately, TIAA does not currently have tables for the higher incomes, and there hasn't been time to develop such a table.

However, some comments about this subject may prove useful. Social Security's ceiling on payroll deductions affects both contributions and benefits for higher income people. The Social Security wage base is currently \$15,300. Only 5.85% of one's salary (up to the wage base amount) is withheld for Social Security. This means whether you earn \$15,300 or \$30,000 per year, you will still have only \$895 withheld this year for Social Security. It is also important to remember that the benefits for higher income workers are no higher than for ones who earn the wage base amount. That is, the person who retires this year with average annual earnings of \$30,000 will receive no higher benefit than the person averaging \$15,300. Also, the benefit-to-cost ratio for higher income people is less favorable than for lower income people. For example, a person averaging \$1,000/mo would receive a retirement check of \$485/mo (48.5% of average earnings) while a person averaging \$500/mo would receive \$323/mo (64.6% of average earnings).

Q. It has been pointed out that if a person makes \$12,000 per year and places 7% of his/her annual salary in the credit union at 6% interest, and if this person is 30 years old when he/she begins doing this, and if we disregard any considerations for inflation, then upon retirement at age 65 this individual would have over \$100,000 in the credit union. Thus, such a person would make over \$6,000 per year from the interest on this amount, and this represents more than 50% of his/her annual salary. From your chart, we see that with the present TIAA commitment this individual will be making 56.6% of his/her salary from TIAA. So, in total, this individual would be making more than 106% of his/her salary at retirement and have more than \$100,000 in the bank in addition! Why does this conservative calculation yield figures so superior to those presented in your chart, where it appears that such an individual, even if married, would be making less than 100% of his/her salary--with nothing in the bank? Also, if this individual is single, and if NCAR continues to participate in Social Security, then he/she will get only 87.1% of his/her salary at retirement, again with nothing in the bank.

A. This is a problem of comparing "apples to oranges." To compare credit union savings to the figures in the tables distributed to the staff, we should make the same assumptions and compare the same things. The relevant assumptions used in the chart are listed on page 39 of the detailed information package and include, among others, a 7% annual salary increase. The percentage figures in the chart show beginning retirement income as a percentage of final five-year average salary. Applying the same assumptions to the credit union case in your question, we can calculate that if you put 7% of your salary (beginning at \$12,000 per year at age 30) into the credit union at 6% interest, you would have \$291,904 in your account at the age of 65. If you

didn't want to touch the \$291,904, you could draw out \$17,514 per year (6%) which would be 15.6% of your final five-year annual salary of \$112,417. Or you could buy an annuity for life with your \$291,904 which would provide you with \$28,368 per year, which is 25.2% of the final five-year average salary.

Q. Could you discuss in more detail what criteria must be met in order to qualify for Social Security's disability payments, and how it differs from criteria employed by typical private insurance companies.

A. In order to qualify for Social Security disability payments you must have a physical or mental condition which:

1. prevents you from doing any substantial gainful work, and
2. is expected to last (or has lasted) for at least 12 months, or is expected to result in death.

In order to qualify under typical private insurance coverage, you would have to meet criteria such as the following:

1. For the first two years of a disability, you will be eligible to receive benefits if you are wholly and continuously disabled and prevented from performing each and every duty of your occupation and are under the regular care of a physician.

2. After two years of payments, you will be eligible if you are wholly and continuously disabled and are under the regular care of a physician, and are prevented from engaging in any occupation for which you are qualified or could reasonably qualify.

Q. Would you comment on other options for the use of the 7% of annual salary which you have considered as TIAA allotment (e.g., more money in our paychecks, organizing our own retirement plan, etc.).

A. The principal options considered were:

1. *TIAA/CREF*. The majority of the staff who responded to a previous survey indicated they unconditionally desire to stay with TIAA/CREF.

2. *Commercial Money Purchase Plan*. This somewhat defined contributions-plan was recommended by various insurance brokers and agents. Unlike TIAA or Social Security, it offers the option for the individual to receive either a lump sum of his/her cash or annuity income. Some discussion and tables on this subject are in the detailed information package on pages 35 and 36, 45 and 46.

3. *Increased take-home pay*. This option was included in the survey since many of the staff expressed the opinion that in their cases too much of their pay was going into a retirement program which appears to provide higher benefits than they feel it should.

4. *Organizing own retirement plan*. This option was not explored in depth. If UCAR elects to

drop out of Social Security, this and other options may be explored. The above options were intended to be representative of what the staff prefers and what is recommended by the insurance industry.

Q. In a recent *Time* magazine article it was reported that an increasing number of organizations who can opt out of Social Security are in fact doing so. Is this true? If so, why is it true?

A. This is true. There are no data available to my knowledge to objectively explain why. Some of the most common contributing factors seem to be:

1. More widespread knowledge that tax-exempt organizations have the option to drop out.
2. The fact that the Social Security tax rate and wage base (as well as benefits) have risen substantially in recent years, and the fear that the trend will continue.
3. Philosophical disagreement with the system.
4. Apprehension about the future of Social Security.
5. Desire for and expectation of a better financial situation, either because of belief that alternatives to Social Security are a better buy, or because of desire for higher take-home pay.

Q. If a person works after retirement age, what effect would this have on his/her Social Security payments?

A. Pages 8 and 9 of the March 1976 detailed information package (especially the table on p. 9) cover this clearly. •

NHRE TOW PLANE MAKES EMERGENCY LANDING

The tow plane leased during the field season by the National Hail Research Experiment (NHRE) from David Younkin of Ft. Collins made an emergency landing on Tuesday, 1 June. The pilot, Donald Hill, who is an employee of Younkin, was unharmed, but the aircraft was seriously damaged. The plane, a Cessna 180 single-engine light aircraft, had taken off from the NCAR Research Aviation Facility at Jefferson County Airport, towing the NHRE sailplane and NHRE pilot Vim Toutenhoofd for a test flight. At an altitude of 4,250 m (14,000 ft), Don radioed Vim to say that he was running low on fuel. Vim, having reached sufficient altitude for landing safely at Jeffco, asked to be cut loose and landed shortly thereafter. Don made an emergency landing in a cow pasture one mile southwest of Louisville.

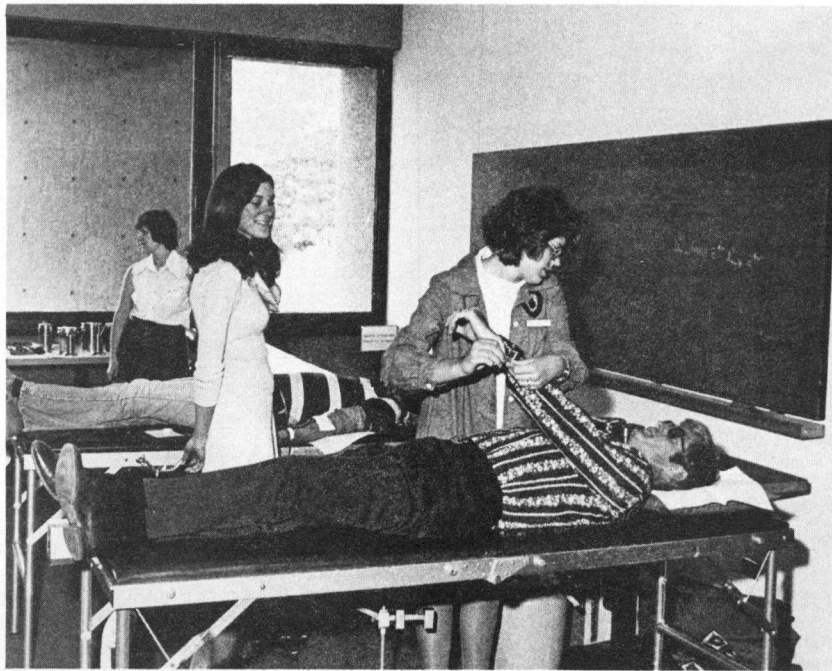
The NHRE field season began officially on 1 June, and flights have been resumed, since Tuesday, according to Peter Johnson, NHRE scientist in charge of sailplane operations. •

76 PINTS DONATED TO BLOOD BANK

NCAR employees and their families donated 76 pints of blood to the Belle Bonfils Memorial Blood Bank on Wednesday, 26 May. The Employee Activities Committee extends sincere thanks to everyone who offered to give blood and to those who served as assistant nurses, escorts, and registrars.

The blood donated by NCAR employees and their families goes into an NCAR blood bank. NCAR staff and their immediate families (including spouses,

parents, children, parents-in-law, and possibly other relatives) can obtain blood in almost any hospital in the United States for one full year before the blood in the "account" is released to the general public. Donors are asked to give twice a year so that we can continue to replenish the supply. Even if you did not donate blood, you and your family are eligible to use the NCAR bank. To arrange for the use of NCAR blood credits or to obtain further information call Vonda Giesey (ext. 222). •



Kathy Burton, a Belle Bonfils nurse, prepares to take blood from staff member David Robertson. Staffers Eileen Howe (foreground) and Barbi Kirwin (background) served as assistant nurses. (Photo by Robert Bumpas.)

* * *

PROJECT AIRSTREAM PLANE IS AVAILABLE

The WB-57F aircraft operated by NASA's Johnson Space Center for the Energy Research and Development Administration (ERDA) Project Airstream is available for use by researchers. Until recently, the aircraft had been grounded because of a wing corrosion problem; it has now been repaired.

Thomas Gross of ERDA says that ERDA plans to use the WB-57F to conduct Project Airstream profiles (flights from 75°N to 10°S latitude at four alti-

tudes up to 19 km) in July and October 1976 and in April 1977. Payload space is available during Airstream cycles, and the WB-57F is available for dedicated flights at other times.

If you are interested in using the aircraft, write to Bernard Nolan, Code ERA, NASA Headquarters, Washington, D.C. 20546, or call him at 202-755-8626, to obtain cost estimates and to arrange scheduling. •

MARY TREMBOUR IS NEW MAGNETIC TAPE LIBRARIAN



Mary Trembour keeps track of the Computing Facility's 30,000 tapes. (Photo by Robert Bumpas.)

The Computing Facility acquired its first magnetic tape librarian seven weeks ago. Her name is Mary Trembour, and she is presently located in the keypunch room (room 17); her phone extension is 533. Mary is the person to see about signing out tapes or about unusual problems with tapes.

Since she joined NCAR, Mary has revised the tape assign cards, which now request more information on the users. Another change is that requests to certify or clean tapes now must be submitted in writing. "We hope that these changes will help us maintain better records and thus provide better services," she explains.

Before coming to NCAR, Mary worked in the University of Colorado reference library and ran the library in an international school in Cali, Colombia. She has an M.A. degree in library science from Denver University. •

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NCAR NIGHT AT ELITCH'S PLANNED

Make plans now to attend one of NCAR's most popular extracurricular events: NCAR night at Elitch Gardens, on Wednesday, 23 June, from 5:00 to 11:00 p.m. Located at 4620 W. 38th Avenue in Denver, Elitch's is a large amusement park with a great variety of rides and other attractions. Our Employee Activities Committee (EAC) has rented the Rainbow Pavilion for the evening and will provide free beer and soft drinks until the supply runs out. NCAR staff members and visitors, and their families, are invited. Many leave directly from work and eat a picnic supper in the pavilion.

Coupons for free entry to the park (and the free beverages) may be obtained from any of the following EAC representatives:

Mesa Lab: John Donnelly, ext. 529; Nadine Perkey, ext. 237.

High Altitude Observatory: Barbi Kirwin, ext. 381.

PSRB-3: Alice Hayne, ext. 77-649.

Jeffco: Ann Robinson, ext. 78-51.

Staff members from the Marshall field site may call John Donnelly to obtain coupons.

Please request only the number of tickets that you expect to use. There have been shortages in past years, and many ticket holders have failed to use their tickets.

There is a large parking area on the west side of the amusement park. Show your tickets at the main gate on the east end of the lot. Just inside the main gate and to the left are ticket windows where unlimited ride coupons may be purchased for \$4.00. The EAC is hoping for good weather and a big turnout. •

ANNOUNCEMENTS

SWITCHBOARD OPERATORS TO RUN COMPUTING FACILITY PAGING SERVICE

Beginning on Wednesday, 9 June, the Computing Facility paging service will be run by the Mesa Lab switchboard operators instead of the Mesa Lab receptionist. Persons from within NCAR will dial "0" for paging requests (instead of ext. 534 or 566), and persons calling from outside of NCAR will be able to make paging requests directly to the operators (who answer all incoming calls to NCAR). The operators will page the appropriate people to one of the paging telephones, which are located near the Computing Facility carrels and outside of the computer room.

SKI CLUB REPORTS ELECTION RESULTS

On 27 May, the NCAR ski club elected the following officers and board members for the 1976-1977 ski season:

President: Charles Semmer
 Vice-president: Amber McEwen
 Secretary: Bev Chavez
 Treasurer: Shirley Gutierrez
 Board members: Barbara Horner (2-year term)
 Bonnie Gacnik (2-year term)
 Bill Bergen (1-year term)
 Linda Thiel (1-year term, continued from this past year)

NEW STAFF MEMBERS

Sharyn L. Baker: Security Guard with Administration.
 John E. Bolcom: Student visitor with ASP.

John P. Boyd: Scientific visitor with ASP. ML room 515, ext. 413.

Frank Calise: Mesonet Operator with NHRE in Kimball, Nebraska.

Gayle DeAngelis: Key punch operator with NHRE. ML room 290, ext. 244.

Jerri Donahue: Hail chaser with NHRE in Grover, Colorado.

Paul M. Elliott: Scientific visitor with ASP. ML room 385, ext. 257.

Kathy Kimmel: Hail chaser with NHRE in Grover, Colorado.

Linda Koshio: Student assistant with ATD. ML room 120B, ext. 616.

Ruth L. Legg: Precipitation data handler with NHRE in Grover, Colorado.

Louise S. Morrison: Scientific visitor with ASP. ML room 520G, ext. 424.

Pamela L. Stephens: Student visitor with ASP. ML Library carrel 4, ext. 402.

Roland A. Sweet: Scientific visitor with ATD. ML room 120, ext. 337.

Patricia A. Wallace: Mesonet operator with NHRE in Grover, Colorado.

DEPARTURES

Richard A. Fatur	26 May
Jane L. Greenup	21 May
Guenther Polok	20 May
Scott D. Wilson	11 June

VISITORS

LONG-TERM

Tzvi Gal-Chen, University of Toronto. 1 June-31 August. ML room 419, ext. 456.

--Richard Somerville, Numerical Weather Prediction Project

Karen Kendrick, Prairie View A&M University. Field of interest: Computer science. 2 June-August. ML room 15-16, ext. 534 or 566.

--Jeanne Adams, Computing Facility

Arleen Kimble, Prairie View A&M University. Field of interest: Computer science. ML room 15-16, ext. 534 or 566. 2 June-August.

--Jeanne Adams, Computing Facility

Campanella Tones, Prairie View A&M University. Field of interest: Computer science. 2 June-August. ML room 15-16, ext. 534 or 566.

--Jeanne Adams, Computing Facility

The following persons are visiting Maurice Blackmon and the Advanced Study Program:

Gregory Battle, Morehouse College, Atlanta, Ga. 24 May-23 August. ML room 426, ext. 316.

Clayton Bell, Morehouse College. 24 May-23 August. ML room 198, ext. 246.

Lee Branscome, Massachusetts Institute of Technology. Field of interest: Numerical weather prediction. 1 June-31 August. Library carrel 2, ext. 402.

Bruce Johnson, Talladega College, Talladega, Ala. 24 May-23 August. ML room 174A, ext. 643.

Diane McAlpine, Clark College, Atlanta, Ga. 24 May-23 August. ML room 214, ext. 502.

Jeanette Wright, Spelman College, Atlanta, Ga. 24 May-23 August. ML room 402, ext. 671.

SHORT-TERM

William Blass, University of Tennessee. Field of interest: High-resolution spectroscopy. 1 June. --John Gille

Clyde Christopher, Prairie View A&M University. Field of interest: Computer science. 2 June-4 June. ML room 15-16, ext. 534 or 566.

--Jeanne Adams, Computing Facility

Gene Golub, Stanford University. Field of interest: Numerical linear algebra. 1 June.

--Paul Swartztrauber

Arnold Gordon, Lamont-Doherty Geological Observatory of Columbia University. Field of interest: Physical oceanography. 27 May-4 June. ML room 402A, ext. 670.

--Roy Jenne, Harry van Loon

(continued)

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T. F. W. Harris, University of Capetown, South Africa. Field of interest: Oceanography. 21 May.
--Harry van Loon, Empirical Studies Project

Paul Katen, Colorado State University. Field of interest: Micrometeorology. 27 May.
--Donald Lenschow

Luigi Massimo, European Communities. Field of interest: Ozone, upper stratospheric research. 26 May.
--Stanley Ruttenberg

Chung G. Park, Stanford University. Field of interest: Electric field mapping in the atmosphere. 9-18 June. Computing carrels.
--Computing Facility

Drew Vastano, Texas A&M University. Field of interest: Interaction between Gulf Stream and Atlantic II Seamount. 24 May-8 June. Computing carrels.
--Computing Facility

Ned Wogman, Battelle, Richland, Washington. Field of interest: Atmospheric chemistry. 27 May.
--Jan Rosinski

* * *

ARE YOU IN THIS PHOTO?



If you're in this picture, you were too close to the Mesa Laboratory building during the emergency drill conducted last week. Had it been an actual emergency, you might have found yourself in the path of a clanging fire engine. The plan for the evacuation of the building (UCAR Manual section 4-5-3) asks us to walk out of the laboratory as quickly as possible, using stairs only (elevators will be required for fire or other emergency equipment), and to move well away from the building, both as an individual safety precaution and as a means of keeping the roads clear. The first two people exiting from any doorway can assist by holding the doors open for others. (Photo by Ginger Wadleigh.)

JOB OPENINGS

As of June 2, 1976

NCAR is an equal opportunity/affirmative action employer.

Women and minority applicants are encouraged to identify themselves.

A copy of our Affirmative Action Program is available for review.

John R. Arnold, Director, Equal Opportunity Programs

Staff members and those on lay-off who wish to be considered for a position should contact the Employment Administrator within two weeks after the job is first posted. If qualified, these persons will be given first consideration; if possible, the position will be filled from this group. After the two-week period, if no current or laid-off employee is selected to fill the position persons from outside NCAR will be considered. Each salary will be determined according to the individual's qualifications. For more information, please contact the Personnel Office (ext. 555 or 569).

REGULAR (Full-time):

BINDERY WORKER: For the Printing and Reproduction Department to assemble printed work into completed form, using bindery equipment: cutter, drill, stitcher, folder, collators (both semi- and automatic), padding and binding. Must be able to handle a high volume of bindery work and organize work efficiently, and must have experience in operation of duplicators and platemakers for occasional substitution work in these activities. Requirements include a minimum of 2 years binding and printing experience plus manual dexterity and mechanical ability to understand operation of power equipment. Non-exempt range 17. Anticipated hire-in salary range: \$650-750/month. This position may be filled at any time.

CHIEF INSTRUMENTATION ENGINEER: For the Research Aviation Facility (RAF) to provide technical leadership and supervise the staff of 12 in the instrumentation section of the RAF. The Chief Engineer is expected to provide the proper balance in the utilization of the resources of the RAF. In order to accomplish this, the Chief Engineer will have to divide time between the following competing uses of the RAF resources: (1) ensuring the day-to-day readiness of the aircraft instrumentation in the field during current programs, (2) assessing the current RAF instrumentation systems and maintenance and calibration procedures and recommending changes to improve the overall research support capability, and (3) planning, promoting and assisting in the development, procurement of new instrumentation to improve and expand the measurement capability of research aircraft. On a day-to-day basis, in addition to supervision of the instrumentation staff, the Chief Engineer will (1) work with project engineers to insure adequate calibration and checkout of aircraft measurement systems to support research projects, (2) formulate commitments to specific projects in conjunction with the Project Support Office, (3) develop

plans and procedures to insure that high quality output is provided users in conjunction with the chief of the Data Management Group, and (4) provide specialized engineering assistance to the atmospheric science community. Minimum requirements include: education at the M.S. degree level or equivalent in engineering or the physical sciences plus 8 years experience in the following areas: designing, developing, calibrating and testing electromechanical instrumentation, especially in the areas of sensors, navigation systems, and digital data acquisition systems, digital signal processing and system integration; management and team leadership experience; broad general understanding of computers, computer programming and digital circuitry; familiarity with theory, operation, maintenance and calibration of inertial navigation systems will be a significant consideration in the selection; familiarity with airborne meteorological sensors and with their use in research highly desirable. Exempt range 61. Anticipated hire-in salary range: \$21,480-26,800/year. This position may be filled at any time. A full job description is available by contacting the Personnel Office.

CLERK: For the Printing and Reproduction Department to receive, schedule and record incoming offset printing jobs; plus normal range of clerical duties including typing, requisitioning, filing, inventory, telephone ordering, etc.; occasional assistance in light, non-skilled tasks in the Printshop such as stapling, collating, etc., and assistance to Xerox machine and scientific and administrative clientele of the Printshop. Requirements include at least 3 months clerical experience, plus 40 WPM typing ability and office skills related to above clerical duties. Non-exempt range 15. Anticipated hire-in salary range: \$535-615/month. This position may be filled after June 1, 1976.

CONSTRUCTION REPRESENTATIVE: To assist the Facilities Planning and Design Group during construction of the Computing Facility addition to the Mesa Laboratory. Duties will include: receive, record, and process shop drawings; evaluate and process contractors requests for payment; prepare drawings and other necessary documents for change order requests; evaluate and process change orders for approval; observe construction for conformance to plans and specifications; receive and expedite contractors requests for technical interpretation of construction plans and specifications; monitor the approved construction schedule; schedule and monitor coordination of construction activity with Mesa Laboratory operations; maintain records and correspondence files to ensure prompt attention in matters relating to delays, extensions of time, payments, shop drawings, materials approval, etc.; maintain daily record of construction activity; prepare weekly progress reports with monthly summary to management. Requirements include a B.S. degree in architectural engineering and not less than 5 years experience in building design and construction under the direction of a licensed architect or engineer. Preference will be given to candidates with experience in the preparation of construction documents and in construction supervision. Professional registration is desirable but not necessary. This position is being offered as a one year term appointment with the possibility of a six month extension, subject to NCAR's construction program. Exempt range 56. Anticipated hire-in salary range: \$13,300-16,500/year. This position may be filled after June 25, 1976.

EMPLOYMENT ASSISTANT: For the Personnel Office, responsible for providing clerical assistance to the Employment Coordinator in the recruitment, screening, referral, and placement of applicants to meet NCAR staffing requirements and affirmative action goals; in addition, the incumbent assists in the processing of employee transfers, promotions, and outplacements. Specific duties include reviewing and classifying applications; answering general and specific telephone inquiries concerning current and future job opportunities; obtaining applicant references; maintaining applicant files and advertising records; types Employment Coordinator's correspondence, and reports; assists in scheduling new employee orientation sessions; arranges for issuance of visas for foreign visitors; maintains supply of employment forms; may interview applicants for clerical, service, and security position; performs other related duties as assigned. Minimum requirements include ability to work with the public and withstand pressure without unpleasant reaction; working knowledge of proper English usage and modern office practices and procedures; typing speed of 40 wpm; ability to follow written and oral instructions; and 2 years experience in general office work, 1 year of which was gained in a personnel office. Some previous interviewing experience desirable but not required. Non-exempt range 18. Anticipated hire-in salary range \$715-825/month. This position may be filled after June 8, 1976.

SUPPORT SCIENTIST (1 1/2): For the GATE Project to participate in data processing and scientific analysis, mainly of the diverse and complex data collected in the GARP Atlantic Tropical Experiment (GATE). This includes soundings from the ship array, meteorological research aircraft data, radar, satellite and surface data. Some tasks may require lengthy analysis of a particular data set; some may involve integration of many data sets. Considerable programming efforts are required, including reading and reformatting of data tapes, data processing and production of graphical output. This is mainly a scientific support position, but where interest and ability permits, participation as a co-investigator is possible and is encouraged. Requirements include a M.S. degree in atmospheric science and 1 year relevant meteorological data analysis plus knowledge of FORTRAN and some programming experience (additional relevant experience is desired; experience equivalent to the education requirement will be considered). Consideration will be given to filling this position with two 1/2 time persons. Exempt range 54 or 56 (depending on qualifications). Anticipated hire-in salary range: \$11,400-17,400/year. These positions may be filled at any time. These positions are being offered as term appointments; one full-time position running thru September 1977, one half-time position running thru December 1976, both with the possibility of extension.

SUPPORT SCIENTIST II: The Numerical Weather Prediction project requires a person familiar with the general principles of numerical weather prediction. Special emphasis will be placed on model and processor maintenance and operations. The successful candidate will be responsible for general operation and maintenance of large sophisticated model codes; for design, formulation, implementation and checkout of changes required for continuing experimentation with these models; and for continual documentation of these codes. The person will also be responsible for general maintenance of processing codes and for providing program modifications or new programs for the continually changing processing needs of the project. The successful candidate will also participate in the scientific evaluation of the models through examination of the results of numerical experiments. The preferred candidate will have an educational background at the M.S. degree level or equivalent in atmospheric sciences, with specialization in dynamic meteorology. Experience in meteorological numerical modeling would be an advantage, and competence in FORTRAN programming is essential. Exempt range 56. Anticipated hire-in salary range: \$13,900-17,400/year. This position may be filled at any time.

SUPPORT SCIENTIST II: For the Upper Atmosphere Project to assist in the development of (a) a large dynamic model of the stratosphere and mesosphere, (b) a model of the chemistry of the upper atmosphere, (c) programs for data reduction and analysis of satellite information. Requirements include a B.S. degree in the atmospheric sciences

or the physical sciences or mathematics with a background in atmospheric sciences, plus one year of graduate work in atmospheric dynamics and (a) 2 years of work in scientific programming, including experience with a large dynamic model or processor or (b) 3 years of scientific programming on a variety of projects, plus knowledge of numerical analysis and the ability to organize his/her time so as to work with several people on a variety of projects simultaneously; applicants must be qualified to interpret data from the models and from satellites in terms of atmospheric dynamics and chemistry. Exempt range 56. Anticipated hire-in salary range: \$13,900-17,400/year. This position may be filled after June 11, 1976.

SUPPORT SCIENTIST II: For the GCM Coordination and Operations Group. The individual will aid in joint projects with university and NCAR scientists in the use of the Global Circulation Model (GCM). This person will also be responsible for general maintenance of processing codes and for providing program modifications or new programs for the continually changing processing needs of the project; and participate in the scientific evaluation of the models through examination of the results of simulation studies. Requirements include an educational background in meteorology at the M.S. or B.S. level with fluency in FORTRAN programming. Familiarity with partial differential equations and their finite-difference analogs or any experience with numerical models or data-processing systems will be favorably considered. Because of university involvement in a variety of projects, the applicant should have some familiarity with dynamics, atmospheric boundary layer processes and radiation. Exempt range 56. Anticipated hire-in salary range: \$13,900-17,400/year. This position may be filled after June 15, 1976 by an in-house applicant or after July 1, 1976 by an outside applicant.

SUPPORT SCIENTIST II: For the AAP Division. This position involves support for the scientific projects of the division: Climate, Empirical Studies, GATE, GCM Coordination and Operations Group, Numerical Weather Prediction, Oceanography, and Small-Scale Analysis and Prediction. The individual initially would spend approximately half-time working on the development, testing, and implementation of a new planetary boundary layer parameterization for the NCAR General Circulation Model (GCM). Remaining time would be spent maintaining and modifying a series of processing codes used in the analysis of GCM simulation experiments. Applicants should have an M.S. or B.S. or equivalent in meteorology and fluency in FORTRAN. Familiarity with partial differential equations and finite-difference methods for their solution or any experience with numerical models or data-processing systems will be favorably considered. The applicant should also have some familiarity with atmospheric dynamics, boundary layer processes and radiation. Exempt range 56. Anticipated hire-in salary range: \$13,900-17,400/year. This position may be filled by an in-house applicant after June 15, 1976 or by an outside applicant after July 2, 1976.

SUPPORT SCIENTIST (III or IV): For the Advanced Study Program. The research efforts will focus around remote probing of the atmosphere by a variety of techniques such as microwave and acoustic radar and lidar and their use in conjunction with in-situ sensors to explore selected atmospheric phenomena ranging from processes in the boundary layer to thunderstorms and tornadoes. Some efforts will be directed at the development of advanced techniques for probing the atmosphere; others will be aimed at providing new insights and knowledge of atmospheric phenomena. Initial emphasis will include the use of microwave radar and attenuation to measure rainfall and the use of Doppler radar for studies of turbulence, winds, thunderstorms, and tornado detection. The individual will work on collaborative research efforts with existing NCAR projects and university investigators under the guidance of Dr. David Atlas. Requirements include an education at least at the M.S. level or equivalent in atmospheric physics with experience in radar meteorology and familiarity with other methods of remote probing; a knowledge of precipitation physics and convective storms is desirable; the successful candidate will also be adept in electromagnetic theory, stochastic processes, and computer programming. Exempt range 58-60. Anticipated hire-in salary range: \$16,800-24,000/year. This position may be filled after June 11, 1976.

REGULAR (Part-time):

EDITORIAL CLERK: For the Publications Office to type, record on IBM MT/ST, and proofread scientific manuscripts and articles, with some coding on the IBM Composer. 60% of time spent typing, 10% proofreading and minimal copy editing; 30% general office work including filling in for the Publications Office Secretary, answering telephones, filing, answering requests from scientists and visitors, and photocopying. Requirements include 1 year general office work, 60 WPM typing skill from edited copy, excellent verbal skills; MT/ST experience desirable (or training provided). Hours: Tuesday afternoons, all day Wednesdays and Thursday mornings, plus one other 4 hour time period to be set by Publications Office staff and selected candidate. Non-exempt range 16. Anticipated hire-in salary range: \$590-680/month (Full time equivalent). This position may be filled after June 8, 1976.

SWITCHBOARD OPERATOR: To handle all incoming and outgoing calls for NCAR/UCAR, which includes commercial calls, FTS calls, University of Colorado calls, attendant lines and intercept lines. Maintain call report slips, check and maintain roster of staff and visitors; handle paging system for Computing Facility. Must be able and willing to work over 20 hours per week to fill in for vacation and sick leave. Requirements include 3-6 months experience on a cord board. Non-exempt range 15. Anticipated hire-in salary range: \$535-615/month (Full time equivalent). This position may be filled after June 8, 1976.

SPECIAL PROJECT:

POST DOCTORAL APPOINTMENT: For the Skylab Solar Workshop for interpretation of solar observations obtained from SKYLAB Apollo Telescope Mount. Successful candidates will participate in a research program, coordinated by the High Altitude Observatory, NCAR, in various problems of solar physics as part of the SKYLAB Solar Workshops. Each position involves assistance to participating scientists in the Skylab Solar Workshop in data reduction and analysis as well as the opportunity for individual research under the general supervision of a senior scientist on the topics of the Skylab Solar Workshop Series (the topic of the next Workshop Series is Solar Flares). The positions require a background in analysis and reduction techniques using photographic film or digital data and a background in any one of the following subjects is desired: general solar physics, MHD, plasma physics, stellar atmospheres, X-ray spectroscopy, and EUV spectroscopy. Post doctoral appointments are for a period of one year, with the possibility of extension, and they carry a stipend of \$15,100-17,200/year. These positions are available beginning October 1, 1976 (applications will be accepted through June 30, 1976, hiring decision is expected by mid-July 1976).

SYNOPTIC/MESOSCALE METEOROLOGIST: For the National Hail Research Experiment (NHRE) to work on the connections between mesoscale meteorology and those features of severe storms that are thought to influence the production of hail. The scientist will be expected to study problems related to the possibilities of using synoptic and mesoscale meteorological data, as an aid to seeding operations for hail suppression, and as a possible covariate, in the statistical analysis of the randomized seeding experiment. The scientist will be expected to work in close cooperation with radar meteorologists and cloud physicists on these problems, but to bring as his particular specialty a demonstrated knowledge and judgment in mesoscale and storm scale meteorology. The selected candidate will supervise one full-time scientist at the M.S. level. Requirements include a Ph.D. or equivalent in synoptic or mesoscale meteorology with severe storm research experience. Academic training or research experience in the application of statistical techniques is also required. Exempt range 58-60. Anticipated hire-in salary range: \$16,140-24,400. This position may be filled at any time. The NHRE project is expected to continue through June 30, 1979.

SUPPORT SCIENTIST II: For the CIMATS Project. This position will involve the use of computer calculations to simulate radiative transfer and molecular absorption in the atmosphere. These provide simulation of observations for testing and modification of algorithms for deducing the quantity and distribution of gases in the atmosphere. The position will also involve sensitivity analysis and determining optimum parameters for an experimental system. Fourier techniques are extensively used in the computations. A knowledge of infrared

molecular absorption is desirable. Requirements include at least 1 year of computer programming and use; a strong mathematical and computational background, plus an interest and ability in the physical aspects of the problem; must be capable of providing own computer programming support; and a M.S. or B.S. degree in the physical sciences. Exempt range 56. Anticipated hire-in salary range: \$13,900-17,400/year. This position may be filled after June 18, 1976. The CIMATS Project is scheduled to continue through December 31, 1976, with the possibility of extension.

SPECIAL PROJECT (Part-time):

SUPPORT SCIENTIST I: To assist in the reduction of the Skylab Apollo Telescope Mount White Light Coronagraph Data. Duties will include digitizing film data with a high speed microdensitometer which is controlled by a PDP 8 computer, FORTRAN programming for data manipulation on NCAR Control Data 6600 and 7600 computers, interpretation of results of data manipulation, preparation of scientific data and results for the presentations and publications. Must be able to work research problems with the ATM scientific staff by interpretation and analysis of data, also must work well independently after consultation with staff. Requirements include B.S. degree in physics or astronomy plus 2 years experience in scientific data analysis techniques, and FORTRAN programming and small computer experience required. Previous experience with microdensitometer and general knowledge of the photographic process is desirable. Minimum of 5 years experience in solar scientific data analysis of photographic data may be substituted for education. Experience must include microdensitometry, photography, programming and small computer operation. This position is available June 1, 1976. The ATM project is funded through October 1, 1977. Exempt range 54. Anticipated hire-in salary range: \$11,400-14,300/year. This position may be filled at any time.

STUDENT ASSISTANT CASUAL:

STUDENT ASSISTANT: For the Upper Atmosphere Project to perform chemical analyses and assist in general laboratory work and maintenance, both mechanical and electronics. Prefer 1st, 2nd, or 3rd year science student in chemistry or physics, plus previous laboratory or electronics experience. Salary is based on Student Schedule. This position may be filled after June 8, 1976.

CASUAL (Will-call-as-needed):

CUSTODIAN: For the Plant Maintenance Department to clean and maintain the NCAR buildings as fill-in for regular staff during vacation and sick leave periods. Duties include overall dusting, wall washing, furniture washing and polishing, dumping of trash, washing out of ash trays, washing out of trash receptacles, cleaning up spill spots on floors, dusting, mopping, waxing and buffing of floors. Non-exempt range 15. Starting salary: \$3.12/hour. This position may be filled after June 1, 1976.

CALENDAR NOTES

June 7 through June 14, 1976

MONDAY, June 7

Open

TUESDAY, June 8

- Meeting -- Membership Committee of the UCAR Members' Representatives

1:00 p.m. Tuesday to 12:00 noon Wednesday
NCAR Mesa Laboratory, Chapman Room

WEDNESDAY, June 9

Open

THURSDAY, June 10

- Meeting -- Scientific Programs Evaluation Committee of the UCAR Members' Representatives

1:00 p.m. Thursday to 2:00 p.m. Friday
NCAR Mesa Laboratory, Damon Room

FRIDAY, June 11

- ASP/AQM Joint Seminar -- Kinetic Aerosol Model for New Sulfate Particle Formation, Paulette Middleton, ASP

1:30 p.m.
Fleischmann Building
Walter Orr Roberts Seminar Room

- NCAR Climate Club -- Atmospheric Carbon Dioxide-- Its Variation with Tropical Ocean Temperature and Its Use as a Global Tracer for Model Verification, Kirby Hanson, NOAA/ERL

3:30 p.m.
NCAR Mesa Laboratory, Main Seminar Room

MONDAY, June 14

- Meeting -- ISOS Theoretical Panel

9:00 a.m. Monday to 5:00 p.m. Thursday
NCAR Mesa Laboratory, Director's Conference Room

- ASP/NWP Summer Colloquium Seminar -- The History of Numerical Weather Prediction in the United States, Philip Thompson, AAP

3:00 p.m.
Fleischmann Building
Walter Orr Roberts Seminar Room

Calendar Notes announcements may be mailed to Vonda Giesey, ML 252. Wednesday at 12:00 noon is the deadline for items to be included in the Calendar Notes.