

1110 R

717169

ACC:ARB

Oak Ridge, Tennessee
October 29, 1958

University of Arkansas
Medical Center
Little Rock, Arkansas

Attention: Mr. C. D. Procop, Acting Controller

Subject: MODIFICATION NO. 5 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, for your retention, are one duly signed copy and
two conformed copies of the subject modification.

Very truly yours,

BEST COPY AVAILABLE

John R. Moore
Director, Contract Division
Oak Ridge Operations

JRM
Enclosure:
Mod. 5 (3 cys)

REPOSITORY Oak Ridge Operations
Records Holding Area
COLLECTION Documents 1944-94
Contracts AT-(40-1)-1770-1773
BOX No. 1 of 3 Bldg. 2714-H
FOLDER Contract Correspondence
Cont. No. AT-(40-1)-1771

OFFICE ▶	Contract Div.	Director			
SURNAME ▶	<i>Brown:arb</i>	<i>JR Moore</i>			
DATE ▶	10-29-58	10-29-58			

1109551



UNIVERSITY OF ARKANSAS
MEDICAL CENTER
LITTLE ROCK

October 22, 1959

SCHOOL OF MEDICINE
SCHOOL OF NURSING
SCHOOL OF PHARMACY
UNIVERSITY HOSPITAL

U. S. Atomic Energy Commission
Contract Division
Oak Ridge Operations
Oak Ridge, Tennessee

ATTENTION: Mr. John R. Moore
Director

SUBJECT: Modification No. 5 to Contract No. AT-(40-1)-1771

Gentlemen:

Enclosed, in duplicate, is proposed Modification No. 5 to Contract No. AT-(40-1)-1771 for additional research and extension of the period to September 30, 1959. The modification has been duly signed.

Also enclosed is the completed summary statement.

Yours very truly,


C. D. Procop
Acting Controller

CDP:ls

cc: Dr. Gould
Dr. Barnhard

1109551-A

ACC:DRY

Oak Ridge, Tennessee
October 1, 1958

University of Arkansas
School of Medicine
Department of Radiology
Little Rock, Arkansas

Attention: Dr. Howard J. Bernhard

Subject: MODIFICATION NO. 5 TO CONTRACT NO. AI-(40-1)-2771

Gentlemen:

Enclosed, in triplicate, is proposed Modification No. 5 to the subject contract which provides for additional research and extension of the period to September 30, 1959 during which the work may be conducted. Also enclosed is a Notice of Research Project form which is to be used in submitting your summary statement.

If the modification, as submitted, is satisfactory to you, will you please sign two of the enclosed copies in the space provided for the Senior Investigator, have such two copies signed by the proper official of the University and return them to this office. After signature on behalf of the Commission, one duly signed copy of the modification will be returned for your retention.

The completed summary statement, with the date of its submittal shown thereon, should be returned with the signed copies of the modification.

Very truly yours,

John R. Moore
Director, Contract Division
Oak Ridge Operations

Enclosures: *WFF*

1. Proposed Mod. 5 (in trip.)	Notice of Research Project Form	Cont. Div.	Director
OFFICE		<i>W. Smith</i>	Cpt. Div.
TURN IN	ACC: Div. of Biology & Medicine, Headquarters		<i>W. Moore</i>
DATE	C. S. Group	10-1-58	10-

110 9551-B

ACC:APB

Oak Ridge, Tennessee
December 23, 1957

University of Arkansas
Office of the Vice President for Finance
Fayetteville, Arkansas

Attention: Mr. T. C. Carlson, Secretary-Treasurer, Board of Trustees

Subject: MODIFICATION NO. 4 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, for your retention, are one duly signed copy and two
conformed copies of Modification No. 4 to your Contract No.
AT-(40-1)-1771 which were requested in your letter of
December 16, 1957.

Very truly yours,

[Signature]
John R. Moore
Director, Contract Division
Oak Ridge Operations

[Signature]
Enclosure:
Mod. 4 (3 cys)

OFFICE ▶	Contract Div.	Actg Director Contract Div.			
SURNAME ▶	<i>[Signature]</i> BROWN:ard	<i>[Signature]</i> KSMITH Nelson			
DATE ▶	12-23-57	12-23-57			

1109551-C

Modification 4, ctd 12-20-57 and eff. as of
10-1-57, to Contract AF-(40-1)-1771

University of Arkansas

Distributed: December 28, 1957

Distribution

Washington
Contract Files (2)
Finance
Research & Development (2)
Washington (B 2 1) (2)
Extra Copies

1109551-0

UNIVERSITY OF ARKANSAS

FAYETTEVILLE

OFFICE OF THE VICE PRESIDENT
FOR FINANCE

December 16, 1957

Atomic Energy Commission
Oak Ridge, Tennessee

Atten: John R. Moore
Director, Contract Division

Gentlemen:

We enclose herewith two signed copies of Modification No. 4
to Contract No. AT-(40-1)-1771. Please return the executed
copy to the undersigned with two conformed copies.

Yours very truly,



T. C. Carlson
Secretary-Treasurer
Board of Trustees

TCC: jy

1109552

ACC:ARB

Oak Ridge, Tennessee
December 4, 1957

University of Arkansas
School of Medicine
Department of Radiology
Little Rock, Arkansas

Attention: Dr. Howard J. Barnhard

Subject: MODIFICATION NO. 4 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, in triplicate, is proposed Modification No. 4 to the subject contract which provides for additional research and extension of the period to September 30, 1958 during which the work may be conducted. Also enclosed is a Notice of Research Project form which is to be used in submitting your summary statement.

If the modification, as submitted, is satisfactory to you, will you please sign two of the enclosed copies in the space provided for the Senior Investigator, have such two copies signed by the proper official of the University and return them to this office. After signature on behalf of the Commission, one duly signed copy of the modification will be returned for your retention.

The completed summary statement, with the date of its submittal shown thereon, should be returned with the signed copies of the modification.

Very truly yours,

John R. Moore
Director, Contract Division
Oak Ridge Operations

- Enclosures: *MLF*
1. Proposed Mod. 4 (in trip.)
 2. Notice of Res. Project Form

OFFICE ▶		Contract Div. Contract
SURNAME ▶	BCC: Div. of Biology & Medicine, Washington C. S. Shoup	<i>John R. Moore</i> Brown:arb Gibson:rie
DATE ▶		12-4-57 12-4-57

1109553

J. W. Ald, Jr., Assistant General Counsel

November 21, 1957

John H. Moore, Director, Contract Division

REQUEST FOR MODIFICATION OF CONTRACT AT-(40-1)-1771 WITH
UNIVERSITY OF ARKANSAS, FAYETTEVILLE, ARKANSAS

SYMBOL: ACD:DB

Mod. 4

Please prepare an appropriate modification to the subject contract to provide additional research, completion of which will not be later than September 30, 1958, with new funds in the amount of \$10,000.00. This contract action is covered by Contract Authorization No. BK-56-81 dated September 9, 1957.

Request for Contract Action from C. S. Shoup, Chief, Biology Branch, Research and Development Division is enclosed for your use.

John H. Moore

VNF
Inclosures:

1. Request for Contract Action
2. Budget breakdown
3. Program Resumes
4. Memo from Wash. Div. of Biology & Medicine, dtd 9/9/57
5. Proposal for Renewal

CC: C. S. Shoup

PK L. F. McKay

PK Alice Brown, w/cj encl 1, 2 & 4

OFFICE ▶	Action Dir.				
	Contract Div.				
D. Smith/ SURNAME ▶	<i>RCH</i> RCH/Phories				
DATE ▶	11-21-57				

1109554

In Reply
Refer To: ACCIARB

Oak Ridge, Tennessee
January 8, 1957

University of Arkansas
Fayetteville
Arkansas

Attention: Mr. T. C. Carlson, Vice President for Finance

Subject: MODIFICATION NO. 3 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, for your retention, you will find one duly signed copy of
Modification No. 3 to your Contract No. AT-(40-1)-1771.

Very truly yours,

JOHN R. MOORE

John R. Moore
Director, Contract Division
Oak Ridge Operations


Enclosure:
Mod. 3

OK
CC: E. A. Walker, Controller, w/cy encl
University of Arkansas Medical Center
4301 West Markham Street
Little Rock, Arkansas

Dr. H. J. Bernhard, w/cy encl
University of Arkansas Medical Center
4301 West Markham Street
Little Rock, Arkansas

OFFICE ▶	Contract Div.	Director Contract Div.			
SURNAME ▶	<i>Kovacs</i> Brown:arb	<i>[Signature]</i> MOORE			
DATE ▶	1-8-57	1-8-57			

12/19/56

Please return signed copy to:

D. J. Carlson, Vice President for Finance

Mail conformed copies to:

E. A. Walker Controller

and

Dr. H. J. Barnhard

University of Arkansas Medical Center
4301 West Markham St.
Little Rock, Arkansas

1109556

Modification 3 to Contract AT-(40-1)-1771

University of Arkansas

Distributed January 8, 1957

Distribution

Washington
Contract Files (2)
Finance
Research & Development (2)
Washington (B & M) (2)
Extra Copies

In Reply
Refer To: ACC:ARB

Oak Ridge, Tennessee
November 23, 1956

University of Arkansas
School of Medicine
Department of Radiology
Little Rock, Arkansas

Attention: Dr. Howard J. Barnard

Subject: MODIFICATION NO. 3 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, in triplicate, is proposed Modification No. 3 to the subject contract which provides the program and budget for the third period of performance beginning October 1, 1956 and ending September 30, 1957. Also enclosed is a Notice of Research Project form which is to be used in submitting your summary statement.

If the modification, as submitted, is satisfactory to you, it is requested that you sign two of the enclosed copies in the space provided for the Senior Investigator and have such two copies signed by the proper official of the University, returning both copies to this office. The third copy is for your retention. The summary statement, with the date of submittal shown thereon, should be returned along with the signed copies of the modification. After signature on behalf of the Commission, one duly signed copy of the modification will be returned for your retention.

Very truly yours,

JOHN R. MOORE

John R. Moore
Director, Contract Division
Oak Ridge Operations

Enclosures:

1. Mod. 3 (in trip.)
2. Notice of Res. Project Form

OFFICE	ACC: C. S. Shoup	Contract Div.	Director Contract Div.
SURNAME		Brown:arb	JR Moore
DATE		11-23-56	11-23-56

J. W. Ould, Jr., Assistant General Counsel

November 13, 1956

John E. Moore, Director, Contract Division

MODIFICATION OF CONTRACT NO. AT-(40-1)-1771 WITH UNIVERSITY OF ARKANSAS

SYMBOL: ACTION

Please prepare an appropriate modification to Contract No. AT-(40-1)-1771 with University of Arkansas to extend the period to September 30, 1957, with new funds in the amount of \$8,792.

A Request for Contract Action dated November 8, 1956, from C. S. Shoup, Chief, Biology Branch, Research and Development Division is enclosed for your information and guidance.

Signed by R. G. Humphries, *Acting*

John E. Moore

Enclosures:

1. Request for Contract Action
2. Budget
3. Resume
4. Contract Authorization
5. Notification of Contract Negotiation
6. Proposal for Renewal

L. D. Mackay

C. S. Shoup

• Brown w/encs. 1, 2 & 4

OFFICE ▶	Cont. Div.	Cont. Div.				
SURNAME ▶	/bh	<i>R. G. Humphries</i> Humphries				
DATE ▶	11-13-56	11-13-56				

1109559

In Reply
Refer to: OHS 41200

Washington, Tennessee
July 11, 1956

Dr. Howard J. Bernhard
Department of Radiology
University of Arkansas
Medical Center
Little Rock, Arkansas

Subject: CONTRACT NO. 'T-(40-1)-1771

Dear Dr. Bernhard:

Thank you for your letter of July 3, 1956, requesting permission to use \$745 of the available funds under the current period of Contract No. 'T-(40-1)-1771 in purchasing a motor drive for the Sokolot Gamma telecobalt unit.

This is to advise you that we have no objection to the purchase under the contract as requested in your letter, with the understanding that no additional funds for the period will be required from the Commission as a result of this purchase.

Very truly yours,

CHIEF, BIOLOGY BRANCH
RESEARCH AND DEVELOPMENT DIVISION

C. L. Thoup
Chief, Biology Branch
Research and Development Division

CC: C. L. Durham, Assh., w/cy of ltr
J.

1109560

In Reply
Refer To: 7083:JEP

Oak Ridge, Tennessee
June 14, 1956

6/18
James

Dr. Howard J. Barnhard
Assistant Professor
Department of Radiology
University of Arkansas
Medical Center
Little Rock, Arkansas

Subject: CONTRACT NO. AT-(40-1)-1771

Dear Dr. Barnhard:

Reference is made to your letter of May 11, 1956, regarding the purchase of a dosimeter for use under Contract No. AT-(40-1)-1771.

This is to advise you that we have no objection to your utilizing \$2,000 of the funds provided under the contract for the purchase of the dosimeter. We approve this with the understanding that no additional funds will be required from the Commission for this period.

Your cooperation is appreciated.

Very truly yours,

ORIGINAL SIGNED BY
C. S. SHOUP
CHIEF, BIOLOGY BRANCH
RESEARCH AND DEVELOPMENT DIVISION

C. S. Shoup
Chief, Biology Branch
Research and Development Division

cc: J. R. Moore ✓
C. L. Dunham, Washington

Res. Ser. Br. Bio. Br.

Rounsaville:hm

6/ /56 6/ /56

1109561

10

Mod. 2 to Cont. AT-(40-1)-1771

University of Arkansas

Distributed March 27, 1956

Washington

Cont. files (2)

Finance

Res. & Development (2)

Washington (B&M-2)

extra copies

1109562

In Reply Refer To:
ADC:JN

Oak Ridge, Tennessee
March 27, 1956

University of Arkansas
Business Office
Fayetteville, Arkansas

Attention: Mr. J. R. Carney, Contract Accountant

Subject: MODIFICATION NO. 2 TO CONTRACT NO. AT-(HO-1)-1771

Gentlemen:

Enclosed, in accordance with your letter dated March 19, 1956,
you will find one duly signed copy and two conformed copies of
Modification No. 2 to your Contract No. AT-(HO-1)-1771.

Very truly yours,

John R. Moore
Director
Contract Division
Oak Ridge Operations

Enclosure:
Mod. 2 (in trip.)

Director

OFFICE	Cont. Coord. Br.	Conf. Div.				
SURNAME	Nicholson: jn	Moore				
DATE	3-27-56	3-27-56				

UNIVERSITY OF ARKANSAS
FAYETTEVILLE

BUSINESS OFFICE

19 March 1956

U. S. Atomic Energy Commission
Contract Division
Oak Ridge Operations
P.C. Box E
Oak Ridge, Tennessee

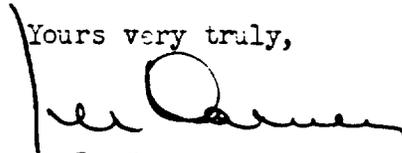
Attention: John R. Moore
Director, Contract Division

Gentlemen:

Enclosed please find two (2) copies of Modification No. 2
to Contract AT-(40-1)-1771, duly executed on behalf of the
University of Arkansas.

Please return two (2) conformed copies for our files along
with the executed copy.

Yours very truly,



J. R. Carney
Contract Accountant

JRC/lrs
Encls: 2
2 Copies of Modification No. 2
Contract No. AT-(40-1)-1771

18

1109564

In Reply Refer To:
ADC:JN

Oak Ridge, Tennessee
February 17, 1956

University of Arkansas
School of Medicine
Department of Radiology
Little Rock, Arkansas

Attention: Dr. H. J. Barnhard

Subject: MODIFICATION NO. 2 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, in triplicate, is proposed Modification No. 2 to the subject contract which provides the program and budget for the second period of performance beginning October 1, 1955 and ending September 30, 1956. Also enclosed is a Notice of Research Project form which is to be used in submitting your summary statement.

If the modification, as submitted, is satisfactory to you it is requested that you sign two of the enclosed copies in the space provided for the Senior Investigator and have the copies signed by the proper official of the University, returning both copies to this office. After signature on behalf of the Commission, one duly signed copy of the modification will be returned for your retention.

Very truly yours,

John R. Moore
Director
Contract Division
Oak Ridge Operations

Enclosures:
Mod. 2 (in trip.)
Res. Project form

cc: Dr. Shoup

Director

OFFICE ▶	Cont. Coord. Div.	Cont. Div.			
SURNAME ▶	Nicholson:jn	Moore			
DATE ▶	2-17-56	2-17-56			

1109565

In Reply Refer To:
ADT:JN

Oak Ridge, Tennessee
January 6, 1955

University of Arkansas
Business Office
Fayetteville, Arkansas

Attention: J. R. Carney, Contract Accountant

Subject: MODIFICATION NO. 1 TO CONTRACT NO. AT-(10-1)-1771

Gentlemen:

Enclosed, for your retention, you will find one duly signed
copy of Modification No. 1 to your Contract No. AT-(10-1)-
1771.

Very truly yours,

John R. Moore
Director
Contract Division
Oak Ridge Operations

NFF
Enclosure:
Mod. 1

Nicholson:jn

OFFICE ▶						
SURNAME ▶	<i>Nicholson</i>	<i>Moore</i>				
DATE ▶	<i>1-6-55</i>	<i>JKH</i>	<i>55</i>			

1109566

Mod. 1 to Cont. AT-(40-1)-1771

University of Arkansas

Distributed January 5, 1955

Washington

Contract files

Finance (2)

Research & Medicine (2)

washington (B&M-2)

extra copies

1109567

UNIVERSITY OF ARKANSAS
FAYETTEVILLE

BUSINESS OFFICE

28 December 1954

U. S. Atomic Energy Commission
Contract Division
Oak Ridge Operations
P.O. Box "E"
Oak Ridge, Tennessee

Attention: R. B. Humphries, Acting Director
Contract Division

Gentlemen:

Enclosed please find two (2) copies of Modification
No. 1 to Contract No. AT (40-1)-1771, duly signed
on behalf of the University of Arkansas.

Yours very truly,


W. W. Jarvey
Contract Accountant

oh SAC/lrs
Encls:
As listed above
and Notice of Res. Project

1109568

In Reply Refer To:
ADC:JM

Oak Ridge, Tennessee
December 10, 1954

University of Arkansas
School of Medicine
Fayetteville, Arkansas

Attention: Dr. Isadore Meseban

Subject: MODIFICATION NO. 1 TO CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, in triplicate, is Modification No. 1 to the contract numbered as shown in the subject line above, which provides for additional funds. Also enclosed is Notice of Research Project form which is to be used in submitting your summary statement.

If the modification, as submitted, is satisfactory to you it is requested that you sign two of the enclosed copies in the space provided for the Senior Investigator and have the copies signed by the proper official of the University, returning both copies to this office. The summary statement should be returned with the signed copies of the modification. After signature on behalf of the Commission, one duly signed copy of the modification will be returned for your retention.

Very truly yours,

Signed by R. G. Humphries

R. G. Humphries
Acting Director
Contract Division
Oak Ridge Operations

RMF
Enclosures:
1. Mod. 1 (in trip.)
2. Notice of Res. Project

Nicholson:jm *Acting Dir.*

OFFICE ▶	<i>Contract Div.</i>			
SURNAME ▶	<i>Nicholson Humphries</i>			
DATE ▶	<i>12-10-54</i>	<i>12-10-54</i>		

In Reply Refer To:
ADC:JH

Oak Ridge, Tennessee
October 22, 1954

University of Arkansas
Office of the Vice President
for Finance
Fayetteville, Arkansas

Attention: T. C. Carlson, Secretary-Treasurer

Subject: CONTRACT NO. AT-(40-1)-1771

Gentlemen:

Enclosed, for your files, you will find two duly signed copies
and one conformed copy of the subject contract.

Very truly yours,

John R. Moore
Director
Contract Division
Oak Ridge Operations

V NFF
Enclosure:
Contract (in trip.)

Nicholson:jn

OFFICE ▶					
SURNAME ▶	Nicholson	Moore			
DATE ▶	10/22/54	OCT 22 1954			

Contract AT-(10-1)-1771

University of Arkansas

Distributed October 21, 1954

Washington

Contract files (2)

Finance (2)

Research & Medicine (2)

Washington (B&M-2)

extra copies

1109571

UNIVERSITY OF ARKANSAS

FAYETTEVILLE

**OFFICE OF THE VICE PRESIDENT
FOR FINANCE**

October 9, 1954

United States Atomic Energy Commission
Oak Ridge, Tennessee

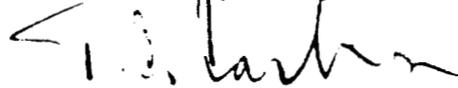
Attention: John R. Moore, Director, Contract Division

Gentlemen:

Please refer to your letter of September 29, ADC:JN, Contract
No. AF-(40-1)-1771.

We enclose three signed copies of the above contract. Please
return one executed copy to the undersigned, and if possible
two conformed copies.

Yours very truly



T. C. Carlson
Secretary-Treasurer
University of Arkansas

TCC:lg
encls 3

cc: Mr. Walker
Mr. Garrison
Mr. Jarney

1109572

In Reply Refer To:
ADG:JW

Oak Ridge, Tennessee
September 29, 1954

University of Arkansas
Department of Radiology
Fayetteville, Arkansas

Attention: Dr. Isadore Maschan

Subject: CONTRACT NO. AT-(40-1)-177A

Gentlemen:

Your research project which was submitted to the Commission's Division of Biology and Medicine, Washington, D. C., has been approved by that office in the amount of \$13,500.00 and has been forwarded to this office for preparation of an appropriate contract covering the Commission's support of your project.

Enclosed in triplicate, is a contract numbered as shown in the subject line above which incorporates in Appendix "A" a description of your project and the budget for the first period which you are to follow as a general guide.

It is requested that you sign each copy of the contract in the space provided for the Senior Investigator and have the copies signed by the proper official of the University and return two copies to this office. After signature on behalf of the Commission, one duly signed copy of the contract will be returned for your retention.

It will be noted that the contract provides for payment in Article III of a lump sum in consideration of your performance of the research activities described in Appendix "A". The first payment, representing 45 per cent of the amount of the agreed compensation, will be paid to you upon your submission of a properly certified voucher on or before the first date established in Article II of the contract. Another 45 per cent of the agreed compensation will be paid to you within six months from the date of the first payment. The remaining 10 per cent of the agreed compensation will be paid to you upon receipt and acceptance of a satisfactory progress report or the final report as the case may be. Payment, upon receipt of a properly certified voucher supported by a copy of the invoice for Cobalt 60 source, will be made as provided in Paragraph

1. 8. (2).

1109573

September 29, 1954

In order to assist you in preparing an appropriate voucher there is enclosed an instruction sheet containing numbered instructions corresponding with numbers appearing on a specimen copy of the voucher form. Vouchers should be submitted to the Office of Research & Medicine, Oak Ridge Operations Office, U. S. Atomic Energy Commission, Post Office Box E, Oak Ridge, Tennessee in one original (white) and four copies (yellow). It is assumed that you will give your business office the benefit of these instructions.

Your attention is called to the reporting requirements outlined in Appendix "C" to the contract, especially to Item No. 3 requiring the immediate submission of a 200 word summary statement describing the purpose and scope of your project.

For your information and guidance in purchasing isotopes through the Commission, in accordance with the provisions of Article VI, there is enclosed a copy of the latest Procurement Procedures for Radioisotopes together with a set of application forms, which you will use in making purchases of isotopes.

Your particular attention is invited to Appendix "B", Section 12 - Fellowships.

It is believed that the remaining portions of the contract are self explanatory, however, if you have any questions concerning the application or interpretation of any of the contract provisions I will be glad to furnish you with additional information.

Very truly yours,

John R. Moore
Director
Contract Division
Oak Ridge Operations

- ✓ NFK
 Enclosures:
 Contract (in trip.)
 Vouchers & Instr. Sheets
 Procurement Procedures
 for Radioisotopes

Nicholsen:ja

CC: Division of Biology & Medicine, Washington

Dr. Shoup

OFFICE ▶					
SURNAME ▶	Nicholsen	Shoup			
DATE ▶	9.29.54	29 1954			

1109574

1. Chairman
 TO: J. R. Moore Contract Board. From: res. and Dev. Div.

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-O&M-19:

2. Nature of Action Requested

Selection of New Contractor and Negotiation of Contract.

Modification of Contract

No. AT-(40-1)-177

Contractor: University of Arkansas Fayetteville, Arkansas

Review and approval of Contract, Sub-contract or Purchase Order.

Other (Explain) _____

Number: _____

Name: _____

3. Nature of Services to be Covered by Contract

Construction

Architect-Engineer

Other

(Explain) Research

4. Funding

Amount to be Obligated by this Contract Action \$ 10,000.00

Source of Funds

Approved ORO Financial Plan, _____ Quarter, Fiscal Year 19__

Project No. _____ or, Activity No. 6310

Funds to be Obligated: Allotment No. 69-91(24) (F.Y. 1958 Funds)

Procurement Directive No. DM-59-60 Dated 9-10-58

Issuing Office Res. of Res. & Med.

Concurrence in Funding Statement: (signed) _____

Al Miller

Chief, Budget Branch

5. Project or Activity to be Covered by Contract Action:

Location of Work: _____ Construction Directive No. _____

Estimated Cost of Work to be Covered by this Contract Action \$ _____

Schedule: Date Work to Start _____ Estimated Completion Date _____

Description of Project or Activity: _____

(If more space is required use separate sheets and attach hereto:)

6. Contract Board Docket
No. _____
(To be assigned by
Board Secretary)

7. Request Submitted By: (signed)

Date: 9/1/58 Title: _____

C. S. Shoup
C. S. SHOUP
CHIEF, BIOLOGY BRANCH
RESEARCH AND DEVELOPMENT DIVISION

8. Complete Description of Services to be Furnished by Contractor:

Headquarters designated research contract
TITLE: "To Investigate, Develop and Evaluate radioisotopes for
Telettherapy"

(If more space is required use separate sheets and attach hereto:)

9. Description of other changes to be covered by Modification:

Modify contract to provide for the performance of additional research
to be completed not later than September 30, 1959, with new funds in
the amount of \$10,000.

(If more space is required use separate sheets and attach hereto:)

10. Negotiated Contracts. (Show why it appears desirable to negotiate new contract or to negotiate
modification to existing contract)

Memorandum from C. W. Shilling to S. R. Sapirie dated September 10, 1958.

(If more space is required use separate sheets and attach hereto:)

11. Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval: (Furnish brief descrip-
tion of action in this space and attach pertinent documents)

None

12. Disputes:

Attach a statement summarizing the dispute together with pertinent documents and Background
Material.

None

Budget for Contract No. AT-(10-1)-1771
10-1-50 - 9-30-54

<u>Salaries and wages:</u>		\$24,705.00
Dr. Howard J. Barnhard (25% of time)	\$ 5,225.00	
Research Associates	7,300.00	
Research Assistants, Technician, Orderly, and Nurse	11,960.00	
Secretary	2,220.00	
<u>Social Security:</u>		555.87
<u>Equipment:</u>		1,000.00
<u>Materials:</u>		2,000.00
<u>Travel:</u>		1,000.00
<u>Overhead (35% of salaries and wages):</u>		8,152.65
	<u>Total</u>	<u>\$37,413.52</u>

The AEC's contribution to the above budget will be \$10,000.

1109578

UNIVERSITY OF ARKANSAS
SCHOOL OF MEDICINE
DEPARTMENT OF RADIOLOGY
LITTLE ROCK, ARKANSAS

CONTRACT NO. AT-(40-1)-1771

HOWARD J. BARNHARD, M.D.
Project Leader.

TO EVALUATE, DEVELOP, AND INVESTIGATE
RADIOISOTOPES FOR TELETHERAPY.

Resume'

The Contractor will continue work on the development, evaluation and testing of teletherapy methods utilizing gamma irradiation from Cobalt-60, for the clinical evaluation of cancer patients so treated, especially with regard to the advantages, curative or palliative, over more conventional methods of therapy. The clinical studies will be carried out in cooperation with the Teletherapy Evaluation Program of the Medical Division, Oak Ridge Institute of Nuclear Studies. A system of grid therapy has been devised and put to use and this approach will be utilized on advanced cases where only palliation is possible. Included in the work will be an evaluation of results on cancer of the cervix.

C. S. Shoup

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. EM-59-60

SEP 10 1959

TO : S. R. Sapirie, Manager
Oak Ridge Operations Office

FROM : Charles W. Shilling, M. D., Deputy Director
Division of Biology and Medicine, Washington

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMORANDUM
TO MANAGERS, OPERATIONS OFFICES, DATED OCTOBER 23, 1953, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND BIOLOGY
AND MEDICINE.

SYMBOL : **EM:JFH**

The research proposal described below has been approved by the
Division of Biology and Medicine, funds are available, and you
are authorized and requested to negotiate a contract in
accordance with the following terms and conditions:

1. Institution: **University of Arkansas**
2. Investigator (s): **Howard J. Barnhard, M. D.**
3. Title: **"To Investigate, Develop and Evaluate Radioisotopes
for Teletherapy"**

4. () New Contract, (x) Renewal of Contract No. AT(40-1)1771

5. Duration: **10/1/58 through 9/30/59**

6. AEC Technical Representative: **James F. Haggerty**

7. Funds are authorized for the obligation of this contract
as follows:

<u>Allotment No.</u>	<u>Budget</u>	<u>Previous</u>	<u>Amount</u>	<u>Total</u>
	<u>Category</u>		<u>This Action</u>	
<u>06-91-91 (24)</u>	<u>6310</u>	<u>_____</u>	<u>\$10,000</u>	<u>\$10,000</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>	<u>_____</u>

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SEP 12 1959

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8. It is suggested that in the best interests of the government the following type contract be negotiated: **Lump-sum**
9. It is requested that the title to any capital equipment procured under this contract shall be vested with:

() the contractor; () the government.

10. If radioisotopes are to be used in this research, it is requested that the savings available to the contractor under the Radioisotope Research Support Program (Ref. AEC Manual Chapter 7510) be considered in the negotiation of the amount to be funded under this contract.

11. Other comments:

In accordance with our original understanding, this year will complete the five years of support which DEM intended be given. Accordingly, this will constitute the terminal year.

12. Security Requirements:

In accordance with the provisions of Chapter 3403 of the AEC Manual and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in Chapter 3403 of the AEC Manual.

13. Reports: () Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special reports instructions are as follows:

Enclosures: () "A" - Proposal, dated July 1, 1958
() "B" - Notification letter, dated SEP 10 1958
() "C" - Other correspondence, none letters

Distribution:

Addressee: Original (w encl.) Division File: Yellow copy (w encl.)
1st copy (w encl.) Pink copy (w/o encl.)
2nd copy (w encl.)

Branch File: White copy (w encl.)

Program Analysis Branch:
White copy (w/o encl.)

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1956

Submitted to:

The Division of Biology and
Medicine, U. S. Atomic Energy
Commission
Attention: Dr. C. S. Shoup

From:

Department of Radiology
University of Arkansas
School of Medicine

A member of the Teletherapy
Evaluation Program of the
Oak Ridge Institute of Nuclear
Studies

Appointed Representative:
Edward J. Bernhard, M.D.

Title of Project:

To Investigate, Develop and
Evaluate Radioisotopes for
Teletherapy

Scientific Summary of Proposed Research:

We propose to continue work in teletherapy using gamma radiations from the Cobalt 60 source to further clinical evaluation of cancer patients so treated, particularly with regard to studying the advantages, curative or palliative, of this method of treatment over conventional methods. These clinical studies are being carried out in cooperation with the Teletherapy Evaluation Program of the Oak Ridge Institute of Nuclear Studies, Medical Division. A system of grid therapy has been devised and put to use; we will continue this approach particularly in advanced cases where only palliation is possible. An evaluation of our results in cancer of the cervix is underway.

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of ABC Contract AE-(48-1)-1771
July 1, 1953

Scientific Personnel:

Edward J. Bernhard, M.D., Project Leader
Assistant Professor
Department of Radiology
(Curriculum vitae previously submitted)

David M. Gould, M.D.
Professor and Head
Department of Radiology

Walter E. Mauderli, D.Sc.
Assistant Professor (Physicist)
Department of Radiology

John W. Lane, M.D.
Instructor
Department of Radiology

Other Personnel:

Nurses
Technician
Secretary
Orderly

Other Financial Assistance:

Aside from the request of this grant no financial assistance other than
from the University itself is anticipated.

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1958

Materials, Equipment and Facilities:

We have on hand a Kelchot-Barnes Telecobalt Unit containing a source of about 630 curies. There are four treatment cones, one of which can be modified to accomplish grid therapy. A rotational device is not presently available but may be an item for future expenditure. In addition, there is a deep (250 KVP) and a superficial (140 KVP) unit. A 400 KVP machine is on hand but its use is not anticipated due to its extremely low output, lack of flexibility and the general over-all superiority of the telecobalt unit.

An additional supply of Cobalt 60 is available in applicators, needles, etc.

Travel:

Travel is needed for attendance at regular scientific meetings, and possibly to visit other high energy treatment centers.

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of AEC Contract AT-(40-1)-1771
 July 1, 1958

Budget:

TOTAL COST ESTIMATE

Personnel	Approx. time devoted to project on a 12 mo. basis	
Howard J. Barnhard, M.D. Project Leader	25%	\$3,225.00
David H. Cowid, M.D.	15%	3,000.00
John W. Lane, M.D.	20%	1,400.00
Research Assistants (L.D.) #1	full	3,000.00
#2	full	3,000.00
Nurses	full	3,420.00
Physicist	30%	2,900.00
Technician	50%	1,740.00
Orderly	50%	800.00
Secretary	full	<u>2,220.00</u>
		\$24,705.00
	social security at 2 1/2%	<u>555.87</u>
	Total	\$25,260.87

(Continued)

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1958

(Budget continued)

Carried Forward \$25,260.87

General Expenses

New Equipment \$1,000.00

Materials 2,000.00

Travel 1,000.00 4,000.00

Overhead at 33% of salaries 8,152.65

Total \$37,413.52

The University will support this project in the amount of 27,413.52

Amount Requested

It is requested that the Atomic Energy Commission support

this project in the amount of \$10,000.00

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of ABC Contract AT-(40-1)-1771
 July 1, 1958

(Budget continued)

EXPENDITURE OF FUNDS UNDER FRACTURE CONTRACT

	To July 1	Sept. 30 (estimated)
Personnel*	\$18,681.00	\$24,908.10
Equipment	200.00	250.00
Material, Maintenance, Supplies and Miscellaneous	2,150.00	2,800.00
Travel	230.00	230.00
Overhead at 33% of salary and wages	<u>6,029.10</u>	<u>6,038.80</u>
	\$27,290.10	\$36,226.90
1957-1958 Budget		\$35,089.92
Estimated Residual Fund		none

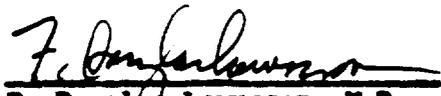
*Includes 2% Social Security

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University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1958


Howard J. Barahard, M.D.
Project Leader


T. G. Carlson
Vice President of Finance 6/21


F. Douglas Lawson, M.D.
Provost for Medical Affairs


John T. Caldwell, Ph.D.
President, Univ. of Arkansas

TO : Addressees Listed Below

DATE: December 2, 1957

FROM : John R. Moore, Director, Contract Division

SUBJECT: CONTRACTUAL DOCUMENTS FOR REVIEW, COMMENTS AND INITIALING

The document(s) listed below are forwarded for your review, comments and initials. Upon completion of your review, please attach your comments, if any, and forward to next in turn. Expeditious handling of this matter will be appreciated.

Modification 4 to Contract AT-(40-1)-1771 with the University of Arkansas

<u>Addressees:</u>	<u>Division:</u>	<u>Initia</u>	<u>Date:</u>	<u>Remarks:</u>
1. R. G. Humphries	Contract	<i>BH</i>	12/2/57	
2. A. E. Miller	Budget	<i>J/Olen</i>	12/2/57	06-81-91 (24)
3. C. S. Shoup	Res. & Dev.	<i>JL</i> <i>CS</i>	12/3	
4. L. D. MacKay	Finance	<i>BH</i>	12/4/57	
5.				
6.				
RETURN TO:				
Alice Brown	Contract Division		Tel.: 479	

Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Culd, Jr., Assistant General Counsel

DATE: November 21, 1957

FROM : John R. Moore, Director, Contract Division

SUBJECT: REQUEST FOR MODIFICATION OF CONTRACT AT-(40-1)-1771 WITH
UNIVERSITY OF ARKANSAS, FAYETTEVILLE, ARKANSAS

SYMBOL: ACD:DS

Please prepare an appropriate modification to the subject contract to provide additional research, completion of which will not be later than September 30, 1958, with new funds in the amount of \$10,000.00. This contract action is covered by Contract Authorization No. EM-58-81 dated September 9, 1957.

Request for Contract Action from C. S. Shoup, Chief, Biology Branch, Research and Development Division is enclosed for your use.


John R. Moore

Enclosures:

1. Reqst for Cont. Action
2. Budget breakdown
3. Program Resume'
4. Memo fm Wash. Div. of Biology & Medicine, dtd 9/9/57
5. Proposal for Renewal

CC: C. S. Shoup
L. D. MacKay
Alice Brown, w/cy encl 1, 2 & 4

1. TO: J. R. Moore Chairman Contract Board From: Res. & Dev. Div.

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-O&M-19:

2. Nature of Action Requested

[] Selection of New Contractor and Negotiation of Contract.

[X] Modification of Contract No. AT-(40-1)-1771

Contractor: University of Arkansas Fayetteville, Arkansas

[] Review and approval of Contract, Sub-contract or Purchase Order.

[] Other (Explain)

Number: _____

Name: _____

3. Nature of Services to be Covered by Contract

Construction [] Architect-Engineer [] Other [X] (Explain) Research

4. Funding Amount to be Obligated by this Contract Action \$10,000.00

Source of Funds

Approved ORO Financial Plan, _____ Quarter, Fiscal Year 19__

Project No. _____ or, Activity No. 6310

Funds to be Obligated: Allotment No. 6-81-91(24) (F.Y. 1958 Funds)

Procurement Directive No. 67M-58-81 Dated 9-9-57

Issuing Office Div. of Biology & Medicine

Concurrence in Funding Statement: (signed) Joseph Matter Chief, Budget Branch 11/21/57

5. Project or Activity to be Covered by Contract Action:

Location of Work: _____ Construction Directive No. _____

Estimated Cost of Work to be Covered by this Contract Action \$ _____

Schedule: Date Work to Start _____ Estimated Completion Date _____

Description of Project or Activity:

(If more space is required use separate sheets and attach hereto)

<p>6. <u>Contract Board Docket</u> No. _____ (To be assigned by Board Secretary)</p>	<p>7. Request Submitted By: (signed) _____ Date: <u>NOV 20 1957</u> Re: <u>C. S. Sherrill</u> U. S. S. GROUP CHIEF, BIOLOGY BRANCH RESEARCH AND DEVELOPMENT DIVISION</p>
<p>8. <u>Complete Description of Services to be Furnished by Contractor:</u> Headquarters designated research contract TITLE: "To Investigate, Develop and Evaluate Radioisotopes for Teletherapy" (If more space is required use separate sheets and attach hereto)</p>	
<p>9. <u>Description of other changes to be covered by Modification:</u> Modify contract to provide additional research completion of which will not be later than September 30, 1958, with new funds in the amount of \$10,000. (If more space is required use separate sheets and attach hereto)</p>	
<p>10. <u>Negotiated Contracts.</u> (Show why it appears desirable to negotiate new contract or to negotiate modification to existing contract) Memorandum from C. W. Shilling to S. R. Sapirie dated September 9, 1957. (If more space is required use separate sheets and attach hereto)</p>	
<p>11. <u>Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval:</u> (Furnish brief descrip- tion of action in this space and attach pertinent documents) None</p>	
<p>12. <u>Disputes:</u> Attach a statement summarizing the dispute together with pertinent documents and Background Material. None</p>	

OK
 11/29

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BUDGET FOR CONTRACT NO. AT-(40-1)-1771
FOR PERIOD 10-1-57 - 9-30-58

(1) <u>Salaries and wages:</u>		\$23,504.21
Dr. Howard J. Barnhard (25% of time)	\$ 3,125.00	
Research Associates	6,890.00	
Research Assistants, Technicians, Orderly, and Nurse	10,872.00	
Secretary	2,100.00	
Social Security	517.21	
(2) <u>Equipment:</u>		1,000.00
(3) <u>Material:</u>		2,000.00
(4) <u>Travel:</u>		1,000.00
(5) <u>Overhead (33% of Salaries):</u>		7,585.71
		<hr/>
	TOTAL	\$35,089.92

The ABC's contribution to the above budget will be \$10,000.

UNIVERSITY OF ARIZONA
SCHOOL OF MEDICINE
LITTLE ROCK, ARIZONA

CONTRACT NO. AT-10-1)- 1771

HOWARD J. BARNHARD, M.D.
Assistant Professor of Radiology
Project Leader.

TO INVESTIGATE, DEVELOP AND EVALUATE RADIONUCLIDES
FOR TELE THERAPY.

Resume'

The Contractor will continue work in teletherapy utilizing Cobalt-60 as a gamma source to further clinical investigations and evaluation of treated tumor patients with regard to the advantages, curative or palliative, of radiation treatment over conventional methods. The work will be a part of the cooperative program with ONRMS entitled Teletherapy Evaluation, and will include body cavity measurements, other appropriate dosimetry, evaluation of grid therapy, and other therapy developments and approaches.

C. S. Shoup

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. EM-58-81

TO : S. R. Sapirie, Manager
Oak Ridge Operations Office

SEP 11 1958

FROM : Charles W. Shilling, M. D., Deputy Director
Division of Biology and Medicine, Washington, D. C.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMORANDUM
TO MANAGERS, OPERATIONS OFFICES, DATED OCTOBER 23, 1953, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND BIOLOGY
AND MEDICINE.

SYMBOL : ~~EM~~:JFH

The research proposal described below has been approved by the
Division of Biology and Medicine, funds are available, and you
are authorized and requested to negotiate a contract in
accordance with the following terms and conditions:

1. Institution: University of Arkansas
2. Investigator (s): Howard J. Barnhard, M. D.
3. Title: "To Investigate, Develop and Evaluate Radioisotopes for
Teletherapy"
4. () New Contract, (x) Renewal of Contract No. AT(40-1)1771
5. Duration: 10/1/57 through 9/30/58
6. AEC Technical Representative: James A. Haggerty
7. Funds are authorized for the obligation of this contract
as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
<u>06-81-91 (24)</u>	<u>6310</u>	<u> </u>	<u>\$ 10,000</u>	<u>\$ 10,000</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

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SEP 11 1958

8. It is suggested that in the best interests of the government the following type contract be negotiated: **Lumpsum**
9. It is requested that the title to any capital equipment procured under this contract shall be vested with:
- the contractor; () the government.
10. If radioisotopes are to be used in this research, it is requested that the savings available to the contractor under the Radioisotope Research Support Program (Ref. AEC Manual Chapter 7510) be considered in the negotiation of the amount to be funded under this contract.
11. Other comments:

12. Security Requirements:

In accordance with the provisions of Chapter 3403 of the AEC Manual and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in Chapter 3403 of the AEC Manual.

13. Reports: Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special reports instructions are as follows:

Enclosures: "A" - Proposal, dated _____
 "B" - Notification letter, dated SEP 6 1957
 () "C" - Other correspondence, none letters

Distribution:

Addressee: Original (w encl.)	Division File: Yellow copy (w encl.)
1st copy (w encl.)	Pink copy (w/o encl.)
2nd copy (w encl.)	Branch File: White copy (w encl.)

Program Analysis Branch:
 White copy (w/o encl.)

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October 7, 1957

Dr. C. S. Shoup
Chief, Biology Branch
Research and Development Division
U. S. Atomic Energy Commission
Oak Ridge, Tennessee

Dear Dr. Shoup:

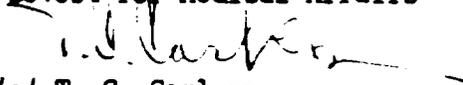
Re: Contract No. AT-(40-1)-1771

In reply to your request of October 4th, 1957, this is to formally state that the University of Arkansas will contribute the difference between the AEC's contribution of \$10,000 and the total cost of \$35,089.92. The University's contribution therefore being \$25,089.92.

Very truly yours,

/s/ Howard J. Barnhard, M.D.
Project Leader

/s/ F. Douglas Lawrason, M.D.
Provost for Medical Affairs



/s/ T. C. Carlson
Vice President for Finance

/s/ Lewis H. Rohrbaugh
for John T. Caldwell, Ph.D.
President, Univ. of Arkansas

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of MEC Contract AT-(40-1)-1771
 Revised September 17, 1957

Budget:

TOTAL COST - UPDATE

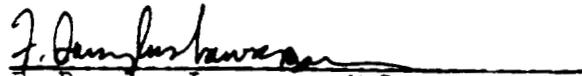
Personnel	Approx. time devoted to project on a 12 mo. basis	
Howard J. Farnhard, M.D. Project Leader	25%	\$3,125.00
David M. Gould, M.D.	15%	2,700.00
James W. Fuice, M.D.	20%	1,400.00
Research Assistants (M.D.) #1	full	3,000.00
#2	full	3,000.00
Nurse	full	3,270.00
Physicist	30%	2,790.00
Technician	30%	882.00
Orderly	30%	702.00
Secretary	full	2,100.00
		<u>\$22,967.00</u>
	Social Security at 2 $\frac{1}{4}$ %	<u>517.21</u>
	Total	\$23,504.21
<u>General Expenses</u>		
New Equipment		11,000.00
Materials		2,000.00
Travel	<u>1,000.00</u>	4,000.00
	Overhead at 33% of salaries	<u>7,585.71</u>
		\$35,089.92

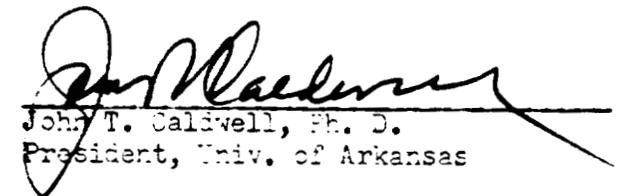
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University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A.E.C. Contract AT-(40-1)-1771
Revised September 15, 1957


Howard J. Barnhard, M.D.
Project Leader


T. C. Carlson
Vice President of Finance


F. Douglas Lawrason, M.D.
Provost for Medical Affairs


John T. Caldwell, Ph. D.
President, Univ. of Arkansas

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1957

Submitted to:

The Division of Biology and
Medicine, U. S. Atomic Energy
Commission
Attention: Dr. C. S. Shoup

From:

Department of Radiology
University of Arkansas
School of Medicine

A member of the Teletherapy
Evaluation Program of the
Oak Ridge Institute of Nuclear
Studies

Appointed Representative:
Howard J. Barnhard, M. D.

Title of Project:

To Investigate, Develop and
Evaluate Radioisotopes for
Teletherapy

Scientific Scope of Proposed Research:

We propose to continue work in teletherapy using gamma radiations from the Cobalt 60 source to further clinical evaluation of cancer patients so treated, particularly with regard to studying the advantages, curative or palliative, of this method of treatment over conventional methods. These clinical studies are being carried out in cooperation with the Teletherapy Evaluation Program of the Oak Ridge Institute of Nuclear Studies, Medical Division. We will continue making body cavity measurements to determine more precisely the delivered dosage. A system of grid therapy has been devised and put to limited use; we will continue this approach particularly in advanced cases where only palliation is possible.

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JUL 11 1957

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 1, 1957
(continued)

Scientific Personnel:

Howard J. Barnhard, M.D., Project Leader
Assistant Professor
Department of Radiology
(Curriculum vitae previously submitted)

David M. Gould, M.D.
Professor and Head
Department of Radiology

Walter E. Mauderli, D. Sc.
Assistant Professor (Physicist)
Department of Radiology

James W. Buice, M. D.
Instructor
Department of Radiology

Other Personnel:

Nurse
Technician
Secretary
Orderly

Other Financial Assistance:

Aside from the request of this grant no financial assistance other than
from the University itself is anticipated.

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A. S. C. Contract AT-(40-1)-1771
July 1, 1957

Materials, Equipment and Facilities:

We have on hand a Kaleset-Barnes Telecobalt Unit containing a source of about 1000 curies. There are four treatment cones, one of which can be modified to accomplish grid therapy. A rotational device is not presently available but may be an item for a future expenditure. In addition, there is a deep (250 KVP) and a superficial (140 KVP) unit. A 400 KVP machine is on hand but its use is not anticipated due to its extremely low output, lack of flexibility and the general over-all superiority of the telecobalt unit.

An additional supply of Cobalt 60 is available in applicators, needles, etc.

Travel:

Travel is needed for attendance at regular scientific meetings, and possibly to visit other high energy treatment centers.

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of AEC Contract AT-(40-1)-1771
 July 1, 1957

Budget:

TOTAL COST ESTIMATE

Personnel

Approx. time devoted
 to project on a 12 mo.
 basis

Howard J. Barnhard, M.D. Project Leader	25%	\$3,125.00
David M. Gould, M.D.	15%	2,700.00
James W. Buice, M.D.	20%	1,400.00
Research Assistants (M.D.) #1	full	3,000.00
#2	full	3,000.00
Nurse	full	3,270.00
Physicist	30%	2,790.00
Assistant Physicist	50%	3,000.00
Technician	30%	882.00
Orderly	50%	720.00
Secretary	full	<u>2,100.00</u>
		\$25,987.00
	Social Security at 2 $\frac{1}{4}$ %	<u>584.70</u>
	Total	\$26,571.70

(Continued)

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University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A.E.C. Contract AT-(40-1)-1771
July 1, 1957

(Budget continued)

Carried Forward		\$26,571.70
<u>General Expenses</u>		
New Equipment	\$1,000.00	
Materials	2,000.00	
Travel	<u>1,000.00</u>	4,000.00
	Overhead at 27.5% of salaries	<u>7,289.35</u>
		\$37,861.05

Amount Requested

It is requested that the Atomic Energy Commission support
this project in the amount of \$13,000.00

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of A.E.C. Contract AT-(40-1)-1771
 July 1, 1957

(Budget continued)

EXPENDITURE OF FUNDS UNDER PRECEDING CONTRACT

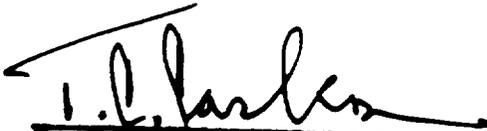
	To July 1	Sept. 30 (estimated)
Personnel*	\$17,743.43	\$23,659.25
Plastering Telecobalt Room	400.00	450.00
Equipment	500.00	500.00
Material, Maintenance, Supplies and Miscellaneous	900.00	1,200.00
Travel	250.00	250.00
Overhead at 27.5% of Salary and Wages	<u>4,831.41</u>	<u>6,111.88</u>
	\$24,624.84	\$32,551.13
1956-1957 Budget		\$32,141.65
Estimated Residual Fund		none

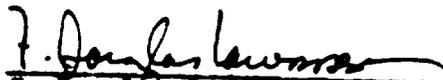
* Includes 2 1/2% Social Security

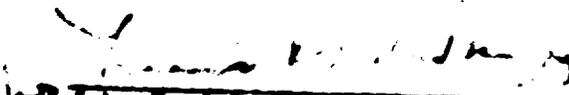
1109605

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A.S.C. Contract AT-(60-1)-1771
July 1, 1957


Howard J. Barnhard, M. D.
Project Leader


F. C. Carlson
Vice President of Finance


F. Douglas Lawson, M.D.
Provost for Medical Affairs


John F. Caldwell, Ph.D.
President, Univ. of Arkansas

Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Ould, Jr., Assistant General Counsel

DATE: November 13, 1956

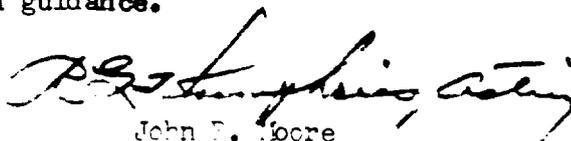
FROM : John R. Moore, Director, Contract Division

SUBJECT: MODIFICATION OF CONTRACT NO. AT-(40-1)-1771 WITH UNIVERSITY OF ARKANSAS

SYMBOL: ACC:BSH

Please prepare an appropriate modification to Contract No. AT-(40-1)-1771 with University of Arkansas to extend the period to September 30, 1957, with new funds in the amount of \$8,792.

A Request for Contract Action dated November 8, 1956, from C. S. Shoup, Chief, Biology Branch, Research and Development Division is enclosed for your information and guidance.



John R. Moore

Enclosures:

1. Request for Cont. Action
2. Budget
3. Resume'
4. Cont. Authorization
5. Notification of Cont. Negotiation
6. Proposal for Renwl.

CC: L. D. MacKay
C. S. Shoup
A. Brown w/encls. 1, 2 & 4

1. TO: J. E. Moore Chairman Contract Board. From: Res. & Dev. Div.

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-OR-M-18:

2. Nature of Action Requested

OK
119

Selection of New Contractor and Negotiation of Contract.

Modification of Contract
No. AT-(110-1)-1771
Contractor: University of Arkansas
Fayetteville, Arkansas

Review and approval of Contract, Sub-contract or Purchase Order.
Number: _____
Name: _____

Other (Explain) _____

3. Nature of Services to be Covered by Contract

Construction Architect-Engineer Other (Explain) Research

4. Funding Amount to be Obligated by this Contract Action \$3,792.00

Source of Funds

Approved ORO Financial Plan, _____ Quarter, Fiscal Year 19____
Project No. _____ or, Activity No. 6310
Funds to be Obligated: Allotment No. 06-71-91(24) F.Y. 1957 Funds)
Procurement Directive No. BM-57-121 Dated Oct. 3, 1956
Issuing Office Division of Biology & Medicine

Concurrence in Funding Statement: (signed) *DeMiller*
Chief, Budget Branch

5. Project or Activity to be Covered by Contract Action:

Location of Work: _____ Construction Directive No. _____
Estimated Cost of Work to be Covered by this Contract Action \$ _____
Schedule: Date Work to Start _____ Estimated Completion Date _____
Description of Project or Activity: _____

(If more space is required use separate sheets and attach hereto:)

6. Contract Board Docket

No. _____
(To be assigned by
Board Secretary)

7. Request Submitted By: (signed)

Date: 11/18/56 Title: C. S. Shoup

8. Complete Description of Services to be Furnished by Contractor:

Washington designated research contract
TITLE: "To Investigate, Develop, and Evaluate Radioisotopes
for Teletherapy"

(If more space is required use separate sheets and attach hereto:)

9. Description of other changes to be covered by Modification:

Modify contract to extend the period to September 30, 1957, with new funds in the amount of \$8,792.

(If more space is required use separate sheets and attach hereto:)

10. Negotiated Contracts. (Show why it appears desirable to negotiate new contract or to negotiate modification to existing contract)

Memorandum from C. ... Shilling to S. R. Sapirie, dated October 3, 1956.

(If more space is required use separate sheets and attach hereto:)

11. Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval: (Furnish brief description of action in this space and attach pertinent documents)

None

12. Disputes:

Attach a statement summarizing the dispute together with pertinent documents and Background Material.

None

BUDGET FOR CONTRACT NO. AT-(40-1)-1771
FOR PERIOD 10-1-56 - 9-30-56

(1) <u>Salaries and Wages:</u>		\$ 21,731.00
Dr. H. J. Barnhard (25% of time)	\$3,125.00	
Research Associate	2,700.00	
Research Assistants, Physicist, Technician, Orderly, and Nurse	13,806.00	
Secretary	2,100.00	
 (2) <u>Social Security:</u>		434.62
 (3) <u>Equipment:</u>		1,000.00
 (4) <u>Materials:</u>		2,000.00
 (5) <u>Travel:</u>		1,000.00
 (6) <u>Overhead (27.5% of Salaries and Wages):</u>		5,976.03
		<hr/>
	TOTAL	\$32,141.65

The Commission's contribution to the above budget will be \$8,792; the Contractor's contribution will be \$22,141.65; and \$1,208 is the estimated unexpended balance available from the previous period.

UNIVERSITY OF ARKANSAS
SCHOOL OF MEDICINE
DEPARTMENT OF RADIOLOGY
LITTLE ROCK, ARKANSAS.

Contract NO. AT-(40-1)-1771

Howard J. Barnhard, M.D.
Project Leader.

TO INVESTIGATE, DEVELOP AND EVALUATE RADIOISOTOPES
FOR TELETHERAPY.

Resume'

The contractor will continue work in teletherapy utilizing a Cobalt-60 source and teletherapy machine to further clinical evaluation of treatment methods, curative or palliative. Body cavity dose measurements will be made, and evaluation will be made of substances which might increase the absorbed dose to malignant tissues. Continuing studies will be made of means for recording of reactions and response to therapy as well as survival.

C. S. Shoup

1109611

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. EM-57-121

TO : S. R. Sapirie, Manager
Oak Ridge Operations Office

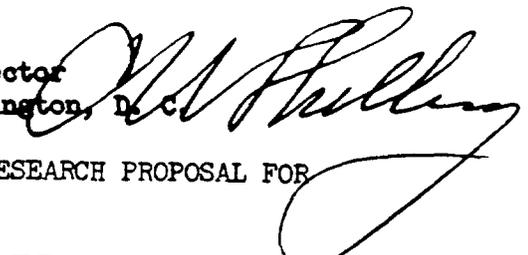
FROM : Charles W. Shilling, M. D., Deputy Director
Division of Biology and Medicine, Washington, D. C.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMORANDUM
TO MANAGERS, OPERATIONS OFFICES, DATED OCTOBER 23, 1953, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND BIOLOGY
AND MEDICINE.

SYMBOL : **EMM:JFH**

OCT 8 1956



The research proposal described below has been approved by the Division of Biology and Medicine, funds are available, and you are authorized and requested to negotiate a contract in accordance with the following terms and conditions:

- ✓ 1. Institution: University of Arkansas
- ✓ 2. Investigator (s): Howard J. Barnhard, M. D.
- ✓ 3. Title: "To Investigate, Develop and Evaluate Radioisotopes for Teletherapy"
- ✓ 4. () New Contract, (x) Renewal of Contract No. AT(40-1)1771
5. Duration: 10/1/56 through 9/30/57
6. AEC Technical Representative: ~~James W.~~ Haggerty
7. Funds are authorized for the obligation of this contract as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
<u>06-71-91 (24)</u>	<u>6310</u>	<u> </u>	<u>\$8,792</u>	<u>\$8,792</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

CONTRACTS 1771
and 7-56-35
OCT 8 1956

8. It is suggested that in the best interests of the government the following type contract be negotiated: **Lump-sum**
9. It is requested that the title to any capital equipment procured under this contract shall be vested with:

the contractor; () the government.
10. If radioisotopes are to be used in this research, it is requested that the savings available to the contractor under the Radioisotope Research Support Program (Ref. AEC Manual Chapter 7510) be considered in the negotiation of the amount to be funded under this contract.
11. Other comments: The Committee has authorized Commission support at a \$10,000 level; an unexpended balance of \$1,208 is indicated. Any request from the contractor to deviate markedly from the submitted budget such as occurred during the past year in the purchase of a \$2,000 instrument from a foreign country should be called to the attention of the Division of Biology and Medicine before replying
12. Security Requirements: to the contractor.

In accordance with the provisions of Chapter 3403 of the AEC Manual and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been ~~not~~ placed in Category I as defined in Chapter 3403 of the AEC Manual.

13. Reports: Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special reports instructions are as follows:

Enclosures: "A" - Proposal, dated July 2, 1956
 "B" - Notification letter, dated Oct 2, 1956
 () "C" - Other correspondence, none letters

Distribution:

Addressee: Original (w encl.)	Division File: Yellow copy (w encl.)
1st copy (w encl.)	Pink copy (w/o encl.)
2nd copy (w encl.)	
	Branch File: White copy (w encl.)

Program Analysis Branch:
 White copy (w/o encl.)

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AFC Contract AT-(40-1)-1771
July 2, 1956

Submitted to:

The Division of Biology and
Medicine, U. S. Atomic
Energy Commission
Attention: Dr. C. S. Shoup

From:

Department of radiology
University of Arkansas
School of Medicine

A member of the Teletherapy
evaluation program of the
Oak Ridge Institute of Nuclear
Studies

Appointed representative:
Howard J. Barnhard, M.D.

Title of Project:

To Investigate, Develop and
Evaluate Radioisotopes for
Teletherapy

Scientific Scope of Proposed Research:

We propose to continue work in teletherapy using gamma radiations from the Cobalt 60 source to further clinical evaluation of cancer patients so treated particularly with regard to studying the advantages, curative or palliative, of this method of treatment over conventional methods. These clinical studies are being carried out in cooperation with the Teletherapy evaluation Program of the Oak Ridge Institute of Nuclear Studies, Medical Division. It should be valuable to include body cavity measurements to determine more precisely the delivered dosage. We are currently obtaining

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ark F-6858 ✓
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University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A.C. Contract AT-(40-1)-1771
July 2, 1956
(continued)

suitable equipment for this purpose. We hope, also, to evaluate substances which might increase the absorbed dose in malignant tissue. We will continue to evaluate a simple means of systematic recording of reactions and response to therapy as well as survival.

Scientific Personnel:

Howard J. Barnhard, M.D., Project Leader.
Assistant Professor
Department of Radiology
(Curriculum vitae previously submitted)

David M. Gould, M.D.
Professor and Head
Department of Radiology

Instructor -----
(It is likely that within the year another radiologist on an instructional level will be appointed and take an active part in this program).

Walter E. Mauderli, D. Sc., Physicist

Other Personnel:

Nurse
Technician
Secretary
Orderly

Other Financial Assistance:

Aside from the request of this grant no financial assistance other than from the University itself is anticipated.

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of A.M.C. Contract AT-(40-1)-1771
July 2, 1956
(continued)

Materials, Equipment and Facilities:

We have on hand a Keleket-Barnes Telecobalt Unit containing a source of over 1000 curies. There are four treatment cones. A rotational device is not presently available but may be an item for a future expenditure. In addition there is a deep (250 KVP) and a superficial (140 KVP) unit. A 400 KVP machine is on hand but its use is not anticipated due to its extremely low output, lack of flexibility and the general over-all superiority of the telecobalt unit.

A large supply of Cobalt 60 is available in applicators, needles, etc.

Travel:

Travel is needed for attendance at regular scientific meetings, and possibly to visit other high energy treatment centers.

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of AHC Contract AT-(40-1)-1771
 July 2, 1956

Budget:

TOTAL COST ESTIMATE

Personnel	Approx. time devoted to project on a 12 mo. basis		
Howard J. Barnhard, M.D. Project Leader	25%	\$	3125.00
David C. Gould, M.D.	15%		2700.00
Research Assistants (M.D.) #1	full		3000.00
#2	full		3000.00
Nurse	full		3060.00
Physicist	30%		3000.00
Assistant Physicist	50%		3000.00
Technician	30%		1026.00
Orderly	50%		720.00
Secretary	full		2100.00
			<u>\$24731.00</u>
	Social Security at 2%		<u>494.62</u>
	Total	\$	25225.62 \$25225.62

(Continued)

University of Arkansas Medical Center, Little Rock
Proposal for Renewal of AEC Contract AT-(40-1)-1771
July 2, 1956

(Budget continued)

Carried Forward		\$25225.62
<u>General Expenses</u>		
New Equipment	\$1000.00	
Materials	2000.00	
Travel	<u>1000.00</u>	4000.00
	Overhead at 27.5% of salaries and wages	<u>6801.25</u>
		\$36026.87

Amount Requested

It is requested that the Atomic Energy Commission
support this project in the amount of \$13000.00

University of Arkansas Medical Center, Little Rock
 Proposal for Renewal of A.C. Contract AT-(40-1)-1771
 July 2, 1956

(Budget continued)

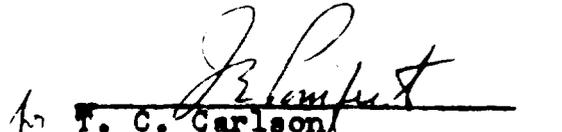
EXPENDITURE OF FUNDS UNDER PRECEDING CONTRACT

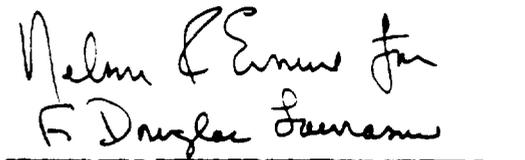
	To July 1	Sept. 30 (estimated)
Personnel * /	\$12,104.00	\$18,487.00
Moving & Installation of Telecobalt Unit	1,300.00	1,300.00
Revamping Telecobalt Room	2,500.00	2,500.00
Equipment	1,731.00	2,500.00
Material, Maintenance, Supplies and Miscellaneous	607.00	1,050.00
Travel	441.00	650.00
Overhead at 27.5% of salary and wages	<u>3,265.00</u>	<u>4,930.00</u>
	\$22,143.00	\$31,467.00
1955-56 Budget		34,732.65
Estimated Expenditures to Sept. 30		<u>31,467.00</u>
Estimated Residual Fund		3,321.65
Pro rata Unexpended A. R. C. Funds		\$ 1,207.83

*Includes 2% Social Security

/Apparent discrepancy due to the fact
 that the head of the department and
 physicist were not here during the
 entire contract year.


Howard J. Barnhard, M.D.
Project Leader


F. C. Carlson
Vice President of Finance


F. Douglas Lawrason, M.D.
Provost for Medical Affairs


John T. Calwell, Ph. D.
President, Univ. of Arkansas

Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Ould, Jr., Assistant General Counsel DATE: January 19, 1956

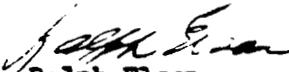
FROM : Ralph Elson, Acting Director, Contract Division

SUBJECT: RENEWAL OF CONTRACT NO. AT-(40-1)-1771 - UNIVERSITY OF ARKANSAS

SYMBOL: ADA:ARB

Enclosed is an approved proposal for renewal of subject contract for a period of one year beginning October 1, 1955. This action is covered by Contract Authorization No. EM-56-160, dated December 30, 1955, in the amount of \$5,766.00.

Please prepare an appropriate modification to renew this contract for a period of one year, beginning October 1, 1955, with Commission funds in the amount of \$5,766.00. It is also requested that Dr. H. J. Barnhard be designated as Project Leader. Provision for compliance with Chapter AEC-7510 should be included in this modification.


Ralph Elson

Enclosures:

1. Request for Contract Action
2. Budget
3. Resume'
4. Contract Authorization EM-56-160
5. Proposal for Renewal

CC: C. S. Shoup
L. D. MacKay
J. Nicholson, w/Encls. 1 and 2

Collie

Form OR-569 (2/53)

REQUEST FOR CONTRACT ACTION (submit in duplicate)

1. TO: J. R. Moore Chairman Contract Board From: Research & Development Div.

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-O&M-19:

2. Nature of Action Requested

Selection of New Contractor and Negotiation of Contract.

Modification of Contract No. AT-(40-1)-1771

Contractor: University of Arkansas Fayetteville, Arkansas

Review and approval of Contract, Sub-contract or Purchase Order.

Other (Explain) _____

Number: _____

Name: _____

3. Nature of Services to be Covered by Contract

Construction

Architect-Engineer

Other

(Explain) Research

4. Funding

Amount to be Obligated by this Contract Action \$ 5,766.00

Source of Funds

Approved ORO Financial Plan, _____ Quarter, Fiscal Year 19__

Project No. _____ or, Activity No. 6310

Funds to be Obligated: Allotment No. 6-61-9124 (F.Y. 19__ Funds)

Procurement Directive No. BM-56-160 Dated Dec. 30, 1955

Issuing Office Division of Biology and Medicine

O.K. 1/19/56

Concurrence in Funding Statement: (signed) _____

Joseph L. Potter
Chief, Budget Branch 1/18/56

5. Project or Activity to be Covered by Contract Action:

Location of Work: _____ Construction Directive No. _____

Estimated Cost of Work to be Covered by this Contract Action \$ _____

Schedule: Date Work to Start _____ Estimated Completion Date _____

Description of Project or Activity:

(If more space is required use separate sheets and attach hereto:)

<p>6. Contract Board Docket No. _____ (To be assigned by Board Secretary)</p>	<p>7. Request Submitted By: (signed) <i>Herman M. Roth</i> <i>64-21</i> JAN 18 1956 Title: _____ HERMAN M. ROTH DIRECTOR RESEARCH AND DEVELOPMENT DIV.</p>
<p>8. <u>Complete Description of Services to be Furnished by Contractor:</u> Washington designated Research Contract. Title: "To Investigate, Develop and Evaluate Radioisotopes for Teletherapy" (If more space is required use separate sheets and attach hereto:)</p>	
<p>9. <u>Description of other changes to be covered by Modification:</u> Renew contract for the period of one year beginning October 1, 1955, with Commission funds in the amount of \$5,766. Designate Dr. H. J. Barnhard as Project Leader. Include provisions for compliance with AEC Manual Chapter 7510. (If more space is required use separate sheets and attach hereto:)</p>	
<p>10. <u>Negotiated Contracts.</u> (Show why it appears desirable to negotiate new contract or to negotiate modification to existing contract) Memo from C. W. Shilling to S. R. Sapirie, dated December 30, 1955. (If more space is required use separate sheets and attach hereto:)</p>	
<p>11. <u>Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval:</u> (Furnish brief description of action in this space and attach pertinent documents) <p style="text-align: center;">None</p></p>	
<p>12. <u>Disputes:</u> Attach a statement summarizing the dispute together with pertinent documents and Background Material. <p style="text-align: center;">None</p></p>	

Budget For Contract No. AT-(40-1)-1771

For Period 10/1/55 - 9/30/56

(1) <u>Salaries and Wages:</u>		223,755.80
Dr. H. J. Barnhard (25% of time)	\$ 3,000.00	
Research Associate	2,700.00	
Research Assistants, Technicians, Orderly, etc.	16,190.00	
Secretary	1,400.00	
Social Security	465.80	
(2) <u>Materials and Supplies:</u>		2,000.00
(3) <u>Telecobalt Unit General Expenses:</u>		1,500.00
(4) <u>Travel:</u>		1,000.00
(5) <u>Overhead:</u> (27.5% of Salaries and Wages):		<u>6,132.85</u>
	TOTAL	334,788.65

The Commission's contribution will be \$5,756.00; the contractor's contribution will be 223,138.65; and \$6,894.00 is the estimated unexpended balance available from the previous period.

UNIVERSITY OF ARKANSAS
SCHOOL OF MEDICINE
DEPARTMENT OF RADIOLOGY
LITTLE ROCK, ARKANSAS.

CONTRACT NO. AT-(40-1)* 1771

H. J. BARNHARD, M.D.
Assistant Professor of Radiology,
Project Leader.

TO INVESTIGATE, DEVELOP AND EVALUATE RADIOISOTOPES
FOR TELETHERAPY.

Resume'

The Contractor proposes to continue work in teletherapy using gamma radiations from a Cobalt-60 source, to further clinical evaluation of cancer patients so treated, particularly with view of studying the advantages, curative or palliative, of this method of treatment over conventional methods. Means have been devised for systematic recording of unusual responses and the effects upon lesions in conjunction with follow-up procedures previously reported. Cooperation is with the Teletherapy Evaluation Program of the Oak Ridge Institute of Nuclear Studies, Medical Division.

C. S. Shoup

Shoup

1109625

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. BM-56-160

DEC 1955

TO : S. R. Sapirie, Manager
Oak Ridge Operations Office

FROM : Charles W. Shilling, M. D., Deputy Director
Division of Biology and Medicine, Washington, D. C. *C. W. Shilling*

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMORANDUM
TO MANAGERS, OPERATIONS OFFICES, DATED OCTOBER 23, 1953, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND
BIOLOGY AND MEDICINE.

SYMBOL : BMM:JFH

The research proposal described below has been approved by the Division of Biology and Medicine, funds are available, and you are authorized and requested to negotiate a contract in accordance with the following terms and conditions:

1. Institution: University of Arkansas
2. Investigator (s): H. J. Barnhard, M. D.
3. Title: "To Investigate, Develop and Evaluate Radioisotopes for Teletherapy"
4. () New Contract, (x) Renewal of Contract No. AT(40-1)1771
5. Duration: 10/1/55 through 9/30/56
6. AEC Technical Representative: James D. Haggerty *J. D. Haggerty*
7. Funds are authorized for the obligation of this contract as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
<u>06-61-91 (24)</u>	<u>6310</u>	<u> </u>	<u>\$5,766</u>	<u>\$5,766</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

JAN 1956

E-8966

8. It is suggested that in the best interests of the government the following type contract be negotiated: Lump-sum
9. It is requested that the title to any capital equipment procured under this contract shall be vested with:

(x) the contractor; () the government.

10. Other comments:

New funds have been approved at a level of \$5,766, plus permission to use the unexpended balance of \$6,884, leaving a total operational level of \$12,650.

If radioisotopes are to be used in this research, it is requested that the savings available to the contractor under the Radioisotope Research Support Program (Ref. AEC Manual Chapter 7510) be considered in the negotiation of the amount to be funded under this contract.

11. Security Requirements:

In accordance with the provisions of Chapter 3403 of the AEC Manual and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in Chapter 3403 of the AEC Manual.

12. Reports: (x) Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special reports instructions are as follows:

Enclosures: (x) "A" - Proposal, dated _____
(x) "B" - Notification letter, dated _____
() "C" - Other correspondence, _____ letters

Distribution:

Addressee: Original (w encl.) Division File: Yellow copy (w encl.)
1st copy (w encl.) Pink copy (w/o encl.)
2nd copy (w encl.) Branch File: White copy (w encl.)

Program Analysis Branch:
White copy (w/o encl.)

PROPOSAL FOR RENEWAL OF AEC CONTRACT AT-(40-1)-1771

Submitted to: The Division of Biology and Medicine,
U. S. Atomic Energy Commission.
Attention: Dr. C. E. Slocup.

From: Department of Radiology, University of
Arkansas School of Medicine.

A member of the Teletherapy Evaluation
Program of the Oak Ridge Institute of
Nuclear Studies.

Appointed Representative: H. J. Barnhard, M.D.

Title of Project: To Investigate, Develop and Evaluate
Radioisotopes for Teletherapy.

Scientific Scope of Proposed Research: A detailed report of the first year's program was submitted on July 15, 1955. During the coming year we hope to further clinical evaluation of cancer patients treated with telecobalt particularly as related to such advantages as may exist both in terms of convenience over conventional radiation therapy. This investigation is being carried out in conjunction with a group of institutions so that a large amount of data may be accumulated more quickly than would be possible with the limited scope of even the largest institution's single series of patients. The instrumentation of this compilation is through the Teletherapy Evaluation Program of the Oak Ridge Institute of Nuclear Studies. We are obligated to treat at least one-fourth of our patients in conjunction with the method advocated by the combined group but in reality have done so in a much higher proportion.

A mechanism for the systematic recording of unusual reactions and response of lesions has been devised in conjunction with a follow up procedure. This has been previously reported in some detail. We are continuing its use and evaluation.

A move to the new University of Arkansas Medical Center is anticipated during January of 1956. This will entail the relocation of the Kellogg

1109628

NOV 12 1955

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Barnes telecobalt unit. The area will be carefully surveyed and such additional protective barriers as may be required will be installed.

Scientific Personnel:

R. J. Barnhard, M. D., Project Leader. Assistant Professor and Acting Head of the Department of Radiology (curriculum vitae previously submitted).

D. M. Gould, M. D., incoming Department Head as of January 1, 1956. Presently Associate Professor of Radiology, Johns Hopkins Hospital.

Instructors: It is likely that within the year another Radiologist on an instructional level will be appointed and take an active part in this program. This is not, however, being included within the attached budget.

Physicists: This position was recently vacated by Dr. T. H. Odde and we are in the process of searching for a suitable person to fill the vacancy.

Assistant Physicist - who will have a Bachelor's degree and possibly a Master's.

Other Personnel include a nurse, technician, secretary, and orderly.

Other Financial Assistance: Aside from the request of this grant no financial assistance other than from the University itself is anticipated.

Materials, Equipment and Facilities:

Keleket-Barnes Telecobalt Unit containing a source of just over 1,000 curies. There are four treatment cones on hand. A rotational device is not presently available but may be an item for future expenditure.

In addition there is a deep (250 KvP) and a superficial (140 KvP) unit. A 400 KvP machine is on hand but its use is not anticipated due to its extremely low output, lack of flexibility and the general over-all superiority of the telecobalt unit.

A large supply of cobalt 60 is available in applicators, needles, etc.

Travel is for attendance at regular scientific meetings, and possibly to visit other high energy treatment centers.

Budget:

TOTAL COST ESTIMATE

Personnel

Approximate time devoted
to project on a 12 mo. basis

H. J. Barnhard, M.D., Project Leader	25%	\$3,000.00
David M. Gould, M.D.	15%	2,700.00
Research Assistants (M.D.) #1	full	3,000.00
#2	full	3,000.00
Nurse	full	2,700.00
Physicist	30%	2,700.00
Assistant Physicist	50%	3,000.00
Technician	30%	990.00
Orderly	50%	700.00
Secretary	50%	1,400.00
		<u>\$23,370.00</u>
Social Security at 2%		467.40
		<u>\$23,837.40</u>

General Expense

Moving and installation of existing Keleket-Barnes Telecobalt Unit -		\$ 1,500.00
Materials and supplies		2,000.00
Travel		1,000.00
		<u>\$24,337.40</u>
Overhead at 15%		4,250.61
		<u>\$32,588.01</u>

Amount Requested

It is requested that the Atomic Energy Commission allocate		\$11,000.00
Plus Overhead at 15%		<u>1,650.00</u>
Total		<u>\$12,650.00</u>

EXPENDITURE OF FUNDS UNDER PRECEDING CONTRACT

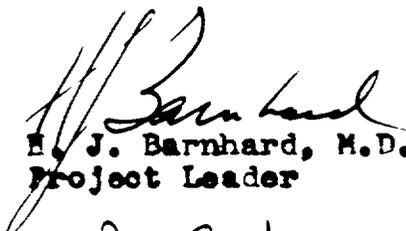
Funds received from the Atomic Energy Commission to date are \$18,000. An additional \$1000 was to have been paid at the time the July report was submitted. This report has been submitted but the additional money has not been received. Expenditures have been as follows:

Personnel	\$1,964.01
Cobalt source	9,000.00
Equipment	657.69
Supplies and Misc. Expense	<u>494.37</u>
Total	\$12,116.07

Subtracting the above total from \$18,000 leaves a balance of \$5,883.93 in unexpended funds. Were the \$1000 to be received it would leave a balance of \$6,883.93.

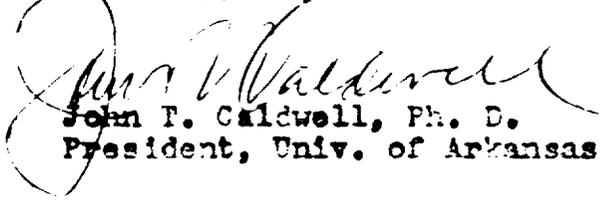
The relatively large amount of residual funds is partially explained by the following:

- (a) Due to difficulties in obtaining the telecobalt unit the project was not initiated until December 1954, some two months later than anticipated.
- (b) Upon the departure of Dr. I Meschan, former project leader, there was a time lag during which we were not certain that Dr. Barnhard had been named project leader in his stead and during that period no funds were expended.


H. J. Barnhard, M.D.
Project Leader


F. Douglas Lawrason, M.D.
Provost for Medical Affairs


T. C. Carlson
Vice President of Finance


John F. Caldwell, Ph. D.
President, Univ. of Arkansas

Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Ould, Jr., Assistant General Counsel DATE: November 23, 1954

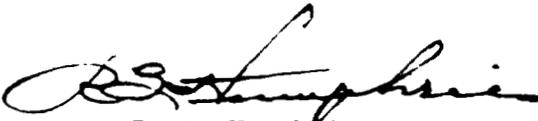
FROM : R. G. Humphries, Assistant Director, Contract Division

SUBJECT: REQUEST FOR MODIFICATION OF CONTRACT NO. AT-(40-1)-1771 -
UNIVERSITY OF ARKANSAS

SYMBOL: ADA:ARB

It is requested that you prepare an appropriate modification to the subject contract to provide additional funds in the amount of \$5,500.00 for use in the purchase of the Cobalt 60 source. This action is covered by Contract Authorization No. EM-55-24A, dated November 9, 1955.

A Request for Contract Action, from Research and Medicine Division, asking for the preparation of the subject modification, is enclosed.



R. G. Humphries

Enclosures:

1. Request for Contract Action
2. Contract Authorization EM-55-24A

CC: C. S. Shoup
L. D. MacKay
J. Nicholson, w/Encl. 1

Brown:arb

J. W. Ould, Jr., Assistant General Counsel

November 23, 1954

R. G. Humphries, Assistant Director, Contract Division

REQUEST FOR MODIFICATION OF CONTRACT NO. AT-(40-1)-1771 -
UNIVERSITY OF ARKANSAS

SYMBOL: ADA:ARB

It is requested that you prepare an appropriate modification to the subject contract to provide additional funds in the amount of \$5,500.00 for use in the purchase of the Cobalt 60 source. This action is covered by Contract Authorization No. EM-55-24A, dated November 9, 1955.

A Request for Contract Action, from Research and Medicine Division, asking for the preparation of the subject modification, is enclosed.

R. G. Humphries

Enclosures:

1. Request for Contract Action
2. Contract Authorization EM-55-24A

CC: C. S. Sheap
L. P. MacKay
J. Nicholson, w/Encl. 1

Brown:arb

RECEIVED

1109633

1. TO: J. R. Moore Chairman Contract Board. From: Research & Medicine Div.

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-O&M-19:

2. Nature of Action Requested

Selection of New Contractor and Negotiation of Contract.

Modification of Contract No. AT-(40-1)-1771

Contractor: University of Arkansas Fayetteville, Arkansas

Review and approval of Contract, Sub-contract or Purchase Order.

Other (Explain) _____

Number: _____
Name: _____

3. Nature of Services to be Covered by Contract

Construction

Architect-Engineer

Other

(Explain) Research

4. Funding

Amount to be Obligated by this Contract Action \$ 5,500.00

Source of Funds

Approved ORO Financial Plan, _____ Quarter, Fiscal Year 19__

Project No. _____ or, Activity No. 6210

Funds to be Obligated: Allotment No. 06-51-9124 (F.Y. 1955 Funds)

Procurement Directive No. BM-55-24A Dated 11-9-54

Issuing Office Div. of Biology & Medicine

Concurrence in Funding Statement: (signed) _____

[Signature] 11/22/54
Chief, Budget Branch

5. Project or Activity to be Covered by Contract Action:

Location of Work: _____ Construction Directive No. _____

Estimated Cost of Work to be Covered by this Contract Action \$ _____

Schedule: Date Work to Start _____ Estimated Completion Date _____

Description of Project or Activity: _____

(If more space is required use separate sheets and attach hereto:)

6. Contract Board Docket

No. _____
(To be assigned by
Board Secretary)

7. Request Submitted By: (signed) _____

Date: _____ Title: _____

Herman M. Rom

8. Complete Description of Services to be Furnished by Contractor:

Washington designated research contract.

Title: "To Investigate, Develop, and Evaluate Radioisotopes for
Teletherapy".

(If more space is required use separate sheets and attach hereto:)

9. Description of other changes to be covered by Modification:

Modify contract to provide additional funds in the amount of \$5,500 for
use in the purchase of the Cobalt 60 source. The funds made available
in Paragraph 1(2) of Article III should be increased to \$9,000.

(If more space is required use separate sheets and attach hereto:)

10. Negotiated Contracts. (Show why it appears desirable to negotiate new contract or to negotiate
modification to existing contract)

Memo J. C. Eugher to S. R. Sapirie, dated November 9, 1954

(If more space is required use separate sheets and attach hereto:)

11. Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval: (Furnish brief descrip-
tion of action in this space and attach pertinent documents)

None

12. Disputes:

Attach a statement summarizing the dispute together with pertinent documents and Background
Material.

None

OK
H
11/22

UNITED STATES ATOMIC ENERGY COMMISSION
 WASHINGTON, D. C.

Contract Authorization No. EM-55-24A

TO : S. R. Sapiro, Manager
 Oak Ridge Operations Office

FROM : J. C. Bugher, M. D., Director, Division
 of Biology and Medicine, Washington, D. C.

NOV 9 1955
J. C. B.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
 CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMO
 TO MANAGERS, OPERATIONS OFFICES, DATED 10/23/53, JOINTLY
 SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND
 BIOLOGY AND MEDICINE.

SYMBOL : BMM:JFH

The research proposal described below has been approved by
 the Division of Biology and Medicine, funds are available, and
 you are authorized and requested to negotiate a contract in
 accordance with the following terms and conditions:

1. Institution: University of Arkansas School of Medicine
2. Investigator (s): Isadore Meschan, M. D.
3. Title: "To Investigate, Develop, and Evaluate Radioisotopes
 for Teletherapy"

4. ~~(-) New Contract or (-) Renewal of~~ Supplement to Contract No. AEC(102-1)177

5. Duration - From: October 1, 1954 To: September 30, 1955

6. AEC Technical Representative: Dr. Paul G. LeFevre *JL*

7. Contract Fund Authorization:

Funds are authorized for the obligation of this contract
 as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
<u>06-51-91 (24)</u>	<u>6210</u>	<u>\$13,500</u>	<u>\$5,500</u>	<u>\$19,000</u>
<u> </u>				
<u> </u>				

NOV 12 1954

1109636

D-5688

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. EM-55-24A

TO : S. R. Sapirle, Manager
Oak Ridge Operations Office

FROM : J. C. Bugher, M. D., Director, Division
of Biology and Medicine, Washington, D. C.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMO
TO MANAGERS, OPERATIONS OFFICES, DATED 10/23/53, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND
BIOLOGY AND MEDICINE.

SYMBOL : **EM:JFK**

The research proposal described below has been approved by
the Division of Biology and Medicine, funds are available, and
you are authorized and requested to negotiate a contract in
accordance with the following terms and conditions:

1. Institution: University of Arkansas School of Medicine
2. Investigator, (s): Isadore Maschan, M. D.
3. Title: "To Investigate, Develop, and Evaluate Radioisotopes
for Teletherapy"

4. ~~() New Contract or () Renewal~~ ^{Supplement to} of Contract No. AT(40-1)1771
5. Duration - From: October 1, 1954^{to}: September 30, 1955
6. AEC Technical Representative: Dr. Paul G. LaFevre
7. Contract Fund Authorization:

Funds are authorized for the obligation of this contract
as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
<u>06-51-91 (24)</u>	<u>6210</u>	<u>\$13,500</u>	<u>\$5,500</u>	<u>\$19,000</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

1109638

D-5688

8. It is suggested that in the best interests of the government the following type contract be negotiated: Lump-sum
9. It is requested that the title to any capital equipment procured under this contract shall be vested with: () the contractor
() the government
10. Other Comments:

This is to cover additional costs for purchase, loading, and shipping of the 1000 curie source instead of the 350 curie source originally provided for, as discussed in your memo of October 11, 1954.

11. Security Requirements:

In accordance with the provisions of GM-CLA-2 (Revised Sept. 29, 1953), and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in GM-CLA-2.

12. Reports: () Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special Reports Instructions are as follows:

- Enclosures: () "A" - Proposal, dated _____
- () "B" - Notification letter, dated _____
- () "C" - Other correspondence, _____ letters

Distribution:

Addressee: Original (w encl.) Division File: Yellow Copy (w encl.)
 1st Copy (w encl.) Pink Copy (w/o encl.)
 2nd Copy (w encl.)

Program Analysis Branch File: White Copy (w encl.)
Branch: White Copy (w/o encl.)

Office Memorandum • UNITED STATES GOVERNMENT

TO : J. W. Ould, Jr., Assistant General Counsel

DATE: September 14, 1954

FROM : John R. Moore, Director, Contract Division

SUBJECT: REQUEST FOR PREPARATION OF A RESEARCH CONTRACT WITH UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, DR. ISADORE MESCHAN, PROJECT LEADER

SYMBOL: ADA:ARB

Enclosed is an approved proposal from the University of Arkansas School of Medicine for a research project entitled "To Investigate, Develop, and Evaluate Radioisotopes for Teletherapy", with Dr. Isadore Meschan as Project Leader. This action is covered by Activity No. 6210, Allotment No. 06-51-91(24) (F.Y. 1955 Funds), Contract Authorization No. EM-55-24, dated August 6, 1954

Please prepare an appropriate research contract for a period of one year beginning October 1, 1954, to cover this program, with Commission support in the amount of \$13,500.00. The provisions set forth in the enclosed Attachment "A" should be included in the contract.

John R. Moore

Enclosures:

1. Request for Contract Action
2. Attachment "A"
3. Resume
4. Contract Authorization EM-55-24
5. Cy Ltr fm Roth dtd 9/8/54
6. Ltr fm Nicholson dtd 8/21/54
7. Proposal

CC: C. S. Shoup
L. D. MacKay
Ed Ziegler, w/Encls. 1 and 2
J. Nicholson

Brown:arb

1. TO: J. R. Moore Chairman Contract Board. From: Res. & Med. Division

It is requested that the Contract Board take the necessary action to process the following described contract action in accordance with the provisions of Bulletin OR-O&M-19:

2. Nature of Action Requested

- Selection of New Contractor and Negotiation of Contract. University of Arkansas School of Med. Little Rock, Arkansas. Modification of Contract No. Contractor: Other (Explain) Review and approval of Contract, Sub-contract or Purchase Order. Number: Name:

3. Nature of Services to be Covered by Contract

Construction Architect-Engineer Other (Explain) Research

4. Funding Amount to be Obligated by this Contract Action \$ 13,500

Source of Funds

Approved ORO Financial Plan, Quarter, Fiscal Year 19 Project No. or, Activity No. 6210 Funds to be Obligated: Allotment No. 06-71(2) F.Y. 1955 Funds Procurement Directive No. BM-55-24 Dated 8-6-54 Issuing Office Div. of Biology & Medicine

Concurrence in Funding Statement: (signed) Chief, Budget Branch

5. Project or Activity to be Covered by Contract Action:

Location of Work: Construction Directive No. Estimated Cost of Work to be Covered by this Contract Action \$ Schedule: Date Work to Start Estimated Completion Date Description of Project or Activity:

(If more space is required use separate sheets and attach heretos)

<p>6. Contract Board Docket No. _____ (To be assigned by Board Secretary)</p>	<p>7. Request Submitted By: (signed) _____ Date: <u>2-13-54</u> Title: <u>Herman M Roth</u></p>
<p>8. Complete Description of Services to be Furnished by Contractor:</p> <p>Washington designated research contract.</p> <p>Title: "To Investigate, Develop, and Evaluate Radioisotopes for Teletherapy."</p> <p>(If more space is required use separate sheets and attach hereto:)</p>	
<p>9. Description of other changes to be covered by Modification:</p> <p>New contract for a period of one year beginning October 1, 1954, with Commission funds in the amount of \$13,500. See Attachment "A" for additional information.</p> <p>(If more space is required use separate sheets and attach hereto:)</p>	
<p>10. Negotiated Contracts. (Show why it appears desirable to negotiate new contract or to negotiate modification to existing contract)</p> <p>Memo - J. C. Bugher to S. R. Sapirie, dated August 6, 1954</p> <p>(If more space is required use separate sheets and attach hereto:)</p>	
<p>11. Contracts, Subcontracts, or Purchase Orders Submitted for Review and Approval: (Furnish brief description of action in this space and attach pertinent documents)</p> <p style="text-align: center;">None</p>	
<p>12. Disputes:</p> <p>Attach a statement summarizing the dispute together with pertinent documents and Background Material.</p> <p style="text-align: center;">None</p>	

OK 9/14/54

ATTACHMENT "A"

Budget for New Contract - Dr. Isadore Meschan
For Period October 1, 1954 through September 30, 1955

Salaries & Wages: \$13,240.00

Dr. I. Meschan (15% of time)	\$2,700.00
Research Associate	7,000.00
Research Assistant	3,540.00

Equipment: 35,500.00

Teletherapy Machine and Installation	30,000.00
Cobalt 60 (2 curie installation)	2,000.00
Cobalt 60 Source (450 to 600 c)	3,500.00

Materials & Indirect Costs (27.5% of Direct Salaries) 3,641.00
\$51,381.00

The Commission's contribution to the above budget will be \$13,500. This includes \$10,000 for operating expenses and \$3,500 for the estimated cost of the Cobalt 60 source, container, and handling charges.

It is requested that provisions be included in the contract whereby the funds will be made available in the following manner:

\$10,000 - Regular 45, 45, and 10 percent basis

An amount not to exceed \$3,500 upon submission of a voucher supported by a copy of the invoice covering the source and information on related charges incurred in handling the source.

It is also requested that provisions be included whereby adjustments, up or down, in the amount of funds provided for the cost of the source, container, and handling charges, may be made as mutually agreed upon by the Commission and the contractor.

Resume

The availability of high-energy sources of gamma radiation has allowed the development of new types of teletherapy apparatus which offer considerable improvement over the radium packs currently being used in some installations. The newer teletherapy machines may also offer further advantages over x-ray generators, both from the standpoint of cost of operation and also from the standpoint of monochromatic radiation.

A systematic study of the adaptation of these new types of apparatus to clinical problems has been organized under the guidance of a large group of medical schools in conjunction with the Teletherapy Board, Oak Ridge Institute of Nuclear Studies. The investigation, for which the present contract provides a part, will encompass a large number of patients treated in a pattern set forth by the Teletherapy Board so that statistical evaluation of various treatments may be made in a relatively short time. One fourth of the use of the machine provided for in this contract will follow the central plan of the Teletherapy Board while three-fourths of the use will be on experimental problems decided upon by the Department of Radiology of the University of Arkansas. The records of the use of the machine on both individual and Teletherapy Board problems will be reported to a central committee for evaluation of various methods of treatment.

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. BM-55-24

TO : S. R. Sapirie, Manager
Oak Ridge Operations Office

FROM : Dr. John C. Bugher, Director, Division of Biology
and Medicine, Washington, D. C.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMO
TO MANAGERS, OPERATIONS OFFICES, DATED 10/23/53, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND
BIOLOGY AND MEDICINE.

AUG 6 1954

C. F. E. for J. C. B.

The research proposal described below has been approved by the Division of Biology and Medicine, funds are available, and you are authorized and requested to negotiate a contract in accordance with the following terms and conditions:

1. Institution: University of Arkansas School of Medicine
2. Investigator (s): Dr. Isadore Meschan
3. Title: "To Investigate, Develop, and Evaluate Radioisotopes for Teletherapy."

4. New Contract or () Renewal of Contract No. _____

5. Duration - From: October 1, 1954 To: September 30, 1955

6. AEC Technical Representative: Dr. Paul G. LeFevre

7. Contract Fund Authorization:

Funds are authorized for the obligation of this contract as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
06-51-91 (24)	06-51-91 6-210	_____	\$13,500	\$13,500
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

AUG 1954

D-4093

8. It is suggested that in the best interests of the government the following type contract be negotiated: Lump-sum
9. It is requested that the title to any capital equipment procured under this contract shall be vested with: (x) the contractor
() the government
10. Other Comments:

The intention is to provide \$10,000 in operating expenses, and to cover the cost of the Co⁶⁰ source, container, and handling charges involved in its delivery, which we have estimated at \$3,500. It is anticipated that inaccuracy in either direction of this estimate can be adjusted after the true costs are established.

11. Security Requirements:

In accordance with the provisions of GM-CLA-2 (Revised Sept. 29, 1953), and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in GM-CLA-2.

12. Reports: (x) Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

() Special Reports Instructions are as follows:

- Enclosures: (x) "A" - Proposal, dated _____
- (x) "B" - Notification letter, dated AUG 6 1954
- () "C" - Other correspondence, _____ letters

Distribution:

Addressee: Original (w encl.) Division File: Yellow Copy (w encl.)
1st Copy (w encl.) Pink Copy (w/o encl.)
2nd Copy (w encl.)

Program Analysis Branch File: White Copy (w encl.)
Branch: White Copy (w/o encl.)

UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D. C.

Contract Authorization No. AM 55-24

TO : S. R. Sapirio, Manager
Oak Ridge Operations Office

FROM : Dr. John C. Bagher, Director, Division of Biology
and Medicine, Washington, D. C.

SUBJECT : FUND AUTHORIZATION AND TRANSMITTAL OF RESEARCH PROPOSAL FOR
CONTRACT NEGOTIATION

REFERENCE : AEC 102/16 APPROVED OCTOBER 7, 1953, AS IMPLEMENTED BY MEMO
TO MANAGERS, OPERATIONS OFFICES, DATED 10/23/53, JOINTLY
SIGNED BY THE DIRECTORS OF THE DIVISIONS OF RESEARCH AND
BIOLOGY AND MEDICINE.

AUG 11 1954

The research proposal described below has been approved by the Division of Biology and Medicine, funds are available, and you are authorized and requested to negotiate a contract in accordance with the following terms and conditions:

1. Institution: University of Arkansas School of Medicine
2. Investigator (s): Dr. Isadore Moschman
3. Title: "To Investigate, Develop, and Evaluate Radioisotopes for Teletherapy."

4. (x) New Contract or () Renewal of Contract No. _____

5. Duration - From: October 1, 1954 To: September 30, 1955

6. AEC Technical Representative: Dr. Paul G. LaFevre

7. Contract Fund Authorization:

Funds are authorized for the obligation of this contract as follows:

<u>Allotment No.</u>	<u>Budget Category</u>	<u>Previous</u>	<u>Amount This Action</u>	<u>Total</u>
06-57-92 (24)	4950 F210	_____	\$13,500	\$13,500
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

8. It is suggested that in the best interests of the government the following type contract be negotiated: ~~Lump-sum~~
9. It is requested that the title to any capital equipment procured under this contract shall be vested with: the contractor
 the government
10. Other Comments:

The intention is to provide \$10,000 in operating expenses, and to cover the cost of the Co⁶⁰ source, container, and handling charges involved in its delivery, which we have estimated at \$3,500. It is anticipated that inaccuracy in either direction of this estimate can be adjusted after the true costs are established.

11. Security Requirements:

In accordance with the provisions of GM-CLA-2 (Revised Sept. 29, 1953), and the requirements of the Declassification Guide, it has been determined that the following security precautions should be taken in connection with the proposed research contract:

Since there is essentially no chance for the development of restricted data, this project has been placed in Category I as defined in GM-CLA-2.

12. Reports: Reports are to be required as provided for by "Revised Guide for the Submission of Research Proposals" dated February 8, 1954.

Special Reports Instructions are as follows:

- Enclosures: "A" - Proposal, dated _____
- "B" - Notification letter, dated Aug 10 1955
- "C" - Other correspondence, _____ letters

Distribution:

Addressee: Original (w encl.)	Division File: Yellow Copy (w encl.)
1st Copy (w encl.)	Pink Copy (w/o encl.)
2nd Copy (w encl.)	

Program Analysis	Branch File: White Copy (w encl.)
Branch: White Copy (w/o encl.)	

In Reply
Refer to: T-12R

Oak Ridge, Tennessee
September 8, 1964

Mr. T. G. Carlson
Vice President for Finance
University of Arkansas
Fayetteville, Arkansas

Subject: OVERHEAD RATE FOR THE UNIVERSITY OF ARKANSAS

Dear Mr. Carlson:

This is to confirm the telephone conversation of August 25, 1964, between you and J. E. Rounsaville of our office concerning the overhead rate established for research contracts at the University of Arkansas.

In accordance with the conversation, we have changed the overhead rate in the proposal for renewal of Contract No. AT-(40-1)-1521 from 8 per cent of the total budget to 27.5 per cent of direct salaries and have initiated action for the preparation of an appropriate modification. The Commission's contribution to the project will be \$12,720 in new funds.

We are also initiating action for the preparation of a new contract under which Dr. Isadore Meschan will be the Project Leader. We have changed the overhead rate in Dr. Meschan's proposal from 8 per cent of the total cost to 27.5 per cent of direct salaries. The effective date of the contract will be October 1, 1964.

By including overhead at the rate of 27.5 per cent of direct salaries in the above contracts, all of the contracts with the University of Arkansas which have been entered into or modified since the adoption of the new policy as outlined in "The Revised Guide For the Submission of Research Proposals", will be consistent insofar as the overhead rate is concerned.

We shall appreciate receiving confirmation of the above.

Very truly yours,

ORIGINAL SIGNED BY
HERMAN M. ROTH

Herman M. Roth
Director
Research and Medicine Division

CC: J. R. Moore (2) —

Rounsaville;lr

1109649

UNIVERSITY OF ARKANSAS
SCHOOL OF MEDICINE
LITTLE ROCK

OFFICE OF THE DEAN

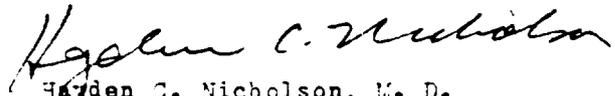
August 21, 1954

Dr. C. S. Shoup
Chief, Biology Branch
Research and Medicine Division
U. S. Atomic Energy Commission
Oak Ridge, Tennessee

Dear Doctor Shoup:

I am writing with reference to the contract covering the teletherapy evaluation project to be conducted at this School under the direction of Dr. I. Meschan. I would appreciate it if this contract might be made effective October 1, 1954.

Very sincerely yours,



Hayden C. Nicholson, M. D.
Dean of the School of Medicine and
Provost for Medical Affairs

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AUG 23 1954
D-4370

A PROPOSAL FOR A RESEARCH GRANT

Submitted to: The Division of Biology and Medicine, U.S. Atomic Energy Commission. Attention: Dr. John B. Hughes.

From the: Department of Radiology, University of Arkansas School of Medicine.

A member of the Teletherapy Board of the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee.

Official Representative: Dr. I. Meschan.

Title of Proposal: To Investigate, Develop, and Evaluate Radioisotopes for Teletherapy.

Scope, Present Status, and Scientific Motivation.

The development of new sources of gamma radiation by the Atomic Energy Commission has allowed for the development of new types of teletherapy apparatus which offer considerable improvement over the radium packs currently used in some installations. Moreover, these newer radioisotopes are in considerably greater abundance than radium and hence offer the possibility of obtaining a teletherapy apparatus which will deliver a dose rate equal to or exceeding somewhat equivalent super-voltage x-ray generators. It is conceivable that the teletherapy apparatus may have further advantages over the x-ray generators both from the standpoint of cost of operation and also from the standpoint of monochromatic radiation. The super-voltage x-ray machines have the disadvantages of a continuous spectrum, a large bulk, and excessive initial and maintenance cost. On the other hand, it is conceivable that they offer the opportunity for a smaller focus and hence a smaller penumbra.

There are about eleven new elements as new sources which meet the requirements of teletherapy. They can be manufactured in small size with high or low specific activity and some are mono-energetic. Two of these sources are outstanding in their possible application to teletherapy: cesium 137 and cobalt 60. Europium 152 presents an unknown possibility. Although the basic principles of radiotherapy will probably remain the same in the utilization of these teletherapy units, it is conceivable that there may be distinct advantages and differences which might ensue as follows:

1. There is a smaller head unit with a teletherapy unit than is presently available in equivalent one to three million volt x-r y machines. As a result it is conceivable that this head unit may be rotated in various ways which offers a greater flexibility in rotation than is presently available with rotational chairs. Thus it might be possible to produce any desired pattern of irradiation in the body and carry out a volume type of radiation which may more closely approximate the lymphogenous spread of tumors.

2. A systematic study of the adaptation of these new types of apparatus to our clinical problems of therapy with a suitable statistical analysis on a broad range basis on a large number of patients will yield very considerable valuable information.

3. An investigation is being organized which will be under the guidance of a large group of different schools in conjunction with the Teletherapy Board. This investigation will encompass a large number of patients being treated in a pattern set forth by the Teletherapy Board and thus statistical evaluation can be accumulated in a relatively short period of time. Otherwise, it would take many years to accumulate such information.

The Teletherapy Board is organizing a clinical evaluation program in which probably some twenty-five medical schools will participate. These medical schools have already contributed funds for the support of this project. This clinical program will survey the therapy equipment available to each of its participating departments of radiology. It will set up a central program of clinical usage which will allow the widest possible comparison of standard techniques, standard equipment and radioisotope sources. It will thereafter set up a clinical evaluation program in which newer techniques will be employed, utilizing rotational therapy in accordance with certain prescribed plans. These newer techniques will thereafter be compared with the older techniques.

Each participating radiology department already has certain items of standard equipment. Each intends to build or purchase at least one radioisotope teletherapy

machine. One fourth of the use of this machine will follow the central plan of the Teletherapy Board. Three-fourths of the use of the machine will be on experimental problems set up by the individual departments. The records of the use of the machine on both individual and Teletherapy Board problems will be reported to a central committee. From the data thus gathered, over a period of five to ten years, it should be possible to evaluate the relative merits of radioisotope sources and other forms of therapy concurrently in use.

Studies are now in progress at the Medical Division of the Oak Ridge Institute of Nuclear Studies and elsewhere to determine the characteristics of each of the most promising sources. Prototype machines have been and are being built. It is expected that each participating department will be able to decide on the design of its own machine within a period of a few years. Upon receipt of the machine and sources, each department will begin its clinical study in cooperation with the Teletherapy Board for several years. Each of the participating departments will separately petition the Atomic Energy Commission for sufficient financial support to cover approximately one fourth of the cost of their portion of the project. This proposal is one of these petitions.

A. Material, Equipment, and Facilities.

There are five main subdivisions of cost in this department's proposal:

(1) The Cost of Membership in the Teletherapy Evaluation Board. Each participating department has already contributed \$2,500 to support the central activities of the Teletherapy Board. The remainder of the cost is being borne by the Atomic Energy Commission through its prime contract with the Oak Ridge Institute of Nuclear Studies, Medical Division.

(2) The Cost of the Machine without Source. Each participating department will purchase a teletherapy machine at an estimated cost of approximately \$25,000. The machine will be an item of capital equipment owned by the department. In the present instance, it is estimated that the cost of this equipment will be borne by the University of Arkansas School of Medicine.

- (3) The Cost of the Installation. Each machine will demand some alteration to existing facilities or the building of new facilities. In the new Medical Center now being erected at the University of Arkansas School of Medicine, special facilities are being provided for two teletherapy units, the large teletherapy machine herein being described; and a smaller which is being called the "hecto-curie unit". Each machine will probably cost in the order of \$5,000 for special installation and this is being borne by the University of Arkansas School of Medicine.
- (4) The Cost of the Source. The cost of the source of radiation is an unknown quantity. It is an expendable item. It is proposed that the Atomic Energy Commission furnish without charge each participating department with a source of either cesium 137 or cobalt 60, (or europium 152) to meet specifications jointly arrived at during the next several years.
- (5) The Cost of the Therapy Program. Seventy five per cent. of the use of the machine will be put into operation as a part of the radiotherapy department's own program. The cost of this portion of the machine will be borne directly from other sources without further support from the Atomic Energy Commission. It has been estimated that approximately \$20,000 per year is an average expenditure for the total maintenance of such a machine in a radiology department. One fourth of the use of the machine will be on the experimental program in cooperation with the Teletherapy Board. The Atomic Energy Commission is petitioned to support the clinical program to the extent of \$10,000 per year for a period of approximately five years. The money thus furnished by the Atomic Energy Commission will be used by the department for research assistants, equipment, patient care, or general costs as best fits the problem in each individual case.

A projected itemized cost which applies to the University of Arkansas School of Medicine follows:

<u>Item</u>	<u>U. Arkansas Contribution</u>	<u>AEC Contribution</u>
1. Teletherapy Board Membership	\$2,500	None
2. Teletherapy Apparatus (without source)	25,000	None
3. Installation	5,000	None
4. Radioisotope Source	00,00	To be borne by AEC (Estimated \$6,000)
5. Five Year Clinical Program	20,000 per year	Approximately \$10,000 per year

B. Scientific Personnel.

1. Scientist in Charge.

Dr. I. Meschan (Curricula Vitae attached)
Professor and Head
Department of Radiology

2. There will be an associate radiologist also on this project. The associate radiologist at the present time is Dr. George Meiner, but it is possible that he will not be a member of this department at the time this project is instituted. In any case, there will be an associate radiologist who will be a certified specialist by the American Board of Radiology and who will be a member of the American College of Radiology.

Radiation Physicist.

There will undoubtedly be a radiation physicist in the department at that time. Our radiation physicist at the present time (Dr. T.H. Oddie) is due to leave in July, 1955, and will thus assist us in the initial phase of this program. At any rate, it will require the services of a radiation physicist to assist in this project, even after he leaves.

Research Assistants.

It is planned that there will be at least one research assistant who holds an M.D. degree and who will have at least two years in special training in radiology. A second research assistant is planned who will be a physicist who perhaps will hold

a Bachelor of Arts Degree or Master of Arts degree who will be working toward an advanced degree in physics or toward a special training program for clinical radiation physicists.

It is also noted that there will be a special technician whose full time function will be the assistance with these items of equipment and assistance also in the maintenance of the records.

<u>PROPOSED BUDGET</u>	<u>U. Ark. Contribution</u>	<u>AEC Contribution</u>
1. <u>Professional Personnel</u>		
A. Supervisors: I. Maschan, M.D.	Total	0
<u>Associates</u>		
Associate Radiologist X	Total \$40	0
Physicist	\$3,500	\$3,500
Research Assistants (M.D.) X	2,000	1,500
2. <u>Other Personnel</u>		
A. Machinist	1,500	1,500
B. Technician-Secretary	1,500	1,500
C. Social Security		166
3. <u>Equipment</u>		
A. Teletherapy Machine	25,000	0
B. Installation	5,000	0
C. Sources	0	Furnished by AEC
D. There will also be a completely equipped radiotherapy department consisting of two deep therapy units (250 KV x-ray; and also another deep therapy unit (400 KV x-ray)	25,000	0
E. Approximately 2,000 mc. cobalt 60	2,000	0
4. <u>Materials and Supplies</u>	1,000	1,000
5. <u>Teletherapy Board Membership</u>	2,500	0
6. <u>Space</u> —a considerable area will be devoted to the two teletherapy units. This area will not only be sufficient to house the teletherapy units but will have a special office for the physician, a nursing station, and a special waiting room. This will be a basement room against an earth wall on two sides with nothing beneath. This area is new construction and now in progress.		
7. <u>Overhead</u> (8% of total)		757.28
<u>Totals</u>		\$10,223.28

CURRICULUM VITAE - DR. I. MESCHAN

Rank in Faculty: Professor and Head, Department of Radiology
Date of Birth: [REDACTED] Ohio
Date of Present Appointment: July 1, 1947

Education and Degrees:

Specialized Training:

Crile Fellow, Pathology and Immunology, Western Reserve University, 1935.
Crile Fellow, Physiology every summer between 1935 and 1939, Western Reserve University.
Teaching Research Fellow, Gastroenterology, Western Reserve University, 1936-1937.
Resident, Radiology, University Hospital, Cleveland, Ohio, 1940-1942.
Special Course, Paterson-Parker radium techniques, Royal Melbourne Hospital, Melbourne, Australia, 1942-1943.
Associate Radiologist, Cleveland, Ohio, 1944-1947.
Radiologist, Army General Hospital, 1942-1946.

Specialty Board Membership: American Board of Radiology in "Radiology".
Now on Commission on Education, American College of Radiology

Membership in Societies:

Fellow of the American Medical Association
American College of Radiology
Sigma Xi
Phi Beta Kappa Honorary Society
Alpha Omega Alpha Medical Honorary Society
Arkansas State Medical Society and Affiliation
American Roentgen Ray Society
Radiological Society of North America
Society for Experimental Biology and Medicine
Southern Medical Association
Teletherapy Board of Oak Ridge Institute of Nuclear Studies
Radiation Research Society

Teaching Experience:

Teaching Research Fellow, Physiology and Gastroenterology, 1936-1937,
Western Reserve University, Cleveland, Ohio.
Instructor in Radiology, 1946-1947, Western Reserve University.
Professor and Head, Department of Radiology, University of Arkansas
since 1947.

Honors and Awards:

Phi Beta Kappa.....1934
Alpha Omega Alpha Honorary Medical Society.....1939
Sigma Xi.....1938
First prize thesis, Cleveland City Hospital.....1940
Crile Research Fellowships as above.

Military Record:

Associate Radiologist, 4th General Hospital (2000 beds) U.S. Army, 1942-44.
Chief Radiologist, 4th General Hospital, (2000 beds) U.S. Army, 1944-1946.

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