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FEDERAL SECURITY AGENCY • Public Health Service
NATIONAL INSTITUTES OF HEALTH

EXPERIMENTAL BIOLOGY AND MEDICINE INSTITUTE
MICROBIOLOGICAL INSTITUTE
NATIONAL CANCER INSTITUTE
NATIONAL HEART INSTITUTE
NATIONAL INSTITUTE OF DENTAL RESEARCH
NATIONAL INSTITUTE OF MENTAL HEALTH
THE CLINICAL CENTER
DIVISION OF RESEARCH GRANTS AND FELLOWSHIPS

July 28, 1950

In reply refer
to: RG-2814

Dr. Leo Szilard
Professor of Biophysics
Institute of Radiobiology and Biophysics
The University of Chicago
Chicago 37, Illinois

Dear Doctor Szilard:

This will acknowledge receipt of your application for a Public Health Service grant, entitled "Study of the Growth, Adaptation, and Mutation of Bacteria and Bacterial Viruses, Carried Out With New Biophysical Methods."

This application, to which we have assigned the reference number shown above, will be presented at the October meeting of the National Advisory Health Council after preliminary review. Notification of the action taken by the Council will be forwarded to you as soon as possible after the meeting.

Five copies of the application are enclosed for your convenience.

Sincerely yours,

G. Seger, Dr.P.H.
Project Review Officer

Enclosures - 5

cc: Dr. Coggeshall

FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
APPLICATION FOR GRANT-IN-AID

Rec. 7/24/50

NUMBER: (Do not write in this space)

RG-2814

M & G

Date July 14, 1950

Application is hereby made for a grant-in-aid in the amount of \$ 7,776.00 for the period from December 1, 1950 to November 30, 1951, inclusive,
TITLE OF PROJECT

Study of the growth, adaptation, and mutation of bacteria and bacterial viruses, carried out with new biophysical methods

TITLE OF PRINCIPAL INVESTIGATOR

Professor of Biophysics

NAME OF PRINCIPAL INVESTIGATOR

Leo Szilard

ADDRESS OF PRINCIPAL INVESTIGATOR

**Institute of Radiobiology and Biophysics
The University of Chicago, Chicago 37, Illinois**

TITLE OF FINANCIAL OFFICER TO WHOM CHECK SHOULD BE MAILED

Business Manager, Special Projects

NAME OF FINANCIAL OFFICER

W. B. Harrell

ADDRESS OF FINANCIAL OFFICER

**The University of Chicago
5801 Ellis Avenue
Chicago 37, Illinois**

Name of institution The University of Chicago

(Name and title of official authorized to sign for institution)

**L. T. Coggeshall, M.D.
Dean, Division of Biological Sciences**

1. (a) Budget proposed for the year December 1, 1950 through November 30, 1951. This date to be the same as those given on page 1

| ITEM | FUNDS REQUESTED FROM THE PUBLIC HEALTH SERVICE | FUNDS FROM OTHER SOURCES |
|---|--|--------------------------|
| <i>PERSONNEL (Itemize all positions, give names of professional personnel, if selected)</i> | | |
| Professor of Biophysics (L. Szilard), full time | | UofC \$8,000. |
| Assistant Professor (A. Novick), full time | \$2,000. | UofC 3,000. |
| Research Assistant, full time | 2,600. | UofC 867. |
| Technician, full time | 1,800. | UofC 600. |
| Secretary (Mrs. S. Sykes), 45% | | UofC 1,000. |
| <i>PERMANENT EQUIPMENT NEEDED (Itemize)</i> | | |
| Apparatus and installation | | UofC 3,000. |
| <i>CONSUMABLE SUPPLIES NEEDED (Itemize)</i> | | |
| Glassware, chemicals, etc. | 500. | UofC 2,000. |
| <i>TRAVEL</i> | | |
| | 300. | |
| <i>OTHER EXPENSE (Itemize)</i> | | |
| Annuities (Szilard, Novick, 5%) | | UofC 650. |
| SUBTOTAL | \$7,200. | X X X X X X X X |
| <i>OVERHEAD (Not to exceed 8% of subtotal)</i> | | |
| | 576 | X X X X X X X X |
| TOTAL FOR THE YEAR | \$7,776. | \$19,117. |

1. (b) Estimate of future requirements:

First additional year \$ 7,776.00 Third additional year \$ Same
 Second additional year \$ Same Fourth additional year \$ Same

2. List all support, including that from own institution, on this or related research projects from sources other than Public Health Service

| TITLE OF PROJECT | SOURCE | AMOUNT | YEARS OF SUPPORT (From _____ to _____) |
|--|--------------------------|-------------|---|
| PREVIOUS | | | |
| Study of the growth, adaptation, and mutation of bacteria and bacterial viruses, carried out with new biophysical methods. | Univ. of Chicago | \$22,000.00 | 1949-50 |
| CURRENT | | | |
| Study of the growth, adaptation, and mutation of bacteria and bacterial viruses, carried out with new biophysical methods. | Univ. of Chicago. | \$19,117.00 | 1950-51 |
| PENDING | | | |
| Study of the growth, adaptation, and mutation of bacteria and bacterial viruses, carried out with new biophysical methods. | Office of Naval Research | \$14,780.00 | 1950-51 |

3. All previous and current Public Health Service grants in support of this project

| GRANT NUMBER | TITLE OF PROJECT | AMOUNT | YEARS OF SUPPORT (From _____ to _____) |
|-------------------------|------------------|--------|---|
| PREVIOUS <u>NONE</u> | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| CURRENT <u>NONE</u> | | | |
| | | | |
| | | | |
| | | | |
| | | | |

4. PROPOSED PLAN

- (a) Specific aims of project.
 - (b) Method of procedure.
 - (c) Relationship of anticipated results to general problems in field.
 - (d) Facilities available including list of major items of permanent equipment.
5. (a) Previous work done on this or closely related projects by the investigator(s).
 - (b) Most important publications of investigator(s) pertaining to this problem.
6. (a) Results bearing on this project obtained by other investigators.
 - (b) Publications of other investigators related to this proposed project.

4.

Background: Up to now, studies of growth, adaptation, and mutation of bacteria were invariably carried out in cultures which grew from a small inoculum up to a certain concentration of bacteria at which further growth was limited either by the exhaustion of the nutrient or by insufficient

supply of oxygen. For a number of problems this conventional method of study is inadequate, and preliminary experiments which we carried out (unpublished) show that these problems are capable of a solution if a different method is adopted.

Significance: The new method permits us to study these phenomena while the bacteria are being kept indefinitely in the growth phase and to vary independently the growth rate and concentration of the bacteria. Thus a number of the previously unmanageable problems become open to experimental attack.

Plan: Several lines of investigation to be listed below will be carried out by means of an apparatus called the "Chemostat" which we have developed. This apparatus permits us to maintain a bacterial population in the growth phase over long periods of time (in excess of ten days). It permits varying the growth rate at constant temperature by automatically maintaining the concentration of one of the growth factors required by the bacterial strain at such a low level that the growth rate is depressed to any desired degree. In preliminary experiments carried out with a tryptophane requiring strain of coli, we found, for instance, that we could vary the growth rate between the normal growth rate and a growth rate about ten times lower by maintaining tryptophane concentrations ranging from 3×10^{-9} grams per cc. to 3×10^{-10} grams per cc. The following is a selection from the investigations which will be carried out with the chemostat:

- 1) The number of mutants (resistant to some bacterial virus) which establish themselves in the bacterial population will be determined for different growth rates. The results should show whether at a given temperature the mutation rate is determined by the number of cell divisions or rather the time that the bacteria spend in the growth phase.
- 2) The ratio of mutation rates for different mutations will be studied in order to determine whether this ratio depends, for one and the same organism, on the particular growth factor which is used for depressing the growth rate.
- 3) Bacterial metabolism will be studied:
 - a) It will be determined whether oxygen consumption varies at a given temperature with the growth rate; and
 - b) It will be determined whether, at depressed growth rates, the bacterial population pours out, at an increased rate, intermediate metabolites into the nutrient liquid.
- 4) The growth rate will be determined for bacterial strains requiring various growth factors as a function of the growth factor concentration.

DO NOT TYPE IN THIS SPACE—BINDING MARGIN

These functions will be determined for two temperatures differing by about ten degrees, in the hope of obtaining relevant information on the chemical kinetics of bacterial growth.

5.

Publication Pertaining to this Problem:

A. Novick and Leo Szilard, Experiments on Light-reactivation of Ultra-violet Inactivated Bacteria. Proceedings of the National Academy of Sciences, 35: 591-600 (1949)

6.

Results Bearing on this Project Obtained by Other Investigators:

None

Biographical Sketches of Investigators

Leo Szilard

Born 1898 Budapest. Dr. Phil., University of Berlin, 1922. Privatdozent, physics, University of Berlin, 1928-33; associate, Clarendon Laboratory, England, 1935-38; member of staff of National Defense Research Division, Columbia University, 1940-42; chief physicist, metallurgical laboratory, University of Chicago, 1942-46; professor of biophysics, Institute of Radiobiology and Biophysics, The University of Chicago, since 1946. Fields of research: nuclear physics; growth, mutations, and genetics of bacteria and bacterial viruses.

Aaron Novick

Received Ph.D. in physical organic chemistry in 1943, University of Chicago. Graduate work was concerned with reaction kinetics and protein structure. After graduation, with the Manhattan District atomic energy project, studying the effects of radiation on physical and chemical properties of various materials. During 1945 and part of 1946, at Los Alamos in nuclear physics. From 1946 to 1947, worked at the Argonne National Laboratory as Senior Chemist, studying the nuclear properties of tritium and Helium-three with particular reference to their magnetic moments. Since 1947, Assistant Professor of Biophysics in the Institute of Radiobiology and Biophysics of The University of Chicago. Principal research has been concerned with the genetics of bacterial viruses and bacteria.



FEDERAL SECURITY AGENCY • Public Health Service
NATIONAL INSTITUTES OF HEALTH • Bethesda 14, Md.

EXPERIMENTAL BIOLOGY AND MEDICINE INSTITUTE
MICROBIOLOGICAL INSTITUTE
NATIONAL CANCER INSTITUTE
NATIONAL HEART INSTITUTE
NATIONAL INSTITUTE OF DENTAL RESEARCH
NATIONAL INSTITUTE OF MENTAL HEALTH
THE CLINICAL CENTER
DIVISION OF RESEARCH GRANTS AND FELLOWSHIPS

October 24, 1950

In reply refer
to our RG 2814

Dr. Leo Szilard
Professor of Biophysics
Institute of Radiobiology and Biophysics
University of Chicago
Chicago 37, Illinois

Dear Doctor Szilard:

Upon recommendation of the National Advisory Health Council on October 20-21, 1950, the Surgeon General has approved your application for research grant, RG 2814.

I sincerely trust that these funds will permit proper conduct of your research project and that if we may be of further service, you will not hesitate to let us know.

Sincerely yours,

David E. Price

David E. Price, M.D., Dr. P.H.
Chief, Division of Research
Grants and Fellowships

Enclosure

cc: Dr. L. T. Coggeshall
Mr. W. B. Harrell
Business Office, U. of Chicago

FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA 14, MARYLAND

STATEMENT OF RESEARCH GRANT AWARD

| | |
|--|--|
| GRANT NO. RG 2814 | AMOUNT: \$ 7,776 |
| GRANTEE - INSTITUTION: University of Chicago | FIRST PAYMENT: \$ 7,776 |
| INVESTIGATOR(S): Dr. Leo Szilard | FUTURE COMMITMENT: IF SCIENTIFIC PROGRESS JUSTIFIES CONTINUATION AND NECESSARY FUNDS ARE APPROPRIATED, SUPPORT WILL BE GIVEN AS FOLLOWS: 1st additional year - \$7,776 * 2nd additional year - 7,776 * 3rd additional year - no commitment * includes overhead |
| PERIOD December 1, 1950 - November 30, 1951 | |

BUDGET CATEGORIES

The funds available for expenditure under this grant have been allocated to budget categories as shown below and are available for obligation only for the period shown.

| TRANSFER OF FUNDS BETWEEN CATEGORIES | CATEGORY | AMOUNT |
|--|---------------------|---------|
| Expenditures of funds within each category may be made at the discretion of the grantee. Transfers into "Personnel" or into "Consumable Supplies" from any other category may be made at the discretion of the grantee unless the total of all transfers between categories exceeds 25% of the approved budget, in which case prior approval must be secured from the Public Health Service. No transfers may be made into "Permanent Equipment", "Travel", "Other Expenses" or "Overhead" without prior approval of the Public Health Service. (For other budgetary rulings see Section VIII of the enclosed Statement of Policy.) | PERSONNEL | \$6,400 |
| | PERMANENT EQUIPMENT | --- |
| | CONSUMABLE SUPPLIES | 500 |
| | TRAVEL | 300 |
| | OTHER EXPENSES | --- |
| | OVERHEAD | 576 |
| | TOTAL | \$7,776 |

REMARKS:

October 20-21, 1950

DATE RECOMMENDED BY THE NATIONAL ADVISORY HEALTH COUNCIL

October 24, 1950

DATE APPROVED BY THE SURGEON GENERAL, PHS

David E. Price

SIGNATURE

David E. Price, M.D., Dr. P.H.
Chief, Division of Research

TITLE

Grants and Fellowships

EXPLANATION OF TERMS
OF
STATEMENT OF RESEARCH GRANT AWARD

- I. ACTIVATION OF GRANT: Research grants may be activated on the initial date of the period shown in the Statement of Grant Award or an agreed-upon subsequent date. Expenditures on new grants and on renewal grants may not be made before the effective beginning date so established.
- II. PAYMENTS: For all new grants payment of the full amount will be made in one installment at the beginning of the grant period. For all renewal grants payment will be made in two installments, an initial payment of one-half of the total approved and a second payment reduced by the amount of the unobligated balance shown on the financial report as carried forward from the current grant. No unobligated balances may be carried over as amount additional for a renewal period, the total amount to be made available having been recommended in the renewal grant.
- III. REDUCED BUDGETS: Where the amount approved by the Surgeon General is less than the amount requested, the budget category allocations are not completed on the Statement of Research Grant Award which is transmitted to the investigator. Instead, all copies of this Award Sheet are sent with the original to the investigator in order to permit him to show the distribution by category best reflecting his needs within the amount approved. Upon completion, one copy must be returned to the Division of Research Grants and Fellowships before the grant may be vouchered. The other copies should be routed respectively to the official signing the application, to the payee, to the business office, and to any other investigators shown on the application. Overhead must be adjusted to an amount not in excess of 8% of the total of the other categories, all categories including overhead to equal the amount of the reduced budget recommended.
- IV. FUTURE COMMITMENT: The Statement of Research Grant Award indicates to the investigator all future commitment that has been recommended in his behalf, all future commitment being contingent upon evidence of satisfactory scientific progress and upon appropriation of necessary funds by the Congress. If no future commitment is indicated, it must be realized by the investigator that any renewal application for this project will be required to compete for funds available at that time.

If the investigator requires for a committed renewal period an amount in excess of that shown, it will be necessary that he submit two renewal applications: the first in the amount of the commitment, and the second in the amount of the excess.

- V. STATEMENT OF POLICY - REVISED 3/1/50 (Copy enclosed): This Statement should be carefully read for information on use of travel funds, payment of professional salaries, transfers between categories, annual progress and financial reports, and other policy and procedural items governing the financial administration of the grant.

THE UNIVERSITY OF CHICAGO
Office of the Comptroller

Date December 7, 1950

To Mr. Leo Szilard
From Arthur Lincicome

Department Institute of Radiobiology and
Biophysics
Department Assistant Comptroller

In Re: Medical Research No. 149 - Account No. 3-3250-00-1683

In accord with instructions from Mr. Harrell, we have opened the above-referenced account to cover Grant No. RG 2814 from the U. S. Public Health Service for the period December 1, 1950 to November 30, 1951. The budget has been set up as follows:

| | | |
|----------------|--------------------------|---------|
| 3-3250-00-1683 | Medical Research No. 149 | |
| -20- | Salaries | \$6,400 |
| -28- | Fees for Volunteers | |
| -32- | Permanent Equipment | |
| -33- | Annuities | |
| -34- | Travel | 300 |
| -35- | Consumable Supplies | 500 |
| -90- | Overhead | 576 |
| -95- | Unassigned | |

Total \$7,776

The amounts set up in subaccounts Nos. 34 and 90 may not be increased without specific approval from the USPHS. Otherwise the amounts in the various subaccounts may be adjusted up to 25% of the total amount for the project, with, of course, no change in the total amount of appropriations.

Any amounts set up in subaccounts Nos. 33 and 90 may not be expended by you since this office will make all charges against these subaccounts. Also, if any amount is set up in subaccount No. 95, such amount may not be expended from that account. Any amounts needed for expenditure from the "Unassigned" item must be transferred to the proper subaccount before expenditure.

The regular commitment and expenditure procedures of the University may be followed for this account except that:

1. Each Purchase Request (Form 100R) must bear the note "Government Contract - Invoice in Duplicate".
2. No expenditure may be made from these accounts for fellowships and scholarships.
3. Expenditures may be made only for services rendered or materials, supplies or equipment received during the period of the contract as mentioned above.
4. Care should be taken that any travel expense charged to the project cover only travel both started and ended during the period of the contract.

If you have any questions regarding the administration of this account, please advise.

AL:FM

cc: Messrs. Harrell
Watson
Cotton

Dean Coggeshall
T. R. Hogness
Central Administration



Mr. Cotton:
When payment is received credit Account
No. 0-0271-73-1683

AL

MANUAL OF ACCOUNTS
ACCOUNT INFORMATION SHEET

| | | ACCOUNT CODE | | | |
|---|--|--|---------|----------------------|------|
| | | L | Account | Sub | Fund |
| Name of Account: Medical Research No. 149 Salaries Travel Consumable Supplies Overhead | | 3 | 3250 | 20 34 35 90 | 1683 |
| In Charge of: Mr. Leo Szilard | | Departmental Classification: Biological Sciences Division Inst. of Radiobiology & Biophysics | | | |
| Purpose of Account: To set up appropriations from the Medical Research No. 149 Fund and record expenditures against the appropriations in accordance with the terms of the U.S.P.H.S. grant No. RG 2814. | | | | | |
| Source of Funds: Donor Federal Security Agency, Public Health Service | | | | | |
| Amount \$ 7,776.00 | | Period 12/1/50 - 11/30/51 | | | |
| Payable Advance payment; balance refundable. | | | | | |
| Account to be debited with: Expenditures approved by the responsible investigator or his authorized representative and subject to the specific limitations as set forth in the grant and regulations governing U.S.P.H.S. grants. | | | | | |
| Account to be credited with: | | | | | |
| Disposition of Balance: For balance sheet purposes, the unexpended balance of this appropriation account is combined with the unappropriated balance of the fund and classified as "Deferred Income". | | | | | |
| Bookkeeper: Restricted Expendable Bookkeeper Government Accounts Division | | Statements to: Mr. Leo Szilard ✓ Dean of the Biological Sciences Division | | | |

TABULATING HEADING CARDS

| Name of Account: | Card Code | L | Account | Sub | Fund | Cards Punched |
|---|-----------|---|---------|-----|------|---------------|
| Medical Res. No. 149 Salaries | 1 | 3 | 3250 | 20 | 1683 | |
| Medical Res. No. 149 Travel | 1 | 3 | 3250 | 34 | 1683 | |
| Medical Res. No. 149 Consumable Sup. | 1 | 3 | 3250 | 35 | 1683 | |
| Medical Res. No. 149 Overhead | 1 | 3 | 3250 | 90 | 1683 | |
| Medical Res. No. 149 | 2 | 3 | 3250 | - | 1683 | |
| Salaries | 2 | 3 | 3250 | 20 | 1683 | |
| Travel | 2 | 3 | 3250 | 34 | 1683 | |
| Consumable Supplies | 2 | 3 | 3250 | 35 | 1683 | |
| Overhead | 2 | 3 | 3250 | 90 | 1683 | |

Date Established..... 11/14/50
Date Revised.....
Date Discontinued.....

Prepared by..... VDF
Approved by..... TAK; AL; H
Entered Code Rack.....

Ray Shelton free
June
5757 Univ. Ave
I.N.S. Ext 65 (Ring 2)
C.T.S.

Maurice S. Fox
5523 Drexel Ave
But 8-2609

Lab Inst. for Nuc. St.
Ext 41

free March -
- June
(wife)

REQUEST FOR BUDGET TRANSFERS
 (ENTRY CODE O)

Quadruplicate
 For Other Adm. Officer

INSTRUCTIONS FOR PREPARATION: This form is to be used in requesting transfers to or from Budget Accounts (including regular budget appropriations, restricted expendable appropriations, and budget income estimates). It should be prepared in quadruplicate by the Dean or other appropriate administrative officer, and all copies forwarded to the Central Administration for approval. If approved, all copies will then be transmitted to the Comptroller's Office, where they will be numbered and the copies returned to the appropriate offices as notification that the request has been approved. If disapproved, the appropriate officer will be notified by the Central Administration.

Decreases in appropriations or increases in budget income estimates and negative appropriations shall be entered under the "Transfer From" section; increases in appropriations or decreases in budget income estimates and negative appropriations shall be entered under the "Transfer To" section.
 This form is also to be used for making and adjusting appropriations from Restricted Expendable Funds and Unexpended Plant Funds.

| (Give Full Account Name) TRANSFER FROM (Decreases in Appropriations or Increases in Budget Income Estimates and Negative Appropriations) | EN-TRY CODE | ACCOUNT CODE | | | AMOUNT |
|---|-------------|--------------|---------|------------------------------------|----------|
| | | L | Account | Sub Fund | |
| Medical Research No. 149 | 03 | 0 | 0275 | 93 1682 | 7,776 00 |
| TRANSFER TO (Increases in Appropriations or Decreases in Budget Income Estimates and Negative Appropriations) | | | | | |
| Medical Research No. 149 | 03 | 3 | 3250 | 20 ¹⁶⁸² 1682 | 6,400 00 |
| Salaries | " | " | " | 34 " | 300 00 |
| Travel | " | " | " | 35 " | 500 00 |
| Consumable Supplies | " | " | " | 90 " | 576 00 |
| Overhead | | | | | |

REASONS FOR REQUEST:

To set up appropriations covering USPHS Grant No. GG 2814 for the period 12/1/50 thru 11/31/51 in accordance with Mr. Harrell's letter dated 11/10/50/.

Mr. Leo. Szilard

| | | | |
|--------------------------------------|--------------------|-----------------------------|-------------------|
| REQUESTED—Dean or Other Adm. Officer | DATE | | DATE |
| L.T. Coggeshall | 11/21/50 | | |
| APPROVED—Central Administration | DATE | FUNDS AVAILABLE—Comptroller | DATE |
| R.W. Harrison | 11/21/50 | <i>H.C. Daines</i> | NOV 28 1950 |
| CHECKED FOR PROPRIETY OF ENTRY | CODING VERIFIED BY | | COMPTROLLER'S No. |
| By _____ | | | 10430 |

THE UNIVERSITY OF CHICAGO

Date **November 10, 1950**

TO Mr. Arthur Lincicome DEPARTMENT Assistant Comptroller
FROM W. B. Harrell DEPARTMENT Business Manager

In Re: **Public Health Service Grant No. RG 2614**
Dr. Leo Szilard

Transmitted herewith is copy of letter dated **October 24, 1950** from **Dr. David E. Price, Chief, Div. of Research Grants & Fellowships, Public Health Service**, approving continuation of the above-referenced grant for a period of one year from ~~July~~ **Jan** 1, 1950, in the amount of **\$7,776.**
Dec.

Will you have a new account established and budget the grant as follows:

| | |
|---------------------|-----------------------|
| Salaries | \$6,400 |
| Permanent Equipment | — |
| Consumable Supplies | 500 |
| Travel | 300 |
| Overhead | 576 |
| | <u>\$7,776</u> |

A copy of the application as submitted to and approved by USPHS is also enclosed.

enclosures

cc: **Dr. L. T. Coggshall**
Dr. Leo Szilard ✓
Mr. Cotton

October 24, 1950

In reply refer
to our RG 2814

Dr. Leo Szilard
Professor of Biophysics
Institute of Radiobiology and Biophysics
University of Chicago
Chicago 37, Illinois

Dear Doctor Szilard:

Upon recommendation of the National Advisory Health Council on October 20-21, 1950, the Surgeon General has approved your application for research grant, RG 2814.

I sincerely trust that these funds will permit proper conduct of your research project and that if we may be of further service, you will not hesitate to let us know.

Sincerely yours,

/s/ David E. Price
David E. Price, M.D., Dr. P.H.
Chief, Division of Research
Grants and Fellowships

Enclosure

cc: Dr. L. T. Coggeshall
Mr. W. B. Harrell
Business Office, U. of Chicago

FEDERAL SECURITY AGENCY
 Public Health Service
 National Institutes of Health
 Bethesda 14, Maryland

STATEMENT OF RESEARCH GRANT AWARD

| | |
|--------------------------------------|--|
| Grant No. | Amount |
| RG 2814 | \$7,776 |
| Grantee-Institution: | First Payment: |
| University of Chicago | \$7,776 |
| Investigator(S): | FUTURE COMMITMENT: If scientific progress justifies continuation and necessary funds are appropriated, support will be given as follows: |
| Dr. Leo Szilard | 1st additional year - \$7,776* |
| | 2nd additional year - \$7,776* |
| | 3rd additional year - no commitment |
| Period | * includes overhead |
| December 1, 1950 - November 30, 1951 | |

BUDGET CATEGORIES

The funds available for expenditure under this grant have been allocated to budget categories as shown below and are available for obligation only for the period shown.

| Transfer of Funds Between Categories | Category | Amount |
|--|---------------------|---------|
| Expenditures of funds within each category may be made at the discretion of the grantee. Transfers into "Personnel" or into "Consumable Supplies" from any other category may be made at the discretion of the grantee unless the total of all transfers between categories exceeds 25% of the approved budget, in which case prior approval must be secured from the Public Health Service. No transfers may be made into "Permanent Equipment", "Travel", "Other Expenses" or "Overhead" without prior approval of the Public Health Service. (For other budgetary rulings see Section VIII of the enclosed Statement of Policy.) | Personnel | \$6,400 |
| | Permanent Equipment | --- |
| | Consumable Supplies | 500 |
| | Travel | 300 |
| | Other Expenses | --- |
| | Overhead | 576 |
| | Total | \$7,776 |

Remarks:

October 20-21, 1950
 Date recommended by the National Advisory Health Council

October 24, 1950
 Date approved by the Surgeon General, PHS

Signature

/s/ David E. Price, M.D., Dr. P. H.
 Chief, Division of Research
 Title

Grants and Fellowships

August 28, 1950

Dean L. T. Coggeshall

Leo Szilard

Division of Biological Sciences

Institute of Radiobiology
and Biophysics

Enclosed is a copy of a letter which was received from the National Institutes of Health in response to an application which we have submitted for a grant.

The paragraph which I marked at the margin appears to require your intervention, and I wondered whether you would respond to this letter, taking care of this paragraph. We shall respond to the rest of the letter and mention that you will write them concerning this one point.

6200 Drexel Avenue

August 28, 1950

Dr. J. M. Ellis
Executive Secretary, Morphology
and Genetics Study Section
Division of Research Grants
and Fellowships
National Institutes of Health
Bethesda 14, Maryland

Dear Dr. Ellis:

Many thanks for your kind letter of August 25.

With respect to the second paragraph of your letter, I wish to say the following. All of the personnel listed, including Mrs. Sykes, shall be full time employees of the Institute of Radiobiology and Biophysics. The time that each of the listed personnel will devote to the particular project if the requested grant should be approved is as follows:

Assistant Professor (A. Novick), 4/5 time
Research Assistant, 3/4 time
Technician, 3/4 time
Secretary (Mrs. Sykes), 45% of time

With respect to the third paragraph of your letter, I wish to state that Dr. Novick has no other responsibilities at the University than to partake in the research for which a grant has been requested. He is completely free of any teaching duties. I take it that the Dean of the Biology Division will take up this point with you in greater detail.

Dr. J. M. Ellis

- 2 -

August 28, 1950

With respect to the last paragraph of your letter, I wish to say that the research assistant who would be paid \$2,600 for 3/4 of his time on this particular project would be expected to have a Master's degree in science or the equivalent thereof, to have supervisory responsibility, and to be able to carry on independently experiments within the framework of this particular project.

Sincerely yours,

Leo Szilard

cc: Dean Coggeshall
Dr. Hogness



FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA 14, MARYLAND

IN REPLYING, ADDRESS THE

In reply refer to:
RG 2814

Division of Research
Grants and Fellowships

August 25, 1950

Dr. Leo Szilard
Professor of Biophysics
Institute of Radiobiology and Biophysics
University of Chicago
Chicago 37, Illinois

Dear Doctor Szilard:

Your application for a research grant in support of your project entitled "Study of the Growth, Adaptation, and Mutation of Bacteria and Bacterial Viruses, Carried out with New Biophysical Methods," has been referred to the Morphology and Genetics Study Section for preliminary review prior to its consideration by the National Advisory Health Council. There are some questions that have been raised by Study Section members on which I should like to have further information prior to the Study Section meeting.

In the application, all personnel with the exception of the secretary, Mrs. Sykes, are listed as "full time." We should like to know just what is meant by this designation. I would assume it means that the personnel involved are full time staff members of the Institute of Radiobiology and Biophysics of the University of Chicago. The information desired by the Study Section is the time that each of these will devote to this particular project if the requested grant should be approved.

Under the policy governing Public Health Service research grants, no part of the salary of professional personnel engaged on a project may be paid out of research grant funds if this salary has previously been the responsibility of the applicant institution. In this case, members of the Study Section and Council will certainly question a request for \$2,000 as part time salary for Dr. Aaron Novick who is listed in the applicant as Assistant Professor of Biophysics at the University of Chicago. If Doctor Novick's salary is not at present paid by the University of Chicago, we should appreciate further explanation in this regard.

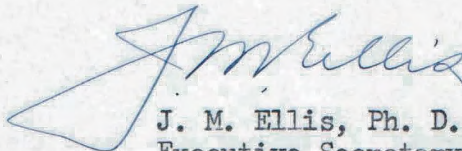
Dr. Leo Szilard

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August 25, 1950

In addition, it will be helpful if we could have some information concerning the qualifications and duties of the research assistant who would be paid \$2,600 for part time work on this project.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "J. M. Ellis". The signature is stylized with a large, sweeping initial "J" and a long, horizontal stroke extending to the right.

J. M. Ellis, Ph. D.
Executive Secretary
Morphology and Genetics Study Section

FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
National Institutes of Health
Bethesda 14, Maryland

Division of Research Grants
and Fellowships

August 30, 1950

In reply refer
to our RG 2814

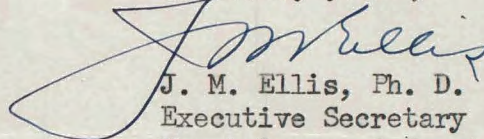
Dr. Lee Szilard
Institute of Radiobiology and Biophysics
6200 Drexel Avenue
Chicago 37, Illinois

Dear Doctor Szilard:

Receipt is acknowledged of your letter of August 28, 1950,
in which you submitted additional information relative to your
application.

I wish to thank you for your cooperation in this matter,
and to assure you that the data submitted will receive
appropriate attention.

Sincerely yours,



J. M. Ellis, Ph. D.
Executive Secretary
Morphology and Genetics Study Section
Division of Research Grants
and Fellowships