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LR Burchill

ASSOCIATED UNIVERSITIES, INC.

10 Columbus Circle
New York 19, New York

April 8, 1958

MINUTES

Meeting AUI-NSF Staff
Tuesday, April 1, 1958

1. The following met at approximately 4:00 PM in the Board room of the National Science Foundation:

From the NSF: Messrs. Atkinson, Eckhardt, Havens, Jones, Luton, Mitchell and Ruttenberg

From AUI: Messrs. Berkner, Burchill and Emberson

2. Dr. Berkner raised the question of an exhibit on the NRAO for the Moscow meeting of the International Astronomical Union in August, 1958. (See attached letter from Dr. Deutsch). He pointed out that an exhibit could take many forms but that Dr. Deutsch's letter suggested models and in accordance with this suggestion the exhibit might include models of the 85-foot and 140-foot telescopes, maps plus three-dimensional models of the site, descriptive material on the site and the measures to minimize radio interference, and some material on research objectives. (All written material would be presented in english, french, and russian). He noted, also, that we hoped to have Dr. Heesch go to Moscow and if an exhibit as extensive as outlined above is sent, we should probably have Dr. Drake go too, to share the burden of looking after the exhibit. Mr. Jones estimated that the cost of the exhibit, plus all extra changes, such as transportation to Moscow and return, including Dr. Drake's travel expenses, would be in the \$25,000 - \$30,000 range.*

Questions were raised concerning the kind of exhibits planned by other U. S. Institutions and Dr. Emberson was to call Dr. Deutsch and clarify that point. There was general agreement that such an exhibit as outlined above would have value at Moscow and subsequently here in the U. S., but it was not clear this was the best commitment of NSF funds in support of radio astronomy, or science generally. The NSF was to determine if the USIA would support all or part of the costs of the exhibit as part of the U. S. information program. In a broader context, the NSF may wish to examine this IAU case as a possible precedent on exhibits for all future meetings of international unions.

3. Dr. Berkner asked if the NSF could support directly, by grant or contract, a research and prototype development program, proposed by Mr. Henry Jasik for improved rf-feeds for paraboloids. The improved feeds, which would be developed just for 21-cm radiation, but ultimately could be applied to feeds for any wavelength, would do two

things:

First, it would greatly reduce the back lobes of the radio telescope as compared to the main lobe. This improvement is mandatory if maser- and other very sensitive receivers are to be utilized in the observation of very faint objects -- objects so faint that the available signal is less than the level of the thermal noise from the ground in present back lobes.

Second, the improved feed would more efficiently receive signal energy from the entire telescope aperture (present feeds accept about 65% of the signal and the improved feed might be better than 80%). This improvement would not increase the resolution of the telescope but it would increase the gain of the telescope, making possible the observation of relatively bright objects in shorter times, or of fainter objects in comparable times, than may be accomplished with existing feeds. This increase in the telescope gain is of interest to many military problems, particularly over-the-horizon communications at micro-wave frequencies.

Dr. Menzel had urged that a joint program be initiated, along the lines indicated above, on behalf of all radio astronomers and he heartily endorsed the Jasik proposal. Dr. Eckhardt said he believed the program could be funded at a \$20,000 - \$25,000 level; he understood the NRAO interests and our desire to work with Mr. Jasik and obtain the 21-cm prototype for use with the 85-foot and 140-foot telescopes -- or equally applicable to any telescope with approximately the same f/D ratio. It was not clear whether a grant or a contract with Mr. Jasik would be the better arrangement, but it was agreed that he should submit a proposal to the NSF for the support of the research and the prototype development, and the NSF would determine the best arrangements. Dr. Emberson agreed to communicate with Mr. Jasik on submitting the proposal in accordance with NSF procedures.

4. The matter of dates for future meetings was discussed. Dr. Berkner indicated that the last-Friday-of-the-month scheme could not fit his schedule and was therefore cancelled. It may be possible for the NSF staff to meet at Green Bank on May 2 as proposed by Dr. Berkner, but Dr. Waterman has some unresolved dates on Congressional hearings about that time and these will have to be settled first. Whatever the outcome of the proposed May 2 date, it was tentatively agreed that a Green Bank meeting should be held on Tuesday, June 24 or Thursday, June 26. Thereafter, meetings may be held on a quarterly basis. Dr. Berkner indicated that he would be returning from Europe early in September and a mid-September meeting at Green Bank would be a good occasion to mark the completion of the 85-foot telescope.
5. Drs. Berkner and Eckhardt discussed future budgets. Dr. Eckhardt said the NSF would like to have by mid-April our estimates on the FY 1960 budget and also a five-year forecast. As the House Committee has cut \$50,000 from the requested \$400,000 operating budget for FY 1959, planning will have to be subject to this degree of uncertainty

until the matter is finally resolved between the House and the Senate. Dr. Berkner asked that consideration be given to an early FY 1959 supplemental request to provide the FY 1960 operational funding (that had been deleted by the BOB) and to restore any of the House Committee cut that persists in the final FY 1959 appropriation.

*With reference to the Moscow exhibit, Dr. Deutsch advised by telephone on April 2, that approximately 18 U.S. observatories had been invited to send exhibits. He understood they were thinking in terms of \$200 - \$400 exhibits, of a technical nature aimed primarily at the scientists attending the International Astronomical Union sessions. No replies had then been received, but Dr. Deutsch had a tentative commitment from the Naval Observatory for an exhibit of approximately 50 square feet of Milky Way photographs that show polarization; also, the National Research Council (Dr. Atwood's office of foreign relations) planned to send an exhibit that would be left as a gift and presumably would be aimed more for the lay public. In response to a direct question, Dr. Deutsch said that no decision had been reached on an exhibit by the Mount Wilson and Palomar Observatories. He promised to write in 10 days advising on the general scope of U.S. exhibits.

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Mount Wilson and Palomar Observatories

813 Santa Barbara Street
Pasadena 4, California

March 25, 1958

Dr. Lloyd V. Berkner
President, Associated Universities, Inc.
10 Columbus Circle
New York 19, New York

Dear Lloyd:

As you may know, the Soviet National Committee for the International Astronomical Union has announced that provisions have been made for astronomical exhibits at the forthcoming Moscow General Assembly. As chairman of the exhibits subcommittee of the U.S. National Committee, I would like to ask if A.U.I. would be willing to prepare an exhibit relating to the National Radio Astronomy Observatory. No doubt our European colleagues would be much interested to know our plans for the Green Bank installation. The topographical model exhibited last October at Green Bank, together with appropriate models of one or two of the large instruments, would make a good exhibit, I should think. Perhaps you will have some other exhibits to suggest. I am sending a similar invitation to Aden Meinel.

It will be necessary for me to write the Organizing Committee in Moscow of our plans for U.S. exhibits by May 1. We are anxious that our exhibits should reflect the quality of our best and most progressive astronomical research, and therefore hope that your organization will participate in this project.

Sincerely yours,

orig/ sgd by

Armin J. Deutsch

AJD:WB