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file

November 20, 1957

MEMO FOR: Radio Astronomy File  
SUBJECT: AUI Staff Meeting, September 28, 1957  
PREPARED BY: Charles F. Dunbar and Richard M. Emberson

1. Following a meeting with the NSF at Green Bank on September 27, the following met at the Three Hills Hotel, Warm Springs, Virginia, at 9:00 a.m.:

- L.V. Berkner
- L.R. Burchill
- J.J. Carroll
- C.F. Dunbar
- R.M. Emberson
- J.W. Findlay
- D.S. Heeschen
- M.L. Westman

2. Brochure: Dr. Berkner concluded that every effort should be made to have the proposed brochure ready for the gathering on October 17 at Green Bank. This reversed the informal decision arrived at the previous evening. Berkner, Burchill, Emberson and Heeschen remained after the meeting ended (about 1:00p.m.) and during the afternoon the material for the booklet was reviewed and discussed.
3. Site Protection: It was adopted as primary policy that all reasonable and prudent steps should be taken to protect the site against radio noise. In particular, AUI should continue to seek favorable regulatory action from the FCC, and in addition, make an effort to get CAA to set up a prohibited and/or restricted zone to minimize aircraft flights over or near the site. Porter should be asked to continue to represent AUI's interest with the FCC, and also to undertake to obtain action from CAA.

From time to time the possibility of curtailing the program for obtaining restrictive covenants from neighboring land owners has been discussed. Having in mind the vital importance of eliminating radio noise, it seems best to allow this program to go forward as originally planned, within the budgetary limit of \$650,000.

4. Road Contract: Westman described the road contract. The work is going forward satisfactorily, and the actual yardage is running somewhat under the estimates contained in the contract. Bowman has a representative on the job at all times, who keeps an accurate account of the loads moved.
5. Electrical Power Supply: Bowman's proposal is to provide underground cables to the main laboratory building, the works area, and the sites of the 85-foot and 140-foot telescopes, together with transformers at the works area and the telescope sites. The estimated cost is about \$157,000. No one was clear whether this included necessary shelter for the switch gear and sub-station to be provided by the Monongahela Power Company.

It was the consensus that power cable requirements should be revised to cover only the following: (1) the 85-foot and 140-foot telescope installations, and (2) the works area. Taps for any other construction should be included as part of the building costs. It was the consensus that Bowman's estimate of the total cost (\$160,000) was excessive. It should be possible to meet minimum requirements for less. Westman will try to get information on Monongahela's long-range plans for a high voltage line to the west of the site.

The problem of auxiliary power was discussed. It was pointed out that 100 kw would be necessary to maintain pressure in the oil-pad bearings of the 140-foot telescope to move them at a reduced rate under emergency conditions. In view of the cost of an auxiliary installation of this kind, it was decided to postpone the decision whether to acquire an auxiliary power system until more is known about the cost of the 140-foot telescope. It was the consensus that the only auxiliary power supply necessary is that required to cage the 140-foot telescope. Therefore, cost of the auxiliary system can properly be included in the cost of the telescope.

6. Findlay will look into the meteorological instrumentation required for storm warning at the site. Also, wire service to reliable 24-hour stations, situated north, south, east and west of Green Bank, would be desirable for earlier warning, if such service could be obtained at reasonable costs.
7. Sanitary Sewers: The financial plan discussed at the meeting provides \$30,000 for a sanitary sewer. Dr. Berkner considered that this figure should be broken down and distributed among the buildings to be served by the system.
8. Water Supply: The financial plan provides \$15,000 for water supply. Dr. Berkner suggested that this item of cost be divided among the buildings served.

9. Paved Areas and Landscaping: The financial plan provides \$40,000 under this heading. The purpose is to protect the foundation of the telescopes. Dr. Berkner suggested that it be made a part of the cost of constructing the telescopes.
10. Temporary Buildings: The proposed revised financial plan provides \$30,000, with a contingency of \$10,000. The purpose is to provide for remodeling existing houses, of which there are 13 on the site, including the Kessler house which is now in use as an office and electronics laboratory. The complete absence of any accommodations for visitors is a serious deficiency and could result in delay in the research program after the 85-foot telescope is completed. Mr. Westman considers that the Hill house could be remodeled for a rooming house, containing four double rooms, plus living room, dining room and kitchen. In addition, there are two small houses which could be used by couples. Mr. Westman considers these two small houses could be put in shape for about \$1500 each. There is also an unfinished house which could be put in shape for about \$4,000. It will be necessary to provide furniture for all these houses. The M. Beard house could be remodeled to serve as an office, which would make it possible to use the entire Kessler house for a temporary laboratory.
11. Laboratory and Administration Building: The revised financial plan provides \$200,000 for a laboratory and administration building. In Mr. Westman's opinion, it will take at least a year from the date of approval to complete this building. This poses a dilemma. Some laboratory space will be needed by October or November of 1958, assuming the 85-foot telescope is completed approximately on schedule. Undertaking to adapt existing buildings for use as temporary laboratories is undesirable. Buildings of this kind would always be unsatisfactory on account of the way they are constructed. Therefore, expenditure of money to make them usable as a stop gap would be wasteful. Furthermore, the buildings are scattered, with resulting inefficiency. Finally, the \$200,000 allocated to the laboratory building may become essential for the completion of the 140-foot telescope.

After discussion, the following decisions were made:

- (a) No money will be expended to remodel existing buildings to serve as laboratories, until more is known about the cost of the 140-foot telescope.
- (b) Mr. Westman will study the existing buildings to determine how most efficiently they can be used.
- (c) No final decision will be made on what to do until the meeting with the NSF representatives scheduled for November 22, 1957. The choice at that time will probably have

to be made among the following three alternatives:

- (1) remodel existing buildings to serve as laboratories;
  - (ii) Erect a small permanent laboratory building;
  - (iii) Build the laboratory building called for in the financial plan.
- (d) Mr. Westman will explore the possibility of using a pre-fabricated building manufactured by Inland Steel Company for laboratory and shop purposes.

12. Control Room for 140-foot Telescope: The financial plan provides \$40,000. Dr. Berkner suggested that this be made a part of the cost of the telescope.
13. Automotive and Site Maintenance Equipment: The financial plan provides \$20,000. Dr. Berkner suggested that this be broken down to show the exact number of vehicles required.
14. Office Furniture and Equipment: The financial plan provides \$40,000. Dr. Berkner suggested that this be broken down in detail and studied carefully, with a view to arriving at a final decision after November 22, 1957.
15. Contract for 140-foot Telescope: The question what is the maximum amount that can be paid for the 140-foot telescope was extensively discussed. If this amount is set at \$3,035,000, it appears that there will be no contingency whatever. The question what to do if the telescope cannot be acquired for the maximum figure was also discussed, and a number of possibilities considered.
16. Inspection: In the estimated cost of the two telescopes as set out in the financial plan, field engineering services are included. The best way to obtain adequate field inspection was discussed. Professor Ashton can supply some. The Franklin Institute presumably will undertake inspection of the oil pad bearing. Mr. Carroll considers it would be feasible for AUI to employ some inspectors. In addition, the services of a commercial testing laboratory could be obtained. It was estimated that inspection and testing might amount to as much as \$100,000 for the 140-foot telescope.
17. Bonding and Grounding of Structures: Dr. Findlay and Mr. Westman will look into the matter of adequate bonding and grounding of all metal contained in structures at the site, with respect to both lightning protection and minimization of radio interference.