War Record of Chas. C. Colby. Assistant Prof of Geography

Special Expert, Commodity Section, Division of Planning and Stastics United States Shipping Board, 1918-19. Major work was on minor food commodities, Central and South American problems and Pacific Ocean tonnage.

War Record of Chas. C. Colby.

Special Expert, Commodity Section, Division of Planning and Statistics United States Shipping Board, 1918-19. Major work was on minor food commodities, Central and South American problems and Pacific Ocean tonnage.

Information for The University of Chicago War Service

Name in full John Merle Coulter Date January 16 - 1920

Academic title Professor and Head of the Department of Botany

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

The blank does not fit my particular case. My war connection was as Chairman of the Committee on Botany of the National Research Council. This committee worked on emergency problems connected with food production, food values, timbers, and raw materials (used in manufactures, in drugs, and for many other purposes).

Name in full John Marle Culler Date January 16 - 1920

Academic title Professor and Ch. Department of Botany

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, etc., Co. Comdr., Adjt., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service clevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Chief Signal Officer, Washington, D. C.

The blank does not fit my particular case. My war connection was as Chairman of the Committee on Botany of the National Research Council. This committee worked on emergency problems connected with food production, food values, timbers, and raw materials (used in manufactures, in drugs, and for many other purposes).

Information for The University of Chicago War Service

Name in full William John Crozier Date 28th Jan. '20

Academic title Assistant Professor of Zoölogy.

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

[During Jan-Feb-March of 1915 I was research assistant at the Ambulance Americaine, Neuilly, Paris, France. From '15 to '18 I lived at the Bermuda Islands, and was not involved in military operations.]

W.J.C.

Name in full

Academic title

	DATE	BANK, BRANCH or SERVICE, and ORGANIZATION, specify type (State in full, without abbreviation)	LOCATION	Application for BANK	BRANCH
Enlistment					
Promotions, Transfers, Other Exp. Adv. etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military experience both fortunate, honors and marks of distinction conferred (including service operations), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Signature

Date

Information for The University of Chicago War Service

Name in full Arthur Jeffrey Dempster Date Jan 17, 1920

Academic title Instructor in Physics—

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Nov 23, 1917	Private, Signal Corps, attached 813th Depot Aero Squadron Boston, assigned to U.S. Naval		Pvt	Sig Cps
					Experimental	Station, New London, Conn.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Mar. 1918	Promoted, Master Signal Electrician. " " " "	New London	M.S.E.	Sig Cps.
	2	June 22 1918	Transferred to 814th Depot Aero Squadron, New York City. assigned to ~~Western Electric~~ Engineering	New York City	M.S.E.	Sig Cps.
					Dept. Western Electric Co.	
	3	Sept 12, 1918	~~Promoted~~ Commissioned 2nd Lieut Signal Corps transferred to Camp Alfred Vail,	~~2nd Lieut~~ Little Silver N.J.	2nd Lieut assigned	Sig. Cps to Officers Training Battalion
	4	Oct 23. 1918	Sailed for France.			
	5	Nov. 11, 1918	Attached to Research Divsion of Signal Corps	Paris	2nd Lieut	Sig Cps.
	6	Dec 25, 1918	Attached to Scientific Attaché, American Embassy. Ordered to Rome & Taranto, Italy			
	7		on detached service with the Italian Navy, later at Toulon with the French Navy			
	8	April 2, 1919	assigned as 2nd Lieut to Casual Co 3481. Arrived in New York May 8. 1919.			
Discharge		May 20 1919	Discharged at Camp Mitchell Field, L.I.			

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

From Nov 30 1917. - June 22, 1918 I was engaged at New London in the development of and testing of submarine detecting devices, and later in the development and testing of methods of secret signalling.

From June 22 - Sept 12, 1918. I was working with wireless telephone apparatus for aeroplanes.

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, etc., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service citations), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Use of Graduate Committee

Prof. of Am. Hist -

History Department,

University of Chicago.

War Service
Information:

I am not sure that I did anything that falls within the purview of war service office; but I am risking the following statement:

1, I have been spending my summers on a small farm near Harpers Ferry, Virginia, since 1918. There was a tenant on the farm when we entered the war. In order to increase the food output in 1918, I rented a piece of waste land adjoining and planted it in corn. We made ..... 912 bushels
The next year we planted wheat on part of it and .... 390 "
The remainder was planted in corn or grazed, result .. 360 "

Total corn 1,272 bushels for
the two years; wheat 390 bushels.

The extra cost to me was, rentals $300 a year or $600 total.
Other expenses, estimated, $200

2, Of less importance: In the autumn of 1917 and early winter of 1918 I prepared a preliminary study of the Japanese-Chinese situation in the Far East and a similar study of the Monroe Doctrine at the request of Colonel House. These were duly submitted and accepted; but I do not know whether my conclusions were of any practical value in the scramble at Paris. Still a third survey was made for Colonel House personally. It was a study of recent American industrial and commercial tendencies. I mention these matters merely. They have no place in the kind of list your blank called for.

Yours sincerely,

William E. Dodd

Prof. of Hist. -

History Department,

University of Chicago.

War Service
Information:

I am not sure that I did anything that
falls within the purview of war service although I
am risking the following statement:

1. I have been spending my summers on a small farm
near Harpers Ferry, Virginia, since 1918. There was a ten-
ant on the farm when we entered the war. In order to in-
crease the food output in 1918, I rented a piece of waste
land adjoining and planted it in corn. No made ..... 912 bushels
The next year we planted wheat on part of it and .... 380 "
The remainder was planted in corn or grazed, result .. 880 "

Total corn 1,972 bushels for
the two years; wheat 380 bushels.

The extra cost to me was, rentals $800 a year or $800 total.
Other expenses, estimated, $200
---

2. Of less importance: in the autumn of 1917 and early
winter of 1918 I prepared a preliminary study of the
Japanese-Chinese situation in the far East and a sim-
ilar study of the Monroe Doctrine at the request of
Colonel House. These were duly submitted and accepted;
but I do not know whether my conclusions were of any
practical value in the scramble at Paris. Still a third
survey was made for Colonel House personally. It was a
study of recent American industrial and commercial ten-
dencies. I mention these matters merely. They have no
place in the kind of list your blank called for.

Yours sincerely.

William E. Dodd

Information for The University of Chicago War Service

Name in full John Melton Dodson Date January 20, 1920

Academic title Dean of the Medical Camm; Professorial Lecturer on Medicine

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	1911	Med. Reserve Corps, U.S.A.	Chicago.	1st Lieut	
	2	after 1917	" " " "	Commission record (Chicago)	Major	M.R.C.
	3	Feb 4 1918	Ordered to report for active duty as Medical Aide			
	4		to the Governor of Illinois in the adminis-			
	5		tration of the Selective Service Law.			
	6	July 1918	- Transfered from M.R.C. - to M.C. - U.S.A.		Major	
	7					
	8					
Discharge		Jany 4 1919	Honorable discharge from active service			
		Feb 1919	- Commission issued in Med. Res. Corps as		Major	

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Served as member of Ill. State Council of Defense, Medical Section, from June 1917 to Nov. 1918

Name in full _____ Date _____

Academic title _____

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, etc., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Officers of Chicago Chapter Special

The University of Chicago

The School of Education

DEPARTMENT OF NATURAL SCIENCE
DEPARTMENT OF ZOÖLOGY

Assoc. Prof. of Natural Science in College of Ed

February 17, 1920.

Mr. D. A. Robertson
President's Office
University of Chicago,
Chicago, Illinois.

Dear Sir:

I take it that on the enclosed blank it is desired to have entered only actual military service. I am sorry that my age prevented my enlistment.

I was a member of the Illinois State Guard, was Director of the hygiene work of the Junior Red Cross in the Middle West, and did Four Minute Man speaking twice a week.

Yours very truly,

Elliot R. Downing

ERD.AF

The University of Chicago

The School of Education

DEPARTMENT OF NATURAL SCIENCE
DEPARTMENT OF ZOOLOGY

February 17, 1920.

Mr. D. A. Robertson
President's Office
University of Chicago.
Chicago, Illinois.

Dear Sir:

I take it that on the enclosed blank it is desired to have entered only actual military service. I am sorry that my age prevented my enlistment.

I was a member of the Illinois State Guard, was Director of the Hygiene work of the Junior Red Cross in the Middle West, and did Four Minute Man speaking twice a week.

Yours very truly,

HHD.AP

Information for The University of Chicago War Service

Name in full Carson Samuel Duncan Date Feb. 2, 1920

Academic title formerly Assistant Professor of Commercial Organization

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
~~Enlistment~~		July 27, 1918 –				
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1		Special Expert, Division of Planning and			
	2		Statistics, U.S. Shipping Board	Washington, D.C.		
	3	Sept. 15, 1918,	Statistician, American Shipping Mission,	London, England		
	4	Feb. 27, 1919.	Statistician, U.S. Shipping Board,	Paris, Peace		
	5		Conference –			
	6	June 15, 1918,	Special Expert, U.S. Shipping,	Washington, D.C.		
	7		left this service, July 15, 1919.			
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit		LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment							
Promotions, Transfers, Offices held, Co., Co. Comdr., Adj., etc.	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
Discharge							

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Diploma not to be granted to Officers of Cadet Corps

Information for The University of Chicago War Service

Name in full Isaac Newton Edwards Date Jan. 31/1920

Academic title Instructor in History.

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		I was not enlisted in war service.			
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, etc., Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago Alumni Service

Information for The University of Chicago War Service

Name in full Ellsworth Faris Date Feb. 1, 1919

Academic title Professor of ~~Baptist~~ Sociology

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

I think my service hardly deserves listing with the ~~the~~ Military men. I was only an agent of the Department of Labor (Children's Bureau) salary $1.00 per year, ~~that is~~ thereby releasing a good man (Maj. Baldwin) for service and devoting my time & the conservation of the children in war time as Director of Iowa Child Research Station.

E.F.

Name in full _____ Date _____

Academic title _____

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g. Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Degree of Doctor of Philosophy must appear

Information for The University of Chicago War Service

Name in full Finch, Edwin Frederick Date January 16, 1920

Academic title Instructor in Pathology

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Sept 1. 1917	Base Hospital, Camp Grant, Ill	Camp Grant	Lt	M. C.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Feb 22. 1918	Captain M.C.	"	Capt.	M.C.
	2		Asst Surgeon and Pathologist to Camp.			
	3		advanced to Chief of Medical Service			
	4		then Chief of Laboratories.			
	5					
	6					
	7					
	8					
Discharge		April 29, 1919.	Base Hospital	Camp Grant	Capt	M. C.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), necessary items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Bulletin to Chicago Alumni

Information for The University of Chicago War Service

Name in full Leo Finkelstein Date Jan 20, 1920

Academic title Instructor in Chemistry.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Sept. 25, 1917	Private Gas Service Sanitary Corps	Chicago	Pvt.	S.C.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Sept 27, 1917	" " " " "	Washington DC	"	"
	2	Dec 24 1917	Sgt. Chemicals Warfare Service	"	Sgt	C.W.S.
	3	Jan 2 1918	" " " "	France	"	"
	4	Feb 8 1918	" " " " Sabotary	Paris	"	"
	5	Sept 18, 1918	2nd Lt. " " " "	Paris	2nd Lt.	"
	6	Jan 10, 1919	Adjutant " " " "	Paris	2nd Lt	"
	7					
	8					
Discharge		July 6, 1919	2nd Lt. Chemical Warfare Service	Governors Island	2nd Lt	C.W.S.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

2 service chevrons. awarded
Chemical research in gas warfare at C.W.S. Sabotary, Paris, France.

Name in full _____ Date _____

Academic title _____

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Other field Co., Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Our University of Chicago War Service

Information for The University of Chicago War Service

Name in full George Enfield Frazer Date Jan. 22, 1920

Academic title Professorial Lecturer in Accounting

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Nov. 1917	War Savings Committee of Illinois	Chicago	Auditor	
	2	Feb. 1918	Office of the A. M. G. of the Army	Washington	Head	Methods Control
	3	Aug. 1918	Ditto	Washington	Chief	Admr. Div.
	4	Oct. 1918	Asst. Director of Finance, U.S.A.			
	5	Jan. 1919	Member, Committee on Financial Administration,			
	6		U. S. S. B., Emergency Fleet Corporation			
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

As Asst. Director of Finance was in command of 361 officers on Nov. 11, 1918.

Name in full _____ Date _____

Academic title _____

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, Co. Cmdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Chiefs and Historians not to be published in The Quinnipiac

Information for The University of Chicago War Service

Name in full Frank N. Freeman Date

Academic title

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		None			
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full HARRY T. FULTZ Date April 1920

Academic title Instructor, The School of Education.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Aug. 1917	2nd Officers Training Camp	Fort Sheridan	Officer Candidate	F. A.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Nov. 1917	Officers Reserve Corps U. S. A.	Ft. Sheridan	2nd LT.	F. A. O.R.C.
	2	Dec. 1917	Sailed for Overseas Service	France	—	— —
	3	Jan. to April 1918	Field Artillery School, SAUMUR, France		—	— — —
	4	April–1918 July–1919	66th F.A. Brigade. 146th Regiment U. S. Field Artillery	France Germany United States.		U.S. Field Art.
	5	Oct. 1918	Recommended for promotion at end of MARNE Campaign August 1918; Promotion October 1918	Nantillois France	1st Lieutenant	U.S.F.A.
	6	May 1919	Recommended for promotion october 1918; Promotion May 1919	Bendorf Germany	Capt.	U.S.F.A.
	7	Oct. 1918 March 1919	146 FA Battalion Adjutant and Operations Officer	France Germany	1st Lt.	F.A.
	8	March 1919 June 1919	Regimental Operations Officer.	Germany U. S.	1st Lt Capt.	F.A.
Discharge		15 July 1919.	Camp Grant, Rockford, Ill.		Capt	F.A.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

With Regiment in following campaigns:

Champaign-Marne Defensive 15–18 July 1918.
Marne-Aisne Offensive 18 July – 12 August 1918
St. Mihiel Operations 12 Sept – 15 Sept. 1918
Argonne-Meuse Offensive 26 Sept – 11 Nov. 1918

American Army of Occupation – Germany December 1918 to June 1919.

Include all service civil and military

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Office held, Staff, Co. Comdr., All, etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge	1					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Indicate all service civil and military

War Record

of

Henry Gordon Gale.

Entered Second Officers' Training Camp Ft. Sheridan, August 27, 1917. Commissioned Capt. Infantry, November 27, 1917. Reported at Camp Grant, December 15, 1917. Detailed as Senior Instructor, Third Officers' Training Camp, December 15, 1917. Commissioned Capt. Signal Corps, January 15, 1918 and reported at Washington, D.C. Commissioned Major Signal Corps and sailed for Europe, January 31, 1918. Arrived at Liverpool, February 16th. At LeHarve, February 19th. Stationed at Paris and Langres until June 15th. Stationed at Tours as officer in charge of the Meteorological Division and later Officer in Charge of the Special Service Division, Office of the Chief Signal Officer. Commissioned Lieut. Col. Signal Corps, March 17, 1919. ~~Left Tours March 19, 1919.~~ Left Brest, March 26, arrived at Hoboken, April 2, reported at Camp Alfred Vail, April 3. Reported at Washington, D.C. , April 4. Honorably Discharged April 4, 1919.

Decoration as Chevalier of the Legion of Honor conferred by the President of France, April 4, 1919.

Citation by the Commander in Chief of the American Expeditionary Forces for "exceptionally meritorious and conspicuous services", June 3, 1919.

War Record

of

Henry Gordon Gale.

Entered Second Officers' Training Camp Ft. Sheridan, August 27, 1917. Commissioned Capt. Infantry, November 27, 1917. Reported at Camp Grant, December 15, 1917. Detailed as Senior Instructor, Third Officers' Training Camp, December 15, 1917. Commissioned Capt. Signal Corps, January 15, 1918 and reported at Washington, D.C. Commissioned Major Signal Corps and sailed for Europe, January 31, 1918. Arrived at Liverpool, February 16th. At LeHarve, February 19th. Stationed at Paris and Langres until June 15th. Stationed at Tours as officer in charge of the Meteorological Division and later Officer in Charge of the Special Service Division, Office of the Chief Signal Officer. Commissioned Lieut. Col. Signal Corps, March 17, 1919. ~~Left Tours March 19, 1919.~~ Left Brest, March 26, arrived at Hoboken, April 2, reported at Camp Alfred Vail, April 3. Reported at Washington, D.C. , April 4. Honorably Discharged April 4, 1919.

Decoration as Chevalier of the Legion of Honor conferred by the President of France, April 4, 1919.

Citation by the Commander in Chief of the American Expeditionary Forces for "exceptionally meritorious and conspicuous services", June 3, 1919.

Information for The University of Chicago War Service

Name in full Hans David Gaebler Date 4/9/20

Academic title A. M.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		3/9/18	Pvt. 1st class, Photo Sect. 36, Air S. Aviation	Rochester N. Y.	Pvt.	Photo #36, A.S.A.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	5/19/18		Chanute Field, Rantoul, Ill.		
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge		3/19/19		Chanute Field, Rantoul, Ill.	Pvt.	Photo #36 A.S.A.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Include all service civil and military

Name in full

Academic title

Date

Appropriations for

BRANCH	ARM	LOCATION	(State in full, without abbreviation) ARM, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg't, and Div. or similar designation of unit	DATE	
					Enlistment
					Promotions, Transfers, Offices held, etc. 1
					2
					3
					4
					5
					6
					7
					8
					Discharge

State in detail military experience before performed, honors and marks of distinction conferred (including service operations), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full Charles Goettsch Date Jan. 17, 1920.

Academic title Associate Professor of Germanic Philology.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

I read the files of German newspapers published in Illinois, Wisconsin and Indiana, under the direction of the Chicago Post Office authorities for the purpose of investigating the war records of these papers (on the score of patriotism, service, attitude toward the war). The period covered about a year and a half previous to the armistice. I received a 'dollar a year' appointment from the Federal Postal authorities shortly before the armistice for this work.

I was a member of the last University of Chicago Lib. Loan committee.

Name in full _____ Date _____

Academic title _____

	DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, etc., Co., Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and grades of distinction conferred (including service clevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Officers of Organizations

Information for The University of Chicago War Service

Name in full Moses Gomberg Date February 1920

Academic title Professor, Summer Session, 1917

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		July 17, 1918	Ordnance Department	Washington D.C.	Major	Explosives & loading
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge		Dec 6, 1918				

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full John Paul Goode Date Jan 15. 1920

Academic title Professor of Geography

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

On the organization of the Draft. I was appointed by Gov. Lowden, as Chairman of Division 16 - Chicago, - the Woodlawn district. We sent a regiment of men into the service from our division.

J. Paul Goode

Name in full _____ Date _____

Academic title _____

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, etc., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Information for The University of Chicago War Service

Name in full Goodrich. Helen Reid. Asst in Home Ec Date

Academic title School of Ed x

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

My dear Mr Robertson,

My service during the war was so very slight & so unofficial that it would add little or nothing to the University record. During the time I was an instructor at University of Chicago I assisted with Mrs Proctor Smith in the war Camp Community Service at the Sailors & Soldiers Club at 20 ~~18~~ Washington Street. I was preparing some work on clothing conservation to be used at Mrs Leonards Food Conservation Rooms on Wabash Ave when the armistice came & the material was never used

Yours very truly Helen Goodrich.

Name in full 23 Nov 43

Academic title Schaf in Stahl

Date

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, Cit. Co. Comm., All. etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service clevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full Edgar J. Goodspeed Date Jan 15. '20

Academic title Professor of bibl. & patristic Greek

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

I spoke at numerous moving picture and other theatres as a four minute man, for the Com. of Public Information, 1917-18

Acted as gen. sec., Chinese Y. M. C. A., for War Work Council, autumn quarter 1918

Salesman of Liberty Bonds.

Associate Legal Advisor, Local draft Board 15, Selective Service System

Information for The University of Chicago War Service

Name in full Chester Nathan Gould Date Jan 25, 1920

Academic title Assistant Professor of German and Scandinavian Literature.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

I was not in the service. As a civilian, while attending to my duties in the University, I was a member of the Faculty committee on Modern Languages, and read newspapers published in America in the German and Scandinavian languages and reported on their contents for the Liberty Loan Bureau and the U. S. Post Office.

Name in full _____ Date _____

Academic title _____

	DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held; e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service ribbons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The Adjutant General of the Army

Sept.9,1919

My dear Mr.Robertson;-

I have nothing to give for the bibliography. No form for war work was included in the letter to me.My work was limited to reading German and Scandinavian newspapers formtthe treasury department and the post office,while serving on the Modern Language Committee of the Faculty.

E. H. Gould

Sept?13,

Information for The University of Chicago War Service

Name in full Willis E. Gauvreau Date 2/10/20

Academic title Curator Dept. of Chemistry

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		9/21/17	Bacteriologist, U.S. Public Health Service	Sanitary Unit #9 Port of Embarkation Newport News Va		
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge		7/1/19				

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

	DATE	BANK, BRANCH or SERVICE, and ORGANIZATION, specifying (State in full, without abbreviation)	LOCATION	Approximate No. BANK	BRANCH
Enlistment					
Promotions, Transfers, Offices held, C.C., Co. Comds., &c.	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
Discharge					

State in detail sufficient ex-
planation of instructor in special
training work, service, such as
and any items of interest con-
(instructor service, examiner),
marks of distinction conferred
hours performed, points won
subject, etc.

Name in full

Academic title

Date

Retained for City's use in giving information

Information for The University of Chicago War Service

Name in full Carl H. Grabo Date Jan. 24, '20

Academic title Asst. Prof. English

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2					
	3		None			
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

Promotions, Transfers, Office Ind. etc., Co. Comds., Adj., etc.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Officers of Organizations for Permanent

Information for The University of Chicago War Service

Name in full William S. Gray Date Jan 19, 1920.

Academic title Associate Professor of Education

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

The only service rendered was in the capacity of a civilian. I was an instructor of men just about to enter the service. His work was under the direction of a local board appointed by the Draft Board!

Name in full _____ Date _____

Academic title _____

	DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, if applicable (State in full, without abbreviation)	LOCATION	Applications for RANK	BRANCH
Enlistment					
Promotions: 1					
2					
3					
4					
Transfers, Officer Exch., Co. Comdr., Adj., etc. 5					
6					
7					
8					
Disciplinary					

State in detail military experience before performed, points and marks of distinction conferred (including service ribbons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full James Parker Hall Date Jan. 28/20.

Academic title Professor of Law; Dean of Law School.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Oct. 25/18	Commissioned Major, Judge Advocate.	Chicago	Maj.	J.A.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1/2		Assigned to War Risk Division, Central Dept.			
	1	Nov. 20/19	Transferred to Judge Advocate General's Office, Chicago.	Wash.		
	1/2		Assigned to Legislative Division, Wash., D.C.			
	2	Apr. 21/20	Detailed to Camp Grant as one of counsel	Rockford, Ill.		
	3		for government in U.S. v. Ray Smith, et al.			
	4	.	(presidential court-martial).		.	
	5					
	6					
Discharge		June 24/19	Discharged at Camp Grant.	Rockford, Ill.		

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for The University of Chicago War Service

Name in full William McClinton Hamlett. Date Apr. 10. 1920

Academic title Assistant in Anatomy.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Aug 14. 1917.	1st Lt. M.C. Base Hosp 13.	Europe A.E.F.	1st Lt.	M.C. U.S.A.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	May 6. 1918.	" " "	"	Capt.	"
	2	Nov. 4. 1918	" " "	"	Major.	" "
	3	Nov. 14. 1918.	Group Consultant in Surgery. Hdqrs.	Neuro H.E.F.	Major	" "
	4	Apr. 1. 1919.	Gen. Hosp. 28. Neurological Surgery.	Ft. Sheridan	Major	" "
	5					
	6					
	7					
	8					
Discharge		Dec. 2 1919	Gen. Hosp. 28.	Ft. Sheridan	Major	" "

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Include all service civil and military

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, etc., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Indicate all service civil and MILITARY

Information for Officers of Chapters and Alumni

Information for The University of Chicago War Service

Name in full Charles S Hardy Date 1-19-20

Academic title Asst Professor

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	BRANCH
Enlistment						
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1		None			
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full Charles Otis Date 1-19-20

Academic title Asst Professor

	DATE	(State in full, without abbreviation) BANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for BANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, etc., Co. Courts, Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Mail to Chevalier Otis Memorial

Information for The University of Chicago War Service

Name in full William Draper Harkins Date Feb. 28, 1920

Academic title Professor of Chemistry.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
~~Enlistment~~		1917 – 18.	Member of Comittee in Charge of Vocational Education for Soldiers, Central Division, and especially in charge of Section B, S. A. T. C., University of Chicago.			
Promotions, ~~Transfers,~~ Offices held, e.g., Co. Comdr., Adj., etc.	1					
	2	1917-18	Engaged in Research Work for The Chemical War Service ~~and the National Research Council:~~			
	3		~~Subjects of Investigation:~~			
	4		1. Adsorption of Poisonous Gases in Specially Treated Charcoals.			
	5		2. Determination of the Apparent and True Density of Charcoals.			
	6		3. Determination of the Apparent Surface of Charcoal. 4. Combustion of Carbon Monoxide.			
	7		5. The Effects of Acids and Bases on the Surface Energy Relations of β, β—Dichloroethylsulfide (Mustard Gas).			
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Nos. 1 and 4 will not be published, as General Seibert is opposed to the publication of No. 1.

A copy of No. 5 is inclosed.

Nos. 2 is now in print in the Proceedings of the National Academy of Sciences.

The above is probably not worth publishing, but I send it merely as information.

Name in full William Draper Harkins Date Sep. 24 1919

Academic title Professor of Chemistry.

	DATE	(State in full, without abbreviation) BANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Bat., and Div., or similar designation of unit	LOCATION	Applications for BANK	BRANCH
Enlistment	Sept 24 1919	Member of Committee in Charge of Vocational Education for Soldiers, Central Division, and responsible in charge of Section B. S. A. T. C., University of Chicago.			
Promotions, Transfers, Other changes, Co. Comdr.'s ltr., etc.		Engaged in Research Work for the Chemical War Service and the National Research Council.			
		Applicant of Investigation:			
		1. Adsorption of Poisonous Gases in Specially Treated Charcoals.			
		2. Determination of the Apparent and True Density of Charcoals.			
		3. Determination of the Apparent Surface of Charcoal.			
		4. Composition of Carbon Monoxide.			
		5. The Effects of Acids and Bases on the Surface Energy			
		Relations of p.p.-Diaminotriphenylmethane (Malachite Green).			
Discharge					

Nos. 1 and 4 will not be baptized, as General Leipoldt is opposed to the baptization of No. 1.

A copy of No. 5 is inclosed.

Nos. 2 and 3 will be turned in to the Proceedings of the National Academy of Sciences.

Give in detail military experience and civil employment, positions held, promotions, transfers, honors received, date and reason for every change in rank or organization, with dates of beginning and ending each such period. Specify clearly whether service was in line of duty, and whether with troops or in detached service (including service overseas). Also indicate any changes in address. Use additional sheet if necessary. Do not omit any period, however brief, since the entire record is subject to verification. Initial each entry.

Information for The University of Chicago War Service

Name in full Norman Mac Leod Harris Date Feb. 10th 1920.

Academic title formerly, Assistant Professor of Hygiene and Bacteriology

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit			LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		1916 May 28th	Captain,	Canadian Army Medical Corps,	Sanitation	Shorncliffe England	Capt.	Sanitation
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Nov. 11th	do.	do.	do.	Seaford, England	"	Divisional Sanitary Officer
	2	1918 Oct. 16th	do.	do	do.	Rhyl, Wales	"	Camp Sanitary Officer.
	3	Nov. 9th	do.	do.	do	Valenciennes France	"	Officer Commanding No. 4 Can. San. Sect. 3rd. Can. Division
	4	1919 Jan. 26th	do.	do.	do.	Namur, Belgium	"	do. 2nd Can. Division
	5							
	6							
	7							
	8							
Discharge		1919 May 19th	do.	do.	do	Toronto, Can.	"	Officer Commanding No. 4 Canadian Sanitary Section.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

None.

N. Mac L. Harris.

Name in full _____ Date _____

Academic title _____

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Other field Svc. Co. Comdr. Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Indicate with an X the entries of this record for which you have documentary proof

Information for The University of Chicago War Service

Name in full Andrew Edward Harvey Date May 20, 1920

Academic title Instructor in European History

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		8/27/17	Second Officers' Training Camp, Fort Sheridan, Ill.			Inf.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	11/27/17	Commissioned First Lieutenant of Infantry.			..
	2	1/8/18	Sailed as Casual Officer for France. 2 mos. in Army Inf. Schools	Langres	1st.Lt.	..
	3	4/8/18	Assigned to the Liaison Service and 4/22/18		.. ..	..L.S
	4	4/22/18	ordered to Transportation Section of the French War Department.	Paris	.. ..	....
	5	June'18	Ordered to French Regional Military H'q'r's Lyons	Lyons	.. ..	Inf.L.S
	6		as Liaison Officer and Assistant Provost Marshall.			
	7	8/26/18	Stationed as Instructor with French Military	Faverney	.. ..	Inf.
	8	3/29/19	Mission at Faverney, Haute Saone, France. * Leave Officer and Interpreter to Post Comm'd't. G.H.Q.	Chaumont	.. ..	..
Discharge		Honorably discharged	At Camp Grant, Sept. 13, 1919.			

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

*Instructor in English and Lecturer on U.S. History, and, after the Armistice, Instructor in German to French officers.
Three gold service chevrons .

Include all service civil and military

Information for The University of Chicago War Service

Name in full Andrew Edward Harvey Date May 20, 1920

Academic title Instructor in European History

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		5/27/17	Second Officers' Training Camp, Fort Sheridan, Ill.			Inf.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	11/27/17	Commissioned First Lieutenant of Infantry.			"
	2	1/8/18	Sailed as Casual Officer for France. 2 mos. in Army Inf. Schools	Langres	1st. Lt.	"
	3	4/8/18	Assigned to the Liaison Service and 4/22/18		" "	L.S.
	4	4/22/18	ordered to Transportation Section of the French War Department.	Paris	" "	" "
	5	June '18	Ordered to French Regional Military H'q'r's Lyons		" "	
	6		as Liaison Officer and Assistant Provost Marshall.	Lyons		Inf. L.S
	7	8/26/18	Stationed as Instructor with French Military	Faverney	" "	Inf.
	8		Mission at Faverney, Haute Saone, France. *	Chaumont	" "	"
		3/29/19	Leave Officer and Interpreter to Post Comm'd't. S.R.S.			
Discharge		Honorably discharged	At Camp Grant, Sept. 15, 1919.			

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

*Instructor in English and Lecturer on U.S. History and, after the Armistice, Instructor in German to French Officers.
Three gold service chevrons.

Include all service ci[illegible]il
and military

The University of Chicago
CHICAGO, ILLINOIS
Office of the President

51 Forest Avenue, East,
Detroit, Michigan,
Oct. 3rd. 1919.

My dear Ex-Colonel Gale:-

It seems much more than two years ago that you and I were "Candidates" together at Fort Sheridan, renewing our youth with the boys. Both of us have gone through a great variety of experiences since then. You, I am informed, returned from France several months ago. I received my honorable discharge only the thirteenth of last month. Perhaps a brief summary of my varied forms of service abroad may interest you.

After the first eleven weeks spent in Officers' training camps in France, of which I gave you an account when your guest at luncheon in the Hotel de la Poste at Langres, I went to Paris to report to the Chief Liaison Officer. I bore with me orders from G.H.Q. assigning me as Liaison Officer with the First Division. A few days after reporting in Paris, the Chief Liaison Officer took me in his autocar to Ist. Div. Hqrs. then located about fifty miles north of Paris (the division being on its march toward the Front near Cantigny). To my deep regret the commanding officer at Hqrs. refused to accept any additional liaison officers at that time, preferring to wait until he should have something for them to do, so I was conducted back to Paris forthwith. A few days later orders reached me assigning me to duty as Liaison Officer in the Transportation Department of the French Ministry of War, at Paris. There I remained about two months, my duties consisting of translating from English into French (or vice versa) all sorts of orders, requests or communications. I acted also as interpreter at conferences between U.S. and French officers. In the middle of June, 1918, I was ordered to Lyon to be Liaison Officer at the French Regional Military Headquarters located in that city, I had not been at work in this new position two weeks before I was made A.P.M. at Lyon in addition to my Liaison job; and there was no other A.P.M. to share the responsibilities with me. These two positions kept me hustling, I can assure you. Near the end of August, after a sojourn of ten weeks in Lyon, I received a telegram from G.H.Q. ordering me to report to the Adjutant-General as soon as possible. When my successor had arrived and had been broken in, I betook myself with all speed to Chaumont, believing I was at last to be placed in the Intelligence Section or Service, where I was convinced I

could be of most value. Imagine my surprise when I received orders assigning me as Instructor in English in a school, conducted by the "French Military Mission attached to the American Army", in which French officers (from Lieut-Colonels down to Second Lieutenants), selected on the basis of military merit and experience as well as on account of their knowledge of the English language, were being trained to fill positions as Informing Officers with American Army units. This Center of Instruction was located at Faverney (Haute Saone) on the route between Langres and Epinal. The village contained less than 1500 inhabitants, a typically dirty French rural commune. I leave it to you to imagine how enjoyable my new surroundings were after having lived more or less luxuriously in large cities like Paris and Lyon. However, the country round about Faverney is picturesque and healthful and my work proved both interesting and congenial. I was asked to lecture on United States' History as few of the officers, I was informed, had more thatn the vaguest ideas on that subject and all deisred to know more. Of course I lectures in English (or rather in American) and was expected to converse with the French officers in my native dialect on every possible occasion so as to enable them to learn American idioms and pronunciation. I was one of seven American lieutenants giving instruction in English, although each of us lectured on a different subject. The intimate contact with many very intelligent and personally charming French officers, which my new position made possible, was delightful. The commanding officer of the school, a Major (Commandant) of Chasseurs à pied, treated us Americans most hospitably and took an especial fancy to me, making of me almost a boon-companion. He took me on a week's trip with him to his parental home in Le Puy, whence we drove over to visit Lafayette's chateau situated not far distant. He kept me with him at Faverney after he let go the other six American lieutenants until, in fact, the school was disbanded and he himself was given another assignment. That was the end of March of this year. Immediately after the Armistice I was placed in charge of an advanced course in German conversation and when a request was received for an officer able to speak German of English, it was I who examined the officers available for the position to be filled and passed on their linguistic qualifications. When released from Faverney I expected to be sent

back to the States. But Fate decreed otherwise. A Lieutenant at G.H.Q. was let go home to his wife and I was assigned to fill the vacancy. Thus I became "Leave Officer" at Post Headquarters G.H.Q. and "Interpreter" to the Post Commandant, Col. Ralston. I was kept on these jobe until G.H.Q. was closed and abandined by the U.S. Army. A 14 day leave being then due me, I took it, my orders instructing me to report at Brest at its expiration for transportation as a casual officer to the U.S. On August 2nd I reached Brest where I waited in idleness for sometime till finally I was appointed second in command of a Brest Casual company of 151 enlisted men. After several days and nights of work with service records, equipping the men, and seeing them through divers kinds of inspections, we were at last ordered on board the U.S.S. Troy on which we had a slow but rather pleasant homeward voyage. At Camp Merritt we had more work with service records and additional inspection nuissancrs. The last lap was entered upon when the company of 300 men, to which I was attached and which was bound for Camp Grant, was ordered to entrain for that destination.

During my eighteen months service in the A.E.F., I failed to report for duty only 15 days on account of illness, viz. three days at Langres when supposed to have the "pink eye" and twelve days spent at Base Hospital 17 at Dijon with the "Flu". I had also two 7-day and one 14-day leaves.

It is not my present intention to return to the History Department of the University of Chicago. During my sojourn abroad, I conceived the idea that I could possibly be of greater value to my country in the Consular Service, inasmuch as I have now a good command of both the French and German languages, have already spent more than seven years of my life in Europe and am more familiar with European conditions than most candidates for consular positions. I shall have to pass a rather stiff examination in difficult subjects, like International Law, Commercial Law, Marine Law, Political Economy and Commercial Geography, but, before this examination is held, I hope to have acquired a sufficient mastery of these subjects to stand the test.

Now the Department of St te informs me that "letters from competent and responsible persons must be filed with the Department of State attesting to the moral character, integrity, good deportment and ability of the applicant and his qualifications" and that "in order that

due weight may be given these recommendations, the persons vouching for the ap licant's qualification.....should fully state the facts which enable them to do so".

You have known me long and well enough, I am sure, to write such a recommendation for me. I do not wish to put you to any great inconvenience. If, however, you could find time in the near future, and if you would be willing to thus vouch for my character and ability, I would be deeply grateful to you. If you decide to write such a letter of recommendation, please address it to the Department of State, Washington, D.C., but send it to me, at the address given above, so that I can send it along with my application. Naturally I desire to file my application and letters of recommendation as soon as possible.

Thanking you cordially, in advance, for this great favor, and extending to you my kindest regards, I am

Very sincerely yours,

Andrew Edward Harvey.

Information for The University of Chicago War Service

Name in full Harvey, B. C. H. Date Feb. 18. 1920

Academic title Professor of Anatomy

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
~~Enlistment~~ Commissioned		April 1917.			Capt.	Med. Res. Corps.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	June '17	Medical Officers Training Camp, Fort Riley, Kan.			
	2	July 7.	Commanding Officer, Ambulance Co. 17	H. Riley		
	3	Sept. '17	Commandant, Schools Medical Department,			
	4		34th Division, Camp Cody, Deming. N. M.			
	5	Dec '17	Commissioned Major, Medical Corps		Maj.	Med. Corps
	6	Jan '18	Base Hospital 13,	H. McPherson Ga		
	7	May '18	Sailed for France			
	8	Jan '19	Sailed for USA			
Discharge		Feb. 19				

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

With Base Hospital 13, Instructor Manual Medical Dept. Registrar and Receiving Officer Summary Court & Special Court.

with 34th Division, Lecturer in the Divisional School of Hygiene and Sanitation.

Chevrons, one gold

Name in full Harvey, E.C.H. Date Feb. 18. 1920

Academic title Professor of Anatomy

Information for Office of Director of Chicago Civil Service

Enlistment	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
		Commissioned Capt. M.R.C.		Capt.	Med. Res. Corps
Promotions, Transfers, Offices held, etc., Comdt., Adj., etc.	June '17	Medical Officers Training Camp, Fort Riley, Kan.			
	Aug. '17	Commanding Officer, Base Hospital No. 17	Ft. Riley		
	Sept. '17	Commandant, School Medical Department,			
		Army Division, Camp Custer, Mich.			
	Dec. '17	Commissioned Major, Medical Corps		Maj.	Med. Corps
	Jan. '18	Base Hospital 13,	Ft. McPherson Ga		
	May '18	Sailed for France			
	Jan. '19	Sailed for U.S.A.			
Discharge	Feb. 19				

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Visit Base Hospital 13, Fourteenth General Medical Dept.
Registrar and Receiving Officer
Summary Court & Special Court
Visit 32nd Division, Lectures in the Divisional School of Hygiene and Sanitation.
Observers, One year

Information for The University of Chicago War Service

Name in full Harvey, Basil C.H. Date Jan. 15, 1920

Academic title Professor of Anatomy

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
~~Commissioned~~ ~~Enlistment~~		1917 May			Capt.	M.C.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	May 29	Sent to ~~Med. Of. Trng. Camp~~ Medical Officers' Training Camp.	FtRiley Kan.		
	2	July 25	~~C.O.,Amb. Co. 17, M.O.T.C.~~ Commanding Officer, Ambulance Company 17.	Ft. Riley Kan		
	3	Sept. 7	Sent to Office Div. Surgeon, 34th Div., Deming, N.M.	Camp Cody		
	4	Dec 1918	Commissioned Major M.C.		Maj	M.C.
	5	Jan	Sent to join Base Hospital 13, Fort McPherson, Ga.			
	6	June	Arrived with B.H. 13 at Limoges, France			
	7	Dec 29	Left Limoges for U.S.A.			
	8					
Discharge		1919 Feb. 14	at Camp Dix, N.J.		Maj.	M.C.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

with 34th Div. at Camp Cody, acted as: Commandant, Schools Medical Dept.; Instructor, Manual Medical Department; Lecturer, School of Hygiene and Sanitation of the Division; Assistant Sanitary Inspector; Mess Officer, Div. Hq. Mess; Member Disability Board; Consulting Surgeon, Orthopedic Casual Detachment; Member of Board for the preliminary examination of candidates for commission Med. Dept.; Medical member, Board of Officers for the examination of candidates for commission, Q.M. Corps.

with Base Hospital 13: Instructor, Manual Medical Dept.; Registrar; Receiving Officer; Summary Court; President Special Court Hospital Centre of Limoges.

1 gold service chevron (overseas service between 6 mos. and one year)

Name in full Harvey, Basil G. H. Date Jan. 15, 1920

Academic title Professor of Anatomy

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Commissioned Enlistment	1917 May			Capt.	M.C.
Promotions, Transfers, Offices held &c., Co. Comds. &c.	May 24	Sent to Med. Cr. Trng. Camp	Ft. Riley Kan.		
	July 25	U.S. Army Med. Cr., M.C.U.S.	Ft. Riley Kan.		
	Sept.	Sent to Office Div. Surgeon, 34th Div., Deming, N.M.	Camp Cody		
	Dec	Commissioned Major M.C.		Maj	M.C.
	1918 Jan	Sent to Base Hospital 13, Port McPherson, Ga.			
	June	Arrived with B.H. 13 at Limoges, France			
	Dec 24	Left Limoges for U.S.A.			
Discharge	1919 Feb. 14	at Camp Dix, N.J.		Maj.	M.C.

State in detail military exploits performed, honors and marks of distinction conferred (including service citations), and any items of interest concerning your service, such as position of instructor, in special subject, etc.

with 34th Div. at Camp Cody, acted as: Commandant, School Medical Dept.; Instructor, Manual Medical Department; Lecturer, School of Hygiene and Sanitation of the Division; Assistant Sanitary Inspector; Mess Officer, Div. Hq. Mess; Member Disability Board; Consulting Surgeon, Orthopedic Casual Detachment; Member of Board for the preliminary examination of candidates for commission Med. Dept.; Medical member, Board of Officers for the examination of candidates for commission, C.A.C. Corps;

with Base Hospital 13: Instructor, Manual Medical Dept.; Registrar; Receiving Officer; Summary Court; President Special Court Hospital Detachment of Limoges.

I gold service chevron (overseas service between 6 mos. and one year)

Information for The University of Chicago War Service

Name in full Hektoen, Ludvig Date January 16, 1920

Academic title Professor of Pathology

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Did not hold any military appointment, but acted as consultant in infectious diseases at U. S. Naval Training Station at Great Lakes, Ill., during 1917 and first half of 1918; was director of Red Cross Laboratory Car Metchnikeff until the car was taken over by the army; prepared articles on the bacteriology of measles and on experimental measles at the request of the Surgeon-General's office; helped to formulate standard technic for detection of meningococcus in military camps; supervised examination for sterility of catgut by officers of the sanitary corps U.S.army.

Name in full Hektoen, Ludvig Date January 14, 1920

Academic title Professor of Pathology

	DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Offices held, Staff, Co. Comdr., Adjt., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

Information for Chief Clerk of Chicago Civil Service Commission

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Mr. Robertson
The President's Office
University of Chicago
Chicago

Information for The University of Chicago War Service

Name in full Hellerman, Leslie Date February 10, 1920

Academic title S. B. Fellow in Chemistry

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Feb. 18, '18	Private, Ordnance Bureau, Trench Warfare Dept. (Gas warfare investigations)	Washington D.C.	Pvt.	Ord. Bur.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	Apr. '18	Sergeant, Ordnance Bureau, Edgewood Arsenal "	Baltimore Md.	Sgt.	Ord. Bur.
	2	June '18	" " " " " "	Columbus Ohio	"	" "
	3	July '18	" Chemical Warfare Service, Edgewood Arsenal "	Edgewood, Md.	"	C. W. S.
	4					
	5					
	6					
	7					
	8					
Discharge		Dec. '18	" " " " " " "	"	"	"

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Principle duties: Investigational work with poisonous gases for use in chemical warfare.

January, 1919: Tendered 2nd Lieutenancy in Ordnance Reserve Corps.

Name in full _____ Date _____

Academic title _____

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Offices held, Staff, Co. Courts, Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

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Information for The University of Chicago War Service

Name in full Homer Henry Helmick Date Feb. 13, 1920.

Academic title Assistant in Physical Chemistry, University of Chicago, 1917-18. (No academic title at present account retention in service to date.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		May 1, 1918.	Private, Medical Department, Demonstration Hosp. #1, (Student)	Rockefeller Inst. for Med. Research, New York city.	Pvt.	Med. Dept.
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1	June 15, 1918	Transferred to Department Laboratory, Central Department (Student)	Fort Leavenworth Kansas.		
	2	June 29, 1918	Promoted to Sergeant, Medical Department (Student)	"	Sgt.	M. D.
	3	July 26, 1918	Transferred to Demonstration Hospital #1, (Student)	Rockefeller Inst. for Med. Research, New York City.		
	4	Oct. 1, 1918	Transferred to Yale Army Laboratory School (Student)	New Haven, Conn.		
	5	Nov. 7, 1918 ~~Jan 30 19~~	Promoted to Second Lieutenant, Sanitary Corps, (Student)	"	2nd Lt.	San. Corps.
	6	Jan. 30, 1918.	Transferred to Base Hospital, Camp Lee, Va. (Charge of chemical dept, hosp. lab.)	Petersburg, Virginia.		
	7	July 1, 1919	" " U.S.A. General Hospital #21, Denver, Colo.	Denver, Colo.		
	8					
Discharge		Retained in the service to date.				

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

	DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment					
Promotions, Transfers, Citations and Commendations					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Information for Civilian War Service

Information for The University of Chicago War Service

Name in full Charles Judson Herrick Date Jan. 28, 1920

Academic title Professor of Neurology

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Jan. 16, '18	Major, Sanitary Corps, National Army			
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1		(Commissioned for special labo-			
	2		ratory service attached to Office			
	3		of the Surgeon General, Section			
	4		of Brain Surgery)			
	5		First assignment to Army Neurosurgical Labs.,	Baltimore	Major	Sanitary Corps.
	6	May 8-'18	Transferred to Army Medical Museum,	Washington, D.C.	"	"
	7		(In charge first of neuro-pathological collections and later of all			
	8		pathological collections received from Army hospitals.)			
Discharge		Jan. 31, 1919.	(Two white service chevrons on discharge)		Major	Sanitary Corps.

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Before receiving commission gave instruction in neuro-anatomy to first Army Neuro-surgical School at Chicago.

At Army Medical Museum organized a pathological laboratory, assembled equipment and personnel engaged in routine pathological examinations and reports and special investigations, and gave instruction in neuro-anatomy to Army surgeons.

Name in full Charles Judson Herrick Date Jan. 28, 1920

Academic title Professor of Neurology

		DATE	RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit (State in full, without abbreviation)	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		Jan 15'18	Major, Sanitary Corps, National Army (Commissioned for special duty. Retiring service effective as Capt. U.S. Navy Surgeon)			
Promotions, Transfers, Offices held, etc., Co., Comds., Adj., etc.	1					
	2					
	3					
	4					
	5		Joint assignment to Army Neurological Lab., Rolling Major Sanitary Corps.			
	6	May 5-'18	Transferred to Army Medical Museum, Washington, D.C. "			
	7		(In charge joint Army-Navy Surgical Pathological Laboratory)			
	8		Pathological Collection received from Army Hospitals.)			
Discharge		Jan. 31, 1919.	(Now with Army Service Corps on discharge)	Major	Sanitary Corps.	

Information for Use of Chicago Civic Committee

State in detail military exploits performed, honors and marks of distinction conferred (including service clevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Major Receiving Commission Sanitary Corps National Army
Joint Army Navy Surgical Pathological Laboratory
Chief Army Medical Museum appointed a Pathological Laboratory,
Assisted Equipment and Personnel Engaged in routine Pathological Examinations and Pathological and Special Investigations.
Now Joint Assistant in Neuro-Surgery to Army Surgeon.

Information for The University of Chicago War Service

Name in full Richard Hunch Date 16 Jan 1926

Academic title Professor, English.

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment			Associate Foreign Press Bureau, N.Y.			
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc.	1		Summer 1918			
	2		Home written "The World Decision"			
	3		Hopkins-Moffat Co. 1916			
	4		Contributed articles to Chicago Tribune			
	5		N.Y. Times, etc. July 1914 – April 1917.			
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full _____ Date _____

Academic title _____

		DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment						
Promotions, Transfers, Orders held (i.e., Co. Comdr., Adj., etc.	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
Discharge						

State in detail military exploits performed, honors and marks of distinction conferred (including service clevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Informationsblatt über die Tätigkeit an Colleges und Universitäten

Information for The University of Chicago War Service

Name in full Edward W. Hinton Date Jan 19/20

Academic title Professor of Law

	DATE	(State in full, without abbreviation) RANK, BRANCH of SERVICE, and ORGANIZATION, specifying Co., Reg., and Div., or similar designation of unit	LOCATION	Abbreviations for RANK	Abbreviations for BRANCH
Enlistment		No Regular War Service			
Promotions, Transfers, Offices held, e.g., Co. Comdr., Adj., etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military exploits performed, honors and marks of distinction conferred (including service chevrons), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Name in full

Academic title

	DATE	(State in full, without abbreviation) Co., Key" and Div." or similar designation of unit BANK, BRANCH of SERVICE, and ORGANIZATION, specify type	LOCATION	Application for BANK	BRANCH
Enlistment					
Promotions, Transfers, Officer field, a.e., Co. Comdr., AAI, etc. 1					
2					
3					
4					
5					
6					
7					
8					
Discharge					

State in detail military experience performed, honors and marks of distinction contained (including service evaluations), and any items of interest concerning your service, such as position of instructor in special subject, etc.

Date

Reprinted from the PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES,
Vol. 5, pp. 291–295, July, 1919

VARIATIONS, DUE TO HEAT TREATMENT, IN THE RATE OF ADSORPTION OF AIR BY COCOANUT SHELL CHARCOAL[1]

BY HARVEY B. LEMON

RYERSON PHYSICAL LABORATORY, UNIVERSITY OF CHICAGO

Communicated by A. A. Michelson, May 19, 1919

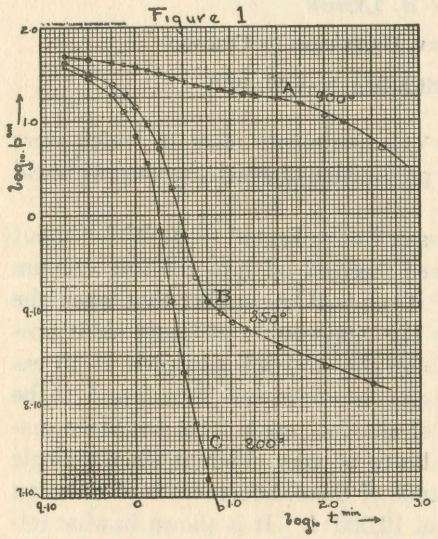
This paper is an abstract of results of experiments most of which were performed prior to January 1918, but the publication of which has been withheld during the war.[1]

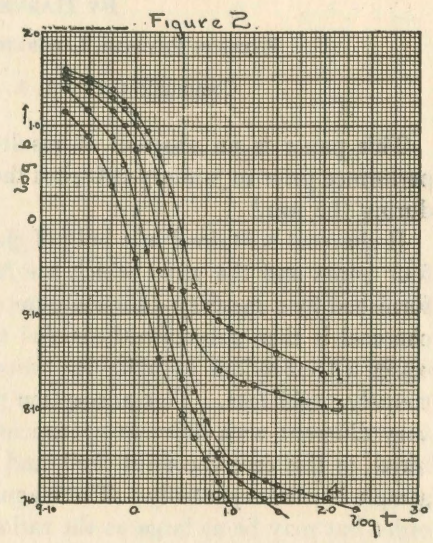
If charcoal contained in a bulb of glass or iron is heated to 600°C for about four hours and the gases which are freed pumped off into the low vacuum furnished by a mercury diffusion pump,[2] it is a well known fact that when the charcoal is then subsequently cooled to the temperature of liquid air it possesses a tremendous capacity for adsorbing gas, and will adsorb it at an extremely rapid rate. This adsorption power, however, has been found to be very different with different specimens of charcoal made from the same material, in this case cocoanut shell, and also to be very different when a single sample is used repeatedly. The magnitude of these differences is of no mean order but may be as large as the ratio of 10,000 : 1. It is shown in what follows that the heat treatment of the specimen during carbonization and also during successive 'outgassings' is a decisive factor in the control of the efficiency of the material as an adsorbent.

The experimental method was one of extreme simplicity. The shell was carbonized in an enclosed electric furnace having a vent for escape of gases and vapors. The temperature was indicated on a Leeds Northrup potential point resistance thermometer. The charcoal was then ground up to particles of from 1 to 3 mm. diameter and cleansed from all smaller fragments and dust. A definite weight (25.7 grams in most of the experiments, determined in dry air with which the charcoal was saturated) was sealed up in a tube of iron, quartz or Pyrex glass depending on the temperatures to be subsequently used. From this tube cocks communicated, (1) to the diffusion pump, and (2) to a fixed volume that could be filled with dry air at any desired pressure. This fixed volume included a McLeod gauge and a mercury barometer column so that the pressure in it could be read to within a few per cent over a range

of from 100 cm. to 0.00001 cm. A small Geissler tube was in communication with the charcoal bulb for a rapid means of observing the character of the gas content and, qualitatively, the pressure. After outgassing through cock, *1*, this was closed and cock, *2*, opened. The charcoal was thus exposed to a constant volume of 873 cc. initially filled with air at about 90 cm. pressure. This initial pressure was varied slightly as the room temperature varied so that the enclosed mass of air was constant, i.e. 1.2 grams. The air was immediately adsorbed and the rate of fall of the pressure observed as long as it was appreciable.

Results are expressed graphically by plotting the logarithm of the pressure in cm. against the logarithm of the time in minutes elapsing after the cock, *2*, was opened. Figure 1 shows curves for three different samples under





identical conditions. *A* was carbonized at 900°C., *B* at 850°C. and *C* at 800°C. They were all outgassed simultaneously for 6 hours at 425°C. and tested in rapid succession on the same apparatus. The enormous difference in rate is obvious in view of the logarithmic scales. The initial pressure of 90 cm. is reduced in 10 minutes to 20 cm., 0.71 cm. and 0.0003 cm. for *A*, *B* and *C* respectively.

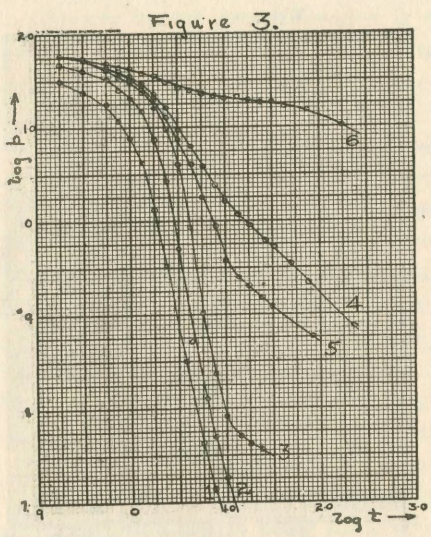
Figure 2 shows the results of successive 'runs' on the same specimen. This specimen was carbonized at 850°C. and the outgassings were all identical at 600° for 4¼ hrs. It shows a systematic increase in rate after each run and subsequent outgassing becoming equal after 10 consecutive runs to the former sample shown as *C* in figure 1.

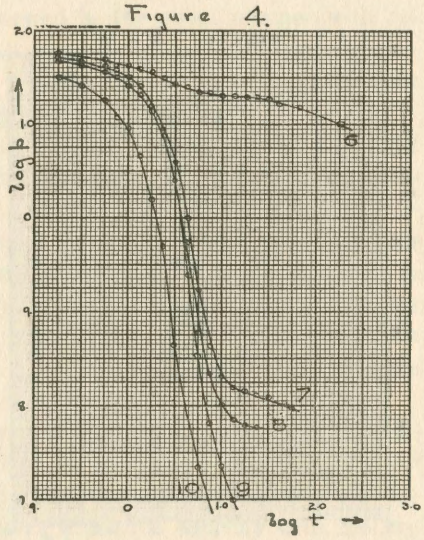
Figure 3 shows an effect which was controlled so as to be the converse of that illustrated in figure 2. It depicts also successive runs on a single speci-

men, the carbonization of which was for 3 hours at 670°C. The first run shows an extremely active adsorption. Successive outgassings were not now identical but were as indicated below:

First	4.5 hours at 633°C.
Second	0.5 hours at 800°C.
Third	0.5 hours at 850°C.
Fourth	0.5 hours at 875°C.
Fifth	4.0 hours at 640°C.
Sixth	0.7 hours at 905°C.

The first four runs show a cumulative loss of activity as result of high outgassing temperature. In the fifth the activity is in part restored by prolonged outgassing at the lower temperature and in the sixth it is again almost





totally destroyed. Quartz tubes are unsuitable for use for the high temperature work because of their devitrification by the hot carbon vapor.

Figure 4, repeating the sixth run shown in the preceding, carried the same sample back to high activity in four subsequent outgassings which were as follows:

Seventh	22.0 hours at 650°C.
Eighth	22.0 hours at 500°C.
Ninth	44.0 hours at 650°C.
Tenth	1.0 hours at 840°C.

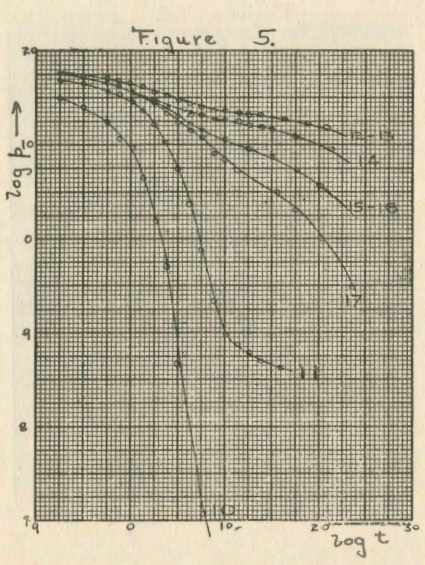
A sluggishness of behavior is apparent after this much use as indicated in the long times necessary to produce a change in quality and also in the failure to respond as before to a temperature higher than 800.

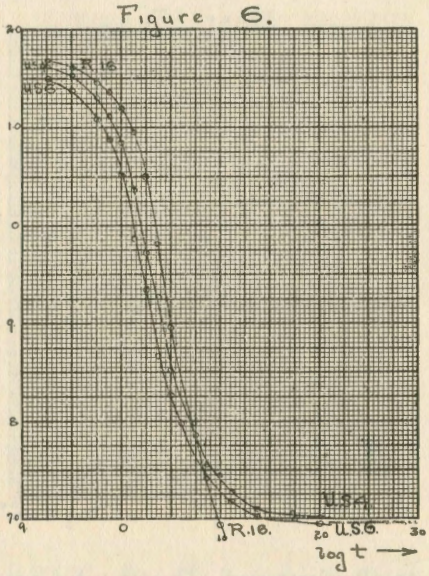
Figure 5 shows continuation of the attempt for the second time to destroy the activity. Repeating curve 10 of the preceding and outgassing

Eleventh	0.5 hours at 950°C.
Twelfth	1.5 hours at 985°C.

the activity is again reduced. Recovery is now as before sluggish and was not carried to completion.

Thirteenth	3.0 hours at 650°C.
Fourteenth	8.0 hours at 625°C.
Fifteenth	12.0 hours at 645°C.
Sixteenth	1.5 hours at 650°C.
Seventeenth	14.0 hours at 650°C.





The characteristic form of the family of curves shown is undoubtedly of generic quality. These curves have been reproduced on a wide variety of samples of cocoanut shell charcoal many times; and when the results are assembled exhibit almost every degree of gradation from a central, closely linear (after the first minute) relationship. Similar experiments on pure gases rather than air are in progress in the hope of simplifying this family of curves somewhat so as to obtain an interpretation expressible in analytic form.

Two hypotheses have been advanced for these phenomena. One ascribes the changes in the sense of increased activity to the gradual distillation out of the material of heavy nonvolatile hydrocarbons, many of which in the form of tars and gums come off during the initial carbonization. The other is based on the conception advanced by Miss Ida Homfray[3] that these phe-

nomena are to be regarded as saturated solutions of a rigid phase, carbon, in a fluid phase, gas. It suggests that repeated solution and subsequent evaporation, here taking the form of adsorption at low temperatures and outgassing at high, produces a gradual modification of the character of the carbon with respect to its fineness of division, something similar to precipitation occurring.

Loss of activity seems difficult to account for on the first hypothesis. It is to be noted that permanent loss of activity can always be produced on any sample by heating to 1200°C. This is usually ascribed to a partial destruction of porosity and has been observed before. Attempts to extract heavy hydrocarbons by the use of the lightest liquid solvents, ligroin alcohol and acetone were inconclusive. Considerable amounts of tarry material were removed, but not by the solvents directly. They distilled out during outgassing after treatment with the solvent. This treatment in all cases causes temporary loss of activity which is renewed in the usual manner with repeated use after low temperature outgassings. Experiments by others however[4] which have shown that activation is possible by other methods than the ones here outlined seems to favor the hydrocarbon hypothesis.

Those other methods for activation of field material for the adsorption of complex vapors have been used in conjunction with the above described process. A comparison of material activated by use and low temperature outgassings alone as herein described, with the most highly activated charcoals produced elsewhere under the conditions of these experiments is given in figure 6. The crossing of the curves may be very significant. The laboratory charcoal, R. 16, is less active initially but ultimately runs to lower values than the field material U. S. 4 and U. S. 6. The differences at either end are not large in comparison with the range of the phenomena discussed above.

Experiments are in progress on saturation values for adsorptions of mixtures of varied proportions. An hypothesis originally advanced by McBain[5] that there is a distinction to be made between surface condensation and interior diffusion is also being subjected to experimental scrutiny with modern materials now at our disposal. Both of these lines of work it is hoped will shed light on the mechanism of the process.

A more detailed account of this work will shortly appear in the Physical Review as a series of papers under the general title of Studies in Charcoal Adsorption.

[1] This article is published with the approval of Major General William L. Siebert, Director Chemical Warfare Service, U. S. A.

[2] Shrader, *Ithaca, N. Y. Physic. Rev.*, 12, 1918, (70).

[3] Homfray, *Liepzig, Zs. Phys. Chem.*, 74, 1910, (139).

[4] Dorsey, *Easton, Pa., J. Ind. Eng. Chem.*, 11, 1919, (284)

[5] McBain, *London, Phil. Mag.*, 18, 1909, (916).

STUDIES OF THE ADSORPTION OF GASES BY CHARCOAL. I.

By Harvey Brace Lemon.

[Reprinted from the Physical Review, N.S., Vol XIV No. 4, October, 1919.]

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STUDIES OF THE ADSORPTION OF GASES BY CHARCOAL. I.

BY HARVEY BRACE LEMON.

VARIATIONS DUE TO HEAT TREATMENT, PRE-EQUILIBRIUM EFFECTS.[1]

SYNOPSIS.

Problem.—By varying the heat treatment of a given specimen of cocoanut shell charcoal both the rate at which it adsorbs air and the total amount it can adsorb from a given small mass of air can be varied over a wide range. These variations are studied for the case in which the mass of air used is less than that required to saturate the charcoal.

Activation.—An increase in the adsorptive power, "activation," is produced by repeated evacuations at 650° C., each evacuation being followed by an adsorption of air at the temperature of liquid air.

De-activation.—A decrease in the adsorptive power can be produced by increasing the evacuation temperature to between 800° and 900° C.

Hypotheses.—Hypotheses advanced to explain these phenomena are discussed.

EARLY in 1915, while making up some demonstration apparatus for the purpose of showing the presence of the noble gases in the atmosphere using the method of Gehlhoff,[2] large differences were observed in the efficiency of the carbon employed on different occasions. Reference to the literature showed a very great bibliography on the subject of carbon with especial reference to its use for adsorption of gases but no light was shed on the particular question at issue which was why different samples of charcoal made from the same material could show variations in the ratio of 1 : 10,000 in the amount of gas that they would adsorb in a given time. Experiments were begun therefore which resulted in two reports on the subject, the latter of which was presented at the

[1] This article is published with the approval of Major General William L. Sibert, Director Chemical Warfare Service, U. S. A.

[2] Phys. Zeit., 14, 838, 1913.

Chicago meeting of the American Physical Society, December 2, 1916, and published in the Proceedings in April.[1] In May, 1917, at the request of Mr. Bradley Dewey, then assistant in charge of the Investigation of Gases in Warfare, further publicity of this work was indefinitely postponed. Experiments have been continued on the subject ever since as time has permitted. The departure of every one of the senior members of the staff of this laboratory into the service of the Navy or the Army left the writer with but little time for research and later a call for his services in the Ordnance Department took him away from it altogether. Many others have in the meantime become interested in this subject and a great amount of valuable information has been obtained, especially by some whose previous experience made them especially fitted for work of this sort.

The present paper deals with the early experiments on the subject most of them prior to January, 1918.

The method of experimentation adopted was one which made possible the determination of the time rate of adsorption under the conditions of constant volume. From a practical point of view this seemed desirable. Experimentation with this method falls into two broad categories. (*a*) By using a relatively large amount of gas, conditions of saturation can easily be obtained, and the time necessary to produce them observed. (*b*) By using a relatively smaller amount of gas so that saturation may never be reached very striking differences in the rate of adsorption of different samples or of the same sample under different conditions become apparent, and it is hoped that this may throw further light on the nature of the process. This latter method of use is herein described under the title of "pre-equilibrium effects."

The apparatus is simple and the method of experimentation may be described with reference to Fig. 1. A McLeod Gauge, *M*, having three different ratios (18,920–806.1–107.5) connected to a mercury manometer, *H*, formed a convenient method of observing pressures over the range covered, *i.e.*, 0.00001 cm. to 100 cm. The charcoal was contained in tubes, *C*, either of iron, quartz or Pyrex glass, depending on the temperature to which it was desired to heat it. Small Geissler tubes were attached to the charcoal bulbs for the convenience of identifying the gas content and affording a quick qualitative indication of the pressure. A volume, *B*, closed from the tubes by carefully selected stopcocks, served as a reservoir to hold the gas whose rate and total adsorption was measured by the gauges *M* and *H*. The system was evacuated either by Gaede pump (drum rotating in mercury) or by tandem mercury

[1] PHYS. REV., 9, 336, 1917.

aspirator and diffusion pump, backed by water aspirator.[1] The three charcoal tubes could be heated and evacuated, "outgassed," simultaneously by an electric furnace. Temperatures were measured by a Leeds & Northrup potential point resistance thermometer with bridge calibrated in degrees C.

The experimental method was to outgas the charcoal for measured

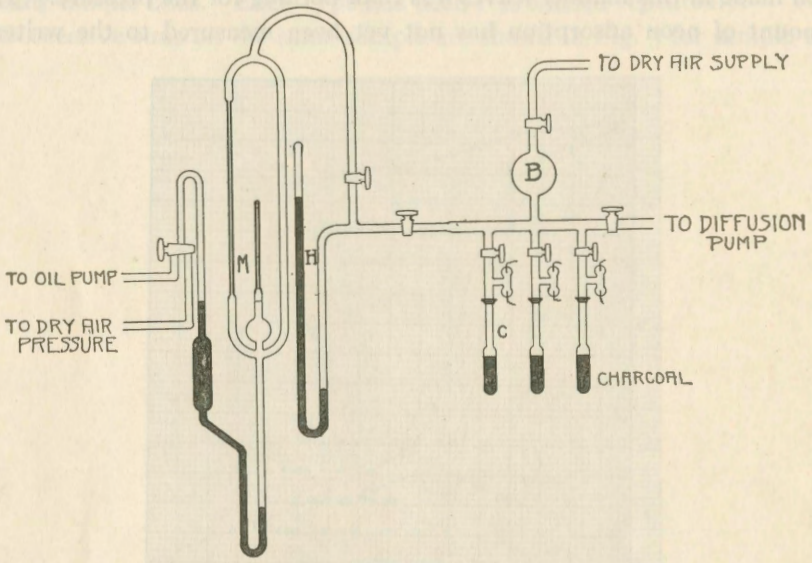

Fig. 1.

time and measured temperature after which residual pressure was observed both at the outgassing temperature and at 500° C., at 400° C. and after cooling to room temperature. Connections to the pumps were shut off as soon as the charcoal began to cool and the outgassing considered complete if the pressure was unreadable on the highest ratio of the gauge after cooling to room temperature. The bulb *B* and the gauge space was then filled with dry air at a pressure of about 90 cm. (This varied somewhat with the room temperature in order that the mass of gas should be constant = 1.2 gms.) The mass of charcoal used in each tube was 25.7 gms. This weight was taken with the material saturated with dry air at 29° C. and 75 cm. pressure.

After being outgassed one of the three charcoal tubes was immersed in liquid air for about half an hour to assure temperature equilibrium, then the stop cock connecting to *B* was opened and the pressures read

[1] The mercury pumps were obtained through the courtesy of Mr. C. E. Skinner, Westinghouse Electric and Manufacturing Co., East Pittsburgh. They have been described in the literature by Shrader, PHYS. REV., 12, 70, 1918.

at intervals while the contents of B was being adsorbed. Corrections were made for the partial pressure of the residual neon when this began to introduce an error, *i.e.*, at pressures below 0.001 cm. It was assumed that the neon was not adsorbed and a constant amount subtracted. This assumption is obviously not true since pressures frequently are observed which are very much less than the neon partial pressure so that the correction made in this manner leaves less than nothing for the pressure. The amount of neon adsorption has not yet been measured to the writer's

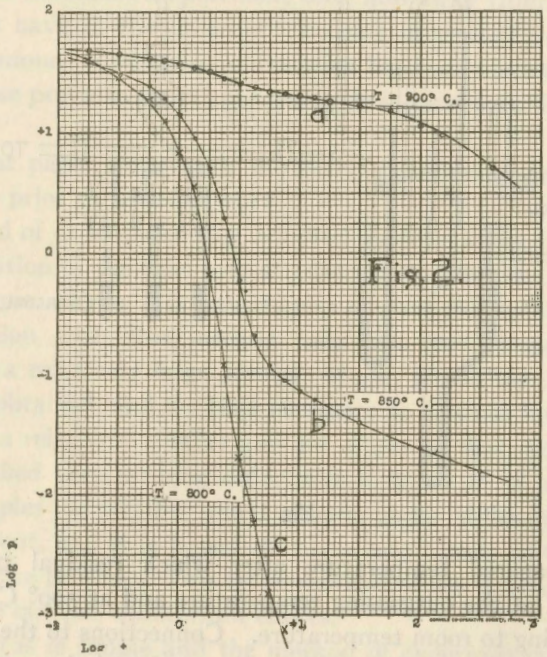

Fig. 2.

knowledge and pressures lower than 0.0005 are not regarded as at all accurate and not plotted. The interesting phenomena can be produced at very much larger pressures than this.

For the sake of condensation the results are here given graphically. The logarithm of the pressure in centimeters is plotted against the logarithm of the time, measured from the moment of opening the cock, in minutes. This results always in the same characteristic family of curves of which Fig. 2 is a typical example.

The relative amount of gas is not sufficient in any case to produce saturation of the charcoal and the pressure falls throughout the course of the observations, *i.e.*, for over five hours in the slower samples.

Curves *a*, *b*, *c* are three different specimens of charcoal differing only

in their carbonization temperatures which were 900°, 850° and 800° respectively. The outgassing took place at 425° and was continued about six hours. The enormous difference in effectiveness of these three samples is striking. The pressure initially being about 90 cm. is reduced in 10 minutes to 20 cm. in the case of *a*, to 0.071 cm. in the case of *b*, and to about 0.003 cm. in the case of *c*. These curves are by no means unique ones. Each type has been reproduced repeatedly.

Successive runs on the same sample are shown in Fig. 3 for sample 12.

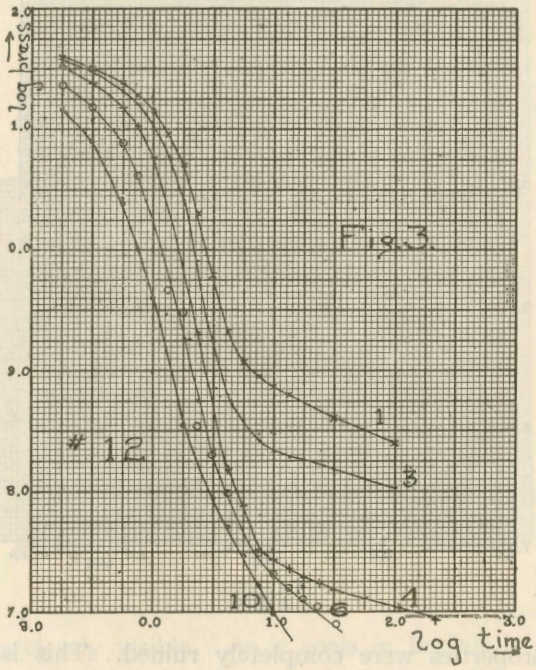

Fig. 3.

This material was carbonized at 850° for 1 hour. Outgassings were at 600° and were never less than 4½ hours which was later adopted as entirely sufficient for complete evacuation. This means only such evacuation as will leave no readable pressure on the highest ratio of the gauge after cooling to room temperature. Residual pressures after such outgassing were at 600° C., 8×10^{-3} cm.; at 400° C., 8×10^{-6} cm. Systematic improvement, *i.e.*, increase of rate, in the sample after ten consecutive runs occurs and after this much use the sample is practically as good as that one shown in Fig. 2, curve *c*, which was carbonized at a lower temperature. Fig. 4, sample 14, shows a still more extreme case of this variation in a single sample with use. Carbonization was here

made at 875° for 1½ hrs. outgassings, at about 600° for 4¼ hrs., as in Fig. 3. The entire range of behavior from that of a very poor sample to that of a very good sample is covered in 12 consecutive runs. Curve *5* is irregular and due to a leaking stop-cock as is also the latter part of curve *10*.

It was observed if at any time any sample was heated to 1200° its

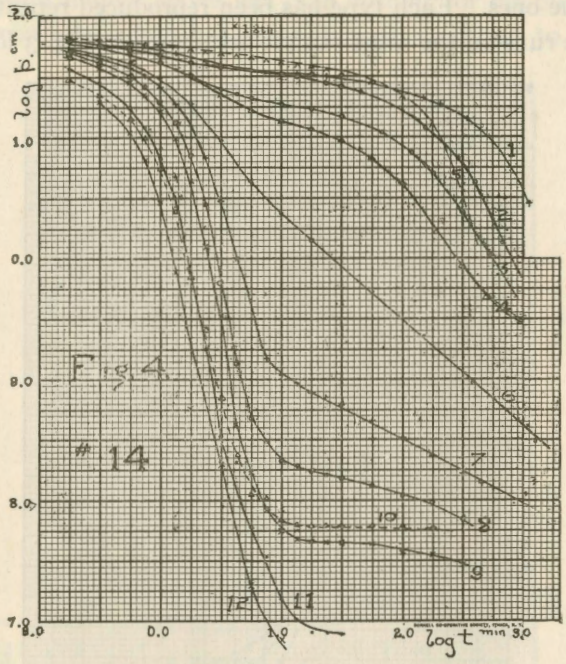

Fig. 4.

adsorptive properties were completely ruined. This is illustrated in Fig. 4, *A*, which is a continuation of work on sample 14 of Fig. 4. The volume of gas admitted was here increased from 873 c.c. used in all previous curves to 1,707 c.c. and the first curve *13* shows saturation obtained in about 34 minutes. The sample was now put in a transparent quartz tube. Several outgassings were made at 600° and slight improvement resulted, the saturation value falling considerably, the seventeenth run being the lowest. Between the nineteenth and twentieth runs the temperature was raised to 1200° for 20 minutes. The twentieth run is at the top of the sheet showing the almost complete loss of adsorptive power. On reducing the volume of gas admitted to 351 c.c. and taking several more runs the curve remained stationary in this location.

The transparent quartz tube was attacked by the carbon at this high temperature and completely altered in its physical characteristics.

It was almost completely devitrified and became of about the appearance of egg shell opaque and brownish in color with little mechanical strength. It was left with sufficient strength however to withstand pressure and was not observed to leak. The transformation is rather peculiar in not becoming visible until the tube cools. On being taken out of the furnace it is a bright cherry red and perfectly transparent, the charcoal in the

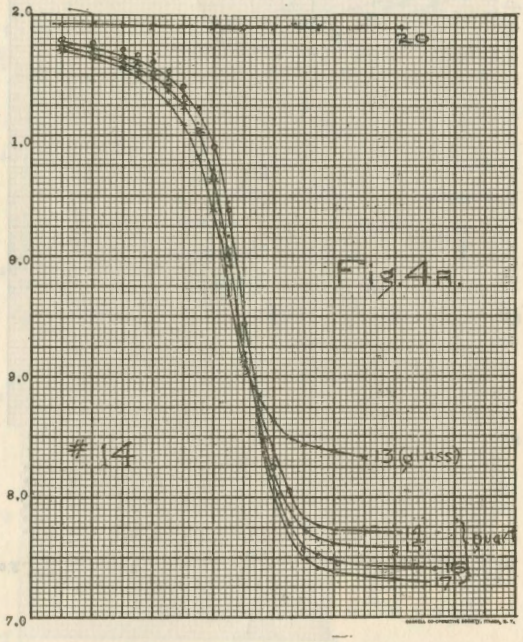

Fig. 4*A*.

interior being clearly visible. As it cools in the air it grows opaque. These observations have been repeated on three different tubes with identical results. The change is ascribed to a reaction between the carbon and the quartz although this reaction is commonly supposed to occur only at temperatures considerably higher. The temperature is much too low to allow of the formation of carborundum and it is thought that this compound may be identical with a substance known as silfrax which has been described as having similar physical properties to those here observed and which is found in the cooler portions of the carborundum furnaces. Because of the failure of quartz in this respect iron tubes were adopted in future work at higher temperatures.

It was next found possible to change the adsorptive power of a sample in the reverse of the manner shown above. Fig. 5 of sample 16 is illustrative. This sample was carbonized three hours at 670°, just a trifle

above the temperatures to be used subsequently in normal outgassing. The first run indicated an admirable efficiency. The method of reducing the efficiency was to increase the outgassing temperature to 800° or higher and the details of outgassing between each consecutive run are

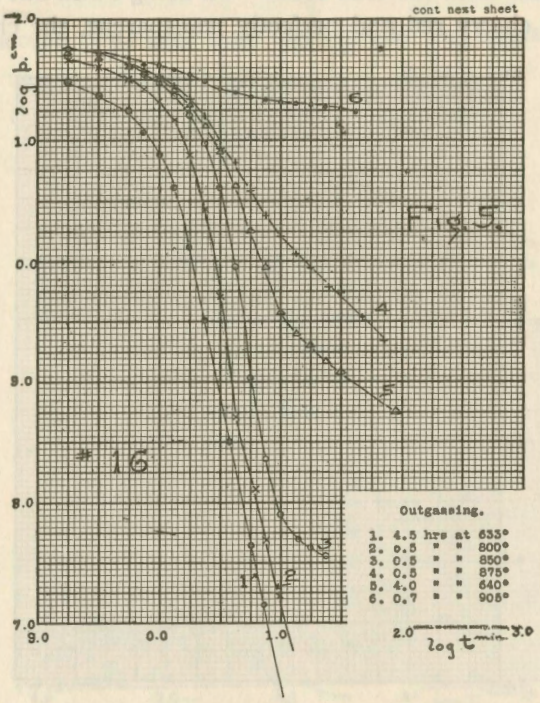

Fig. 5.

given in the insert on the figure. The curves rise for four runs with increasing the outgassing temperature each time. By reducing it to 640° and prolonging the time the sample shows marked recovery. A short 900° outgassing pushes the curve to the top of the page. Fig. 6 is a continuation of the same set of experiments. Here this same sample no. 16 is entirely restored by a series of prolonged low temperature outgassings. The modern term for this process is activation. Fig. 7 shows further continuation of work with the same material in which it is again rendered inefficient (curves for runs 10 to 13) and finally reactivated again (15 to 17). Changes become less easy to produce towards the end of a long series of runs of this sort. Heating samples in iron tubes to 1200° C. was found to destroy the adsorptive power beyond recovery just as well as when the containing tube was quartz.

The most effective charcoal produced up to the present time for the

adsorption of air under the conditions outlined above has been the material carbonized at 670° and then put through a series of "runs" and "outgassings" which consist of alternately adsorbing 0.00467 gms. of air per gm. charcoal at − 188° C. and removing it by heating for 4¼ hrs. at 600° C. Two hypotheses have been advanced for the interpretation of this fact. The first is that after carbonization there remain

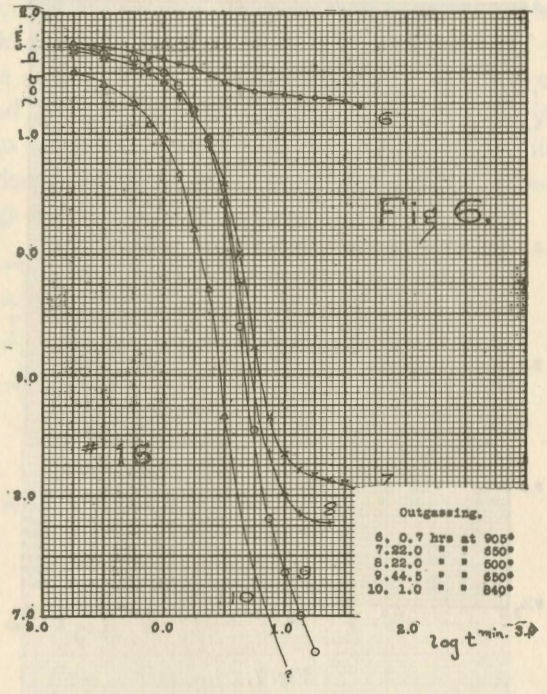

Fig. 6.

considerable amounts of heavy hydrocarbons "clogging the pores" of the material and that these are gradually removed by repeated flushing out with gas. The second has been suggested by Sgt. H. C. Thompson, after reflection on the point of view advanced by Miss Ida Homfray, who has done under the direction of Professor Ramsay some of the best quantitative work yet published on the pressure-absorbed volume-temperature relations of a particular sample.[1] From similarity of the empirical relations discovered to those known to hold for concentrated solutions, the process is visualized as if it were a saturated solution of carbon in essentially liquefied gas. Repeated solution and subsequent evaporation (here taking the form of adsorption at low temperature and

[1] Zeit. Phys. Chem., 74, 139, 1910.

outgassing at moderately high temperature) may result in the gradual alteration of the character of the carbon with respect to its fineness of division, something similar to precipitation taking place. As a test of the hydrocarbon hypothesis attempts were made to improve the behavior of the material by treating it with the lighter liquid hydrocarbons, ligroin, alcohol, and acetone. Through the courtesy of Professor Julius

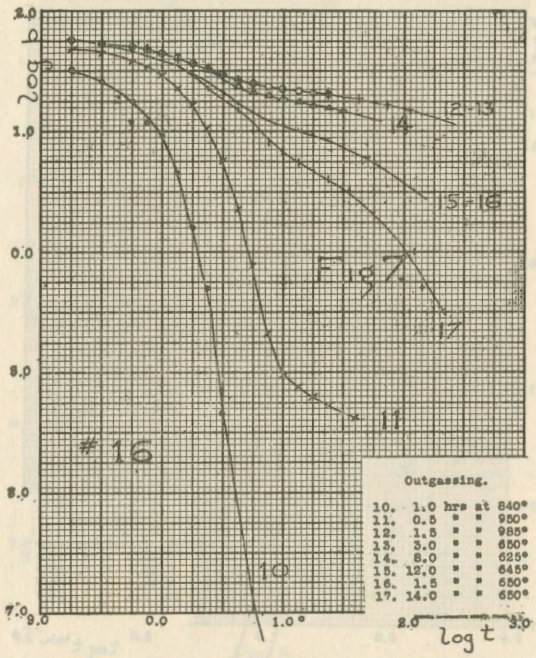

Fig. 7.

Stieglitz this work was carried out in Kent Chemical Laboratory by Mr. M. C. E. Hanke. The liquids were carefully distilled and redistilled to ensure purity. 50 gms. of the charcoal was then boiled in 500 c.c. of the solvent in a reflux condensor in a water-bath for four to five hours when the solvent was filtered off, redistilled and the residues examined. The following residues were obtained:

Sample 21.

Ligroin 0.005 gm.
Alcohol 0.212 gm.
Acetone 0.38 gm. { 0.35 soluble in acetone. 0.03 soluble in water.

Sample 19.

Ligroin 0.004 gm.
Alcohol 0.294 gm.

Acetone 0.620 gm. { 0.570 soluble in acetone. / 0.050 { 0.040 soluble water. / 0.010 insoluble in both.

30 gms. of sample 19 extracted with water gave a residue of 0.4 insoluble in a small amount of water.

These charcoals were then subjected to adsorption tests and both showed marked loss of efficiency rather than gain as might have been expected if the heavy clogging materials had been somewhat removed.

Earlier work in which charcoal was extracted with hot hydrochloric acid to remove ash showed similar injury to the adsorptive power. In this case it had been found necessary to wash the material for nearly eight months to get rid of all traces of acid. In all cases of liquid treated charcoal the adsorptive power rapidly recovers with use when the successive outgassings are kept at not higher than about 600° C. as indicated

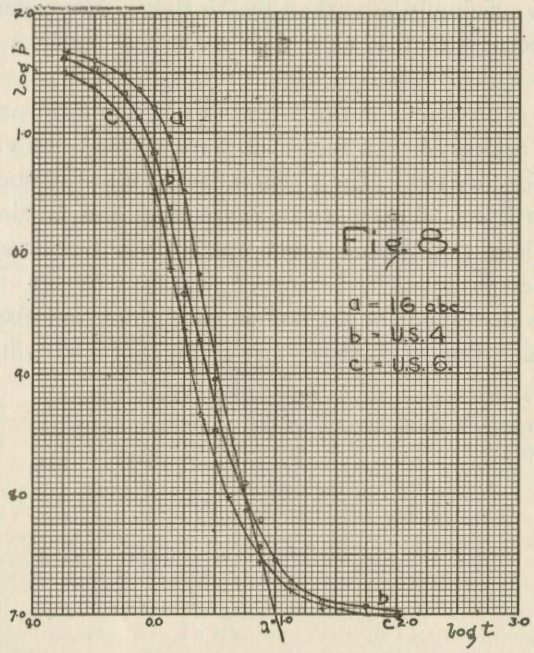

Fig. 8.

in general above. These experiments therefore must yet be regarded as inconclusive not only because of the relative small amounts of impurity extracted but because the subsequent loss of efficiency of the material can readily be interpreted as a secondary result due to the difficulty of freeing the pores from the liquids used.

Other methods of activation based on the hydrocarbon hypothesis

and using gaseous reagents have been developed elsewhere with notable success, especially for field conditions in which the adsorption of a complex vapor is required and where the adsorbing material is already saturated with air, water, vapor, etc. For the rapid production of high vacua, charcoal activated thus is *not* notably better than that discussed above.

A comparison is given in Fig. 8 of the best material produced here by the method of continuous use and that which has been pronounced the best for field conditions in adsorbing noxious vapors and which has been produced by these other methods of activation. The laboratory charcoal, 16 abc, is less active initially but runs to a lower ultimate pressure than does the field material US4 and US6. It is thought likely that there may be a purely surface condensation as well as a slower diffusion into the interior or to less readily accessible surface in accordance with a point of view originally advanced by McBain. Experiments to determine the correctness of this view with respect to modern charcoals are in progress.

No rational expression for the variations in the adsorption described above has yet appeared. In fact even an empirical analytic expression has not been formulated. The phenomena here are of such complexity by nature that it would seem to be more profitable to simplify experimental conditions and secure much more data before attempting to formulate a theory.

Experiments involving the saturation conditions and also experiments on relative adsorption of mixtures are important and will be discussed in subsequent papers.

RYERSON PHYSICAL LABORATORY,
March, 1919.

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