

Office Memorandum • UNITED STATES GOVERNMENT

TO : Files

DATE: June 18, 1959

FROM : H. D. Bruner, M.D.
 Chief, Medical Research Branch
 Division of Biology and Medicine

SUBJECT: VISIT TO IRL-DONNER LAB - JUNE 10-12, 1959

SYMBOL: EMM:HDB

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Due to the time loss and the difficulties in getting from the airport to the San Francisco Operations Office there was no time to go to the Lawrence Radiation Laboratory on Wednesday after seeing Mr. Shute and members of his staff.

I explained the reasons for my visit but neither Mr. Shute, Mr. Bob Hughes, Mr. Goodbread nor Mr. Carroll Dailey could answer these questions. The latter, Mr. Dailey, has just come to SFOO from Reactor Division, Washington, to take care of the 5000-6000 programs and is working under Mr. Hughes.

Specifically they do not know University of California's thoughts about a space institute and are hesitant to be definite about all the building requests because: 1) There are 4 requests, totalling $\sim \$2 \times 10^6$; 2) The existing buildings are in some cases owned by U. C., and 3) The intentions of U. C. concerning Calvin's group are not clear, Calvin having been placed in the new Life Sciences Building but his radiation chemistry section remains at Donner. The office was not clear on what Dr. Lawrence's plans for training were.

On Thursday morning Mr. Dailey picked me up, took me to Donner and spent the entire day discussing the problems and looking at the facilities. I condensed my questions into three; they and the answers I was able to get are as follows:

1) What is the status of the foreign medical training program? It turned out that they had been very interested in trying to set up such a course following Dr. Shilling's request of some months ago. It had been given as a project to a Dr. Howard Mel, one of Dr. Tobias' men, who is very much interested in such work. He has now gotten all the details set up for the course, but he and the laboratory as a whole have concluded that Washington either was not interested or could not finance it. The attached sheets contain the prospectus of the course including duration, course prerequisites, etc. They would

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like to have final say on candidates and wish to be assured that there will be enough candidates to justify all the time, effort and money this will necessitate.

They had contacted the University Extension on this in order to be able to get a certificate for the people at the end of the four months. Extension at U.C. does not mean a home study course as it does elsewhere, but a semi-formal education for which the student must matriculate but cannot use for graduate credit. It is a way of getting around the requirements which prevent regular students from taking a mixture of courses at different instructional levels; it is the only means of getting an official University Certificate. Mr. Downes is the Extension man in charge of this area. He seems to have seen this as a good thing and (being a bit of an eager beaver, apparently) has tried to take the ball away from Lawrence's group; to judge from the correspondence which Dr. Mel has, it was a difficult thing to work with Mr. Downes in developing an academically sound 4-month course for doctors. (Some of these courses could be applied against graduate requirements if the student later decides to work for a Ph.D. in Medical Physics or in Biophysics which are 3 to 4 year courses).

2) What is the status of the needs for additional space? I had expected only description of how a top fifth floor would take care of their needs. Thus, the present fourth floor which has mostly offices would be converted to ten 15 by 24 laboratories and associated service rooms and the offices be transferred to the new, more lightly constructed fifth floor. The cost would be about \$185,000 for the fifth floor or \$240,000 total for fifth floor and equipment of the fourth floor; this is about \$60/ft² (3900 ft² net).

Actually the University is pressing for Donner to move out of its present area into a new building to be built in Strawberry Canyon which is south and slightly downhill from the LRL buildings. There is lots of space there and it should be possible to set the Donner Lab, a reactor and/or accelerator and animal house in close proximity at that area. I was surprised to learn that not more than \$100,000 of AEC money had gone into construction for Donner as these funds had come to U.C. separately. Only the animal facility was constructed with DBM/AEC funds.

I can't really agree that they are crowded since a lot of space is used up for largish offices and for clinical examinations on laboratory employees. The latter space is also used to do clinical studies on research patients alternately with the physical examinations. Inasmuch as this was the end of the semester there

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were few students and not too many faculty present so that the lack of crowding I saw is not the real picture.

The first floor has an altitude chamber, centrifuges, student shops and hot hoods and the auditorium. The second floor has the library, outpatient clinics, industrial medicine, gas analyses biochemistry and physiology. The third floor has biophysics, electronics, histology, pathology, electron microscopy and the remainder of Calvin's group. The fourth floor is used for offices and conference room.

As to outside funds, 90.1% come from AEC, about 5% from the University for teaching, salaries, etc., and about 5% from the USPHS, private donors, and the Donner Foundation. The AEC budget is handled via the IRL to SFOO.

There is what amounts to a demand by IRL that the animal house be vacated. The 6-BEV accelerator will be spewing neutrons all over the animal house - it is directly in the line of fire and scatter. It will be used for storage or torn down. So they must have an animal facility costing about \$500,000 or more fairly soon. Under the circumstances the generalized move to Strawberry Canyon makes sense; until this is settled it does not seem logical to push hard for a fifth floor on Donner.

3) What is Dr. Tobias' interests in space medicine and how do they affect the program at Donner? Dr. Tobias answered this himself saying that he was interested in the effects of heavy, fast particles on living structures and that they had the machines to study this problem and, in fact, were well into the opening phases of such a problem. Animals in space, however, would be subject to zero-gravity effects which might supplement or confuse the radiation effects and it was his plan to ask for funds to study the feasibility of research which would help in analyzing the effects on living cells of zero gravity.

Dr. Seaborg had set up a committee composed of Teller as chairman, Calvin, Perlman (Chemistry), Gordon (Chem. Eng.), Fretter (Physics), Whitford (Lick Observatory), and Tobias to consider whether U.C. should have a space science laboratory; they decided it should. The next questions are how it shall be organized, when, financing, etc. He expects it to follow the pattern of the IRL which, of course, is engaged already in certain problems of space physics and chemistry.

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Tobias intends to stay in Radiation under AEC but he does have a group of young people who can test out the ideas which they have already developed. He thinks this will take only 10% of his time - he was not clear about where in the Donner Lab they would do this work. His present request is for \$85,000 to follow up these feasibility studies for one year.

Friday morning I visited the Pavillion where their patients are kept. There are 8 beds and some clinical research facilities on one floor and clinical laboratory space on the fourth floor. In addition to the pituitary irradiations, human studies on steroid metabolism and carbohydrate metabolism using C^{14} are in progress together with some I^{131} studies. They were doing some pituitary irradiations with 900 Mev alpha particles on patients and I got to watch their technique. I also saw the HILAC machine, a linear accelerator for heavy particles; this is the machine which would be used for the simulated cosmic ray studies and it can be modified to give about three times greater energy by lengthening the tube.

In general, the laboratory has a varied program but leans distinctly to the clinical side. Several of the men I talked to offered to work on programmatic problems if we wished to pass them on. They are not equipped to do chronic animal experiments, toxicology, etc.

On direct question they estimated they could build an accelerator for medical purposes which would do the same job as the 186" cyclotron. They could run 10 patients per day and since nearly all of them are ambulatory there would be minimal bed requirements. This could be a good basis for securing new laboratories for this group in Strawberry Canyon if it is decided to support their request. It has public appeal.

They plan to make a complete study of new quarters, a medical reactor, and an accelerator plus new animal facilities which will be submitted to us this fall. The amount, less the reactor and/or the accelerator, will be in the neighborhood of \$2.5 million.

I believe it is true that this group has far surpassed all other laboratories in graduate and post-graduate training in this field of U. S. as well as foreign students. In my own case, I have underestimated the extent and importance of this part of their work. Certainly I was impressed by the list of people who have gone through this laboratory, both as to quality and numbers. The number of students has steadily increased each year and this in itself would justify serious consideration of their requests for training funds. Curiously there are only six men on the staff with full university appointments; Dr. Lawrence somehow manages to keep his total staff up to strength by short term appointments. Apparently he does not always consult with his staff in making appointments, apportioning funds, allotting space, etc.

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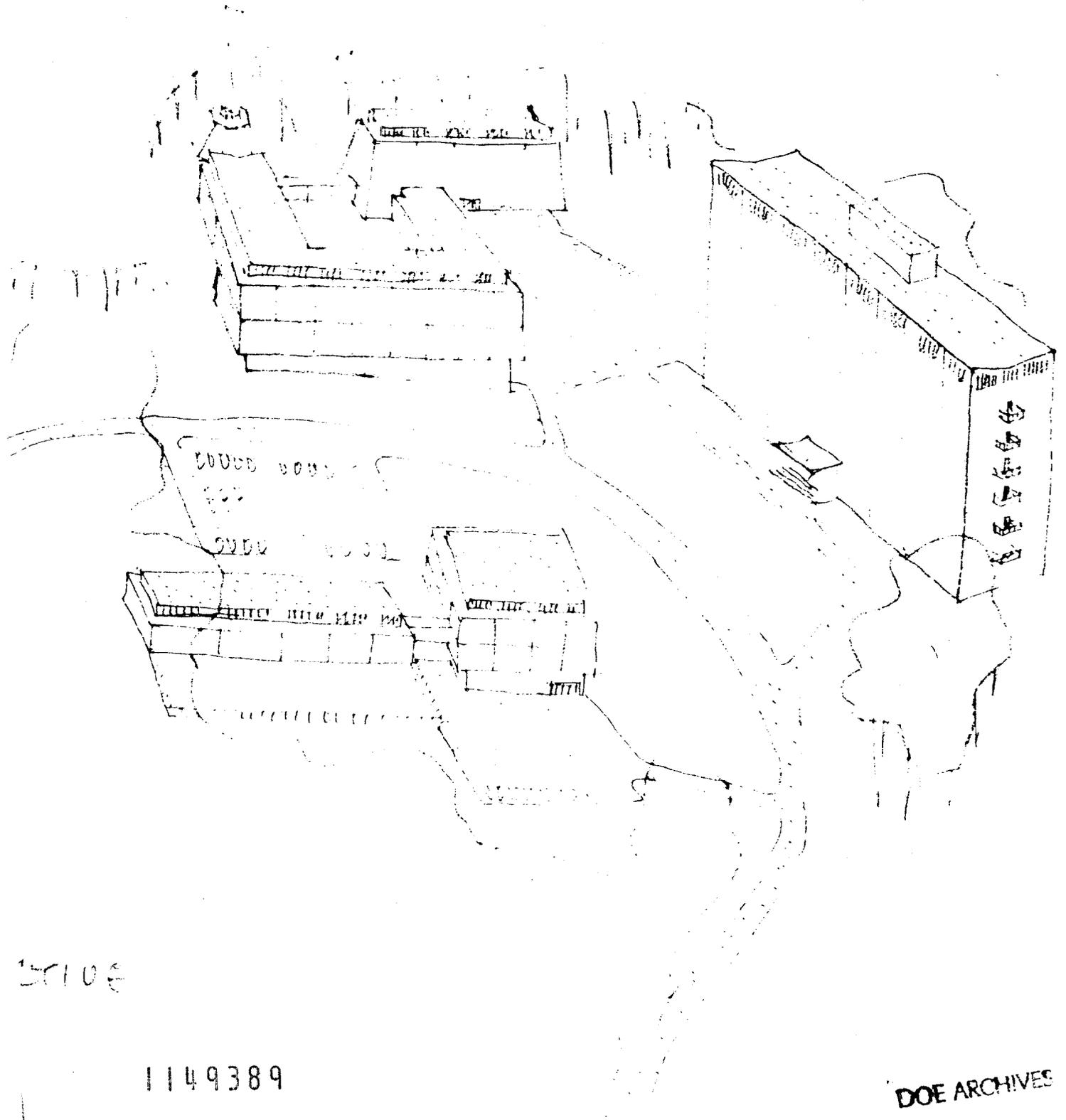
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Dr. Hardin Jones took me to the airport describing on the way his ideas for the "Ageing Institute" which USPHS has designated to be at U.C. Briefly, he has gotten about 23 full-time professors of the U.C. staff and some graduate students to agree to slant their research programs toward problems of ageing. They plan to add a few staff members, chiefly in mathematics, but other than that will simply go on with current funds in their current departments and laboratories. He expects to act as a "coordinator" who will keep everybody interested in ageing biology and act as the cement for the group. The idea, as I understood it, does not appeal because I have difficulty in believing that 23 (or even 3) professors will submit very long to "coordination" of their research and ideas by anyone, unless he holds some sort of a control; and I could not discover that Dr. Jones had one, except that Seaborg had appointed him to this post. He wanted it made very clear that he did not intend to leave the Donner staff.

Strangely, both Dr. Tobias and Dr. Jones now have opportunities to branch out on their own but both have firmly rejected the idea.

Dr. Jones gives the impression of being worried about our attitude to his being on the Morgan Committee and whether we feel that he has been something less than loyal to the AEC. He did not say so but I would guess that someone or perhaps several people have given him a hard time. He was also curiously defensive about his own research and that his conclusions might make it hard for AEC to stay in business. I tried to reassure him that all the AEC expected of a man was that he honestly follow his data to its scientific conclusion. Although we chewed this over for about 15 minutes he did not volunteer the circumstances responsible for his concern; it is possible that someone recently has ridiculed his work instead of arguing with it.

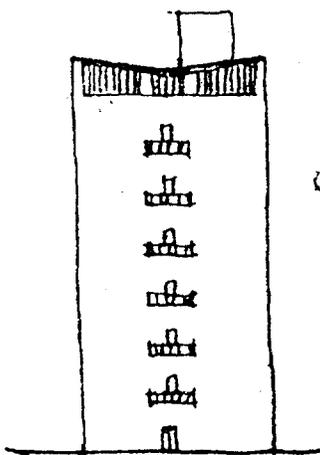
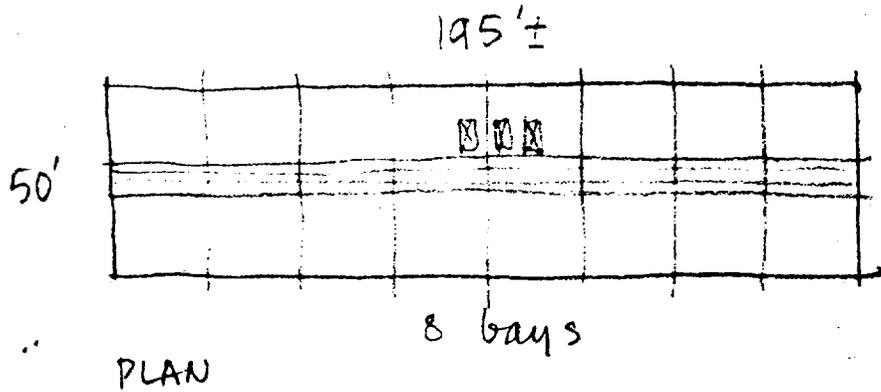
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Buildings



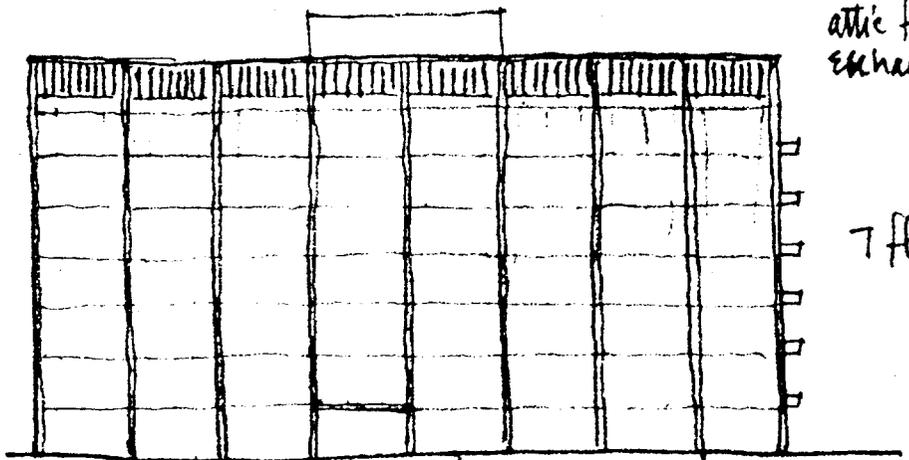
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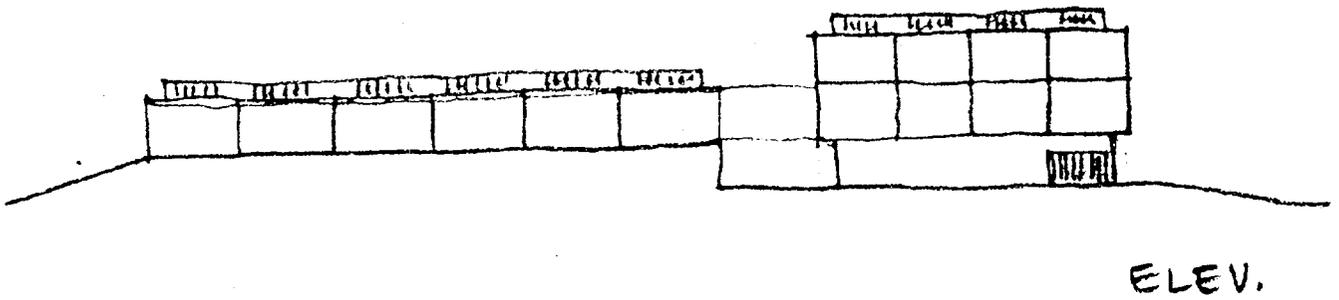
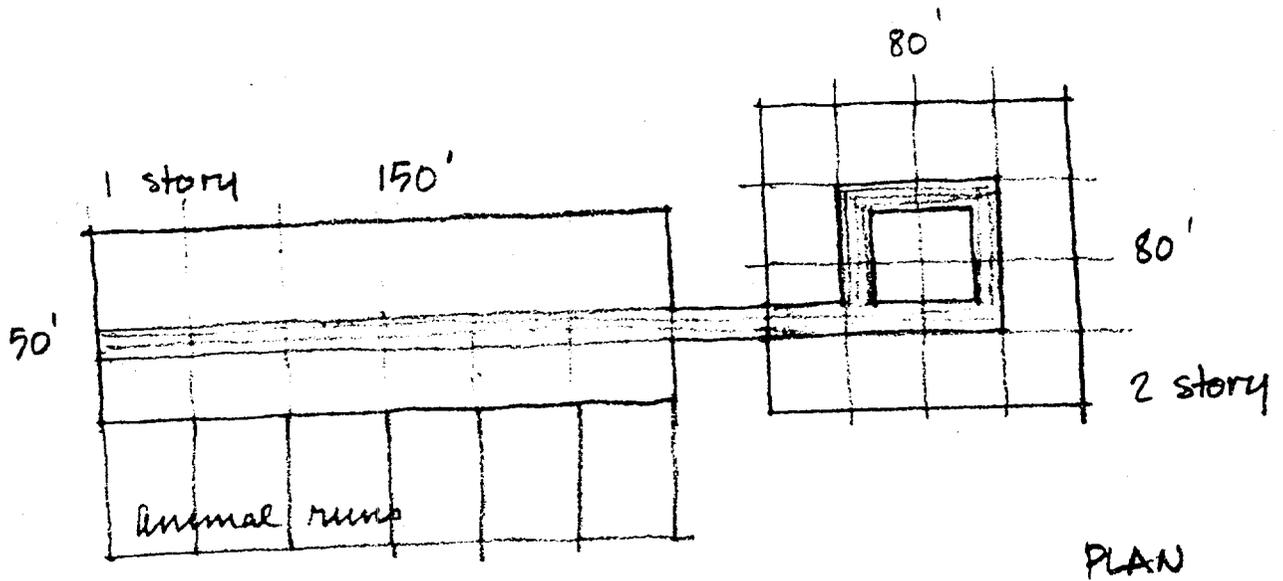
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Clinic - Lab Bldg - schematic 1" = 50'

65000 ± gross ±

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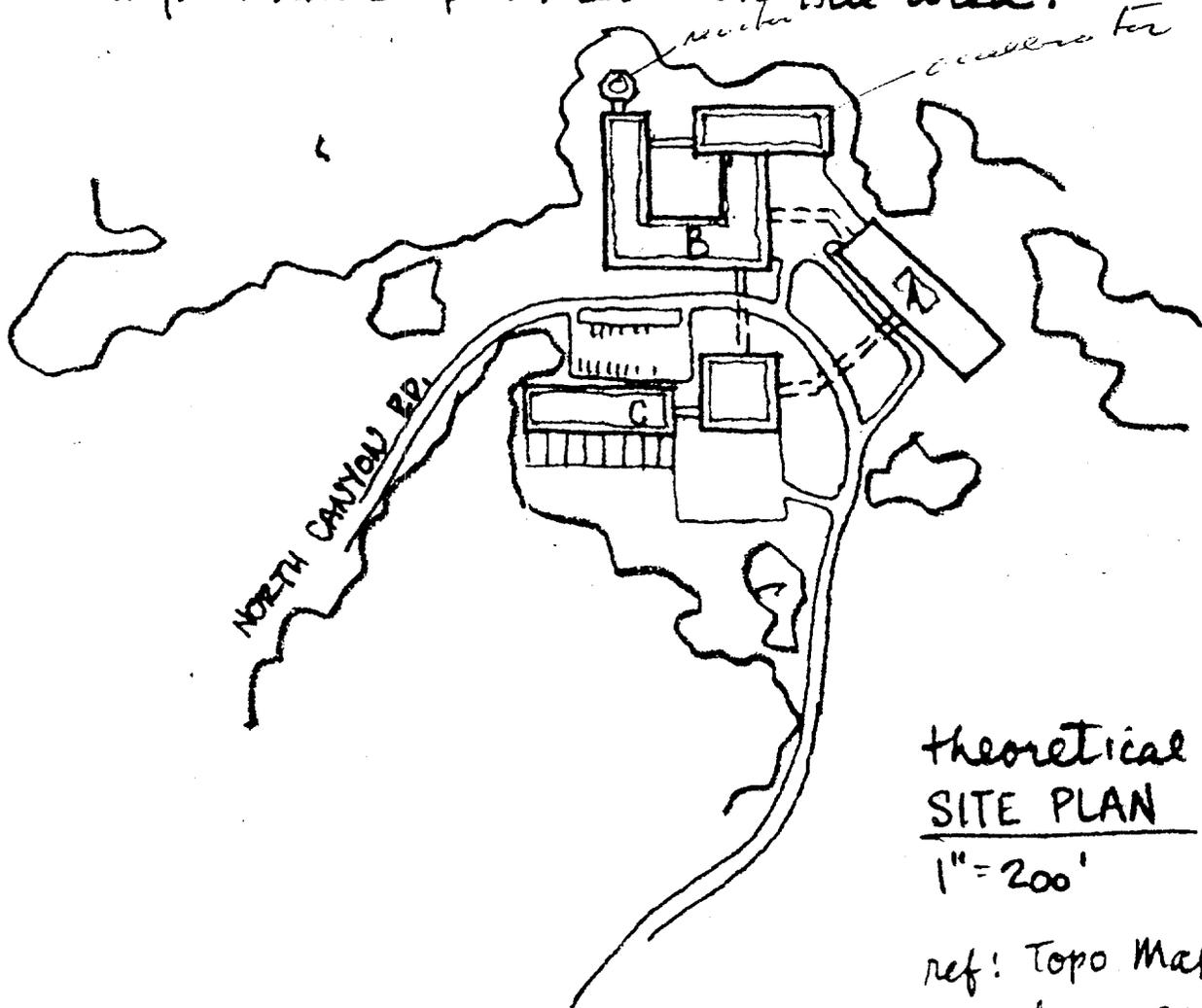
Animal House schematic 1"=50

20 000 \$ gr. ±

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NOTES:

- a. Parking structure should be considered in future?
- b. Parking under Lab section of Accelerator-Reactor Bldg B and Animal House C
- c. Underground passages for intercommunication =====
- d. Clinic-Lab bldg. placed end toward Accelerator-Reactor. Probably should contemplate built-in shielding around accelerator & reactor as topo. makes earth berm or similar earth shield a formidable problem in Hill area.



theoretical
SITE PLAN

1" = 200'

ref: Topo Map

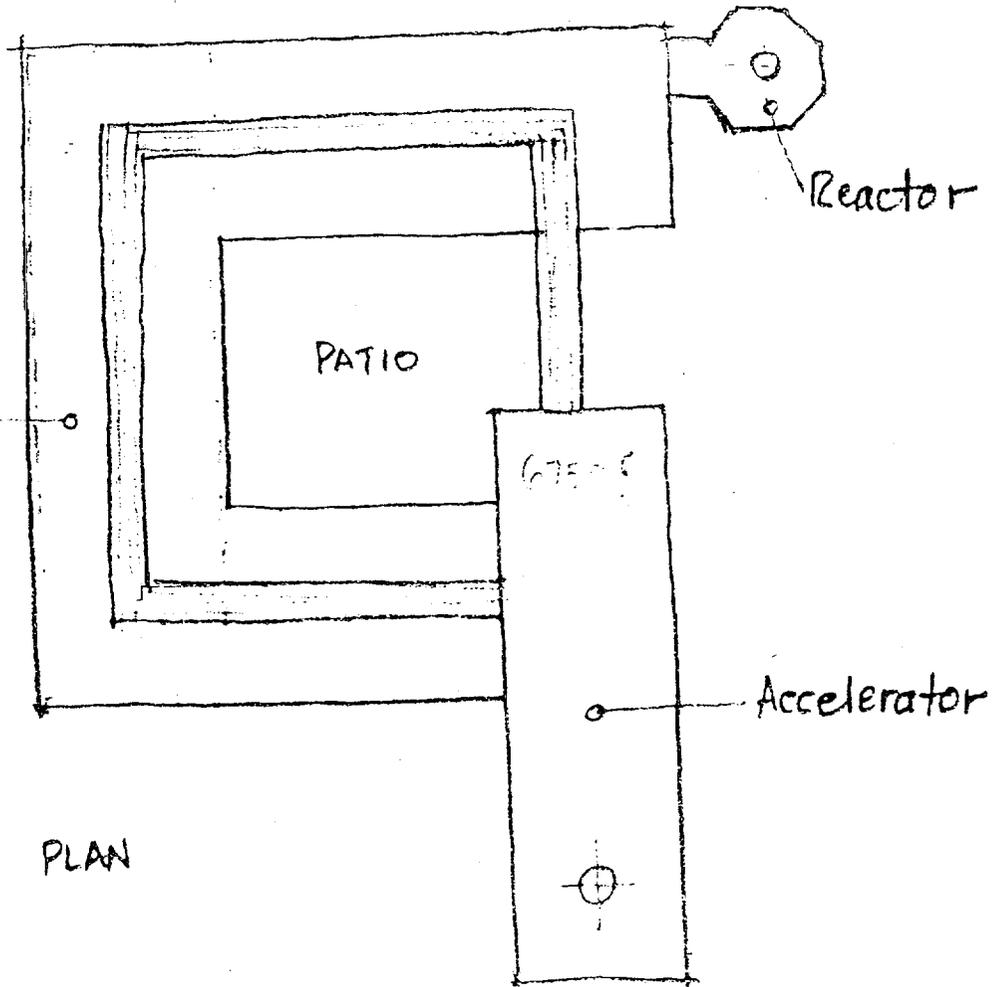
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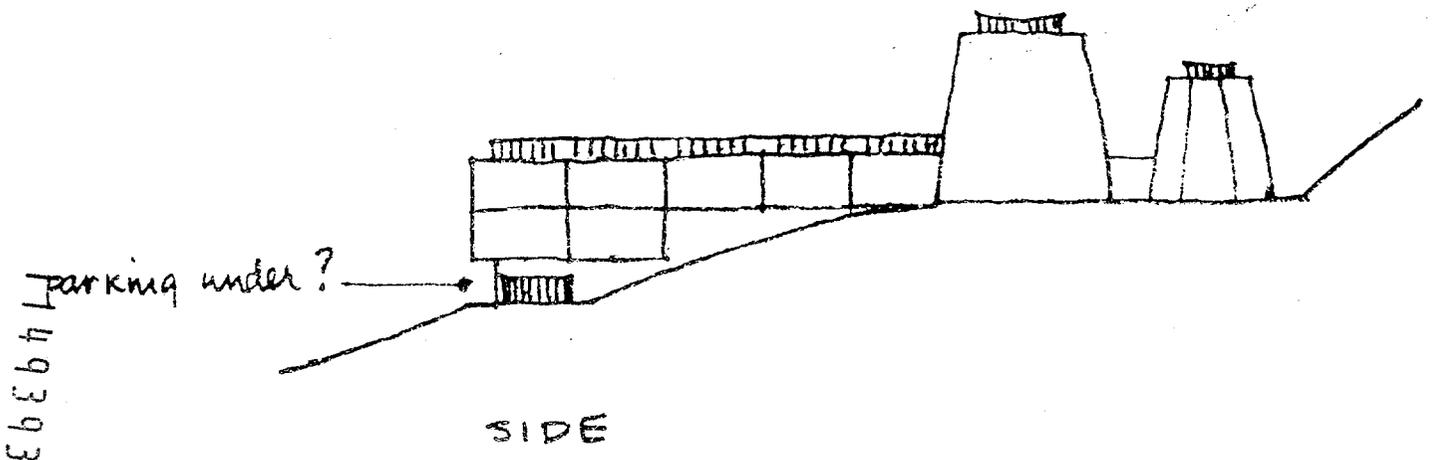
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8500 ϕ —
lower floor

18000 ϕ
labs this floor



PLAN



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SIDE

Accelerator - Reactor - schematic 1" = 50' B

35000 ϕ gross \pm