ECP 1 Bldg

MEMORANDUM

TO: Mrs. Verna Hobson
FROM: Mrs. D. K. Wheeler
DATE: Sept. 9, 1957
RE: Computer Personnel

| | Name | Address | Home Phone | Office Ext. |
|---|---|---|---|---|
| ✓ — | Dr. Hans J. Maehly | 156 Alexander St. | Pr-1-6169 | 27 |
| ✓ — | Mrs. Dorothy K. Wheeler | 145 Valley Rd. | " 6944 | 26 |
| | Mr. Gordon Whitney | R-D. 1 Princeton | Mo. 7-4936 | 36 |
| ✓ | Mrs. Mildred Goldberger | 63 Stanworth Lane | Pr-1-2243-M | 24 |
| ✓ — | Mrs. Hedy Selberg | 7 Maxwell Lane | " 7112 | 22 |
| ✓ — | Mrs. Sonja Bargmann | 50 College Rd. | " 2436 | 24 |
| — | Mr. Irv Rabinowitz | 44 Linden Lane | " 4849-J | 23 |
| | Mr. Charles Mesztenyi | 135 Spruce St. | " 1387-J | 32 |
| — | Mr. James Cooley | Burnt Hill Rd. | Ho-6-0388-J-11 | 21 |
| | Mr. Kurt Arbenz | | | |
| — | Mr. Fred Smartt | River Rd. | Ow-5-7096 | 25 |
| — | Mr. Frank Fell | 413 Stuyvesent Ave | Ex-2-4238 | 25 |
| | Mr. John Smith | 135 Girard Ave | | 34 |
| | Mr. Daniel Dunlop | 565 Rutherford Ave | Ex-2-1975 | 34 |
| — | Mr. Anthony Manganella | 31 Humbert St. | Pr-1-0417 | |

Office Telephone Number
6440 & 6441

cc Switchboard

E Bldg.

THE INSTITUTE FOR ADVANCED STUDY
OFFICE OF THE DIRECTOR
PRINCETON, NEW JERSEY

December 6, 1949

TO; Mr. S. D. Leidesdorf
Mr. Herbert H. Maass
Mr. Lewis L. Strauss

We are sending for your information the attached copy of Dr. Goldstine's letter and memorandum concerning the proposed addition to the Electronic Computer building.

Katherine Russell
Secretary to the Direc

THE INSTITUTE FOR ADVANCED STUDY
ELECTRONIC COMPUTER PROJECT
PRINCETON, NEW JERSEY

December 1, 1949

Colonel Chester Clark
Ballistic Research Laboratories
Aberdeen Proving Grounds
Aberdeen, Maryland

Dear Chet:

I am writing this letter to give a memorandum to you embodying our views on the new contract between the Ordnance Department and the Institute. This memorandum has the approval both of Dr. Oppenheimer and Professor von Neumann, and will, I hope, form the basis for our joint discussion with the Philadelphia Ordnance District which I assume you will arrange in the very near future.

Best regards,

Herman H. Goldstine

HHG/cp

Enclosure

CC J. R. Oppenheimer ✓
J. von Neumann

OK
JPO

THE INSTITUTE FOR ADVANCED STUDY
ELECTRONIC COMPUTER PROJECT

December 2, 1949

MEMORANDUM: On Proposed Contract with Research and Development Service, Ordnance Department.

At a meeting on November 22, at the Institute between representatives of the Ordnance Department, the Atomic Energy Commission, the Navy Department and the Institute for Advanced Study and at a subsequent meeting in Washington between representatives of the Ordnance Department and the Atomic Energy Commission, it was agreed that the work on computing machines being carried on at the Institute should be continued for the two-year period from July 1, 1950 to June 30, 1952, and that additional building space be made available as a wing to the existing computer building. It was furthermore agreed that as quickly as necessary formalities could be concluded - about February 1 - a contract would be issued by the Ordnance Department to the Institute in the amount of $351,000.00 to cover this work. Of this amount not more than $51,000.00 is to be used by the Institute for the construction of the addition to the Computer Building.

On the basis of this understanding the Institute makes the following proposals:

A) For the period from July 1, 1950 to June 30, 1952 it proposes

1) To conduct basic research on componetry, specifically with respect to

a) magnetic input-output systems,

b) other output and display systems,

c) increased electrostatic inner memory capacity,

d) secondary intermediate memory systems (magnetic drums or wheels, etc.)

e) improvements of the arithmetical electronic circuitry,

f) restudy of the general control circuitry, with special regard to the experiences gained in the course of the studies mentioned under 2) below,

g) possible studies of other componetry than conventional vacuum tubes.

2) To conduct basic research into the problems of running and maintenance of the completed and tested machine, and of its essential characteristics with respect to various categories of problems in pure and applied mathematics, mathematical physics, and other adjacent fields.

3) To conduct basic research in such other related fields as may be mutually agreed upon by the Ordnance Department and the Institute for Advanced Study.

In Enclosure I to this memorandum there is given a cost estimate for the period in question.

MEMORANDUM: On Proposed Contract with Research and Development Service, Ordnance Department.

B) Immediately upon the execution of the proposed contract to begin the construction of an additional wing to the present Computer Building which will cost approximately $85,000.00. Of this $85,000.00 the Institute proposes to contribute approximately $34,000.00 in cash together with the land, making the Government contribution $51,000.00. In the event that the cost of the building be less than $85,000.00, the Institute will contribute in cash 40% of the total cost and the Government the remaining 60%. In either case the Institute will contribute the land. The Institute understands that with its 40% contribution it may begin work on the building prior to the final execution of the proposed contract if it so desires.

The new wing will be of substantially the same type construction as the present structure.

The Institute, with a few minor exceptions given below, proposes that the basic clauses of the contract be substantially the same as in its present contract. Specifically, the Institute proposes that the same conditions as are given in Article 26, Supplemental Agreement #2 of the present contract be extended to cover the new wing with such changes in costs and dates as are obviously necessary.

The changes it proposes are as follows:

The scope of the contract should be altered to that given in paragraph A) above. In addition there should be in the scope a clause stating, as in the present contract, that any machine which may be produced, manufactured or assembled as a pilot model machine is not to be furnished to the Government nor will any associated test equipment. The Institute will agree to the addition in the scope of such other clauses as are customarily or legally required by the Ordnance Department.

Under its present contract the Institute is required to maintain a rather more extensive inventory control on expendable items than it desires to do. It is further understood that this type of control is not incorporated in newer Ordnance contracts. Under the proposed amendment, accordingly, it proposes that all expendable goods received in its plant shall be deemed to have been expended by the expiration of the contract and that no itemized account is required by the Government of these items at any time during the duration of the contract. The Institute on its part is quite willing to sign such certificates as the Government may desire to indicate that it has not and will not dispose of these expendable items in a manner contrary to the intentions of the contract. It is further proposed that this change in inventory procedure be made applicable to all expendable items now in its plant.

It is proposed that the Institute, as in its present contract, furnish the Government a final report on the work to be done under this proposed extension and will agree to furnish as many copies as may be agreed upon in final negotiation of contract. It also proposes that in addition to a final report it will issue from time to time interim reports on various phases of the work. Such reports will be issued irregularly and at such times as it is

MEMORANDUM: On Proposed Contract with Research and Development Service, Ordnance Department.

reasonable to issue them. The Institute proposed that it have full rights of publication of all reports and papers, subject only to such restrictions as may be necessary to insure patent protection to the Government.

Herman H. Goldstine
Assistant Project Director

HHG/ep

CC S. Feltman
J. R. Oppenheimer
J. von Neumann
Philadelphia Ordnance District

December 2, 1949

MEMORANDUM: On proposed Contract with Research and Development Service, Ordnance Department.

ENCLOSURE I.

Cost estimate for the period July 1, 1950 to June 30, 1952.

Salaries:

| | |
|---|---|
| $105,000.00 per year | $210,000.00 |

This salary schedule is based on a group of:

6 or 7 engineers (electronic and mechanical)
2 mathematicians
2 coders
2 or 3 machinists
3 or 4 wiremen
2 secretaries
1 laboratory technician
1 or 2 janitorial and maintenance men

Research material and supplies:

| | |
|---|---|
| $30,000.00 per year | $ 60,000.00 |

Miscellanea: (including heat, light, power, travel, communication etc.)

| | |
|---|---|
| $15,000.00 per year | $ 30,000.00 |
| | $300,000.00 |

The apportionments are, of course, only approximate, but do indicate roughly the over-all distribution of costs.

Copy to: Prof. von Neumann
Miss Trinterud

December 5, 1949

Dear Mr. Maass:

Thank you for your note about the new computer building. We are being quite conservative in our plans in the sense that the present estimate for construction is $81,000, and that the building is so planned that should costs exceed present expectations, some space can be deleted from the building and the corresponding money saved. We will not let the Institute become involved to a greater extent than now anticipated.

On one other matter, I am sending you a memorandum. This has to do with a Navy disallowance in the case of Professor Queney. There is no doubt that Queney acted badly, but there is very much doubt in our mind as to whether we should attempt further action against him. It seemed to me a situation of which you would wish to be acquainted.

With every good wish,

Robert Oppenheimer

Mr. Herbert H. Maass
20 Exchange Place
New York, N. Y.

Read Mass Letter

THE INSTITUTE FOR ADVANCED STUDY
SCHOOL OF MATHEMATICS
PRINCETON, NEW JERSEY

December 1, 1949

Dear Robert,

The estimated total cost of the building in question is $85,000 (see page 3 of my letter to Dr. Platt). $51,000 is the 60 per cent contribution of the Government (see same page). The $85,000 figure is based on an estimate of Eggly-Furlow, who built the present Computer Building in 1946.

John

JOHN VON NEUMANN

JVN:LD

Dr. Robert Oppenheimer
The Institute for Advanced Study
Princeton, New Jersey

Prof J von Neumann
R.O.

MAASS, DAVIDSON, LEVY & FRIEDMAN

HERBERT H. MAASS
WILBUR C. DAVIDSON
MONROE L. FRIEDMAN
DAVID J. LEVY
DAVID C. WESTON

20 EXCHANGE PLACE
NEW YORK 5, N.Y.

CABLE ADDRESS
"MAASHERB"
TELEPHONE
DIGBY 4-6151

November 30, 1949

Dr. J. Robert Oppenheimer
The Institute for Advanced Study
Princeton, New Jersey

Dear Oppie:

Mrs. Russell has sent me a copy of von Neumann's letter to Dr. Platt of the Atomic Energy Commission, which I have read with care. Inasmuch as the proposal involves a commitment of the Institute for the excess cost of the building over and above the government's contribution, I hope that the estimate of $51,000 as the approximate total cost is based upon estimates in hand from responsible builders. It were too bad if the cost turned out to be greatly in excess of this amount, and the Institute found its 40% commitment at a much higher figure than is presently contemplated.

With kind personal regards, I am

Yours very truly,

Herbert H. Maass

HHM:em

THE INSTITUTE FOR ADVANCED STUDY
OFFICE OF THE DIRECTOR
PRINCETON, NEW JERSEY

November 29, 1949

Memorandum to: Mr. Maass
Mr. Strauss
Mr. Leidesdorf

Dr. Oppenheimer has asked me to send to you for your information the attached letter from Professor von Neumann to Joseph Platt of the Atomic Energy Commission regarding the proposed extension of the Electronic Computer building.

Director's Office

cc Messrs
Strauss
Seidenberg
11/29/49

November 22, 1949

Dr. Joseph Platt
Atomic Energy Commission
Washington 25, D. C.

Dear Dr. Platt:

I am writing you this letter in accordance with the suggestion made by you and Mr. Shapiro, of the New York office of the AEC, during our conference today, that I give you the details regarding the proposed extension of the Institute's Computer Building, together with the justification for this extension and its historical background. The last part of this letter is at the same time an official contract proposal from the Institute for Advanced Study, and has the approval of Dr. Robert Oppenheimer, the Director of the Institute.

As you know, the project was initiated by the Institute, together with the Ordnance Department of the U. S. Army, early in 1946, to undertake the development of a very high-speed and fully automatic computing machine. From the point of view of the scope of this contract, the actual construction of the machine was only a means to secure the actual purpose envisaged by the government: To furnish the government with designs and with a prototype on the basis of which interested agencies could build computing machines for their own use. This work was carried on by several contracts with Ordnance until July, 1948. The Institute, apart from acting as a contractor and furnishing the personnel, made substantial direct and indirect financial contributions to the project.

In early 1948, it was realized both by the Atomic Energy Commission and by the National Military Establishment that the principal laboratories of both agencies had strong and comparable interest in furtherance of the construction of an electronic computing machine of the design on which we were working. Accordingly, a joint AEC and National Military Establishment contract was entered into for the two year period from July, 1948, to July, 1950. The contracting agency was the Ordnance Department.

These contractual arrangements have furthered our work to the point where the interested agencies could initiate several projects that will produce computing machines following our developments and designs. Specifically, among the AEC laboratories, Los Alamos is already working actively on the construction of such a machine; Argonne has also started such work, although it is in a somewhat earlier phase; there is some probability that other laboratories of the Commission may follow (among the Department of Defense laboratories, the Ballistic Research Laboratories at Aberdeen have initiated a contract with the University of Illinois for the construction of a machine according to our plans and specifications,

and the Naval Research Laboratory is starting a project with the same purpose).

We expect to finish our prototype during the first part of 1950. After this we wish to continue our work in several directions: First, further work on components (Primary memory, secondary memory, input, output, and possibly other items - cf. my letter of November 14, 1949 to Col. A. P. Taber, of which a copy is in your possession). Second, studies on the questions involved in running and maintaining this machine and on the mathematical methods and organizational principles involved in using it in the relevant fields of its application (consider the same reference; also what follows below).

For the main part of this work, as you know, a contract along the same lines as the joint AEC-National Military Establishment-Institute for Advanced Study contract of July, 1948, to July, 1950, is now being contemplated and will soon be negotiated between the interested parties, including yourself and ourselves. An additional desideratum which arises in this context is the extension of the Institute's present Computer Building.

As you know, our work has been carried on so far in a building which was constructed on the basis of a contract between the Institute for Advanced Study and the Army Ordnance Department in 1946-47. The present building has an area of approximately 5900 sq. ft. It was constructed at an expense of approximately $100,000.00. Of this amount, $63,000.00 was paid by the government; $37,000.00, by the Institute. The land was also contributed by the Institute. This building has been so far sufficient for our development and construction work and for the mathematical and related studies which are a complement to the computer project, although its laboratory space as well as its office space has come to be gradually more and more congested, and the situation at present is lacking all elasticity. The other facilities of the Institute are also occupied to capacity.

The work with a finished machine, the various necessary phases of problem-planning, coding, studying and evaluating of results and of experience with the performance of the machine, will require additional space which can certainly not be found by re-arrangements within the present facilities. In addition, the parallel work of the AEC laboratories referred to above, will require the stationing of employees of those laboratories with us to an increasing extent and for lengthening periods of time.

An extension of the building is, therefore, now necessary in the interest of the efficiency of the services which we are rendering the Commission. Specifically, the machine construction work going on in Commission laboratories will extend considerably beyond the date of our completion of the prototype machine. In order that we be in a position to give the Commission adequate advice on its construction programs, it is

necessary that we pursue intensively our work with the finished machine. Our studies on running and maintaining it, and planning and coding for it, and on analyzing its defects, will be an essential part of our contribution to the construction of the Commission's machines, that is, it is a decisive part of the scope of our contracts with the Commission. It is clear that the efficiency of this work depends vitally on the availability of adequate space, which renders this extension necessary.

The characteristics of the extension that we are proposing are as follows: The area is slightly under 5,000 sq. ft.; the cubic contents, slightly under 70,000 cubic feet. The details of structure are similar to those in the present building, they are given in Enclosure A. The facilities to be contained in the extension are:

1 large room to house the finished prototype machine.
2 large offices.
10 small offices for the personnel connected with the running, etc. of the machine.
Some additional shop space and subsidiary facilities.

The cost is expected to be about $85,000.00.

The Institute's proposal is that the AEC enter into a lump-sum contract with us, in the amount of $51,000.00, to cover approximately 60 per cent of the cost of this extension, the remaining 40 per cent to be borne by the Institute. The Institute will, in addition, furnish the land.

The further clauses which the Institute would accept the contract are identical with those of the Ordnance Department contract under which the present (original) building was constructed, they are given in Enclosure B.

Sincerely yours,

/s/ John von Neumann

Enclosure A.

Cinder block, brick veneer; wood frames and sash; bearing walls with steel roof joists and pre-cast concrete slab roof; built up roofing with insulation; concrete slab on grade with cinder fill. Interior plastering with masonry partitions. Hot water heating. Plumbing conforming to local code. Incandescent and fluorescent lighting. Air conditioning for new area of building.

Enclosure B.

(a) ... It is further understood and agreed that title to said structure is to be and remain in the Contractor.

(b) Contractor shall maintain the structure in good condition at its own expense for a period of eight (8) years beyond the duration of the contract as amended, i.e., 30 June 1952, unless earlier released from this obligation by the Contracting Officer.

(c) Title to the structure shall, during said period, be kept free of encumbrances not consented to in writing by the Contracting Officer.

(d) Material alterations in the nature of the structure will not be made without the written consent of the Contracting Officer.

(e) In the use of the structure during said period, Government orders shall be given priority.

(f) During said period, Contractor shall not include in any other contract it may have with the Government any sum for depreciation or amortization of the structure.

(g) At the conclusion of this contract, the Contractor and the Government shall negotiate on the subject of the structure to determine what sum, if any, expended therefor, shall be returned to the Government, in return for the release of Contractor's obligations, set forth in this Article.

COPY

THE INSTITUTE FOR ADVANCED STUDY
ELECTRONIC COMPUTER PROJECT
PRINCETON, NEW JERSEY

November 22, 1949

Dr. Joseph Platt
Atomic Energy Commission
Washington 25, D. C.

Dear Dr. Platt:

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The work with a finished machine, the various necessary phases of problem-planning, coding, studying and evaluating of results and of experience with the performance of the machine, will require additional space which can certainly not be found by re-arrangements within the present facilities. In addition, the parallel work of the AEC laboratories referred to above, will require the stationing of employees of those laboratories with us to an increasing extent and for lengthening periods of time.

An extension of the building is, therefore, now necessary in the interest of the efficiency of the services which we are rendering the Commission. Specifically, the machine construction work going on in Commission laboratories will extend considerably beyond the date of our completion of the prototype machine. In order that we be in a position to give the Commission adequate advice on its construction programs, it is

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THE INSTITUTE FOR ADVANCED STUDY

ELECTRONIC COMPUTER PROJECT

PRINCETON, NEW JERSEY



necessary that we pursue intensively our work with the finished machine. Our studies on running and maintaining it, and planning and coding for it, and on analyzing its defects, will be an essential part of our contribution to the construction of the Commission's machines, that is, it is a decisive part of the scope of our contracts with the Commission. It is clear that the efficiency of this work depends vitally on the availability of adequate space, which renders this extension necessary.

The characteristics of the extension that we are proposing are as follows: The area is slightly under 5,000 sq. ft.; the cubic contents, slightly under 70,000 cubic feet. The details of structure are similar to those in the present building, they are given in Enclosure A. The facilities to be contained in the extension are:

1 large room to house the finished prototype machine.
2 large offices.
10 small offices for the personnel connected with the running, etc. of the machine.
Some additional shop space and subsidiary facilities.

The cost is expected to be about $85,000.00.

The Institute's proposal is that the AEC enter into a lump-sum contract with us, in the amount of $51,000.00, to cover approximately 60 per cent of the cost of this extension, the remaining 40 per cent to be borne by the Institute. The Institute will, in addition, furnish the land.

The further clauses which the Institute would accept the contract are identical with those of the Ordnance Department contract under which the present (original) building was constructed, they are given in Enclosure B.

Sincerely yours,

JOHN VON NEUMANN

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THE INSTITUTE FOR ADVANCED STUDY

ELECTRONIC COMPUTER PROJECT

PRINCETON, NEW JERSEY

Dr. Platt — November 22, 1949 — Enclosure A.

Cinder block, brick veneer; wood frames and sash; bearing walls with steel roof joists and pre-cast concrete slap roof; built up roofing with insulation; concrete slab on grade with cinder fill. Interior plastering with masonry partitions. Hot water heating. Plumbing conforming to local code. Incandescent and fluorescent lighting. Air conditioning for new area of building.

COPY

THE INSTITUTE FOR ADVANCED STUDY

ELECTRONIC COMPUTER PROJECT

PRINCETON, NEW JERSEY

Dr. Platt -- November 22, 1949 -- Enclosure B.

(a) ... It is further understood and agreed that title to said structure is to be and remain in the Contractor.

(b) Contractor shall maintain the structure in good condition at its own expense for a period of eight (8) years beyond the duration of the contract as amended, i.e., 30 June 1952, unless earlier released from this obligation by the Contracting Officer.

(c) Title to the structure shall, during said period, be kept free of encumbrances not consented to in writing by the Contracting Officer.

(d) Material alterations in the nature of the structure will not be made without the written consent of the Contracting Officer.

(e) In the use of the structure during said period, Government orders shall be given priority.

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