

Name

Walter Monroe Booker

Field: Physiology

Associate Professor and Head of Department of Biology
Prairie View College, Prairie View, Texas

Plan of Work

To continue work toward Ph.D. in Physiology. Probable duration of work six to nine months, beginning June, 1941. Will return to present position.

Applied in 1939 and 1940.

Personal Data

Born Little Rock, Arkansas, November, 1906.
Married, one child.

Age: 34**Undergraduate Work**

Morehouse College, B. A., 1928.

Graduate Work

University of Iowa, M. S., 1932.
University of Chicago, 1937-38, also
summers of 1938 and 1940.

Experience

Professor of chemistry and biology, Leland College, Baker, Louisiana, 1928-29, \$1125; instructor - head, department of biology, Prairie View College, 1929 - , \$1260 - \$2289.

Accomplishments

Master's thesis: A Study of the Body Fluids of Muddauber Wasps during Metamorphosis.

Fellowships:

General Education Board, 1931-32, \$1000; 1937-38, \$1800;
summer of 1938, \$536.

References

W. R. Banks, Prairie View College
Arno B. Luckhardt, University of Chicago
Franklin C. McLean, University of Chicago

Budget Summary

Total Amount Needed	\$ 1,488
From Applicant	488
From Fund	\$ 1,000

AMOUNT GRANTED

FILE COPY UNIVERSITY

PLAN OF WORK, SUBMITTED TO THE JULIUS ROSENWALD FUND, JANUARY 1941

by

Walter M. Booker, Prairie View College

The observations outlined in the attached manuscript (demonstrated before the International Congress of Anesthetists 1940) grew out of research conducted at The University of Chicago during the summer of 1938, at Prairie View College 1938-1939 and 1939-1940 and at The University of Chicago summer 1940. I believe now it is fairly clear from the foregoing work that acute (immediate) and chronic (prolonged) effects from traction on the liver are demonstrable. The problem now is to conduct investigations attempting to answer the cause of certain ill-effects following traction on the liver. The questions to be answered are:

- 1) Why do blood urea and urinary urea both decrease the first few post-operative days even after animal is eating reasonably?
- 2) Does the blood pressure return to normal in the first few post-operative days, although it is kept very low during the operation?
- 3) Do kidneys of chronic animals finally become typically nephritic and cause the usual renal-vascular picture (hypertension etc.) ?
- 4) Can measures be taken in post-operative days to off-set all chronic effects?

Regarding question 1, it is my thought that both blood urea and urinary urea decrease in post-operative days because of a decrease in urea manufacture at the site of the liver, resulting from damage to the cells of the liver responsible for urea manufacture. This damage should reflect itself in 1) decrease in liver function, evidenced by dye liver function tests and 2) increase in blood amino acid nitrogen, because of the failure of the liver cells to breakdown amino acids.

Question 2 shall be investigated by making blood pressure readings(arterial puncture-manometer technique) before and after operations daily.

In connection with question 3, blood pressure readings and continuation of blood and urine chemistry(qualitative and quantitative) will lead to a probable answer.

In attempting to answer question 4, animals shall be injected with saline, gum acacia, ephedrine and other substances and observed over a long period to find out if the ill-effects resulting from traction on the liver can be overcome.

The above work I plan to do at The University of Chicago, under the direction of Dr. Arno B. Luckhardt. We feel this problem is worthwhile; it has a great deal of clinical value(particularly to surgeons); and the enthusiasm with which a portion of this work was received in demonstration in October 1940 (referred to above)stimulates our desire and determination that it will be carried to a point of reasonable conclusion as soon as possible.

CURRENT RESEARCHES IN ANESTHESIA & ANALGESIA

OFFICIAL ORGAN OF THE INTERNATIONAL ANESTHESIA RESEARCH SOCIETY

Laurette McMechan, Ass't. Editor-Executive Secretary, 318 Hotel Westlake,
Rocky River, O., U. S. A.

November 20, 1940

Dr. Walter Booker,
Prairie View College,
Prairie View, Texas

My dear Dr. Booker:

May I take this opportunity to thank you for aiding so materially in the success of the Congress of Anesthetists by presenting your research entitled "Circulatory and Respiratory Effects Resulting from the Traction on the Liver".

We would appreciate receiving this manuscript in order that we may publish it in our journal Current Researches in Anesthesia and Analgesia.

We greatly appreciate your making the trip from Texas to give the demonstration in Professor Luckhardt's laboratory, our members were very much interested in your work.

With best wishes for your continued success,
I am,

Cordially yours,

/s/ Laurette McMechan
Asst. Editor, Executive Secretary

Circulatory and Respiratory Effects Resulting from
Traction of the Liver¹

by

Walter M. Booker

Department of Physiology, The University of Chicago
and the Biological Laboratories Prairie View College

Introduction

Investigaors have shown previously that traumatization of the abdominal viscera will cause a severe drop in blood pressure to shock levels(Blalock et al 1927, 1931) and inhibition of respiration(Luekhardt and Smith 1926). It was the purpose of this demonstration to show how increased tension on the liver particularly when prolonged, would produce an extremely low blood pressure(shock levels) and a temporary inhibition of respiration. The surgical importance here can readily be recognized when it is recalled that in gall bladder removal there is "rotation" of the liver(increasing the tension) in order that the gall bladder may be made accessible. Furthermore, in conditons of an enlarged liver (hepatitis, tumors of the liver etc.) there is increased tension on this organ by virtue of its increase in weight.

In this paper only the chief points brought to light in the demonstra-

¹ Demonstrated before the International Congress of Anesthetists in the Physiological Laboratories, The University of Chicago, October 22, 1940.

tion will be given in outline form without going into the detailed mechanism involved or review of the literature.

Procedure

A dog was anesthetized with Nembutol, following which the carotid artery was cannulated and respiration was recorded by means of the usual tambour-pneumograph arrangement. An incision was made along the middle region of the abdomen, extending from the tip of the sternum to the lower region of the abdomen. For demonstrating immediate effects the hand was placed around the liver and traction was exerted. To show the procedure involved in produced prolonged effects (acute) an artificial "hand" made of brass, having three long fingers, was fitted around the liver, traction was exerted and the hand was tied to the opposite end of the operating table. Kymograph records were presented to show the results of prolonged traction (acute) and charts and microscopic slides presented to show some effects in chronic animals.

Results

Traction on the liver causes an abrupt and pronounced fall in blood pressure and an inhibition of respiration, the latter lasting 20-30 seconds. Prolonged traction (2 to 3 hours) causes circulatory failure and death.

2. Section of the spinal cord at the level of origin of the splanchnic nerves or section of the splanchnics themselves (Vagi cut) removes the inhibition of respiration.
3. Procainization of the cord at the level of splanchnic origin or of the liver itself will also remove (temporarily) the inhibition.
4. Venous pressure in the abdominal veins rises concomitant with the fall in arterial pressure and remains high as the arterial pressure remains low.
5. Hemoconcentration occurs, as indicated by increase in red cell count and in hematocrit values.
6. In chronic animals, operated on under aseptic conditions, there is marked retention of the urine the first 3-4 Post-operative days. This is followed by a marked increase in the urinary output above normal ranges.
7. In the first few Post-operative days, animals are markedly depressed and there is a loss of appetite.
8. At death (most animals die between 6 and 8 post-operative days) autopsy reveals abdomen and thorax full of bloody fluid and great veins are prominently enlarged. Histological examination of tissue shows 1) alveoli of lungs are edematous (hemorrhagic type); 2) heart muscle shows nuclear degeneration and necrosis, kidney shows acute circulatory degenerative changes and liver cells show necrosis and fatty degeneration.

The writer offers his sincere gratitude to Dr. Arno B. Luckhardt, Department of Physiology, the University of Chicago, under whose direction this work was done and in whose laboratory the demonstration was given

THE UNIVERSITY OF CHICAGO
Department of Physiology

Oct. 22, 1940

Dear President Banks:

It was very kind of you to allow your Mr. Walter Booker, time off to come to Chicago to give a demonstration to members of the congress of Anesthetists of United States and Canada. He is bringing you the official list of the demonstrations given to about 60 men and women who practice Anesthesia in the various parts of this country and Canada. His own demonstration was excellently given and provoked a great number of questions and discussion. He did very well indeed in answering the various inquiries from the ladies and gentlemen present. A common remark, because of the practical aspects, was that more surgeons should have witnessed it. Many on leaving thanked Mr. Booker personally for giving them well something very instructive to them. I thought you should know this.

Cordially yours,

Anno B. Luckhardt

WRB



MOREHOUSE COLLEGE

ATLANTA, GEORGIA

OFFICE OF THE REGISTRAR

Official Transcript of the Record of WALTER MONROE BOOKER

I. Attendance. Admitted September, 1927 Attended 2 semesters and XXXX summer sessions (6 wks.)

Withdrew XXXXXXXXXX Graduated June, 1928 Degree Bachelor of Arts

II. Present Status XXXXXXXXXXXXXXXXXX

III. Entrance Credits. Sources of Credits: (1) Arkansas Baptist College H. S., Little Rock, Arkansas

(2) _____ (3) _____

SUBJECT	UNITS	SOURCE	SUBJECT	UNITS	SOURCE	SUBJECT	UNITS	SOURCE	SUBJECT	UNITS	SOURCE	
English	4		Chemistry	1		Mechanical Drawing						
Algebra	1 $\frac{1}{2}$		Ancient History			Freehand Drawing						
Plane Geometry	1		Mod. and Med. Hist.	1		Manual Training						
Solid Geometry			English History	1		Bookkeeping						
German			Gen. American History	1		Stenography						
French	1		Civics	1		Com. Geography						
Greek			Physiology			Psychology	1					
Latin	4		Physiography	1								
Physics	1											
										TOTAL CREDITS		17 $\frac{1}{2}$
ENTRANCE CONDITIONS												

Units estimated on basis of definition of the Carnegie Foundation.

Admitted by transcript to advanced standing.

IV. College Credits.

YEAR	COURSE AND NO.	DESCRIPTIVE TITLE OF COURSE	HOURS		WEEKS	GRADES			Sem. Hrs.
			Lec.	Lab.		1st Sem.	2nd Sem.	Sum.	
<u>Record from Arkansas Baptist College, Little Rock, Arkansas</u>									
1924-		French	5		36	76	82		
1925		Solid Geometry	5		18	85			
		College Algebra	5		18		82		
		History of Greece	5		36	80	87		
		Chemistry	5		36	75	75		
		English	5		36	86	85		
1925-		Trigonometry	5		36	89	84		
1926		English	5		36	90	90		
		History of Rome	5		36	85	89		
		Biology	3	4	36	83	83		
		Sociology	5		18		85		
		Physics	3	4	18		80		
		French	5		36	81	85		
Continued									

*Entrance Condition

Credits Required for Graduation _____

Date _____

Registrar

NOTE—For explanation of grades see other side.

EXPLANATION

Requirements for Graduation:

120 semester hours, 240 honor points, and two years of physical education.

Grading System:

Prior to 1924-25, the passing grade was 60.

From 1924-25 through 1925-26, the passing grade was C—.

From 1926-27 through 1927-28, the passing grade was C.

In September, 1928, the following grading system was adopted:

- A Work of excellent quality which yields four honor points per hour of credit.
- B Work of good quality which yields three honor points per hour.
- C Work of average quality which yields two honor points per hour.
- D Work merely passing which yields one honor point per hour.
- E A conditional failure. Student entitled to re-examination, but grade cannot be raised above a "D".
- F Absolute failure. One honor point per hour is deducted for each hour of "F".

Inc. Incomplete.

P Physical Education satisfied.

WdP Withdrew passing.

WdF Withdrew failing.

There are no numerical equivalents for the letters.

MOREHOUSE COLLEGE

ATLANTA, GEORGIA

OFFICE OF THE REGISTRAR

Official Transcript of the Record of WALTER MONROE BOOKER

YEAR	COURSE AND NO.	DESCRIPTIVE TITLE OF COURSE	HOURS		WEEKS	GRADES			Sem. Hrs.
			Lec.	Lab.		1st Sem.	2nd Sem.	Sum.	
1926-1927		Chemistry	3	4	18	85			
		English	5		36	85	88		
		Sociology	5		18	90			
		Geology	5		36	91	90		
		Logic	5		18	90			
		History of Philosophy	5		18		90		
		German	5		36	90	90		
		History of Education	5		18		88		
		International Law	5		18		89		
		82 semester hours accepted							
		Work done at Morehouse College, Atlanta, Georgia							
1927-	Zoology 1-2	Invertebrate Zoology	2	4	36	C	B		8
1928	German 3-4	Intermediate Course	3		36	A	B		6
	Chemistry 4-5	Organic Chemistry	2	4	36	C	C		8
	History 1	Foundations of Modern Europe	3		18	B			3
		The French Revolution	2		18	C			2
	History 6	American Constitutional History to 1828	3		18	C			3
	Education 3	General Psychology	3		18		B		3
	History 7	Am. Constitutional Hist. from 1828 to Civil War	-		-	-	-		-
		Elementary Public Speaking	3		18		C		3
		Elementary Public Speaking	2		18		B		2
		T H E E N D							

*Entrance Condition

Credits Required for Graduation 120 semester hours

Date January 2, 1939

John P. W. Little
 Registrar

THE STATE UNIVERSITY OF IOWA
IOWA CITY, IOWA

No46451

Office of the Registrar

College Graduate

Name Walter Monroe Booker

Home Address: St. & No.

1522 Cross Street

City Little Rock County Pulaski State Arkansas

Place of Birth

Little Rock, Arkansas

Nationality--American Race--Negro

Name of Parent or Guardian

Mrs. Jos. A. Booker

Address Little Rock, Arkansas

Occupation of Father(while living and active)

President, A.B. College

Institution oreviously attended

Clas

A. B. College H. S. 4 yrs

1924

" " " & Morehouse College

1928 B. A.

Subject

Summer Session-1929

	1st Term		2nd Term	
	Hrs.	Gr	Hrs.	Gr
Zool.(Vert. Embry.) 108s			1.7	C
Bot.(Biol. Plants) 1sA			1.7	C
Bot.(Biol. Plants lab)1sB			1.7	D

Summer Session 1930

Zool.(Protozoology)110s			3.4	C
Zool.(Vert. Morph)206s			1.7	B

Academic Year 1931-1932

Zool.(Genl. Physiol.) 105,106	4	C	4	C
Zool. (Comp. Vert. Anat.) 103	4	B		
Zool. (Mier. Anat.)111	4	B		
Chem.(Biochem)161, 162	4	C	4	C
Chem.(Biochem Sem)282			1	C
Zool.(Research)220			6	B
Zool.(Seminar)218			0	B

Date of Matriculation in this:

College 7- 1929

University 7- 1929

Major: Zoology

Minor: Biochemistry

Thesis: Studies in pH Changes in
midwasps

Degree Conferred M. S. Date of Graduation 6-6-1932

THE UNIVERSITY OF CHICAGO
Office of the Registrar

Oct. 2, 1937

Entered-----

Name Walter Monroe Booker

Home Address Prairie View College

Prairie View, Texas

Matriculation No. 181276

Birth 11-4-06 Place Little Rock, Ark.

Biological Sciences

Graduate

B. A. Morehouse College, 1928
Atlanta, Ga.

M. S. University of Iowa, 1932
Iowa City, Iowa

Autumn Quarter 1937

Course	Report
Physiol. 252, Digestion, Metab. Etc.	C
Zool. 305, Animal Behavior	B
Bact. 210, Public Hygiene	B

Winter Quarter 1938

Physiol. 303, Nervous System & Senses	F
Physiol. 304, Special Physiology of Mammals	A
Physiol. 306, Mineral Metabolism	A
Physiol. 309, Gastro-Intes'l Tract	B

Spring Quarter 1938

Physiol. 251, Blood, Circ'n, Respir'n	C
Physiol. 305, Prin. of Physiology	B
Physiol. 310, Metabolism in Health & Disease	C

Summer Quarter 1938

Physiol. 407, Glands of Internal Secr'n. (Lect)	B
Physiol. 408, " " " " (Lab.)	B
Physiol. 411, Research in Physiology	B

No admission deficiencies for Biological Sciences

FISK
UNIVERSITY

LETTERS OF REFERENCE

Walter M. Booker

Franklin C. McLean, Professor of Pathological Physiology, University of Chicago

After watching Mr. Booker for three years, I am convinced that he merits a Rosenwald Fund fellowship, not on brilliance but on solid worth. It is quite possible that he has suffered in comparison with other candidates because of the fact that I have known him and have judged him perhaps more harshly than others have judged the candidates about whom they have written.

In spite of his having been turned down in his applications previously, Mr. Booker has kept on working and has found it possible in one way or another to spend part of each year at the University of Chicago. He has thus demonstrated his initiative and persistence, and is now within reach of his Ph.D. degree, which should be obtained if he has a fellowship for one year.

I am convinced that we err at times in over-valuing the more superficial, showy qualities. Mr. Booker does not have them, but he has demonstrated to the complete satisfaction of Doctor Luckhardt and myself that he has the staying power that will carry him farther in the long run.

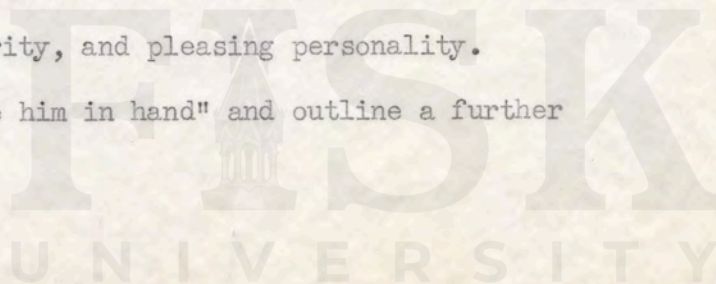
I recommend this grant!

- - - - -

Arno B. Luckhardt, Professor of Physiology, The University of Chicago

1939

I learned to know Mr. Booker during the academic year 1937-38 when he attended regular and elective class work in physiology at the University of Chicago. From the start I was impressed with his diligence, sense of responsibility, maturity, and pleasing personality. These considerations prompted me to "take him in hand" and outline a further



course of study here which ended in the summer of 1938. During that last quarter of residence I started him on a problem by giving him some general directions and by pointing out to him some general possibilities of the work. I was not in residence during the summer quarter. He did not misuse his time. From time to time he has reported to me on his progress and his results, indicating his own conceptions and interpretations of the data on hand. I have, in this instance, purposely refrained from a discussion of his data and criticism of his hypotheses or interpretations because I wanted to see just what he might be able to do without constant guidance and when left to his own resources.

The problem he is working on is an outgrowth of several pieces of research only one of which has been published.

It must be obvious to that I did not "collaborate" with him in his statement of plan of work, although he has given a fair indication of the scope of the work.

1940 I am much interested in Mr. Booker's future. I am convinced that he will be a potent force for good among his people. He is no genius but a serious-minded gentleman who will always be a credit to his school. My opinion has not changed since I wrote you last. I am aware of the fact that the Rosenwald Fund supports outstanding men. He is not outstanding, and yet I feel will eventually give a more solid and worth-while account of himself than many a brilliant prospect.

- - - - -

JW



Name Walter Monroe Booker Field: Physiology

Associate Professor and Head of Department of Biology
Prairie View College, Prairie View, Texas

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- 2) increase in blood amino acid nitrogen, because of the failure of the liver cells to breakdown amino acids.

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Prairie View, Texas

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With best wishes for your continued success,
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Cordially yours,

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Asst. Editor, Executive Secretary

Circulatory and Respiratory Effects Resulting

From Traction on the Liver¹

by

Walter M. Booker

Department of Physiology, The University of Chicago
and the Biological Laboratories Prairie View College

Introduction

Investigators have shown previously that traumatization of the abdominal viscera will cause a severe drop in blood pressure to shock levels (Blalock et al 1927, 1931) and inhibition of respiration (Luckhardt and Smith 1926). It was the purpose of this demonstration to show how increased tension on the liver particularly when prolonged, will produce an extremely low blood pressure (shock levels) and a temporary inhibition of respiration. The surgical importance here can readily be recognized when it is recalled that in gall bladder removal there is "rotation" of the liver (increasing the tension) in order that the gall bladder may be made accessible. Furthermore, in conditions of an enlarged liver (hepatitis, tumors of the liver etc.) there is increased tension on this organ by virtue of its increase in weight.

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1. Traction on the liver causes an abrupt and pronounced fall in blood pressure and an inhibition of respiration, the latter lasting 20 - 30 seconds. Prolonged traction (2 - 3 hours) causes circulatory failure and death.

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The writer offers his sinvere gratitude to Dr. Arno B. Luckhardt,
Department of Physiology, The University of Chicago, under whose
direction this work done and in whose laboratory the demonstration
was given.

THE UNIVERSITY OF CHICAGO
Department of Physiology

October 22, 1940

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Cordially yours,

Amo B. Luckhardt



MOREHOUSE COLLEGE

ATLANTA, GEORGIA

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Solid Geometry			English History	½		Bookkeeping			TOTAL CREDITS	17½	
German			Gen. American History	1		Stenography			ENTRANCE CONDITIONS		
French Greek	1		Civics	½		Com. Geography					
Latin	4		Physiology			Psychology	½				
Physics	1		Physiography	1							

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		History of Greece	5		36	80	87		
		Chemistry	5		36	75	75		
		English	5		36	86	85		
1925-		Trigonometry	5		36	89	84		
1926		English	5		36	90	90		
		History of Rome	5		36	85	89		
		Biology	3	4	36	83	83		
		Sociology	5		18		85		
		Physics	3	4	18		80		
		French	5		36	81	85		
<u>Continued</u>									

*Entrance Condition

Credits Required for Graduation

Date _____

Registrar

NOTE—For explanation of grades see other side.

EXPLANATION

Requirements for Graduation:

120 semester hours, 240 honor points, and two years of physical education.

Grading System:

Prior to 1924-25, the passing grade was 60.

From 1924-25 through 1925-26, the passing grade was C—.

From 1926-27 through 1927-28, the passing grade was C.

In September, 1928, the following grading system was adopted:

A Work of excellent quality which yields four honor points per hour of credit.

B Work of good quality which yields three honor points per hour.

C Work of average quality which yields two honor points per hour.

D Work merely passing which yields one honor point per hour.

E A conditional failure. Student entitled to re-examination, but grade cannot be raised above a "D".

F Absolute failure. One honor point per hour is deducted for each hour of "F".

Inc. Incomplete.

P Physical Education satisfied.

WdP Withdrew passing.

WdF Withdrew failing.

There are no numerical equivalents for the letters.



MOREHOUSE COLLEGE

ATLANTA, GEORGIA

OFFICE OF THE REGISTRAR

Official Transcript of the Record of WALTER MONROE BOOKER

YEAR	COURSE AND NO.	DESCRIPTIVE TITLE OF COURSE	HOURS		WEEKS	GRADES			Sem. Hrs.
			Lec.	Lab.		1st Sem.	2nd Sem.	Sum.	
1926- 1927		Chemistry	3	4	18	85			
		English	5		36	85	88		
		Sociology	5		18	90			
		Geology	5		36	91	90		
		Logic	5		18	90			
		History of Philosophy	5		18		90		
		German	5		36	90	90		
		History of Education	5		18		88		
		International Law	5		18		89		
		82 semester hours accepted							
		<u>Work done at Morehouse College, Atlanta, Georgia</u>							
1927-	Zoology 1-2	Invertebrate Zoology	2	4	36	C	B		8
1928	German 3-4	Intermediate Course	3		36	A	B		6
	Chemistry 4-5	Organic Chemistry	2	4	36	C	C		8
	History 1	Foundations of Modern Europe	3		18	B			3
		The French Revolution	2		18	C			2
	History 6	American Constitutional History to 1828	3		18	C			3
	Education 3	General Psychology	3		18		B		3
	History 7	Am. Constitutional Hist. from 1828 to Civil War	-		-	-	-		-
		Elementary Public Speaking	3		18		C		3
		Elementary Public Speaking	2		18		B		2
		T H E E N D							

*Entrance Condition

Credits Required for Graduation 120 semester hours

Date January 2, 1939

Registrar

THE STATE UNIVERSITY OF IOWA
IOWA CITY, IOWA

No46451

Office of the Registrar

College Graduate

Name Walter Monroe Booker

Home Address: St. & No.

1522 Cross Street

City Little Rock County Pulaski State Arkansas

Place of Birth

Little Rock, Arkansas

Nationality--American Race--Negro

Name of Parent or Guardian

Mrs. Jos. A. Booker

Address Little Rock, Arkansas

Occupation of Father(while living and active)

President, A.B. College

Institution previously attended

Class

A. B. College H. S. 4 yrs

1924

" " " & Morehouse College

1928 B. A.

Subject

Summer Session-1929

	1st Term		2nd Term	
	Hrs.	Gr	Hrs.	Gr
Zool.(Vert. Embry.) 103s			1.7	C
Bot.(Biol. Plants) 1sA			1.7	C
Bot.(Biol. Plants lab)1sB			1.7	D

Summer Session 1930

Zool.(Protozoology)110s			3.4	C
Zool.(Vert. Morph)206s			1.7	B

Academic Year 1931-1932

Zool.(Genl. Physiol.) 105,106	4	C	4	C
Zool. (Comp. Vert. Anat.) 103	4	B		
Zool. (Micr. Anat.)111	4	B		
Chem.(Biochem)161, 162	4	C	4	C
Chem.(Biochem Sem)232			1	C
Zool.(Research)230			6	B
Zool.(Seminar)218			0	B

Date of Matriculation in this:

College 7- 1929

University 7- 1929

Major: Zoology

Minor: Biochemistry

Thesis: Studies in pH Changes in midwaxps

Date of Graduation 6-6-1932

Oct. 2, 1937

Entered-----

Name Walter Monroe Booker
Home Address Prairie View College
Prairie View, Texas
Matriculation No. 181276
Birth 11-4-06 Place Little Rock, Ark.

Biological Sciences
Graduate

B. A. Morehouse College, 1928
Atlanta, Ga.
M. S. University of Iowa, 1932
Iowa City, Iowa

Autumn Quarter 1937

Course	Report
Physiol. 252, Digestion, Metab. Etc.	C
Zool. 305, Animal Behavior	B
Bact. 210, Public Hygiene	B

Winter Quarter 1938

Physiol. 303, Nervous System & Senses	F
Physiol. 304, Special Physiology of Mammals	A
Physiol. 306, Mineral Metabolism	A
Physiol. 309, Gastro-Intes'tl Tract	B

Spring Quarter 1938

Physiol. 251, Blood, Circ'n, Respir'n	C
Physiol. 305, Prin. of Physiology	B
Physiol. 310, Metabolism in Health & Disease	C

Summer Quarter 1938

Physiol. 407, Glands of Internal Secr'n. (Lect)	B
Physiol. 408, " " " " (Lab.)	B
Physiol. 411, Research in Physiology	B

No admission deficiencies for Biological Sciences

LETTERS OF REFERENCE

Walter M. Booker

Franklin C. McLean, Professor of Pathological Physiology, University of Chicago

After watching Mr. Booker for three years, I am convinced that he merits a Rosenwald Fund fellowship, not on brilliance but on solid worth. It is quite possible that he has suffered in comparison with other candidates because of the fact that I have known him and have judged him perhaps more harshly than others have judged the candidates about whom they have written.

In spite of his having been turned down in his applications previously, Mr. Booker has kept on working and has found it possible in one way or another to spend part of each year at the University of Chicago. He has thus demonstrated his initiative and persistence, and is now within reach of his Ph.D. degree, which should be obtained if he has a fellowship for one year.

I am convinced that we err at times in over-valuing the more superficial, showy qualities. Mr. Booker does not have them, but he has demonstrated to the complete satisfaction of Doctor Luckhardt and myself that he has the staying power that will carry him farther in the long run.

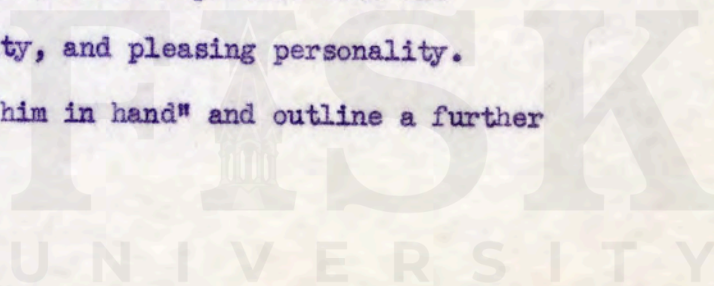
I recommend this grant!

- - - - -

Arno B. Luckhardt, Professor of Physiology, The University of Chicago

1959

I learned to know Mr. Booker during the academic year 1937-38 when he attended regular and elective class work in physiology at the University of Chicago. From the start I was impressed with his diligence, sense of responsibility, maturity, and pleasing personality. These considerations prompted me to "take him in hand" and outline a further



course of study here which ended in the summer of 1938. During that last quarter of residence I started him on a problem by giving him some general directions and by pointing out to him some general possibilities of the work. I was not in residence during the summer quarter. He did not misuse his time. From time to time he has reported to me on his progress and his results, indicating his own conceptions and interpretations of the data on hand. I have, in this instance, purposely refrained from a discussion of his data and criticism of his hypotheses or interpretations because I wanted to see just what he might be able to do without constant guidance and when left to his own resources.

The problem he is working on is an outgrowth of several pieces of research only one of which has been published.

It must be obvious to that I did not "collaborate" with him in his statement of plan of work, although he has given a fair indication of the scope of the work.

1940 I am much interested in Mr. Booker's future. I am convinced that he will be a potent force for good among his people. He is no genius but a serious-minded gentleman who will always be a credit to his school. My opinion has not changed since I wrote you last. I am aware of the fact that the Rosenwald Fund supports outstanding men. He is not outstanding, and yet I feel will eventually give a more solid and worth-while account of himself than many a brilliant prospect.

JW

JULIUS ROSENWALD FUND

4901 ELLIS AVENUE

CHICAGO

Confidential Report on Candidate for Fellowship

Name of Candidate Mr. Walter M. Booker

Report Requested of Dr. Franklin C. McLean

The above-named candidate has applied to this Fund for a fellowship and has given your name as a reference. The candidate's plan of work is attached. Please return it with your statement.

We shall appreciate your frank opinion of this applicant's abilities and personal characteristics, and an appraisal of his plan of work. *An early reply to this inquiry will be of great assistance in allowing the Fellowship Committee sufficient time for an adequate review of the large number of candidates who apply for grants.*

Your reply will be held in strictest confidence.

Wesley M. Reynolds
Director for Fellowships

*used for
1940*

REPORT

Mr. Booker is good, but I do not rate him as among the best. I have had him in a course and have had frequent conversations with him. I should call him good grade B material. His plan of work is satisfactory, but not very exciting.

(Please return to the Director for Fellowships, Julius Rosenwald Fund, 4901 Ellis Avenue, Chicago, Illinois. Addressed, stamped envelope is enclosed.)

OVER

UNIVERSITY

JULIUS ROSENWALD FUND

4901 ELLIS AVENUE

CHICAGO

Confidential Report on Candidate for Fellowship

Name of Candidate Mr. Walter M. Booker

Report Requested of Dr. Franklin C. Leake

The above named candidate has applied to this Fund for a fellowship and has given your name as a reference. The candidate's plan of work is attached. Please return it with your statement. We shall appreciate your frank opinion of this applicant's abilities and personal characteristics, and an appraisal of his plan of work. An early reply to this inquiry will be of great assistance in allowing the Fellowship Committee sufficient time for an adequate review of the large number of candidates who apply for grants.

Your reply will be held in strictest confidence.

Director for Fellowships

REPORT

Is the candidate free from personality handicaps which would make it difficult to obtain and hold a position giving him opportunity to utilize his abilities?

Yes

Signed Franklin C. Leake

Position or Title Professor of Pathological Physiology

Address University of Chicago

Date Jan 6, 1939

(Please return to the Director for Fellowships, Julius Rosenwald Fund, 4901 Ellis Avenue, Chicago, Illinois. Addressed, stamped envelope is enclosed.)

OVER

UNIVERSITY

Saturday Jan 7.

CHAMPIE RANCH
CASTLE HOT SPRINGS, ARIZONA

Dear Lewis Utley -

Enclosed is my report on Booker. Tell Mr. Reynolds that my judgments are harsh, and are not tempered by questions of race. I should not want Booker to suffer by comparison of my statements about him with those of more lenient judges about others.

I have been here since last Sunday, and find, as before, that it is a perfect spot. I am already feeling much better, and I trust the Arizona air and sunshine to do the rest of the job for me. I have started in to ride a little each day and as I find that I tire less easily I shall extend the time. I have a good horse, and we get along well together.

Please give my regards to the J. R. F. and please tell Jim that the people here at the ranch know his brother and hope to get him and his wife down here for a week - end while I am here.

Best wishes to you.

Sincerely,
Franklin C. Lee

A

JULIUS ROSENWALD FUND

4901 ELLIS AVENUE

CHICAGO

Confidential Report on Candidate for Fellowship

Name of Candidate Mr. Walter M. Booker
Report Requested of Mr. W. R. Banks, Principal
 Prairie View College, Texas

The above-named candidate has applied to this Fund for a fellowship and has given your name as a reference. The candidate's plan of work is attached. Please return it with your statement.

We shall appreciate your frank opinion of this applicant's qualifications, and an appraisal of his plan of work and of his ability to make a noteworthy contribution in his field. *An early reply will be of great assistance in allowing the Fellowship Committee sufficient time for adequate consideration of the large number of candidates.*

We request candid and critical comment. Your reply will be held in strict confidence.

George M. Reynolds

Director for Fellowships

REPORT

January 13, 1941

Mr Walter M Booker, who is making application for fellowship aid, has been connected with Prairie View State College for the past ten or twelve years. Mr Booker is one of the best teachers on our staff. I want to urge personally that his application be given serious consideration, after looking through his Plan of Study. He has already done some outstanding work in his field, and I feel that with additional study, he will make a contribution to the field of knowledge.

I am

Yours truly,

W. R. Banks

W R Banks
Principal

WRB:W

OVER

JULIUS ROSENWALD FUND
4901 ELLIS AVENUE
CHICAGO

Confidential Report on Candidate for Fellowship

Name of Candidate: Mr. Walter M. Booker
Report Requested of: Mr. W. R. Banks, Principal
Prairie View College, Texas

The above-named candidate has applied to this Fund for a fellowship and has given your name as a reference. The candidate's plan of work is attached. Please return it with your statement.

We shall appreciate your frank opinion of this applicant's qualifications, and an appraisal of his plan of work and of his ability to make a noteworthy contribution in his field. An early reply will be of great assistance in allowing the Fellowship Committee sufficient time for adequate consideration of the large number of candidates.

We request candid and critical comment. Your reply will be held in strict confidence.

Walter M. Booker
Director for Fellowships

REPORT
January 13, 1941

Is the candidate free from personality handicaps which would make it difficult to obtain and hold a position giving him opportunity to utilize his abilities?

Mr. Walter M. Booker, who is making application for fellowship aid, has been connected with Prairie View State College for the past ten or twelve years. Mr. Booker is one of the best teachers on our staff. I want to urge personally that his application be given serious consideration, after looking through his plan of study. He has already done some outstanding work in his field, and I feel that with additional study, he will make a contribution to the field of knowledge.

Signed _____ I am

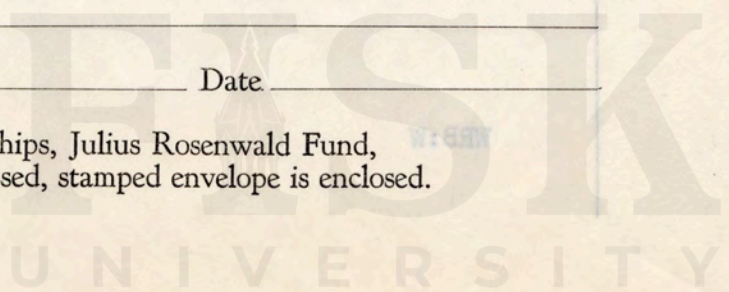
Position or Title _____

Address _____

Date _____

Please return to the Director for Fellowships, Julius Rosenwald Fund,
4901 Ellis Avenue, Chicago, Illinois. Addressed, stamped envelope is enclosed.

OVER



Walter M. Bookner

B++
W.M.

After watching Mr. Bookner for 3 years I am convinced that he merits a Rosenwald Fund fellowship, not on benevolence but on solid worth. ✓

I am convinced that we are oftentimes in our valuing the more superficial, showy qualities. Mr. Bookner does not have them, but he has demonstrated to the complete satisfaction of Dr. Luskhardt and myself that he has the staying power that will carry him farther in the long run.

I recommend this grant!

✓

H. W. Lusk

See also my memo of 11/13/20

2/28/21

FELLOWSHIPS

gfo

GMR FROM DR. McLEAN

RE: WALTER M. BOOKER

11/13/40

Mr. Booker is again applying for a fellowship. I have consistently maintained that Mr. Booker is a good B man, and I have no reason to change this opinion. I believe, however, that it is quite possible that he has suffered in comparison with other candidates because of the fact that I have known him and have judged him perhaps more harshly than others have judged the candidates about whom they have written. ✓

In spite of his having been turned down in his applications previously, Mr. Booker has kept on working and has found it possible in one way or another to spend part of each year at the University of Chicago. He has thus demonstrated his initiative and persistence, and is now within reach of his Ph. D. degree, which should be obtained if he has a fellowship for one year.

In view of these circumstances I wish to recommend that Mr. Booker be given very serious consideration for a 1941 award.

Incidentally, Dr. Luckhardt invited Mr. Booker to come to Chicago this fall to demonstrate his work before the National Society of Anaesthetists. 2

FCML:MLU

Julius Rosenwald Fund

4901 Ellis Avenue

CHICAGO

Edwin R. Embree
President

Margaret S. Simon
Secretary

D. A. Elvidge
Comptroller

J. C. Dixon
Director for Rural Education

M. O. Bousfield, M.D.
Director for Negro Health

George M. Reynolds
Director for Fellowships

December 19, 1939

Dear Doctor Luckhardt: You will remember that when Mr. Walter M. Booker applied for a fellowship from this Fund last year you very kindly wrote for us a confidential statement concerning him and his work. He is applying again this year, and has again referred us to you. Thinking that you may care to add to your previous statement, we are enclosing it, with another blank for any further comments you wish to make. We appreciate your assistance very much indeed.

Very truly yours,

George M. Reynolds

GMR*McK

Dr. Arno B. Luckhardt
Department of Physiology
University of Chicago
Chicago, Illinois

Dear Mr. Reynolds:-

I understand that Mr. Booker has been granted leave of absence to work at Chicago as of Jan. 1/1940 and till the end of the Summer 1940. This arrangement suits me very well; for the time has come when he needs more personal supervision and guidance. I am much interested in his future. I am convinced that he will be a potent force for good among his people. He is no genius but a serious minded gentleman who will always be a credit to his school. My opinion has not changed since I wrote you last. If he cannot get help to finance his stay here, I prefer to lend him money personally.

1940
However, I have not told him this. I am aware of the fact that the R. Fund supports and yet I feel will essentially give a more solid & worthwhile account of himself, from my point of view. I am ready, I think, to do this.

PLEASE RETURN
TO
JULIUS ROSENWALD FUND

JULIUS ROSENWALD FUND

4901 ELLIS AVENUE

CHICAGO

1939

Confidential Report on Candidate for Fellowship

Name of Candidate Mr. Walter M. Booker
Report Requested of Dr. Arno B. Luckhardt
Department of Physiology
University of Chicago

The above-named candidate has applied to this Fund for a fellowship and has given your name as a reference. The candidate's plan of work is attached. Please return it with your statement.

We shall appreciate your frank opinion of this applicant's abilities and personal characteristics, and an appraisal of his plan of work. An early reply to this inquiry will be of great assistance in allowing the Fellowship Committee sufficient time for an adequate review of the large number of candidates who apply for grants.

Your reply will be held in strictest confidence.

George M. Reynolds

Director for Fellowships

REPORT

Learned to know Mr. Booker during the academic year 1937-1938 when he attended regular and elective class work in physiology at the University of Chicago. From the start I was impressed with his diligence, sense of responsibility, maturity, and pleasing personality. These considerations prompted me "take him in hand" and outline a further course of study here which ended in the summer of 1938. During that last quarter of residence (summer of 1938) I started him on a problem (v. infra) by giving him some general directions and by pointing out to him some general possibilities of the work. I was not in residence during the summer quarter. He did not misuse his time. From time to time he has reported to me on his progress and his results indicating his own conceptions and interpretations of the data on hand. I have, in this instance, purposely refrained from a discussion of his data

OVER

and criticisms of his hypotheses or interpretations because I wanted to see just what he might be able to do without constant guidance and when left to his own resources.

The problem he is working on is an outgrowth of ^{several} ~~a~~ pieces of research only one of which has been published (Hemodynamic & Respiratory Changes following the Manipulation and Tracting of the Gastrohepatic Ligament (with Ruth Albert and Sidney Smith), Science, Dec. 9, 1932, 76, no. 1980, p. 545.

It must be obvious to you that I did not "collaborate" with him in his "statement of plan of work etc." although he has given a fair indication of the scope of the work. I have left it uncorrected.

On my suggestion he will attend the Toronto meeting of the Federation of Am. Soc. of Exp. Biology. (April, 1933). At that time I will discuss ^{with him} very thoroughly the data he has collected and give him what aid I can in the further prosecution of his work. I repeat: For his own good & for my evaluation of him I will let him continue till then to work out his own difficulties. (Do you know whether he will have any difficulties in Canada because he is a negro? Will the custom officials or other officials keep him out? Will he have any difficulty getting hotel accommodations?)

As stated before he is studious, responsible, and diligent. He is not brilliant. I feel that he should be aided by the Rosenwald Fund because I believe he will make a good physiologist and exert a very fine influence in the community where he will work.

Is the candidate free from personality handicaps which would make it difficult to obtain and hold a position giving him opportunity to utilize his abilities?

None that I know of.

Signed Orin B. Cushman

Position or Title Professor of Physiology

Address Department of Physiology

The University of Chicago Date Dec. 30, 1932

(Please return to the Director for Fellowships, Julius Rosenwald Fund, 4901 Ellis Avenue, Chicago, Illinois. Addressed, stamped envelope is enclosed.)

FELLOWSHIPS

Booker, Walter

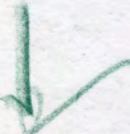
April 16, 1940

Dear Doctor Madison: In reply to your letter of April 9, I am enclosing a copy of a statement I submitted some time ago to the Julius Rosenwald Fund.

At the same time I think it is only fair to Doctor Booker to state that I am applying a very high standard to my estimate of him, and that this standard makes no allowances for race, color, or previous opportunities. I can truthfully give you the assurance mentioned in your letter as to his capacity, habits of work and study, and personal traits and attitude. He in every way deserves your aid, and will render a good account of himself. I do not, however, regard him as a person of absolutely first-rate intellectual attainments.

Sincerely,
FRANKLIN C. MCLEAN

FCML:MLJ

 Dr. Ward N. Madison
General Education Board
49 West 49th Street
New York City

FISK
UNIVERSITY

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL COLLEGE

PRAIRIE VIEW, TEXAS

DIVISION OF ARTS AND SCIENCES

	GMR	4	SR 6	
				November 1, 1940

Mr. George Reynolds
 Julius Rosenwald Fund
 4901 Ellis Avenue
 Chicago, Illinois

My dear Mr. Reynolds:

I am very sorry I missed seeing you a few days ago when I was in Chicago. Miss Utley advised me you were out of the City. I appeared before the International Congress of Anesthesia in demonstration of some of my work(performed under Dr. Luckhardt) at the University of Chicago October 22.

I have a grant from the State of Texas to study beginning Jaanuary 5, 1941. This grant amounts to about half of my tuition and travel. I should like to make application for a small grant(about \$500.00) which will be sufficient to carry me through until my work is completed(June or August). I understand that no money is made available until after April. If, however, you can give me some idea that such a grant might be possible, I can make arrangements with the University to carry my fees until such money is available.

I should appreciate hearing from you and seeing you when you come to Prairie View.

Very truly yours,
Walter M. Booker
 Walter M. Booker



FELLOWSHIPS

November 6, 1940

Dear Mr. Booker: I am sorry that I missed you when you came to the office a week or so ago. As Miss Utley told you then, I will be at Prairie View later this month, probably the latter part of the week of the 18th, and at that time I shall be glad to talk with you about your fellowship application. I can say now, however, that there is no way in which we can give you any assurance of an award; you will just have to file your application and take your chance with the others. You can be sure, though, that your papers will receive the careful attention of our Committee on Fellowships.

Very truly yours,

GMR:MLU

GEORGE M. REYNOLDS

Mr. Walter M. Booker
Prairie View State Normal College
Prairie View, Texas

FISK
UNIVERSITY

FELLOWSHIPS

December 2, 1940

Dear Mr. Booker: The enclosed transcripts turned up recently, and I am sending them to you so that you can make use of them in preparing your new application blank.

Very truly yours,

MARGARET L. UTLEY
Secretary to Mr. Reynolds

Mr. Walter M. Booker
Prairie View College
Prairie View, Texas

FISK
UNIVERSITY

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL
COLLEGE

PRAIRIE VIEW, TEXAS

DIVISION OF ARTS AND SCIENCES

December 4, 1940

FELLOWSHIPS

Julie G	Mc G		

Dr. F. C. McLean
Department of Physiology
The University of Chicago
Chicago, Illinois

My dear Dr. McLean:

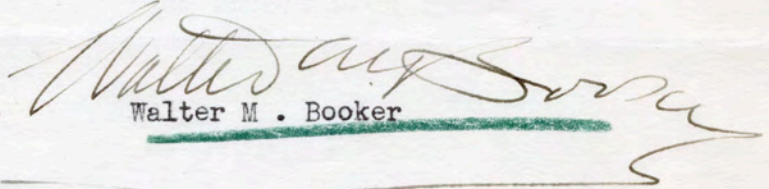
Mr. George Reynolds of the Julius Rosenwald Fund was here a few days ago. Apparently the Fund is becoming interested in Prairie View and I have renewed my application for assistance.

As I explained to you in October, I plan returning to the University in January, attempting to complete my work in June or August. I have a grant from Texas covering half of my tuition and travel both ways and have asked the Rosenwald Fund for a grant of five hundred or six hundred dollars, which would be adequate to complete my period of study.

I should deeply appreciate your usual kind and influential recommendations in connection with my application.

With best wishes, I am

Very truly yours,


Walter M. Booker

WMB:b



PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL
COLLEGE

PRAIRIE VIEW, TEXAS

FELLOWSHIPS

DIVISION OF ARTS AND SCIENCES

	GMR	9	2	9

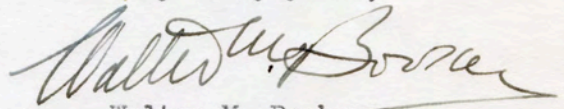
December 4, 1940

Miss Margaret Utley
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Miss Utley:

I thank you for your letter and enclosure.
I find I do not have an application form, except
the one to be retained by me as a duplicate. I
should, therefore, appreciate your forwarding me
a blank.

Very truly yours,


Walter M. Booker

WMB:b

FISK
UNIVERSITY

FELLOWSHIPS

December 6, 1940

Dear Mr. Booker: I am glad to know from your letter of December 4 that you plan to be with us again this winter. I shall do all that I can to support your application for a fellowship, and I hope it will be possible for you to secure a grant.

Sincerely,

FRANKLIN C. McLEAN

FCML:MLU

Mr. Walter M. Booker
Prairie View State Normal
and Industrial College
Prairie View, Texas

FISK
UNIVERSITY

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL COLLEGE

PRAIRIE VIEW, TEXAS

DIVISION OF ARTS AND SCIENCES

	GMR	13	ER	0

January 9, 1941

Mr. George Reynolds
 The Julius Rosenwald Fund
 4901 Ellis Avenue
 Chicago, Illinois

My dear Mr. Reynolds:

I have forwarded you under separate cover my application and other papers for a fellowship. It has become necessary for me to forego my plans to return to school in January. I shall return in June instead.

In support of my application I have included six copies of a letter from Dr. Laurette McMechan, of the International Congress of Anesthetists, requesting manuscript on my demonstration at the meeting of the Anesthetists in October, and six copies of a letter from Dr. Luckhardt to President Banks commenting on the demonstration. I have attached also to my plan of work the manuscript which I submitted for publication in Current Researches in Analgesia and Anesthesia.

I sincerely thank you in advance for whatever consideration you may feel disposed to give my application and papers.

With kindest regards, I am

Very truly yours,

Walter M. Booker
 Walter M. Booker

WMB:b



CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

SYMBOLS

- DL = Day Letter
- NT = Overnight Telegram
- LC = Deferred Cable
- NLT = Cable Night Letter
- Ship Radiogram

R. B. WHITE
PRESIDENT

NEWCOMB CARLTON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

HSA532 14 NT XC=PRAIRIEVIEW TEX 14

1941 APR 14 PM 11 13

GEORGE REYNOLDS=

H 4901 ELLIS AVE CHGO=

DEEPLY APPRECIATE FELLOWSHIP GRANT ACCEPT IT WITH SINCERE
GRATITUDE WORK TO BEGIN IN JUNE=

WALTER M BOOKER.

Prairie View State Col.
Prairie View, Texas

CHP	15	GR	0
DE		DE	4/18



FELLOWSHIPS

April 18, 1941

Dear Mr. Booker: When you are ready to
begin work under your
fellowship grant, kindly submit a payment plan
that will meet your needs. It is customary for
Fellows to prefer payment either in monthly or
quarterly installments, but if another plan is
more agreeable to you do not hesitate to suggest
it.

Very truly yours,

DOROTHY A. ELVIDGE

DAE:RH

~~Mr. Walter M. Booker~~
Prairie View State College
Prairie View, Texas

FISK
UNIVERSITY

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL
COLLEGE

PRAIRIE VIEW, TEXAS

FELLOWSHIPS

DIVISION OF ARTS AND SCIENCES

May 22, 1941

	DE	5/27	DE	5/29
	am		am	o
	mla		me	o

Miss Dorothy A. Elvidge, Comptroller
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Miss Elvidge:

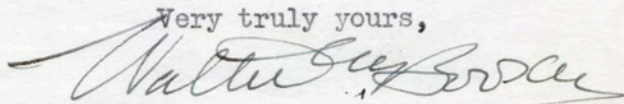
I plan leaving here for Chicago June 8
to begin my work at the opening of the
Summer Quarter.

In view of the fact I shall have to make
some preparations to go and have sufficient
fund for the expenses pertinent to registra-
tion, I should like to have you forward a check
for \$250.00. I shall very like not want a check
again until the last of July or first of August.
At this time I should like to have the usual
\$100.00 check, which you referred to in your
letter. I should appreciate your having the
first check here between June 1 and 3.

With kindest regards, I am

3028
25107

Very truly yours,



Walter M. Booker

2 mo.
7 1/2
9 1/2



Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

Prairie View State Normal and Industrial
College

Prairie View, Texas

Payment Voucher No. 3028

Date May 27, 1941

First payment on fellowship awarded 4/11/41 - - - - - \$250.00

Ck.#25107

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$250.00	

Prepared by	Checked by	Posted by	Comptroller
AM			



MLU memo

FELLOWSHIPS

May 29, 1941

Dear Mr. Booker: In accordance with your request, I am sending you herewith our check for \$250 representing the first payment on your fellowship grant.

Our file seems to record conflicting dates for the length of time you propose to study on this grant. Before arranging a payment plan to cover the balance of your award, we shall need to know whether you are planning to study for a nine- or twelve-month period beginning June 1.

Very truly yours,

DOROTHY A. ELVIDGE

DAE:AM

~~Mr. Walter M. Booker~~
Prairie View State Normal and
Industrial College
Prairie View, Texas

FISK
UNIVERSITY

FELLOWSHIPS

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL
COLLEGE

PRAIRIE VIEW, TEXAS

DIVISION OF ARTS AND SCIENCES

May 31, 1941

DE	6/2	DE	6/3
Mlu		Mlu	0

Miss Dorothy Eldige, Comptroller
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Miss Elvidge:

I received your communication today, attached to which was a check for \$250.00, first installment of my fellowship grant.

My application requested funds to cover a twelve months period of study to begin in June 1941. I am hoping I shall be able to complete my work by June 1942.

Very truly yours,

Walter M. Booker
Walter M. Booker

FISK
UNIVERSITY

M L U M U O

FELLOWSHIPS

June 3, 1941

Dear Mr. Booker: Thank you for your letter of
May 31. Would you prefer to
receive payment of the balance of your fellowship
grant in three more quarterly installments of \$250
each, on September 1, December 1, and March 1, or
in nine monthly installments of \$83.33 each begin-
ning September 1?

Very truly yours,

DOROTHY A. ELWIDGE

DAE:AM

Mr. Walter M. Booker
Prairie View State Normal and
Industrial College
Prairie View, Texas

FISK
UNIVERSITY

FELLOWSHIPS

WALTER MONROE BOOKER

Mr. Booker was in the office on Tuesday, June 17, to arrange a payment plan covering his fellowship grant. He was awarded \$1,000 for a twelve-month period of study, beginning June 1941. He has asked, however, to have his payments spread over only three quarters instead of four because there is a possibility that he will be able to finish in that time. I warned him that he was getting an exceptionally large amount of his grant in the early months and that from some other source he would have to meet the cost of his return travel to Texas and the cost of a possible fourth quarter at the University.

D Elledge

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 3225

Date July 1, 1941

Second payment on fellowship grant - - - - - \$100.00

Ck.#25319

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$100.00	

Prepared by AM	Checked by	Posted by	Comptroller
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FELLOWSHIPS

4326 South Parkway

Chicago, Illinois

July 27, 1941

Miss Dorothy Elridge
Julius Rosenwald Fund
City

	DE	7/28	DE	0

My dear Miss Elridge:

Because of a small emergency I should
be pleased to have you forward my
August stipend by Wednesday, July 30, if
such is not contrary to your policy.

mailed 7/27/41

With kindest regards, I am

Very truly yours,
Walter S. Bowers
(Barker)

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 3258

Date July 31, 1941

Third installment on fellowship grant - - - - - \$100.00

Ck. #25358

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$100.00	

Prepared by AM	Checked by	Posted by	Comptroller
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FELLOWSHIPS

#326 South Parkway
Chicago, Illinois
August 15, 1941

Miss Dorothy E. Bridge, Comptroller
Julius Rosenwald Fund
Chicago, Illinois

	DE	8/18	DE	8/18

My dear Miss E. Bridge:

In outlining my plan of stipend release in June I did not take into account my return to Prairie View at the end of this quarter. There will be some six weeks interval between the closing of the summer quarter and the opening of the fall quarter, which period I shall spend at home in Texas. In order to cover the expense of travel to and from Prairie View it is necessary for me to draw on my account for \$40.00. I should be pleased to have this amount by August 20 if it meets your approval.

Very truly yours,
Walter D. Boyer

UNIVERSITY

FELLOWSHIPS

August 18, 1941

Dear Mr. Booker: In answer to your request, I
 am sending you an additional
payment of \$40 on your fellowship grant. The next
payment, one for \$60, will be sent to you on October 1,
followed by monthly installments of \$100 each through
February, and a final payment on March 1, 1942, of \$50.

Very truly yours,

DAE:AM

Mr. Walter M. Booker
4326 South Parkway
Chicago, Illinois

FISK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois


Payment Voucher No. 9259

Date August 18, 1941

Fourth payment on fellowship granted 4/11/41 - - - - - \$40.00

Ch. #9259

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$40.00	

Prepared by AM	Checked by	Posted by	Comptroller
			

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL COLLEGE

PRAIRIE VIEW, TEXAS

DIVISION OF ARTS AND SCIENCES

September 17, 1941

DE	9/19	DE	9/24
MLW		MLW	0

Miss Dorothy Elvidge, Comptroller
 Julius Rosenwald Fund
 4901 Ellis Avenue
 Chicago, Illinois

My dear Miss Elvidge:

It shall become necessary for me to ask that you revise our original schedule of payments. It appears I shall have to either bring my family to Chicago with me or provide(at least the first two or three months) for their maintenance here at Prairie View, as my wife(to date)does not have employment for this semester. This means I shall need a larger amount than \$100.00 to get things started off and arrange for my obligations.

I recall you suggested last May paying the balance of the grant quarterly; i. e., \$250.00 each quarter. I am, therefore, asking that the remainder of my grant be paid in this way. I regret having to ask you to change the original schedule, but I want to be certain to have sufficient funds to move my family if necessary and take care of other obligations.

I shall be leaving here October 1 and should like for you to have my check (\$250.00) here by September 25.

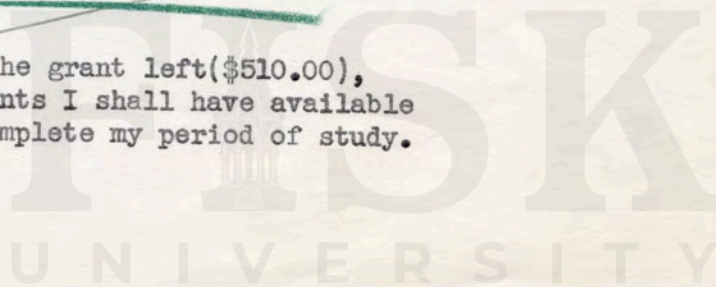
Thanking you in advance for your kindness and cooperation, I am

Very truly yours,

Walter M. Booker
 Walter M. Booker

P. S.

I understand the amount of the grant left(\$510.00), but with this and other amounts I shall have available soon, I should be able to complete my period of study.



yes, I think this would be the safest plan. WCH

	WCH.		WCH	

Remarks:

What do you say to this request?

Booker got \$1000 for 12 months study beginning June 1. He has received:

6/1 - \$250

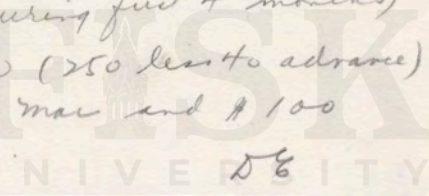
7/1 100

8/1 100

8/18 40 (advance on Sept check.)

\$490 (During first 4 months)

He might send him 210 now (250 less 40 advance)
 \$200 on Jan 1 for Jan + Feb + Mar and \$100
 on Apr 1 for Apr + May.



Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

Prairie View State Normal & Industrial College

Prairie View, Texas

Payment Voucher No. 3553

Date September 23, 1941

Additional payment for October on fellowship grant - - - - - \$150.00

Ch.#25703

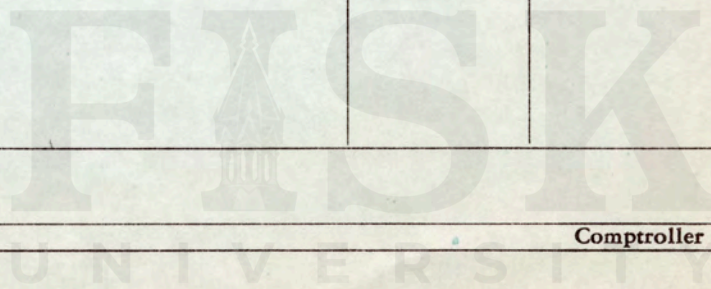
Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$150.00	

Prepared by
AM

Checked by

Posted by

Comptroller



~~MLA~~

FELLOWSHIPS

September 24, 1941

Dear Mr. Booker: I have talked with Mr. Haygood concerning your letter of September 17, and we have set up a revised schedule of payments on the balance due you as follows:

October 1 - - - - -	\$210.00
(\$250 less \$40 advance sent you on August 18)	
January 1 - - - - -	200.00
April 1 - - - - -	100.00

The October 1 installment has been issued to you in two checks, one for \$60, which you will notice is dated September 30, and the other for \$150, dated September 23. Both of these payments are enclosed. With these checks we have sent you a total of \$700. The payments due on January 1 and April 1 will cover the balance of your \$1,000 grant.

Before the January installment is due, we shall need to know your address in Chicago.

Very truly yours,

DAE:AM

DOROTHY A. ELVIDGE

Mr. Walter M. Booker
Prairie View Normal & Industrial College
Prairie View, Texas



Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No.

3508

Date

September 30, 1941

Fifth payment on fellowship grant - - - - - \$60.00

Ch.#25658

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$60.00	

Prepared by

AM

Checked by

Posted by

Comptroller



acknowledge to Booker.

Bruce W WCA for i "Della" Sean

	WeH		WeH	o

Remarks:

Booker was in while you were gone last week, asking for this revision in his fellowship plan. I asked him to discuss it with his adviser and write us. He was awarded \$1000 for twelve months study and has received \$700 during the past five months (since June).

~~sc~~ ~~7 up~~ ~~11/3~~ ~~McC~~
FISK UNIVERSITY

FELLOWSHIPS

Booker, WM

Department of Physiology
The University of Chicago
October 20, 1941

	DE	10/21	DE	.
	WCH		WCH	5

Miss Dorothy Elvidge, Comptroller
The Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Miss Elvidge:

Pursuant to our conversation a few days ago regarding revision of schedule on my fellowship grant, permit me to set-out below the reasons for my request:

1. My estimate on board and room was based on my knowledge of these items as of 1937-1938. Since that time both have increased.

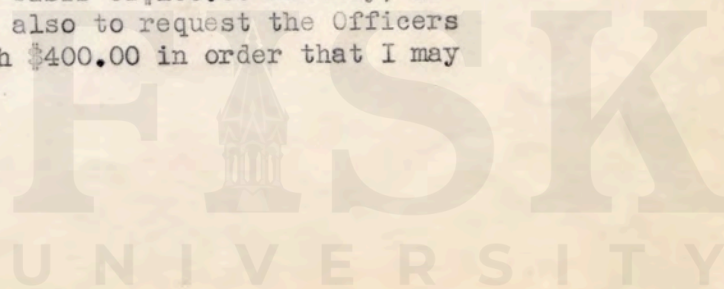
2. I estimated tuition and living expenses for nine months and not for twelve months. Also, since I was here in regular session, fees have increased. As a matter of fact, I estimated no fees in my application aside from tuition itself. The fees for my work run at least \$20.00 a quarter.

3. I failed to estimate properly the amount of money I could furnish, since a number of obligations pertinent to my family life were not fully taken into consideration, and it was necessary to give attention to these items before beginning my period of study. Furthermore, a few occasions have come in since I made the estimate and even since I began my period of study that required finance; such as the removal of my son's tonsils and adenoids. So that the \$478.00 which I thought I could furnish falls short by at least \$200.00.

4. Beginning my period of study in the summer caused a lag of 5 or 6 weeks (between sessions) during which time living expenses were going on, but were not estimated in my application.

I want to make it clear to you and to the Officers that there has been utmost care in the handling of the funds; there has been no extravagance. In fact, it has become necessary to reduce markedly the living standard of my family and myself; and even so, the money available is not commensurate with the rising cost of living.

I am, therefore, requesting release (on basis of \$100.00 monthly) of the balance of my grant. I should like also to request the Officers to consider supplementing my grant with \$400.00 in order that I may



Page 2, Miss Elvidge

live comfortably and without apprehension of denial and privation of my family. In the event my request is not granted I shall have to arrange for funds through the student loan and by employment. Dr. Luckhardt, my adviser, is endorsing my requests and is indicating the same by his signature below.

With kindest regards, I am

Very truly yours,

Walter M. Booker

Walter M. Booker

Ernest B. Luckhardt.

FELLOWSHIPS

October 27, 1941

Dear Mr. Booker: Miss Elvidge has referred to Mr. Haygood your letter regarding an extension of your fellowship grant in the amount of \$400. Mr. Haygood had to leave the office before getting in touch with the necessary members of the Committee on Fellowships, but your request will receive consideration as soon as he returns next week.

Very truly yours,

MARGARET L. MITCHELL

MLU

Mr. Walter M. Booker
Department of Physiology
The University of Chicago
Chicago, Illinois

FISK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

Physiology Building
University of Chicago
Chicago, Illinois

Payment Voucher No. 9276

Date November 11, 1941

November installment on fellowship grant - - - - - \$115.00

Ch.#9276 W. P.

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$115.00	

Prepared by	Checked by	Posted by	Comptroller
AM			



FELLOWSHIPS

Physiology Building
University of Chicago
November 8, 1941

Miss Dorothy Elridge, Controller
Julius Rosenwald Fund
4901 Ellis Avenue
City

DE	11/11	DE	11/24
		AMW	11/11
MLA		MLL	0

My dear Miss Elridge:
According to the letter received from Mr. Haygood
I am submitting the following revised payment
plan:

November	\$ 125.00	\$ 115 sent 11/11/41
December	100.00	
January	100.00	
February	80.00	
March	80.00	
April	75.00	
May	50.00	
	<u>\$ 610</u>	

I should like to have the November check by Tuesday Nov. 11
(at the above address) if possible. Many thanks.

Very truly yours,
Walter S. Brown

FELLOWSHIPS

November 11, 1941

Dear Mr. Booker: Your letter of November 8 has come to me during Miss Elvidge's absence from the City. Final approval of the payment plan submitted will have to wait until she returns to the office the last week in November. In the meantime, however, I am sending a check for \$115 representing the November installment on your grant. This is, unfortunately, \$10 less than the amount requested owing to an error in your payment plan. According to our records there is a balance of \$300 remaining in the award made to you in April 1941, and an extension of \$300 recently granted by Mr. Haygood, making a total of \$600 available to you for the rest of the year.

Very truly yours,

Am

Secretary to Miss Elvidge

Mr. Walter M. Booker
Physiology Building
University of Chicago
Chicago, Illinois

FISK
UNIVERSITY

FELLOWSHIPS

November 24, 1941

Dear Mr. Booker: I have just returned to the office and have seen your letter of November 8. The payment plan which you suggested is entirely agreeable to us, and I shall see that checks are sent to you on those dates.

We have had some trouble in people receiving checks that were mailed to them at the University of Chicago. I think it would be safer if we had your home address so that payments could be sent directly to you there.

Very truly yours,

DOROTHY A. ELVIDGE

DAE:AM

Mr. Walter M. Booker
Physiology Building
University of Chicago
Chicago, Illinois

FISK
UNIVERSITY

FELLOWSHIPS

Physiology Building
University of Chicago
Chicago, Illinois

DE	11/25	DE	°

Miss Dorothy Elvidge Conyströller
Julius Rosenwald Fund
City

My dear Miss Elvidge:
If convenient, I should like to have my
December stipend by November 26.
Many thanks.

Very truly yours,
Walter D. Boyer

check made
11/27

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

Physiology Building

University of Chicago

Chicago, Illinois

Payment Voucher No. 3796

Date November 28, 1941

Eighth payment on fellowship grant - - - - - \$100.00

Ok. #25969

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$100.00	

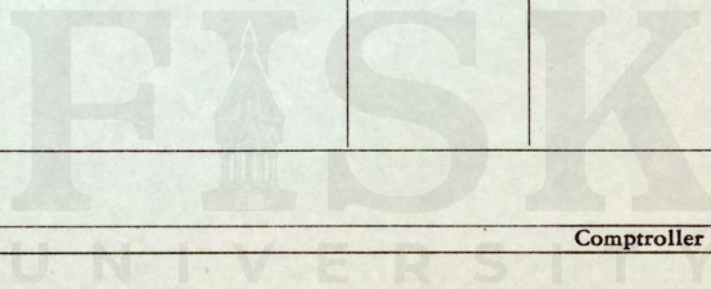
Prepared by

AM

Checked by

Posted by

Comptroller



FELLOWSHIPS

Circulatory and Respiratory Effects Resulting from Traction on the Liver

By

WALTER M. BOOKER,
Prairie View, Texas



Reprinted from

ANESTHESIA AND ANALGESIA

July-August, 1941

(Printed in U. S. A.)

Circulatory and Respiratory Effects Resulting from Traction on the Liver.*

Walter M. Booker, Prairie View, Texas



INVESTIGATIONS HAVE SHOWN previously that traumatization of the abdominal viscera will cause a severe drop in blood pressure to shock levels (Blalock et al., 1927, 1931) and inhibition of respiration (Luckhardt and Smith, 1926). It was the purpose of this demonstration to show how increased tension on the liver, particularly when prolonged, will produce an extremely low blood pressure (shock levels) and a temporary inhibition of respiration. The surgical importance here can be readily recognized when it is recalled that in gallbladder removal there is "rotation" of the liver (increasing the tension) in order that the gallbladder may be made accessible. Furthermore, in conditions of an enlarged liver (hepatitis, tumors of the liver and so forth) there is increased tension on this organ by virtue of its increase in weight. In this paper only the chief points brought to light in the demonstration will be given in outline form without going into the detailed mechanism involved or review of the literature.

Procedure

A DOG was anesthetized with nembutal, following which the carotid artery was cannulated and respiration was recorded by means of the usual tambour-pneumograph arrangement. An incision was made along the middle region of the abdomen, extending from the tip of the sternum to the lower region of the abdomen. For demonstrating immediate effects the hand was placed around the liver and traction was exerted. To show the procedure involved in producing prolonged effects (acute) an artificial "hand" made of brass, having three long fingers, was fitted around the liver, traction was exerted and the "hand" was tied to the opposite end of the operating table. Kymograph records were presented to show results of prolonged traction (acute) and charts and microscopic slides also presented to show some effects in chronic animals.

Results

FIRST.—Traction on the liver causes an abrupt and pronounced fall in blood pressure and an inhibition of respiration, the latter lasting 20-30 seconds. Prolonged traction (2-3 hours) causes circulatory failure and death.

2. Section of the spinal cord at the level of origin of the splanchnic nerves or section of the splanchnics themselves (vagi cut) removes the inhibition of respiration.

3. Procainization of the cord at the level of splanchnic origin or of the liver itself, will also remove (temporarily) the inhibition.

*Presented during the Nineteenth Annual Congress of Anesthetists, the International Anesthesia Research Society and the International College of Anesthetists in Joint Meeting with the Associated Anesthetists of the U. S. A. and Canada, Mid-Western Association of Anesthetists and Chicago Society of Anesthetists, Clinical Congress of Surgeons Week, Congress Hotel, Chicago, Ill., October 21-25, 1940. From the Department of Physiology, The University of Chicago and the Biological Laboratories, Prairie View College.

4. Venous pressure in the abdominal veins rises concomitant with the fall in arterial pressure and remains high as the arterial pressure remains low.

5. Hemoconcentration occurs, as indicated by increase in red cell count and in hematocrit values.

6. In chronic animals, operated on under aseptic conditions, there is marked retention of the urine during the first 3 to 4 postoperative days. This is followed by a marked increase in the urinary output to above normal ranges.

7. In the first few postoperative days, animals are markedly depressed and there is loss of appetite.

8. At death (many animals died between 6 and 8 postoperative days) autopsy reveals abdomen and thorax full of bloody fluid and great veins are prominently engorged. Histological examination of tissues shows; (1) alveoli of lungs are edematous (hemorrhagic type); (2) heart muscle shows nuclear degeneration and necrosis; (3) kidney shows acute circulatory degenerative changes and (4) liver cells show necrosis and fatty degeneration.

The writer expresses his sincere gratitude to Dr. Arno B. Luckhardt, Department of Physiology, the University of Chicago, under whose direction this work was done and in whose laboratory the demonstration was given.

FELLOWSHIPS

4326 South Parkway

Chicago, Illinois

December 16, 1941

DE	12/18	DE	18
MLA		WCH	0

Miss Dorothy Elvidge, Comptroller
 Julius Rosenwald Fund
 4901 Ellis Avenue
 Chicago, Illinois

My dear Miss Elvidge:

I have been fortunate to obtain inexpensive transportation to Texas for the holidays. I should be pleased to have you take \$25.00 from my January check and forward to Prairie View College, Prairie View, Texas, by the latter part of this week.

Many thanks and Merry Christmas.

Very truly yours,
Walter D. Borner

FELLOWSHIPS

WCH	18	WCH	0
DB		De	0

#326 South Parkway
Chicago, Illinois

December 16, 1941

Mr. W. C. Haygood
Julius Rosenwald Fund
#901 Ellis Avenue
Chicago, Illinois

My dear Mr. Haygood:

I apologize for not answering your communication sooner regarding worthwhile fellowships material. Your letter came during the week of my oral preliminary examination, after which, I confess, I overlooked answering it.

I shall be home during the holidays and shall give considerable thought to your request for names of good fellowships material, and you will hear from me either during or shortly after the holidays.

I want to thank you for the extension of my fellowships funds; I deeply appreciate your kind cooperation. I am enclosing a reprint of some of my work.

Merry Christmas and Happy New Year.

Very truly yours,
Walter R. Borner

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

Prairie View College

Prairie View, Texas

Payment Voucher No. 3941

Date December 18, 1941

Ninth installment on fellowship grant - - - - - \$25.00

Ck. #26146

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$25.00	

Prepared by AM	Checked by	Posted by
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Comptroller

mluo

FELLOWSHIPS

December 18, 1941

Dear Mr. Booker: In accordance with your
 request, I am enclosing
an advance of \$25 against the January 1 install-
ment of your fellowship. The balance of this
installment will be sent to your Chicago address
early next month.

Very truly yours,

DOROTHY A. ELVIDGE

DAE:AM

Mr. Walter M. Booker
Prairie View College
Prairie View, Texas

FISK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker
4326 South Parkway
Chicago, Illinois

Payment Voucher No. 3965

Date December 31, 1941

Final payment on fellowship granted 4/11/41 - - - - - \$60.00
First payment on extension to grant - - - - - 15.00
\$75.00

Ck. #26171

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$75.00	

Prepared by AM
Checked by
Posted by



Comptroller

FELLOWSHIPS

Wed 16
1946

Wed 16
1946

Department of Physiology
The University of Chicago
Chicago, Illinois

Mr. W. C. Haygood
Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Mr. Haygood:

After thinking seriously about the matter of fellowship material for this year's consideration, I am submitting the following names:

in — Nicholas L. Gerren, Department of Music,
Prairie View College, Prairie View, Texas.

in — H. E. Wright, Department of Education,
Prairie View College, Prairie View, Texas

not in R. E. Turner, Leland College, Baker, Louisiana

I am sure all of these men are not only scholars and practical with their scholarship, but are honest, hard-working, and affable; all three have very good personalities.

I am not sure if all of them filed applications. If you will forward me the blanks I shall see they are sent to each of them.

If you will have a few minutes to talk in the next week or two I should be glad to come by and talk with you.

Very truly yours,

Walter M. Booker
Walter M. Booker

FISK
UNIVERSITY

FELLOWSHIPS

4326 South Parkway
Chicago, Illinois
January 15, 1942

	DE	1/16	DE	1/16 20.

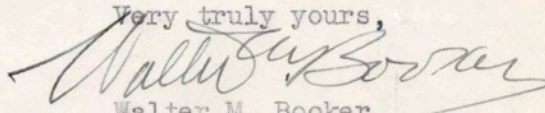
Miss Dorothy Elvidge
Julius Rosenwald Fund
Chicago, Illinois

My dear Miss Elvidge:

In order that I may be able to meet a tuition obligation I shall have draw \$20.00 from my February stipend, which I should appreciate your sending by Monday of next week.

Again I thank you for your fine cooperation in advancing these sums of money on my request.

Very truly yours,



Walter M. Booker

FISK
UNIVERSITY

DE

FELLOWSHIPS

January 16, 1942

Dear Mr. Booker: Thank you for your letter suggesting fellowship applicants. Mr. Gerren and Mr. Wright have both sent in applications. Since the dead line was January 5, it will not be possible for us to get in touch with Mr. Turner this year, but I hope he will apply next fall.

I expect to be in the office all of next week, and if you would like an appointment, please call Miss Utley.

Sincerely yours,

WILLIAM C. HAYGOOD

WCH:MLU

Mr. Walter M. Booker
Department of Physiology
University of Chicago
Chicago, Illinois

FISK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 9288

Date January 16, 1942

Partial payment on February installment of fellowship grant - \$20.00

Ch.#9288 W.F.

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$20.00	

Prepared by AM	Checked by	Posted by	Comptroller
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FELLOWSHIPS

4326 South Parkway

Chicago, Illinois

January 28, 1942

Miss Dorothy Elvidge

Julius Rosenwald Fund

4901 Ellis Avenue

City

My dear Miss Elvidge:

I am very sorry to have to write you again, but I have some important obligations coming due in February and I should like the revision of my schedule of payments as set out below. This, I think, will adjust finally my accounts.

DE	1/30	DE	1/30

February 1, \$ 90.00

March 1, 65.00

April 1, 60.00

May 1, 50.00

If possible I should like the February check by Saturday, January 31. Again I thank you for your kindness in cooperating with me and hope it will not be necessary to make another similar request.

Very truly yours,
Walter D. Borner

FELLOWSHIPS

January 30, 1942

Dear Mr. Booker: I am sorry to have to tell
you that we shall not be able
to make any further adjustment in your payment
schedule. I am enclosing our check for \$60, repre-
senting the balance of your February 1 installment.

Very truly yours,

DOROTHY A. ELVIDGE

DAE:AM

Mr. Walter M. Booker
4326 South Parkway
Chicago, Illinois

FI
SK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 4099

Date January 30, 1942

Third payment on extension to fellowship grant - - - - - \$60.00

Ck. #26325

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$60.00	

Prepared by	Checked by	Posted by	Comptroller
AM			



FELLOWSHIPS

4326 South Parkway
Chicago, Illinois

February 3, 1942

Booker, Walter M

Miss Dorothy Edridge
Julius Rosenwald Fund
4901 E. 63rd Avenue
Chicago, Illinois

	DE	15	DE	2/6
✓	MLU		MLU	0

My dear Miss Edridge:

Your letter enclosing a check for \$60.00 was received last Saturday.

I requested readjustment of my stipend releases in order to make sufficient funds available this month to cover some of my personal obligations which must be taken care of. Last May you stated that although stipends are arranged on a monthly basis, stipend releases can be arranged in a flexible manner to accommodate the purposes of those holding fellowships. This has been done for me (and I again thank you) without apparent detriment to either of us. I can not, therefore, understand why you are now unwilling to make the change I requested - particularly since the same period of fellowships tenure obtains.

I shall have to ask that you reconsider my request, for it is very necessary. In the event

you want me to come by and discuss this matter with you, I should be glad to do so.

You have been very cooperative in the past, for which I am deeply grateful; and I shall understand that in the future no requests are to be made for releases. I am forced by the urgency of circumstances, however, to ask that this request be granted and a check for \$30.00 be forwarded.

With kindest regards, I am

Very truly yours,
Walter B. Foster

FELLOWSHIPS

✓ 7/11/40

February 6, 1942

Dear Mr. Booker: Since your letter of
 February 3 arrived, I have
discussed your case with Mr. Haygood, the Director
for Fellowships.

Your total award of \$1,300
was made to cover twelve months' study at the
University of Chicago. During the first eight
months of that period, we have sent you \$1,095,
leaving only \$205 for the rest of the year. Our
purpose in supervising a Fellow's schedule of
payments is to assure him and ourselves that the
grant is spread equitably over the period for
which it was made. For this reason, we do not
feel that any additional advances are warranted.

Very truly yours,

DOROTHY A. ELVIDGE

DAB:AM

Mr. Walter M. Booker
4326 South Parkway
Chicago, Illinois

FISK
UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter Booker
4326 South Parkway
Chicago, Illinois

Payment Voucher No. 4221

Date February 23, 1942

Fourth instalment on Fellowship grant - - - - - \$80.00

Ck. #26450

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$80.00	

Prepared by	Checked by	Posted by
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Comptroller

FELLOWSHIPS

4326 South Parkway
Chicago, Illinois

February 19, 1942

Mr. W. C. Haygood
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

WCH	20	WCH	0
DB		DB	2/23-20.

My dear Mr. Haygood:

I was very sorry to know of your illness a few days ago. I hope you are quite all right now.

I wanted to discuss the matter which Miss Elvidge brought to your attention a few days ago, regarding revision of my payment plan. I have been able to shift the obligations I wanted to meet to next week. I should, therefore, like to know if you can ask Miss Elvidge to release my March stipend February 23? This is a matter of urgency, and I hope my request will be granted.

Very truly yours,
~~Walter D. [unclear]~~

FASKE
UNIVERSITY

The University of Chicago

Department of Physiology

March 9, 1942

	WCH	11	WCH	16

Mr. W. C. Haygood
The Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Mr. Haygood:

Enclosed you will find an outline of the all-expense tour to Boston in connection with the meetings of the Federated American Societies for Experimental Biology, March 31 to April 4. My adviser, Dr. Luckhardt, who has charge of the trip, is desirous that I go if I can possibly arrange to do so.

At these meetings some of the most outstanding men in the fields of Physiology, Pharmacology, Pathology and Biochemistry will be present, and the information and contact made possible at such meetings are regarded as invaluable. I should think it would be correct to consider attendance of the meetings as a part of my training this year; and particularly do I regard it important to be identified with these groups during this War Emergency.

I realize full well how nice the Fund has been to me, and I have a feeling of hesitation in making further requests. Nevertheless, I want to attend the meetings, and should like to know if it is possible for an appropriation to be made to cover the expense of attendance. Dr. Luckhardt endorses my request and is indicating the same by his signature below.

I am enclosing also a reprint of some of my work. I am happy to say that since the publication of this work the problem has been extended markedly and we believe that some interesting and worthwhile facts have been brought to light. Very soon now I shall get the entire work into dissertation form for presentation early in May.

With kindest regards, I am

Very truly yours,

Walter M. Booker
Walter M. Booker

Arno B. Luckhardt

**Circulatory and Respiratory Effects
Resulting from Traction
on the Liver**

By

WALTER M. BOOKER,
Prairie View, Texas



Reprinted from

ANESTHESIA AND ANALGESIA

July-August, 1941

(Printed in U. S. A.)

Circulatory and Respiratory Effects Resulting from Traction on the Liver.*

Walter M. Booker, Prairie View, Texas



INVESTIGATIONS HAVE SHOWN previously that traumatization of the abdominal viscera will cause a severe drop in blood pressure to shock levels (Blalock et al., 1927, 1931) and inhibition of respiration (Luckhardt and Smith, 1926). It was the purpose of this demonstration to show how increased tension on the liver, particularly when prolonged, will produce an extremely low blood pressure (shock levels) and a temporary inhibition of respiration. The surgical importance here can be readily recognized when it is recalled that in gallbladder removal there is "rotation" of the liver (increasing the tension) in order that the gallbladder may be made accessible. Furthermore, in conditions of an enlarged liver (hepatitis, tumors of the liver and so forth) there is increased tension on this organ by virtue of its increase in weight. In this paper only the chief points brought to light in the demonstration will be given in outline form without going into the detailed mechanism involved or review of the literature.

Procedure

A DOG was anesthetized with nembutal, following which the carotid artery was cannulated and respiration was recorded by means of the usual tambour-pneumograph arrangement. An incision was made along the middle region of the abdomen, extending from the tip of the sternum to the lower region of the abdomen. For demonstrating immediate effects the hand was placed around the liver and traction was exerted. To show the procedure involved in producing prolonged effects (acute) an artificial "hand" made of brass, having three long fingers, was fitted around the liver, traction was exerted and the "hand" was tied to the opposite end of the operating table. Kymograph records were presented to show results of prolonged traction (acute) and charts and microscopic slides also presented to show some effects in chronic animals.

Results

FIRST.—Traction on the liver causes an abrupt and pronounced fall in blood pressure and an inhibition of respiration, the latter lasting 20-30 seconds. Prolonged traction (2-3 hours) causes circulatory failure and death.

2. Section of the spinal cord at the level of origin of the splanchnic nerves or section of the splanchnics themselves (vagi cut) removes the inhibition of respiration.

3. Procainization of the cord at the level of splanchnic origin or of the liver itself, will also remove (temporarily) the inhibition.

*Presented during the Nineteenth Annual Congress of Anesthetists, the International Anesthesia Research Society and the International College of Anesthetists in Joint Meeting with the Associated Anesthetists of the U. S. A. and Canada, Mid-Western Association of Anesthetists and Chicago Society of Anesthetists, Clinical Congress of Surgeons Week, Congress Hotel, Chicago, Ill., October 21-25, 1940. From the Department of Physiology, The University of Chicago and the Biological Laboratories, Prairie View College.

4. Venous pressure in the abdominal veins rises concomitant with the fall in arterial pressure and remains high as the arterial pressure remains low.

5. Hemoconcentration occurs, as indicated by increase in red cell count and in hematocrit values.

6. In chronic animals, operated on under aseptic conditions, there is marked retention of the urine during the first 3 to 4 postoperative days. This is followed by a marked increase in the urinary output to above normal ranges.

7. In the first few postoperative days, animals are markedly depressed and there is loss of appetite.

8. At death (many animals died between 6 and 8 postoperative days) autopsy reveals abdomen and thorax full of bloody fluid and great veins are prominently engorged. Histological examination of tissues shows; (1) alveoli of lungs are edematous (hemorrhagic type); (2) heart muscle shows nuclear degeneration and necrosis; (3) kidney shows acute circulatory degenerative changes and (4) liver cells show necrosis and fatty degeneration.

The writer expresses his sincere gratitude to Dr. Arno B. Luckhardt, Department of Physiology, the University of Chicago, under whose direction this work was done and in whose laboratory the demonstration was given.

ALL-EXPENSE TOUR

MEETING OF THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
BOSTON, MASS., MARCH 31st to APRIL 5th, 1942

SPONSORED BY

DR. ARNO B. LUCKHARDT

DEPARTMENT OF PHYSIOLOGY, UNIVERSITY OF CHICAGO

MONDAY-MARCH 30, 1942

Lv. Chicago (Union Station) on DeLuxe "Trail Blazer" Pennsylvania Railroad 1:30 PM
Lv. 63rd Street (Englewood Union Station - between State & Wentworth Sts.) 1:45 PM
Dinner on train.
Night on train.

TUESDAY-MARCH 31, 1942

Breakfast on train.

Arrive Pennsylvania Station - New York 7:30 AM

8:00 A.M. Motor tour of Lower New York, historic sections, Lower Fifth Avenue, Washington Square, the Battery and the Bowery, famous Tomb's Prison, City Hall and Municipal Buildings, Federal and State Buildings, Wall Street and the financial section. Lower Broadway, Old Custom House, where Washington took the oath of office, Fraunces Tavern, the Foreign sections, famous Fulton Fish Market, with a stop at Battery Park, a visit to the Aquarium, and view of New York's Harbor and the STATUE OF LIBERTY. Fifth Avenue and its world famous shopping center, millionaire's row, St. Patrick's Cathedral, Metropolitan Museum of Art, Columbia University, Barnard College, the world-renowned CATHEDRAL OF ST. JOHN DIVINE, Riverside Drive, view of the Pallisades of the Hudson River. At completion of tour we arrive at Grand Central Station.

12:00 noon we leave New York on the New York, New Haven and Hartford Railway.

Luncheon on train.

Arrive Boston 4:45 P.M.

Transfer by taxi to Hotel Bradford.

Dinner at hotel.

Night at hotel.

WEDNESDAY-APRIL 1, 1942

Breakfast at hotel.

Luncheon at hotel.

Dinner at hotel.

Night at hotel.

THURSDAY-APRIL 2, 1942

Breakfast at hotel.

Luncheon at hotel.

Dinner at hotel.

Night at hotel.

FRIDAY-APRIL 3, 1942

Breakfast at hotel.

Luncheon at hotel.

Dinner at hotel.

Night at hotel.

SATURDAY-APRIL 4, 1942

Breakfast at hotel.

12:00 noon lunch at hotel. Pack and bring bags to lobby when you go to lunch.
1:00 P.M. Sightseeing trip of Historic and Modern Boston. This tour embraces all points of interest in the historical and business sections of the city. Stops are made at Bunker Hill Monument, Old North Church, where lanterns were displayed for Paul Revere, and Paul Revere House. Tour includes Faneuil Hall, Old State House, Old South Meeting House, Boston Common, Market District, State Capitol and many other points of historic interest.

Leave Boston via New York, New Haven & Hartford Railway 4:00 P.M.

Dinner on train.

Arrive Pennsylvania Station 9:05 P.M.

Leave New York via Pennsylvania Railroad 11:30 P.M.

Night on train.

SUNDAY-APRIL 5, 1942

Breakfast on train.

Luncheon on train.

Arrive 63rd Street (Englewood Union Station) 4:25 P.M.

Arrive Union Station Chicago 4:40 P.M.

	<u>COST OF TRIP</u>
4 to a room (Double beds)	\$61.00
3 to a room	\$61.50
2 to a room	\$64.40
Single room	\$68.00

These charges include round-trip rail fare in roomy air-conditioned individual reclining chair car coaches, hotel accommodations at Bradford Hotel - Boston (all rooms with bath), all meals as shown, and all sightseeing in New York and Boston. Pillows furnished free on train. In fact, all expenses are included except personal gratuities.

For your protection, an accident policy is included in which you are protected in case of accident or accidental death from time of leaving until arrival back in Chicago.

We have been able to secure only a limited number of rooms; therefore, those participating must not only signify their intentions, but remit money in full not later than March 23rd, 1942. Make checks payable to Dr. Arno B. Luckhardt and mail to him care of Department of Physiology, University of Chicago, Chicago, Illinois.

Selection of roomates is left to individual members.

For those not joining the all-expense tour and who desire first class accommodations, the fare will be round-trip Chicago to Boston \$63.89 good in all type Pullman accommodations; \$57.49 good in upper berths only; lower berth Chicago to Boston \$7.46; round-trip in upper berth \$9.19; drawing room \$26.46. As "The Trail Blazer" is strictly a coach train featuring observation and club cars, it will be necessary for those desiring Pullman accommodations to use a different train to New York. Schedule of New York trains are as follows:

*"The Admiral"	Lv. Chicago	2:30 PM	Ar. New York	8:30 AM	Ar. Boston	2:40PM
"The General" (%)	Lv. Chicago	3:30 PM	Ar. New York	9:30 AM	Ar. Boston	2:40PM
*"The Pennsylvanian"	Lv. Chicago	5:30 PM	Ar. New York	11:30 AM	Ar. Boston	6:55 PM
*"The Golden Triangle"	Lv. Chicago	11:00 PM	Ar. New York	6:10 PM	Ar. Boston	11:40PM

* All trains except "The General" mentioned above make direct connection for Boston at Pennsylvania Station - New York
 (%) Carries through Boston car

For further information and enrollment, write, see, or telephone
 Dr. Arno B. Luckhardt
 Department of Physiology
 University of Chicago
 Chicago, Illinois
 Telephone: MIDway 0800 - Local 320



FELLOWSHIPS

March 16, 1942

Dear Mr. Booker: I have delayed answering your letter of March 9 until I had a chance to confer with Mr. Embree. The officers are not empowered to make grants of the kind you propose, and while I can quite realize the importance to you professionally of attending the meetings of the Federated Societies for Experimental Biology, I am sorry to have to tell you that this could not be regarded as a legitimate addition to your fellowship. I am glad to know that the work on the dissertation is proceeding so satisfactorily, and I hope that some other means can be found to enable you to make the trip.

Sincerely yours,

WCH:McK

WILLIAM C. HAYGOOD

Mr. Walter M. Booker
Department of Physiology
University of Chicago
Chicago, Illinois

FISK
UNIVERSITY

FELLOWSHIPS

4326 South Parkway
Chicago, Illinois
March 19, 1942

Mr. William C. Haygood
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

WCH	3/20	WCH	0
DAE		DE	20 3/10

My dear Mr. Haygood:

I thank you for your consideration of my request, and can understand the basis of your decision.

I should appreciate your asking Miss Elbridge to release my year check by March 23. I shall need a small amount of it in preparation for the trip. I have been able to arrange for the expenses of the trip itself from other sources.

Very truly yours,
Walter D. Boyer

4368
26615

75

UNIVERSITY

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 4368

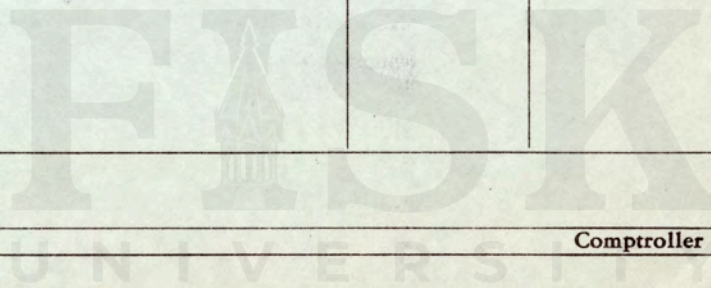
Date March 20, 1942

Sixth payment on extension to fellowship grant - - - - - \$75.00

Ck. #26615

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$75.00	

Prepared by AM	Checked by	Posted by	Comptroller
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Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 4507

Date April 30, 1942

Final payment on extension to fellowship granted 11/5/41 - - - \$50.00

Chk. #26771

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	40-11	\$50.00	

Prepared by AM	Checked by	Posted by	Comptroller
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The University of Chicago

Department of Physiology

Went 14	Went 15		
DE	DE	5/15	May 13, 1942

Mr. W. C. Haygood
 The Julius Rosenwald Fund
 4901 Ellis Avenue
 Chicago, Illinois

My dear Mr. Haygood:

Pursuant to our conversation this morning, I am writing to ask ^{for} an additional sum of \$75.00. This is necessary in order that I may be able to take care of expenses involved in having my thesis typed, paying graduation fee and rail road fare to Prairie View.

In the event this request is granted, I should like to have \$40.00 of the amount immediately and the remaining amount on or about June 1.

With kindest regards and sincere thanks for the fine way the Fund has cooperated with my program this year, I am

Very truly yours,

Walter M. Booker
 Walter M. Booker

Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To

Mr. Walter M. Booker
Department of Physiology
University of Chicago
Chicago, Illinois

Payment Voucher No. 4598

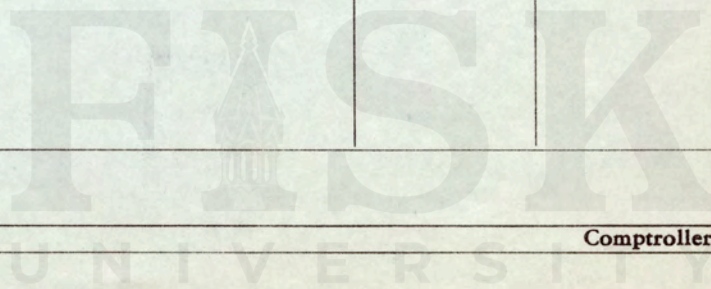
Date May 15, 1942

First payment on extension to fellowship grant - - - - - \$40.00

Ck. #26880

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	41-7	\$40.00	

Prepared by AM	Checked by	Posted by	Comptroller
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Julius Rosenwald Fund

4901 Ellis Avenue
CHICAGO

FELLOWSHIPS

To Mr. Walter M. Booker

4326 South Parkway

Chicago, Illinois

Payment Voucher No. 4624

Date May 29, 1942

Final payment on extension to fellowship granted 5/15/42 - - - - - \$35.00

Chk. #26906

Accounts	Appropriation No.	Debit	Credit
Negro Fellowships	41-7	\$35.00	

Prepared by McK	Checked by	Posted by	Comptroller
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1941 JULIUS ROSENWALD FUND FELLOWS

Name Walter M. Booker

Present position Head of the Department of Biology, Prairie View College

Address Prairie View, Texas

Permanent address 15 22 Cross Street, Little Rock, Arkansas

Since your fellowship was awarded, have you received a promotion in rank? If so, please describe.

Expecting rank of full professor

Degree received during fellowship tenure, or since, or progress made toward degree.

Ph. D. in Physiology

Title of dissertation Acute and Chronic Effects Resulting from Downward Traction on the Liver(dogs)

Publications, if any. (Please give titles, date, and place of publication.)
Anesthesia and Analgesia—Circulatory and Respiratory Effects

Resulting from Downward Traction on the Liver(preliminary report) Demonstrated before the International Society of Anesthesia, October, 1940, at The University of Chicago.

Special honors or activities Elected to Sigma Xi National Honorary Scientific Society, May 30, 1942

If in armed service, please give details. Not in armed service.

General remarks Two papers are to be published from my dissertation: one in Anesthesia and Analgesia and the other in The Journal of the American Medical Association. These papers have just been sent to the press and reprints should be ready in the next few months.



HOWARD UNIVERSITY
WASHINGTON, D. C.

FELLOWSHIPS

SCHOOL OF MEDICINE
DEPARTMENT OF PHARMACOLOGY

December 13, 1943

	VH	15	VH	16

Mr. William C. Haygood
The Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

My dear Mr. Haygood:

I thought you and the members of the Board would be glad to know that I have taken a position here at Howard University Medical School. I received my appointment last August.

Because of the over-all opportunities for growth and development in my field of endeavor and the increase in salary, I consider this a promotion. This, of course, could not have been brought to realization if it had not been for the Rosenwald Fund making it possible for me to finish my Ph. D. in 1942. Here again I want to sincerely thank the Fund and express my deepest gratitude to its members.

I am forwarding you under separate cover two reprints of work of mine which came out a few months ago. Reprints of this work were requested recently by the Royal Society of Surgeons, Australia.

With the hope things continue to go well with you and your staff, I am

Very truly yours,

Walter M. Booker
Walter M. Booker

*Phys.
1941 U.S.C.
Brain's View*

FISK
UNIVERSITY

FELLOWSHIPS

15

December 16, 1943

Dear Mr. Booker: I was indeed happy to hear of your appointment to the staff of the Howard University Medical School. I am sure that you will make a valuable addition to the faculty, and the officers of the Fund are pleased to know that the period of your fellowship was spent to such good advantage.

I shall be pleased to receive the reprints of your articles. You have fame indeed when you are known even in Australia!

With all good wishes for your continued success, I am

Sincerely yours,

VANDI V. HAYGOOD

Mrs. William C. Haygood

Acting-Director for Fellowships

VH:NT

Mr. (Walter M) Booker
Howard University
Washington, D. C.

FISK
UNIVERSITY

Please fill out and return in order that we may complete our records
on former Rosenwald Fellows:

Name: Dr. Walter M. Booker

Present position: Instructor, Department of Pharmacology
Howard University, School of Medicine

Address: Howard University
Washington, D. C.

Significant recent activities:

1943-44

Papers Published:

1. "Acute effects from liver traction."
2. "Chronic effects from liver traction."
3. "Studies in abdominal distention. Acute effects (in Press)"
4. "Employment of Proctectinethol etc."

(Use additional sheet if desired)

THIS SIDE OF CARD IS FOR ADDRESS



Acting Director for Fellowships
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago 15, Illinois

FISK
UNIVERSITY

HOWARD UNIVERSITY
WASHINGTON, D. C.

SCHOOL OF MEDICINE
DEPARTMENT OF PHARMACOLOGY

	VH	25	VH	0

September 19, 1944

Mrs. William C. Haygood,
Acting Director of Fellowships
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago 15, Illinois

FELLOWSHIPS

My dear Mrs. Haygood:

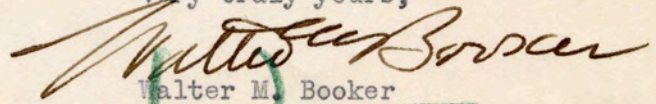
I am enclosing herewith a form which you forwarded me to fill out. I believe I recall writing Mr. Haygood in the early Fall last year when I changed locations from Prairie View College to Howard University Medical School.

In addition to the report on the form I may say that during the last year my experiences have been broadened, my opportunities widened and in the face of the accelerated medical program and its attending heavy duties I have been able to launch some worthwhile research. Under separate cover, in the next week or two, I shall forward you a reprint of a short paper which was published in the Journal of the Association of Medical Colleges.

Give my very personal regards to Mr. Haygood when you write him. During my time as a fellow at the University of Chicago Mr. Haygood and I had numerous interesting and fruitful conversations.

With kindest regards and sincere best wishes, I am

Very truly yours,


Walter M. Booker

WMB:MM

Encl.

FISK
UNIVERSITY

HOWARD UNIVERSITY
WASHINGTON, D. C.

FELLOWSHIPS

Just
may 1
Brooker, Walter

SCHOOL OF MEDICINE
DEPARTMENT OF PHARMACOLOGY

December 4, 1946

Mr. William C. Haygood
Director of Fellowships
Julius Rosenwald Fund
4901 Ellis Avenue
Chicago, Illinois

	WCH	12/13	WCH	12/19
			B	12/13

Dear Mr. Haygood:

I thank you very much for your letter of November 7 in which you asked for names for possible fellowship material. I have delayed answering in order to give adequate thinking to possibilities and I hope you do not mind this belated answer.

Listed below are three names of individuals in whom I think the Fund would do well to make an investment, as each of them is upright, honest, hard-working and imaginative in his or her own field.

B 12/13

1. Miss Ida B. Barton, now employed in the Department of Biology, Texas College, Tyler, Texas. She lacks only a small amount of time for finishing her work on her Master's degree in Biology (Physiological Zoology) at the Catholic University of America. You will recall I wrote you about her last year after the awards had been made.

B 12/13

2. Mr. Nicholas L. Gerren, now employed in the Department of Music, Lincoln University, Jefferson City, Missouri. I believe I recommended him to you in 1942 just before he was taken into the Army. He has had two years of training at the Moscow Conservatory of Music and is desirous of improving himself. He is, of course, an ex-service man and I do not know what your policy is regarding making awards to G. I's who qualify under the G. I. Bill of Rights.

B 12/13

3. Dr. J. Spurgeon Morris, practicing Dentist, located at 4619 South Parkway, Chicago, Illinois. Dr. Morris has been a Rosenwald fellow, having done work in oral surgery in preparation for a staff position at Provident Hospital which he now holds. He is desirous, I believe, of further work in oral surgery.

For some time, I have thought of the possibility of obtaining a fellowship for foreign visitation of laboratories. I am certain that it is too early now following the closure of the war to be benefited by such visitations but within the next two years I shall be interested in a short term (six months) fellowship and should like to know from you whether or not the Fund is of the attitude of making such grants.

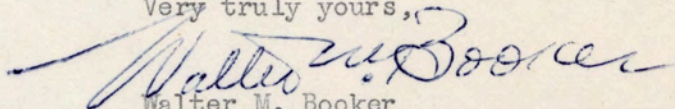


I have tried to keep the Fund informed as to my activities in research by sending reprints and I am enclosing under separate cover two recent reprints. There are other manuscripts under preparation and as the papers come out, I shall send you prints of the same.

I plan attending and presenting papers at the Federated Societies for Experimental Biology (Physiologists, Pharmacologists, Pathologists, Biochemists, Nutritionists) which shall be held in Chicago sometime in May of 1947 and during that time I shall by all means come by and have conference with you.

With kindest regards and best wishes for your continuous success,
I am

Very truly yours,



Walter M. Booker

Assistant Professor of Pharmacology

WMB:cl

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FELLOWSHIPS

December 19, 1946

Dear Mr. Booker: Thank you very much for your nice letter and for the three names of prospective candidates. Blanks have been sent to all of them and I shall be looking forward to receiving their applications.

Your proposal of visiting foreign laboratories should, I think, be a thoroughly legitimate basis for reapplying to the Fellowship Committee. If conditions abroad are more feasible next year, and if you are still interested in such a project, I hope you will write me for application blanks.

Thanks again for your continued interest and cooperation in our fellowship program.

Sincerely yours,

WILLIAM C. HAYGOOD

WCH:LCM

Mr. (Walter M.) Booker
Assistant Professor of Pharmacology
Howard University
Washington, D. C.

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UNIVERSITY

FELLOWSHIPS

DE

May 15, 1942

Dear Mr. Booker: I have your letter of May 13,
and I am glad to be able to
make an extension of \$75.00 to your fellowship.
As you request, I am asking Miss Elvidge to advance
you \$40 now, and to send the remainder on June 1.

Sincerely yours,

WILLIAM C. HAYGOOD

WCH:MLU

Mr. Walter W. Booker
Department of Physiology
University of Chicago

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WCH

FELLOWSHIPS

November 5, 1941

Dear Mr. Booker: I have been out of the office for the past ten days and I have just had an opportunity to go into the matter which you raised in your letter of October 20. Mr. Embree and I have discussed your request for additional funds, and we are completely sympathetic to your position. We will not, however, be able to supplement your grant by the full amount you request since the officers of the Fund are empowered to make extensions only in the amount of \$300. We are, therefore, granting you an additional \$300, and I hope this will be sufficient to meet your needs for the remainder of your fellowship tenure. Will you please write Miss Elvidge regarding a revised payment plan?

Sincerely yours,

WCH:MLU

WILLIAM C. HAYGOOD

Mr. Walter M. Booker
Department of Physiology
The University of Chicago
Chicago, Illinois

*make new form
negro + fellowships
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FELLOWSHIPS

April 11, 1941

Dear Mr. Booker: It is a pleasure to inform you that you have been selected by the Committee on Fellowships of the Julius Rosenwald Fund to receive a grant of one thousand dollars (\$1,000) to assist you in carrying forward your studies in physiology at the University of Chicago for the twelve-month period beginning in June, 1941.

Please let us know at once whether or not you can accept this grant. An official announcement of the Committee's selections will be made soon and it can include only those from whom acceptances have been received.

Very truly yours,

GEORGE M. REYNOLDS

GMR:MLJ

Mr. Walter Monroe Booker
Prairie View State College
Prairie View, Texas

learn approp. "black"
FISK
UNIVERSITY

WCHs

OBSERVATIONS ON THE CARBOHYDRATE METABOLISM
DURING PROLONGED PENTOTHAL ANESTHESIA
IN DOGS: I. THE BLOOD SUGAR AND
THE LIVER GLYCOGEN

FELLOWSHIPS

WALTER M. BOOKER, PH.D.

Reprinted from ANESTHESIOLOGY, Vol. 7, No. 4, July, 1946

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OBSERVATIONS ON THE CARBOHYDRATE METABOLISM
DURING PROLONGED PENTOTHAL ANESTHESIA
IN DOGS: I. THE BLOOD SUGAR AND
THE LIVER GLYCOGEN * †

WALTER M. BOOKER, P.H.D.

Washington, D. C.

INTRODUCTION

THERE is little doubt that intravenous anesthesia has made rapid strides in the last few years, and of the substances used, pentothal sodium has been in the vanguard. Few substances have had the recent wide acclaim and universal choice in general anesthesia as pentothal sodium. That it produces smooth anesthesia there is no question. This author has observed, however, that in the great enthusiasm for this intravenous anesthetic there has been the tendency to extend the use from short operations to those operations of long duration (three, four, five, six hours or even longer) by giving supplemental doses in order to keep the patient in surgical anesthesia. There is a dearth of experimental work, clinical as well, on the far-reaching effects of prolonged pentothal anesthesia, and it seemed important and necessary that studies in this connection be launched to determine the feasibility of prolonged pentothal anesthesia, keeping in mind those effects which may tend to vitiate the recovery powers of the animal or the patient.

METHODS AND PROCEDURES

The work reported here was done on approximately 45 dogs. The experiments were divided in the following manner: 1) a study of the amount and frequency of pentothal administration necessary to maintain surgical anesthesia four to six hours; 2) a study of the effects on the blood sugar levels either in the presence or absence of glucose administration when animals had been on a normal diet and given sugar just before anesthesia, and 3) a study when the animals had been on a high carbohydrate intake for one to two weeks before experiments. Glycogen determinations were made on livers of all animals routinely thirty-six to forty-eight hours after the period of anesthesia. In a few of the early experiments liver function tests were also performed.

Animals were first anesthetized with a 3 per cent solution of pentothal sodium injected into the antecubital vein cautiously until relaxa-

* Supported in part by a grant from the Rockefeller Foundation to Howard University, School of Medicine.

† From the Department of Pharmacology, Howard University, School of Medicine, Washington, D. C.

tion occurred (approximately 25 mg. per kilogram of body weight). Then the animals were placed on the table and the femoral vein was exposed for making further injections or for drawing blood samples. Control blood samples were drawn from the antecubital vein prior to anesthesia. Supplemental injections (the first approximately twenty to thirty minutes after the original injection) were made to keep the animal in surgical anesthesia. Blood sugar on 0.2 cc. of blood was determined by the Gibson micro method which is a modification of the Folin-Wu method (1). Tungstate acid filtrates were treated with alkaline copper tartrate and placed in a boiling water bath for six minutes. Upon cooling, the mixture was treated with 2 cc. of sugar reagent (phosphomolybdic acid). The usual blue color developed and the unknown was read in a colorimeter against a standard (0.01 per cent glucose), 2 cc. samples of which were treated in the same manner as the unknown. The Benedict method for glycogen determination was employed. Upon sacrifice of the animals (usually anesthetized with pentobarbital sodium), the liver was removed and weighed, and 30 Gm. samples of liver tissue were taken, minced and placed in 60 per cent potassium hydroxide and digested over a water bath for three hours. Glycogen was precipitated from the filtrate with 95 per cent alcohol. After several washings with 64 per cent and 95 per cent alcohol, the glycogen was dried with ether, dissolved in boiling water, treated with concentrated hydrochloric acid and digested in a water bath for conversion into glucose. The titrations were carried out with extreme care. Before the experimental sample was determined and at intervals during the course of several months of experimentation, glucose solutions were made up and titrated as a check on the accuracy of the determination of the experimental material. The bromsulfalein liver function test was used. The dye was injected into the vein and blood samples were taken at five and thirty minute intervals. After coagulation, the blood was centrifuged, the serum was withdrawn, treated with 10 per cent sodium hydroxide, and compared with a series of tubes of the standard of graded percentages.

The high carbohydrate diet consisted of 10 Gm. of starch daily, in addition to the regular dog food, and 10 cc. of 5 per cent glucose injected intravenously each day. The animals were on this diet an average of ten days. For the inanition series, food was withheld from the animals for three days, during which time they received only water.

RESULTS

Figure 1 shows the frequency of administration and the amount of anesthetic administered in a typical experiment four hours long. It will be seen that, following the initial dose which immediately placed the animal in surgical anesthesia, the anesthetic was administered every half hour until after the third hour, when further administration was unnecessary to maintain surgical anesthesia until the end of the

fourth hour. In other words, the supplemental doses administered at half hour intervals during the first three hours were sufficient to allow surgical anesthesia during this period and at least one hour longer. In most cases the surgical anesthesia extended even longer than one hour (two to four hours) following cessation of administration of the anesthetic. It is interesting that animals were "out" (markedly depressed and still sleeping although not completely anesthetic) the morning following an experiment performed the afternoon before.

Figure 2 represents the results of a typical experiment showing how bromsulfalein is retained in the serum as anesthesia progresses.

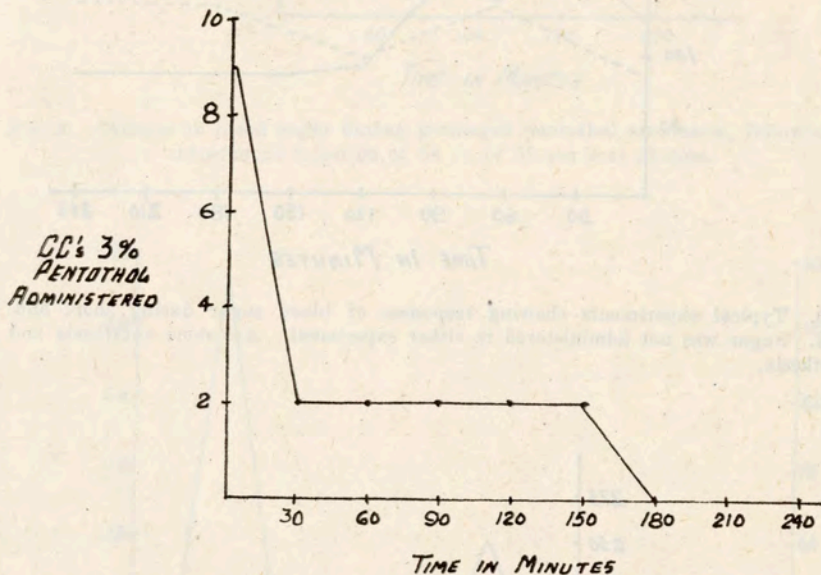


FIG. 1. A typical experiment showing decrease in frequency and amount of administration of pentothal as anesthesia is prolonged; 3 per cent pentothal was used. Animal weighed 10 Kg.

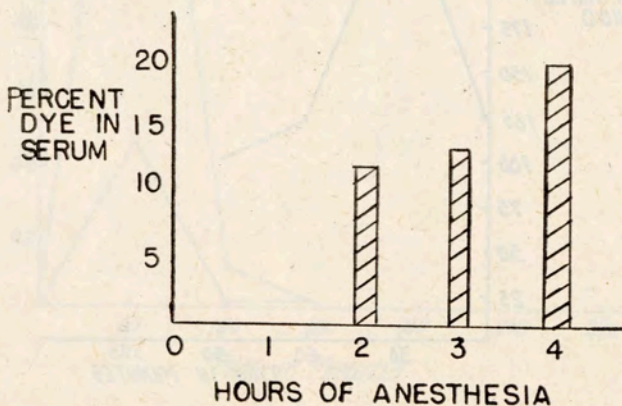


FIG. 2. A typical experiment showing how bromsulfalein is less and less removed from the serum by the liver as anesthesia is prolonged. Serum values represent half hour samples following the injection of the dye.

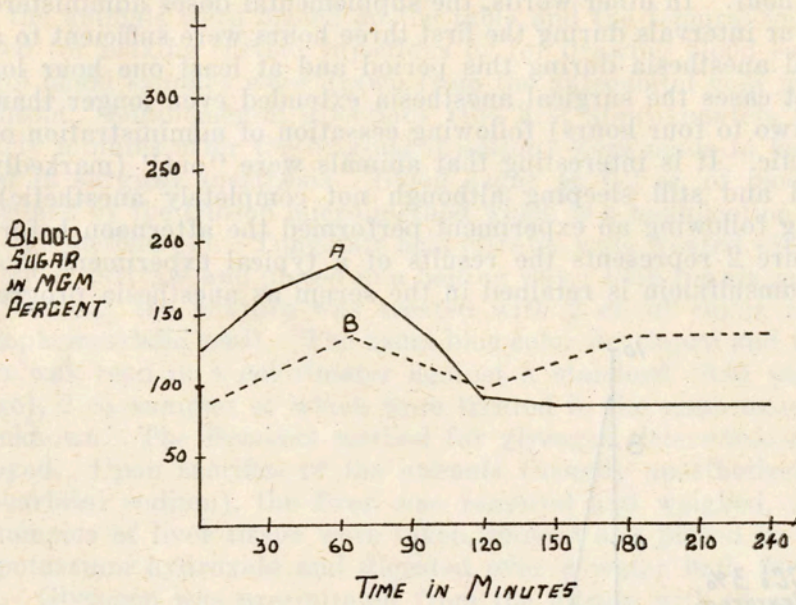


FIG. 3. Typical experiments showing responses of blood sugar during short and long anesthesia. Sugar was not administered in either experiment. A = short anesthesia and B = long anesthesia.

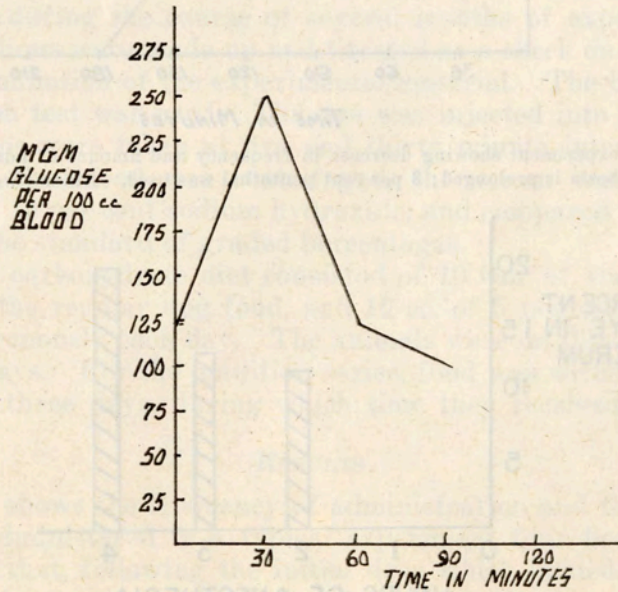


FIG. 4. The tolerance of glucose (50 cc. of 50 per cent) during short anesthesia (30 minutes). Sugar was injected intravenously just prior to anesthesia.

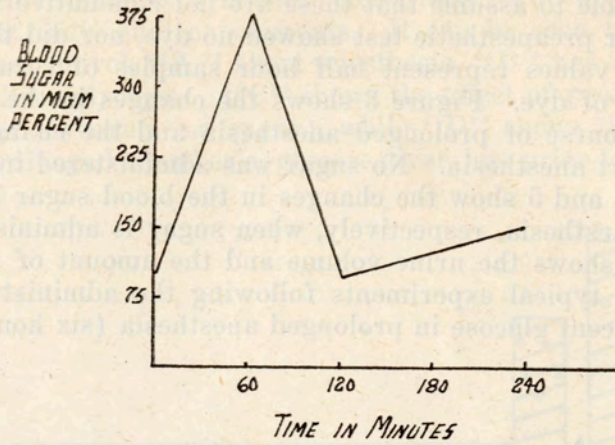


Fig. 5. Changes in blood sugar during prolonged pentothal anesthesia, following the intravenous injection of 50 cc. of 50 per cent glucose.

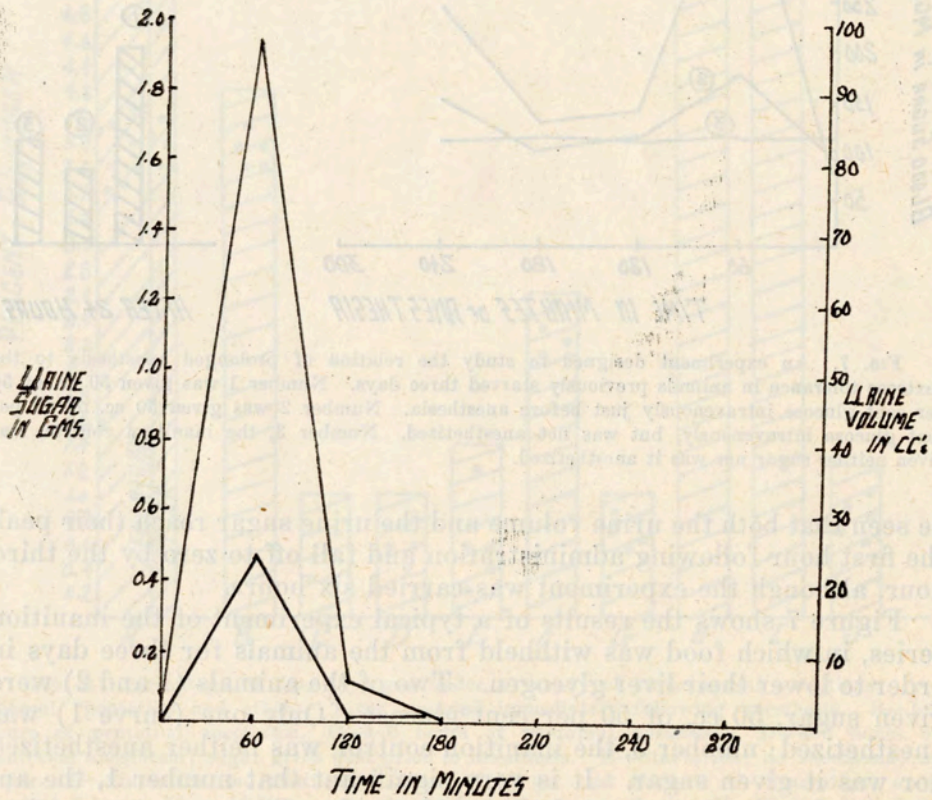


Fig. 6. Two typical experiments showing the amount of sugar excreted in the urine and the urine volume during prolonged pentothal anesthesia. Animals were given 50 cc. of 50 per cent glucose intravenously and 200 cc. of water by stomach tube prior to anesthesia.

It is reasonable to assume that these are not cumulative values, since the control or preanesthetic test showed no dye, nor did the first hour test. These values represent half hour samples of serum following the injection of dye. Figure 3 shows the changes in the blood sugar during the course of prolonged anesthesia and the changes in blood sugar in short anesthesia. No sugar was administered in either case.

Figures 4 and 5 show the changes in the blood sugar in short and prolonged anesthesia, respectively, when sugar is administered.

Figure 6 shows the urine volume and the amount of sugar in the urine in two typical experiments following the administration of 50 cc. of 50 per cent glucose in prolonged anesthesia (six hours). It will

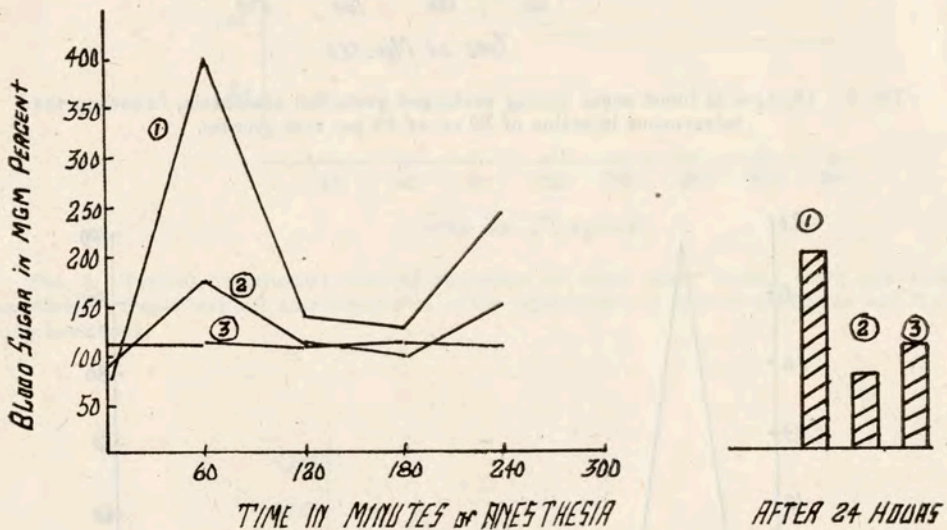


FIG. 7. An experiment designed to study the relation of prolonged anesthesia to the dextrose tolerance in animals previously starved three days. Number 1 was given 50 cc. of 50 per cent glucose intravenously just before anesthesia. Number 2 was given 50 cc. of 50 per cent glucose intravenously, but was not anesthetized. Number 3, the inanition control, was given neither sugar nor was it anesthetized.

be seen that both the urine volume and the urine sugar reach their peak the first hour following administration and fall off to zero by the third hour, although the experiment was carried six hours.

Figure 7 shows the results of a typical experiment of the inanition series, in which food was withheld from the animals for three days in order to lower their liver glycogen. Two of the animals (1 and 2) were given sugar, 50 cc. of 50 per cent glucose. Only one (curve 1) was anesthetized; number 3, the inanition control, was neither anesthetized nor was it given sugar. It is very significant that number 1, the anesthetized animal, was much less able to handle excess sugar than number 2, which was not anesthetized. Twenty-four hours later number 1 is still hyperglycemic. Figure 8 shows liver glycogen values of

animals under several experimental conditions. The dots along the bars represent individual experiments. It can be seen that as compared with the control, "A," short anesthesia, "B" has no depleting effect on the liver glycogen. "C" shows the effect of prolonged anesthesia on liver glycogen (no sugar), while "D" shows the values of glycogen in prolonged anesthesia, glucose given just prior to anesthesia.

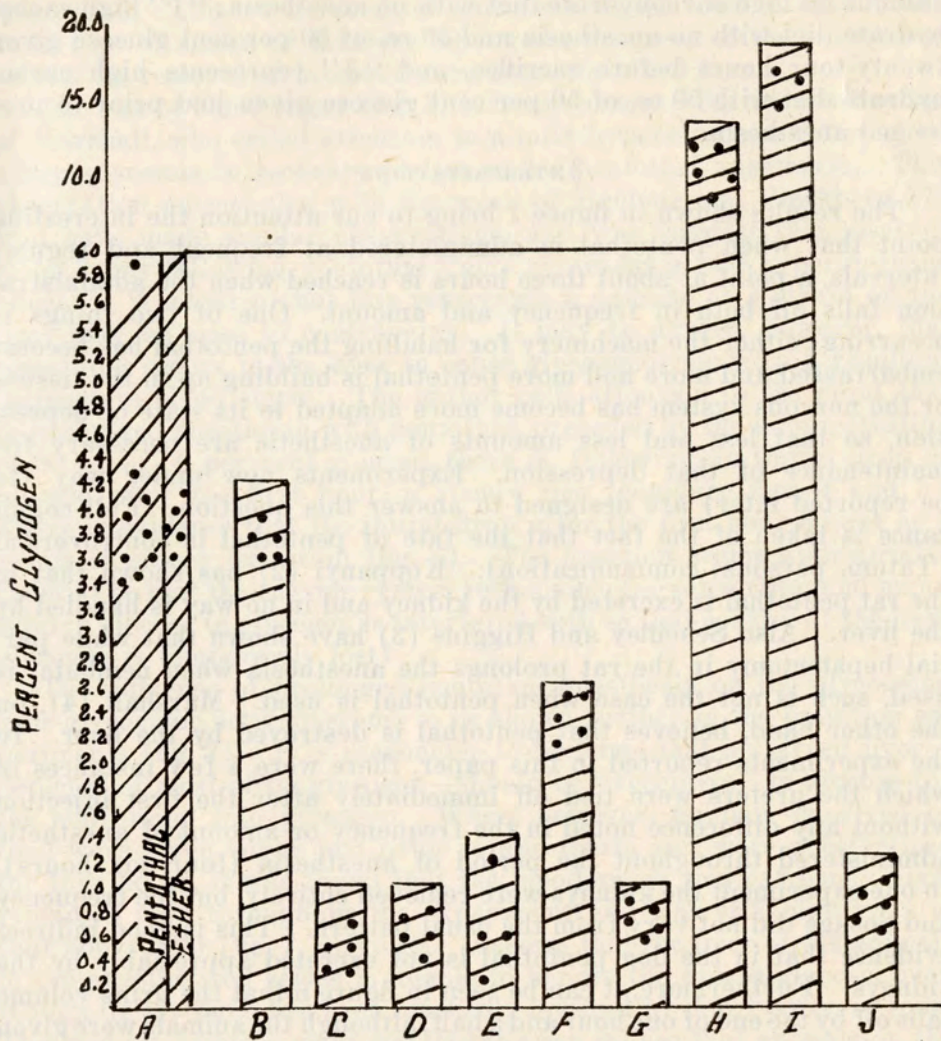


FIG. 8. Percentage of liver glycogen under a variety of experimental conditions. A—Control (pentothal and ether). Liver removed immediately following anesthesia. B—1-2 hours of pentothal anesthesia. C—4-6 hours of pentothal anesthesia. D—4-6 hours of pentothal anesthesia; sugar given just prior to anesthesia. E—Starvation; no anesthesia; no sugar. F—Starvation; no anesthesia; 50 cc. of 50 per cent glucose. G—Starvation; anesthesia 4-6 hours; 50 cc. of 50 per cent glucose just prior to anesthesia. H—High carbohydrate diet; no anesthesia. I—High carbohydrate diet; no anesthesia; 50 cc. of 50 per cent glucose given 24 hours before sacrifice. J—High carbohydrate diet; anesthesia 4-6 hours; 50 cc. of 50 per cent glucose given prior to anesthesia.

The values of "C" and "D" compare very closely. "E" shows glycogen values for the inanition series (no anesthesia, no sugar), representing the control for the series, while "F" represents the inanition series with no anesthesia and 50 cc. of 50 per cent glucose given at the end of the starvation period. "G" represents inanition experiments with glucose given just prior to the anesthesia. "H" represents animals on high carbohydrate diet with no anesthesia; "I" high carbohydrate diet with no anesthesia and 50 cc. of 50 per cent glucose given twenty-four hours before sacrifice, and "J" represents high carbohydrate diet with 50 cc. of 50 per cent glucose given just prior to prolonged anesthesia.

INTERPRETATIONS

The results shown in figure 1 bring to our attention the interesting point that when pentothal is administered at frequent and regular intervals, a point at about three hours is reached when the administration falls off both in frequency and amount. One of two things is occurring: either the machinery for handling the pentothal has become embarrassed and more and more pentothal is building up in the tissues or the nervous system has become more adapted to its state of depression, so that less and less amounts of anesthetic are necessary for maintenance of that depression. Experiments now under way (to be reported later) are designed to answer this question. Full cognizance is taken of the fact that the fate of pentothal is controversial (Tatum, personal communication). Koppanyi (2) has shown that in the rat pentothal is excreted by the kidney and in no way is handled by the liver. Also Scheifley and Higgins (3) have shown that while partial hepatectomy in the rat prolongs the anesthesia when nembital is used, such is not the case when pentothal is used. Marshall (4), on the other hand, believes that pentothal is destroyed by the liver. In the experiments reported in this paper, there were a few instances in which the ureters were tied off immediately after the first injection without any difference noted in the frequency or amount of anesthetic administered throughout the period of anesthesia (four, six hours). In one experiment the kidneys were removed entirely, but the frequency and dosage did not vary from the usual pattern. This is good indirect evidence that in the dog pentothal is not excreted appreciably by the kidneys. Furthermore, it can be seen in figure 6 that the urine volume falls off by the end of one hour and a half, although the animals were given excessive amounts of water, indicating the activity of the kidney is depressed. This, of course, should influence the course of anesthesia concomitantly, but such is not the observation. It is important to remember that the glucose solutions injected are extremely hypertonic and should create an hydremic plethora with resultant marked diuresis. Page and Corcoran (5) have shown that administration of pentobarbital sodium (closely related to pentothal sodium) in excessive mg. Kg. ratios (greater than 30 mg. Kg.) may tend to produce oliguria with

decreased plasma clearance, because of probable renal vasoconstriction. Haury, Gruber and Gruber (6) have made similar observations in connection with intravenous thiobarbiturate. It is hoped that subsequent experiments will shed more light on this question. Liver function tests, presented in figure 2, tend to show that as anesthesia progresses, the ability of the liver to remove bromsulfalein from the blood is lowered. This would seem to indicate that the liver is undergoing some type of strain or taxation during the progress of the anesthesia, so that its removal of bromsulfalein from the blood lags.

The rise of blood sugar (fig. 3) is in agreement with the observation of Marshall, who called attention to a mild hyperglycemia followed by a hypoglycemia in recovery phases under pentothal anesthesia. This observation agrees also with the work of Hrubetz and Blackberg (7) who have made similar observations, and who suggest that rises of blood sugar following pentothal "may represent a real hyperglycemic effect." Whether or not this represents a damage or a strain on the liver may be open to controversy. It may be agreed, however, that something occurs in the liver to cause glycogenolysis with a resultant increase in blood sugar. The author calls attention to the point that in prolonged anesthesia with pentothal, preceded by the administration of 50 cc. of 50 per cent glucose, there is, following an initial drop of glucose after the first hour, a steady rise (compare figs. 4 and 5). There is evidence that the initial drop after the first hour occurs as a result of kidney excretion (fig. 6). The question seems appropriate: Could it be that the enzyme system responsible for converting and maintaining glucose to glycogen is interfered with so that control of the liver glycogen is temporarily lost?

The influence of prolonged pentothal anesthesia on the glycogenolytic-glycogenic activity seems to be shown further in the inanition experiments (fig. 7). It is reasonable to presume that a starved liver—depleted of most of its glycogen—should be "receptive" to glucose for the conversion into glycogen. When, however, animals deprived of food were given sugar just prior to anesthesia and were anesthetized for four hours, it was found that the blood sugar was extremely high, remained high throughout the experiment and was still high twenty-four hours later (fig. 7, curve 1). It seems that the liver of the animals in the anesthetized series is unable to handle the excess glucose, even though its glycogen has been markedly lowered by deprivation of food. This picture becomes more significant when we see that animals, in the inanition series, given sugar before their anesthesia, showed lowered glycogen values as a group. What happens to the injected sugar which cannot be totally accounted for in blood sugar, in urine sugar (only 2 Gm. out of 25 Gm. was accounted for in the urine sugar studies) or in liver glycogen? It may be that an explanation lies in the interruption of the glucose-glycogen pathway somewhere in the intermediary metabolism. As a matter of fact, Stetten and Boxin (8) have estimated that

"on high carbohydrate diet only about 3 per cent dietary glucose is handled by way of glycogen and ten times as much is used to synthesized fatty acids as is used for glycogen storage." Underway now are studies on blood lactate, pyruvate and carbon dioxide combining power, which, it is hoped, will shed further light on this question in my next communication.

Marshall (referred to previously) has pointed out that pentothal should not be used in the absence of good glycogen storage. The high carbohydrate series (fig. 7, "H," and "I") of experiments was undertaken to determine whether or not good glycogen storage could withstand the depletory effect of pentothal. We see that although the livers of this series store glycogen in extremely high quantities (no pentothal experimentation), livers of animals on high carbohydrate diet (prolonged pentothal anesthesia) are markedly lowered in glycogen. It seems questionable, therefore, whether or not the liver can be "protected" in prolonged administration of pentothal by either building up the patient with a high carbohydrate diet or injecting glucose concomitant with the anesthesia. We are of the opinion that (1) in prolonged anesthesia, glucose when administered in a very high quantity is not converted into glycogen and stored in very high quantity and (2) preanesthetic glycogen stores are lowered by prolonged anesthesia.

SUMMARY AND CONCLUSIONS

1. Experiments have been reported in which changes in blood sugar and in liver glycogen under prolonged pentothal anesthesia have been described.

2. Evidence is presented tending to show interruption of the normal glycogenic-glycogenolytic activity of the liver under prolonged anesthesia. It seems that livers of animals deprived of food do not polymerize glucose under prolonged pentothal anesthesia, and that prolonged anesthesia with pentothal appears to decrease markedly the liver glycogen. The liver function tests indicate that the liver is severely taxed during prolonged pentothal anesthesia which may affect the normal functioning of the carbohydrate enzyme system at the site of the liver.

3. The experiments raise the question as to the effectiveness of glucose administrations during prolonged pentothal anesthesia to "protect" the liver since excess glucose is not converted into glycogen during prolonged pentothal anesthesia in animals on a normal diet and since there is a breakdown of the stored liver glycogen in animals on a normal diet and in animals on a high carbohydrate diet.

The author expresses his sincere gratitude to Miss Ida Barton for preparation of the figures.

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Washington, D. C.

INTRODUCTION

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METHODS AND PROCEDURES

The work reported here was done on approximately 45 dogs. The experiments were divided in the following manner: 1) a study of the amount and frequency of pentothal administration necessary to maintain surgical anesthesia four to six hours; 2) a study of the effects on the blood sugar levels either in the presence or absence of glucose administration when animals had been on a normal diet and given sugar just before anesthesia, and 3) a study when the animals had been on a high carbohydrate intake for one to two weeks before experiments. Glycogen determinations were made on livers of all animals routinely thirty-six to forty-eight hours after the period of anesthesia. In a few of the early experiments liver function tests were also performed.

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RESULTS

Figure 1 shows the frequency of administration and the amount of anesthetic administered in a typical experiment four hours long. It will be seen that, following the initial dose which immediately placed the animal in surgical anesthesia, the anesthetic was administered every half hour until after the third hour, when further administration was unnecessary to maintain surgical anesthesia until the end of the

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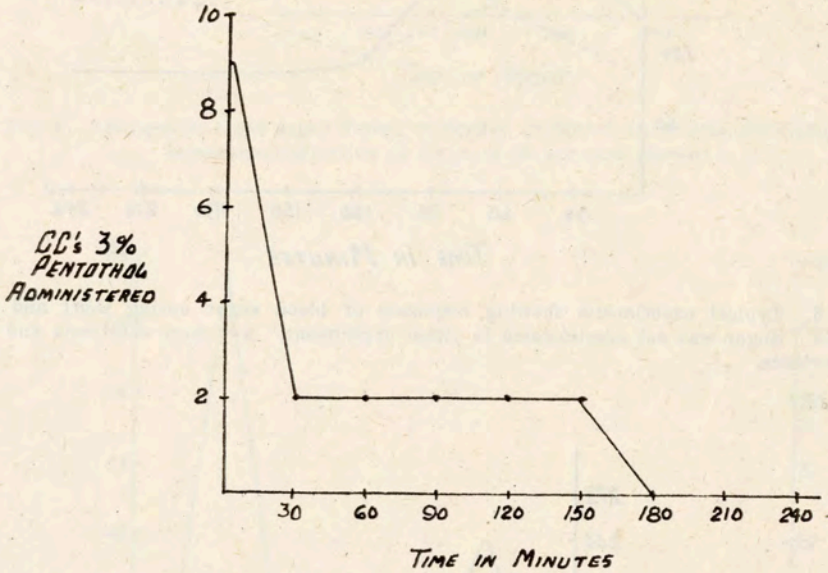


FIG. 1. A typical experiment showing decrease in frequency and amount of administration of pentothal as anesthesia is prolonged; 3 per cent pentothal was used. Animal weighed 10 Kg.

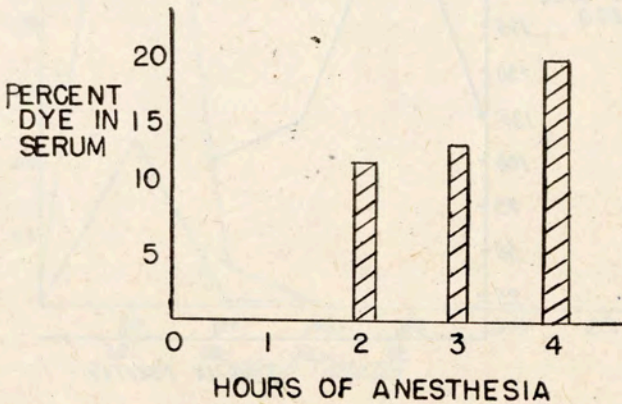


FIG. 2. A typical experiment showing how bromsulfalein is less and less removed from the serum by the liver as anesthesia is prolonged. Serum values represent half hour samples following the injection of the dye.

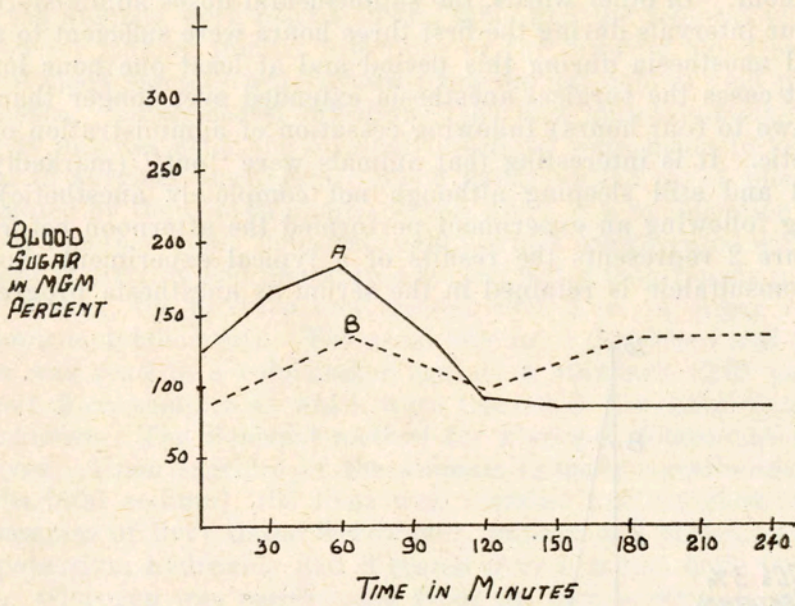


FIG. 3. Typical experiments showing responses of blood sugar during short and long anesthesia. Sugar was not administered in either experiment. A = short anesthesia and B = long anesthesia.

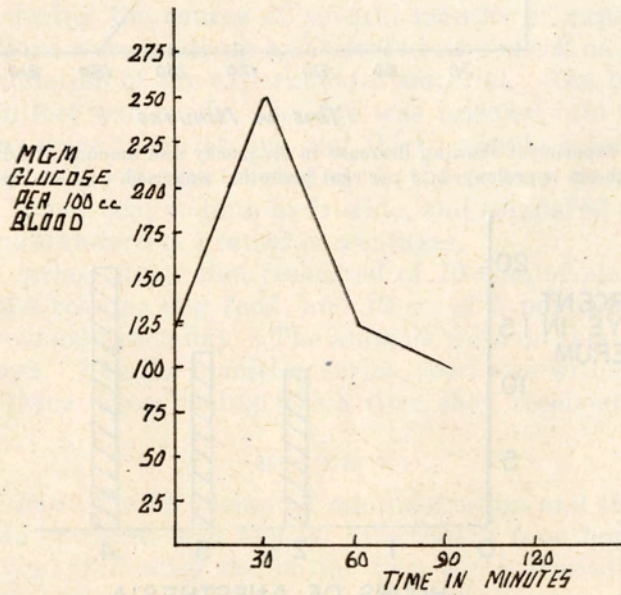


FIG. 4. The tolerance of glucose (50 cc. of 50 per cent) during short anesthesia (30 minutes). Sugar was injected intravenously just prior to anesthesia.

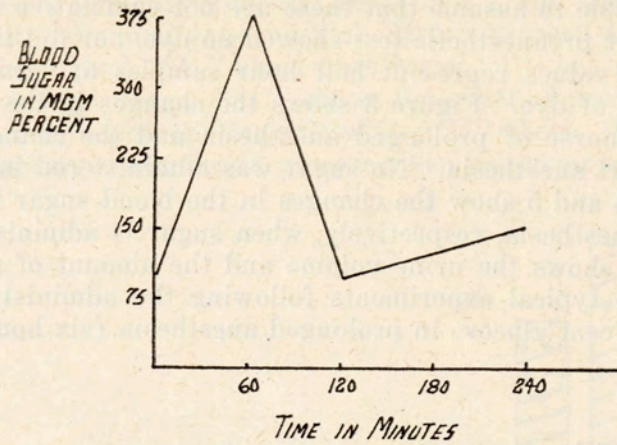


FIG. 5. Changes in blood sugar during prolonged pentothal anesthesia, following the intravenous injection of 50 cc. of 50 per cent glucose.

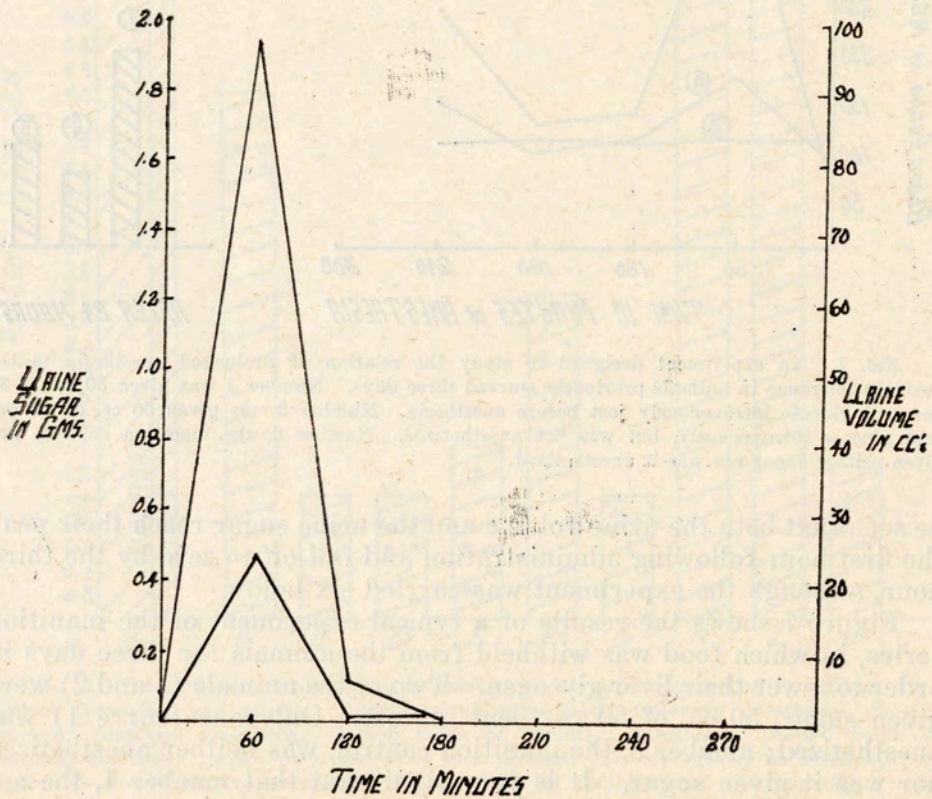


FIG. 6. Two typical experiments showing the amount of sugar excreted in the urine and the urine volume during prolonged pentothal anesthesia. Animals were given 50 cc. of 50 per cent glucose intravenously and 200 cc. of water by stomach tube prior to anesthesia.

It is reasonable to assume that these are not cumulative values, since the control or preanesthetic test showed no dye, nor did the first hour test. These values represent half hour samples of serum following the injection of dye. Figure 3 shows the changes in the blood sugar during the course of prolonged anesthesia and the changes in blood sugar in short anesthesia. No sugar was administered in either case.

Figures 4 and 5 show the changes in the blood sugar in short and prolonged anesthesia, respectively, when sugar is administered.

Figure 6 shows the urine volume and the amount of sugar in the urine in two typical experiments following the administration of 50 cc. of 50 per cent glucose in prolonged anesthesia (six hours). It will

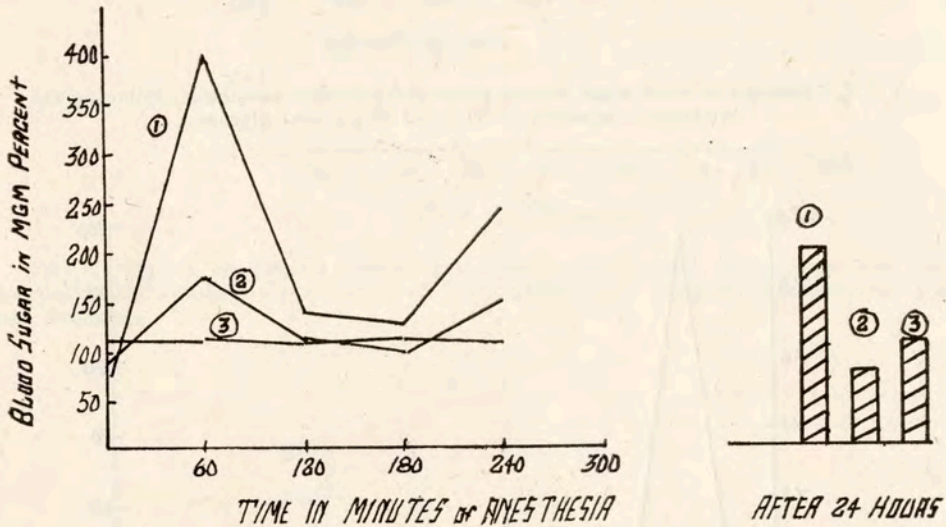


FIG. 7. An experiment designed to study the relation of prolonged anesthesia to the dextrose tolerance in animals previously starved three days. Number 1 was given 50 cc. of 50 per cent glucose intravenously just before anesthesia. Number 2 was given 50 cc. of 50 per cent glucose intravenously, but was not anesthetized. Number 3, the inaction control, was given neither sugar nor was it anesthetized.

be seen that both the urine volume and the urine sugar reach their peak the first hour following administration and fall off to zero by the third hour, although the experiment was carried six hours.

Figure 7 shows the results of a typical experiment of the inaction series, in which food was withheld from the animals for three days in order to lower their liver glycogen. Two of the animals (1 and 2) were given sugar, 50 cc. of 50 per cent glucose. Only one (curve 1) was anesthetized; number 3, the inaction control, was neither anesthetized nor was it given sugar. It is very significant that number 1, the anesthetized animal, was much less able to handle excess sugar than number 2, which was not anesthetized. Twenty-four hours later number 1 is still hyperglycemic. Figure 8 shows liver glycogen values of

animals under several experimental conditions. The dots along the bars represent individual experiments. It can be seen that as compared with the control, "A," short anesthesia, "B" has no depleting effect on the liver glycogen. "C" shows the effect of prolonged anesthesia on liver glycogen (no sugar), while "D" shows the values of glycogen in prolonged anesthesia, glucose given just prior to anesthesia.

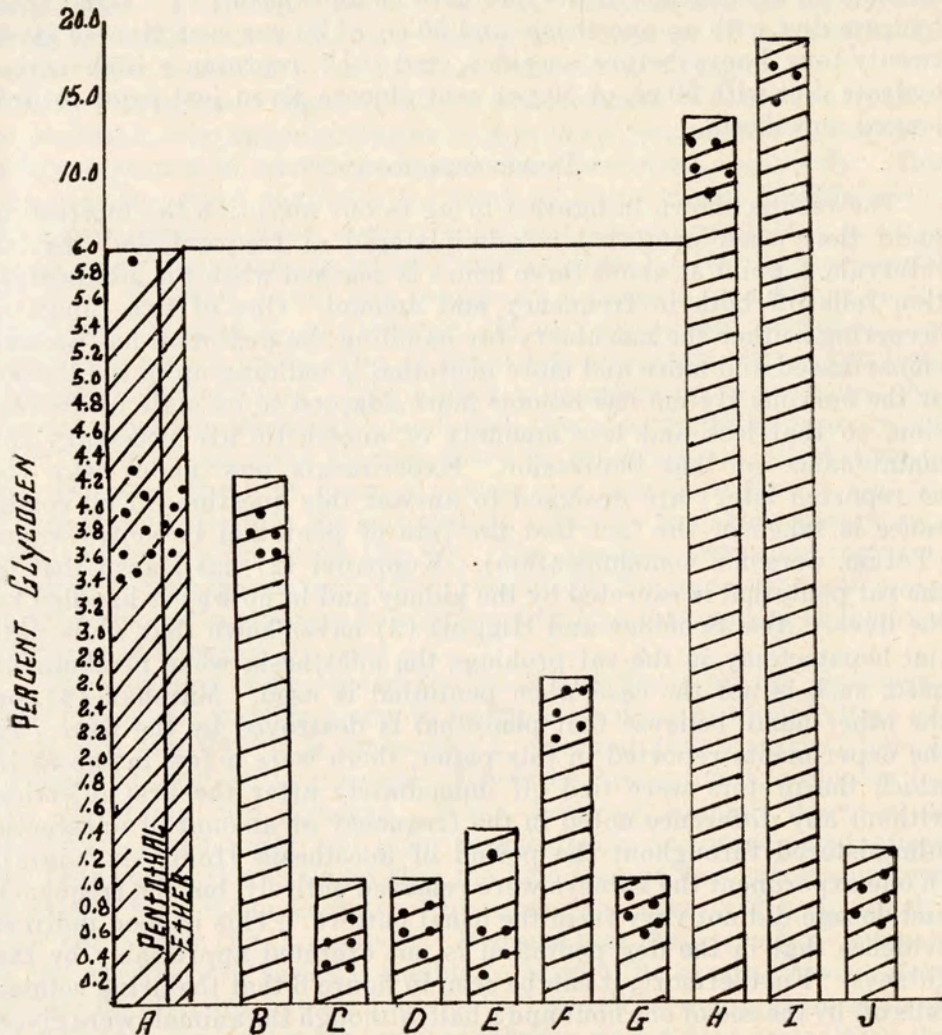


FIG. 8. Percentage of liver glycogen under a variety of experimental conditions. A—Control (pentothal and ether). Liver removed immediately following anesthesia. B—1-2 hours of pentothal anesthesia. C—4-6 hours of pentothal anesthesia. D—4-6 hours of pentothal anesthesia; sugar given just prior to anesthesia. E—Starvation; no anesthesia; no sugar. F—Starvation; no anesthesia; 50 cc. of 50 per cent glucose. G—Starvation; anesthesia 4-6 hours; 50 cc. of 50 per cent glucose just prior to anesthesia. H—High carbohydrate diet; no anesthesia. I—High carbohydrate diet; no anesthesia; 50 cc. of 50 per cent glucose given 24 hours before sacrifice. J—High carbohydrate diet; anesthesia 4-6 hours; 50 cc. of 50 per cent glucose given prior to anesthesia.

The values of "C" and "D" compare very closely. "E" shows glycogen values for the inanition series (no anesthesia, no sugar), representing the control for the series, while "F" represents the inanition series with no anesthesia and 50 cc. of 50 per cent glucose given at the end of the starvation period. "G" represents inanition experiments with glucose given just prior to the anesthesia. "H" represents animals on high carbohydrate diet with no anesthesia; "I" high carbohydrate diet with no anesthesia and 50 cc. of 50 per cent glucose given twenty-four hours before sacrifice, and "J" represents high carbohydrate diet with 50 cc. of 50 per cent glucose given just prior to prolonged anesthesia.

INTERPRETATIONS

The results shown in figure 1 bring to our attention the interesting point that when pentothal is administered at frequent and regular intervals, a point at about three hours is reached when the administration falls off both in frequency and amount. One of two things is occurring: either the machinery for handling the pentothal has become embarrassed and more and more pentothal is building up in the tissues or the nervous system has become more adapted to its state of depression, so that less and less amounts of anesthetic are necessary for maintenance of that depression. Experiments now under way (to be reported later) are designed to answer this question. Full cognizance is taken of the fact that the fate of pentothal is controversial (Tatum, personal communication): Koppányi (2) has shown that in the rat pentothal is excreted by the kidney and in no way is handled by the liver. Also Scheifley and Higgins (3) have shown that while partial hepatectomy in the rat prolongs the anesthesia when nembutal is used, such is not the case when pentothal is used. Marshall (4), on the other hand, believes that pentothal is destroyed by the liver. In the experiments reported in this paper, there were a few instances in which the ureters were tied off immediately after the first injection without any difference noted in the frequency or amount of anesthetic administered throughout the period of anesthesia (four, six hours). In one experiment the kidneys were removed entirely, but the frequency and dosage did not vary from the usual pattern. This is good indirect evidence that in the dog pentothal is not excreted appreciably by the kidneys. Furthermore, it can be seen in figure 6 that the urine volume falls off by the end of one hour and a half, although the animals were given excessive amounts of water, indicating the activity of the kidney is depressed. This, of course, should influence the course of anesthesia concomitantly, but such is not the observation. It is important to remember that the glucose solutions injected are extremely hypertonic and should create an hydremic plethora with resultant marked diuresis. Page and Corcoran (5) have shown that administration of pentobarbital sodium (closely related to pentothal sodium) in excessive mg. Kg. ratios (greater than 30 mg. Kg.) may tend to produce oliguria with

decreased plasma clearance, because of probable renal vasoconstriction. Haury, Gruber and Gruber (6) have made similar observations in connection with intravenous thiobarbiturate. It is hoped that subsequent experiments will shed more light on this question. Liver function tests, presented in figure 2, tend to show that as anesthesia progresses, the ability of the liver to remove bromsulfalein from the blood is lowered. This would seem to indicate that the liver is undergoing some type of strain or taxation during the progress of the anesthesia, so that its removal of bromsulfalein from the blood lags.

The rise of blood sugar (fig. 3) is in agreement with the observation of Marshall, who called attention to a mild hyperglycemia followed by a hypoglycemia in recovery phases under pentothal anesthesia. This observation agrees also with the work of Hrubetz and Blackberg (7) who have made similar observations, and who suggest that rises of blood sugar following pentothal "may represent a real hyperglycemic effect." Whether or not this represents a damage or a strain on the liver may be open to controversy. It may be agreed, however, that something occurs in the liver to cause glycogenolysis with a resultant increase in blood sugar. The author calls attention to the point that in prolonged anesthesia with pentothal, preceded by the administration of 50 cc. of 50 per cent glucose, there is, following an initial drop of glucose after the first hour, a steady rise (compare figs. 4 and 5). There is evidence that the initial drop after the first hour occurs as a result of kidney excretion (fig. 6). The question seems appropriate: Could it be that the enzyme system responsible for converting and maintaining glucose to glycogen is interfered with so that control of the liver glycogen is temporarily lost?

The influence of prolonged pentothal anesthesia on the glycogenolytic-glycogenic activity seems to be shown further in the inanition experiments (fig. 7). It is reasonable to presume that a starved liver—depleted of most of its glycogen—should be "receptive" to glucose for the conversion into glycogen. When, however, animals deprived of food were given sugar just prior to anesthesia and were anesthetized for four hours, it was found that the blood sugar was extremely high, remained high throughout the experiment and was still high twenty-four hours later (fig. 7, curve 1). It seems that the liver of the animals in the anesthetized series is unable to handle the excess glucose, even though its glycogen has been markedly lowered by deprivation of food. This picture becomes more significant when we see that animals, in the inanition series, given sugar before their anesthesia, showed lowered glycogen values as a group. What happens to the injected sugar which cannot be totally accounted for in blood sugar, in urine sugar (only 2 Gm. out of 25 Gm. was accounted for in the urine sugar studies) or in liver glycogen? It may be that an explanation lies in the interruption of the glucose-glycogen pathway somewhere in the intermediary metabolism. As a matter of fact, Stetten and Boxin (8) have estimated that

"on high carbohydrate diet only about 3 per cent dietary glucose is handled by way of glycogen and ten times as much is used to synthesized fatty acids as is used for glycogen storage." Underway now are studies on blood lactate, pyruvate and carbon dioxide combining power, which, it is hoped, will shed further light on this question in my next communication.

Marshall (referred to previously) has pointed out that pentothal should not be used in the absence of good glycogen storage. The high carbohydrate series (fig. 7, "H," and "I") of experiments was undertaken to determine whether or not good glycogen storage could withstand the depletory effect of pentothal. We see that although the livers of this series store glycogen in extremely high quantities (no pentothal experimentation), livers of animals on high carbohydrate diet (prolonged pentothal anesthesia) are markedly lowered in glycogen. It seems questionable, therefore, whether or not the liver can be "protected" in prolonged administration of pentothal by either building up the patient with a high carbohydrate diet or injecting glucose concomitant with the anesthesia. We are of the opinion that (1) in prolonged anesthesia, glucose when administered in a very high quantity is not converted into glycogen and stored in very high quantity and (2) preanesthetic glycogen stores are lowered by prolonged anesthesia.

SUMMARY AND CONCLUSIONS

1. Experiments have been reported in which changes in blood sugar and in liver glycogen under prolonged pentothal anesthesia have been described.

2. Evidence is presented tending to show interruption of the normal glycogenic-glycogenolytic activity of the liver under prolonged anesthesia. It seems that livers of animals deprived of food do not polymerize glucose under prolonged pentothal anesthesia, and that prolonged anesthesia with pentothal appears to decrease markedly the liver glycogen. The liver function tests indicate that the liver is severely taxed during prolonged pentothal anesthesia which may affect the normal functioning of the carbohydrate enzyme system at the site of the liver.

3. The experiments raise the question as to the effectiveness of glucose administrations during prolonged pentothal anesthesia to "protect" the liver since excess glucose is not converted into glycogen during prolonged pentothal anesthesia in animals on a normal diet and since there is a breakdown of the stored liver glycogen in animals on a normal diet and in animals on a high carbohydrate diet.

The author expresses his sincere gratitude to Miss Ida Barton for preparation of the figures.

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AND
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WASHINGTON, D. C.

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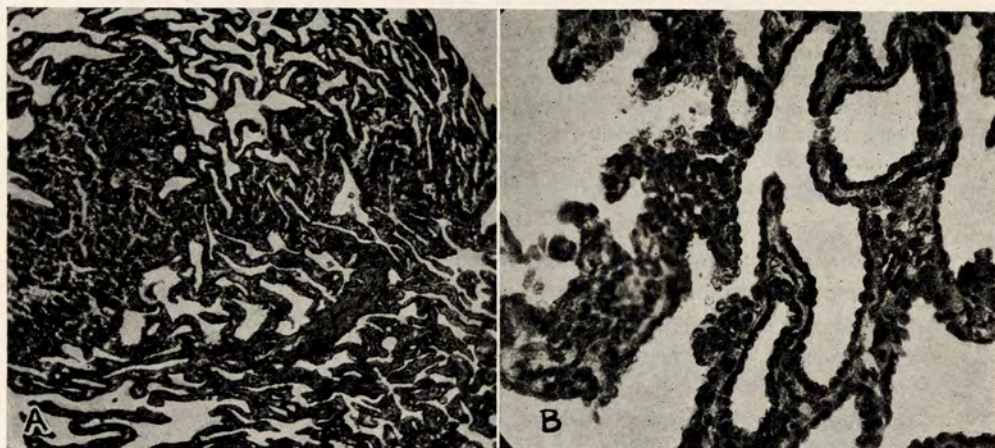
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PRIMARY CARCINOMA OF THE LIVER OF A DOG

WALTER M. BOOKER, Ph.D., and A. C. WEBB, M.D., WASHINGTON, D. C.

IN SPITE of the large volume of work on cancers of animals, both those experimentally produced and those incidentally observed, primary carcinoma of the liver is rare in dogs. It is well known that the incidence of primary carcinoma of the liver is low also in the human race of this country and of Europe. Goodpasture¹ has shown that in dogs there is some relation between the incidence of tumors and senescence. Even so, the incidence of primary carcinoma of the liver in the senile animals studied by Goodpasture was low. Carcinoma of



A, section of carcinoma of the liver under low power magnification, showing the proliferating epithelium forming a marked papillary pattern and pseudoacinar production.

B, section of carcinoma of the liver under high power, showing the tumor composed of proliferating bile duct epithelium with a supporting stroma of connective tissue. In the upper half are masses of hyperchromatic cells in which the papillary pattern is lost.

the liver (not experimentally produced) has been reported observed in rats and fowl.²

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2. Kahlau, G.: *Frankfurt. Ztschr. f. Path.* **50**:361, 1937. Itami, S.: *J. Cancer Research* **3**:275, 1918.

While making glycogen determinations on the livers of dogs in connection with another problem, the carcinoma herein reported was seen, and in view of its rarity we regarded it as being worthy of reporting. We make no claim that this is an initial contribution.

REPORT OF A CASE

An old female dog, weighing 15.5 Kg., somewhat decrepit and having cataracts, had been under prolonged pentothal sodium anesthesia the day before it was killed. When the liver was removed, a large mass was observed on the dorsal aspect of the large right lobe. Careful examination failed to show a tumor in any other organ or tissues.

The liver and the gallbladder together weighed 550 Gm. The external and the cut surfaces were reddish brown, and the consistency was firm. Protruding from the dorsal surface of the large right lobe of the liver there was a soft, whitish ovoid tumor that had a greater diameter of 3 cm. and a lesser diameter of 3.4 cm. It was circumscribed but not encapsulated.

Microscopically the tumor was composed of glandular tubules, varying in size and in shape, supported by a stroma of connective tissue, forming a papillary pattern. The acini were lined with a single layer of cuboidal cells with deeply staining nuclei. In some fields, however, the epithelium was thickened by masses of anaplastic cells that projected into the lumen. Mitotic figures were not frequent. There was no sharp line of demarcation between the tumor and the hepatic tissue. Some isolated glands, surrounded by hepatic parenchyma, were seen at variable distances from the main tumor. The liver cells did not show significant histologic changes (figure).

COMMENT

In a recent paper Mulligan³ called attention not only to the low incidence of primary carcinoma of the canine liver but to the small number of reports that have been made on canine neoplasms. He has made a plea to veterinary hospitals for more routine autopsies and reasonably detailed reports of them. We believe that the plea should be extended to laboratory workers, who should at least grossly examine the organs of dead experimental animals to determine whether or not tumors are present. If this is done on a wide scale, we believe the statistics on tumors occurring in dogs and other animals will be more extensive.

The authors are indebted to Dr. Russell Anderson for the preparation of the photomicrographs and to Miss Kathryn Foutaine, technician in the department of pathology, for the preparation of the slides.

3. Mulligan, R. M.: Arch. Path. **38**:115, 1944.

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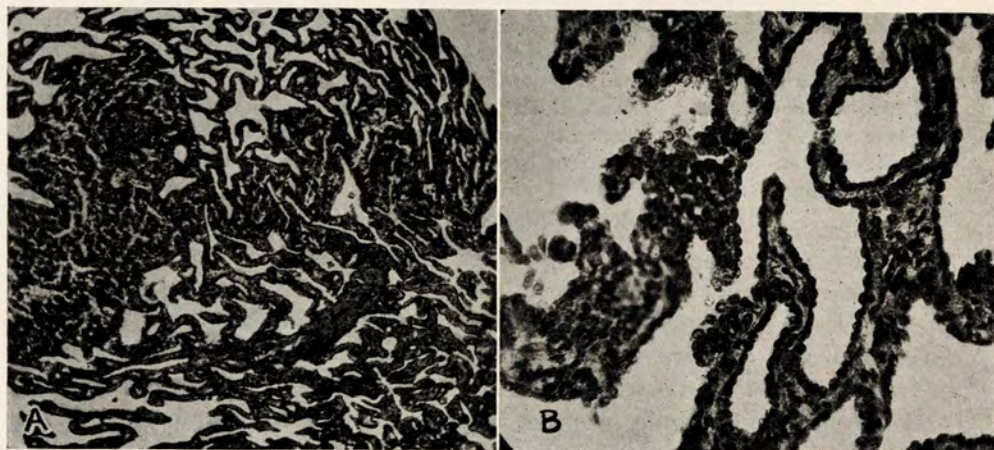
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SATURDAY, FEBRUARY 25, 1939

N. C. GRAND

SATURDAY, FEBRUARY 25, 1939

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