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1. Pharmaceutical Era 1826.

2. Guide to the History of Pharmacy—Kramers—page 49.

3. See text of the pharmacopoeia of the Military  
hospital at Leipsic.

A HISTORY OF THE REVISION OF THE  
UNITED STATES PHARMACOPOEIA

The American colonies being, for the most part, made up of English settlers, it is probable that early pharmaceutical and medical practice in America followed rather closely that of the mother country. According to Dr. Charles Rice<sup>1</sup> it differed from that of the British Isles only in being more lax and unrestricted and standing upon a somewhat lower level, especially in the earlier times. There were no laws in existence for the regulation of either practice, and the two professions were usually combined in the same individual. Often, indeed, the two professions combined did not provide a sufficient livelihood, so yet another calling was added to them. Farming was, perhaps, the occupation most frequently combined with that of physician and pharmacist. We learn, however, that of the early medical practitioners of Massachusetts Colony<sup>2</sup> six or seven, if not more, were preachers, one was a school teacher, one kept a tavern, and one a butcher shop.

Just as the early medical practice of the American Colonies followed that of Great Britain in combining the physician and pharmacist in one individual, so it also followed in the use of British Pharmacopoeias<sup>3</sup>. During colonial days and afterward, up to 1820, various European pharmacopoeias, especially those of London, Edinburgh, and Dublin were used in America.

1. Pharmaceutical Era 1895.
2. Guide to the History of Pharmacy--Kremers--page 49.
3. See text of the pharmacopoeia of the Military hospital at Lititz.

The greater demand for trained apothecaries, and for medicines prepared ready for administration, in the medical science of the Continental Army during the Revolutionary war aided, perhaps, more than any other one thing in separating the practice of pharmacy from that of medicine, as it also led to the compilation of the first American pharmacopoeia. This was purely a military pharmacopoeia intended for use in the United States army hospital at Lititz, Lancaster County, Pennsylvania. It was a small volume compiled by Wm. M. Brown, M.D. in 1778 and published with the authority of the American army headquarters. Little is known of its success and the fact that only one copy is now in existence, suggests that its influence extended only to the hospital and the vicinity in which it was published. The title page is interesting. It calls itself, in Latin, a "re-  
pository of simple and efficacious remedies for use in the Military Hospital of the army of the United States of America." Being in those troublous times of the Revolution, it is not surprising that its introduction also imparts the information that it was "adapted especially to our present state of need and poverty which we owe to the ferocious cruelty of the enemy, and to a cruel war brought unexpectedly upon our fatherland."

This "Pharmacopoeia" was printed entirely in Latin, in pamphlet form, upon thirty two pages, the printed text occupying upon each page a space  $4\frac{1}{2}$  inches long by  $2\frac{1}{2}$  inches wide. Its pages give the formulas for the preparation of eighty four internal and sixteen external remedies, including six references to the London and five to the Edinburgh Pharmacopoeia.

From the date of the Revolution, the demand for a standard national pharmacopoeia developed, and in 1806 John Redman Coxe of Philadelphia published a formulary known as "The American Dispensatory"<sup>1</sup>. This, together with "The American New Dispensatory"<sup>2</sup>, published by James Thacher of Boston in 1810,

1. This volume contained the operations in vogue at the time, together with the natural, chemical, pharmaceutical and medical history of the different substances employed in medicine. It followed the arrangement of the simplified Edinburgh New Dispensatory in a somewhat modified form, supposed to be suited to the needs of the medical and pharmaceutical practitioners of the United States. It was the first attempt to establish a national standard dispensatory and was dedicated to the physicians of America as an attempt to form a standard dispensatory for the United States.
2. Thacher's Dispensatory was a commentary somewhat on the order of the dispensatory of Dr. Coxe, but much more complete. It contained the general principles of pharmaceutical chemistry, together with pharmaceutical analyses of the Materia Medica, besides all preparations and compositions known and used at the time. Its appendix consisted of an account on mineral waters, medical prescriptions; the uses of gases and electricity, and explanations of galvanism. The cultivation of the poppy plant was treated and also the methods of preparing its products.

constituted the precursors of the dispensatories now in use in this country, and somewhat satisfied the wants of the apothecaries of the time. In 1792, Charlestown, South Carolina, physicians<sup>1</sup> met and adopted a scale of prices for medicines and medical treatment somewhat on the plan followed by European countries. In 1808, the "Pharmacopoeia of the Massachusetts Medical Society"<sup>2</sup> (based on the last edition of the London Pharmacopoeia) was published, followed in 1816 by the "Pharmacopoeia of the New York Hospital" at New York. This general movement caused Dr. Spalding<sup>3</sup> of New York to take the first steps

-----

1. Pharmaceutical Era 1895

2. Pharmaceutical Era 1895

3. Dr. Lyman Spalding was born at Cornish, N.H. in 1775. His education was obtained at the Charlestown Academy. Later he was a student in the office of Dr. Nathan Smith. In 1794 he attended Harvard Medical School where he received his degree of Doctor of Medicine in 1797. Returning to Cornish, he took charge of the practice of Dr. Smith during the latter's absence in Europe. Subsequently he taught chemistry and materia medica with Dr. Smith at Dartmouth College, later becoming demonstrator of anatomy.

Spalding's career as an educator was short. He soon removed to Walpole, N.H. and later to Portsmouth, in the same state, where he became a contract army surgeon. From this time (1802) Spalding's practice was confined to his native state, until, in 1814 he went to New York to reside. There he opened an office on Broadway and enjoyed a lucrative practice. Here, in 1817, he began the agitation for a national pharmacopoeia.

Spalding did not live long to enjoy the results of his efforts. Early in 1821 he was struck on the head by some falling building material and never fully recovered. He joined his family in New England, where he died on October 21st, 1821.

(Henry M. Hurd, Johns Hopkins--Bulletin Feb. 1919)

toward the creation of a national standard pharmacopoeia in a plan laid before the Medical Society of the County of New York in January 1817.

This plan<sup>1</sup> was considered and so generally accepted that on January first 1820, three years later, the first pharmacopoeial convention assembled at Washington for the purpose of forming the first pharmacopoeia. The delegates at this convention were from the Northern, Middle and Southern districts, representing thirteen states and the District of Columbia. The fact that the first pharmacopoeia of the United States was released a few months later, in December 1820, from Boston, shows that the work was carried out very expeditiously. On account of important French and German communities, as well as the fact that Latin was at this time considered the universal scientific language, the work was published in both Latin and English. The subject matter was divided into two sections; "Materia Medica" and "Preparations", though the title of the latter sections was omitted. In 1828 a more compact reprint was issued.

-----  
1. Dr. Spalding's plan provided that:-

1. A convention should be called in each of the four grand divisions of the United States, to be composed of delegates from all the medical societies and schools.
2. Each district convention should form a pharmacopoeia and elect delegates to meet in a general convention at Washington, January 1, 1820.
3. The general convention should, from the district pharmacopoeia, form the national pharmacopoeia.

FIRST REVISION

Before the convention of 1820 adjourned, a resolution was passed which provided that the President should on the first of January, 1828, issue writs of election to the several incorporated state medical societies, etc., requiring them to ballot for delegates to the general convention to be held at Washington on the first of January, 1830 for the purpose of making a revision of the pharmacopoeia.

Notwithstanding the care thus exercised by the 1820 convention in arranging for the convention in 1830, a misunderstanding occurred, the result of which was that two conventions were held in 1830; one in Washington and one in New York.

The Washington convention met at the Capitol, January 4th, 1830. Eight delegates were present, representing New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia. The revision committee performed the duty imposed upon it, and the Pharmacopoeia was published in Philadelphia in 1831.

The Northern District convention met in New York, June 2nd, 1830 with ten delegates from New York, Ohio, Connecticut, South Carolina and Western Massachusetts. They revised the Pharmacopoeia of 1820, and provided for a subsequent revision in 1835.

SECOND REVISION

Before adjourning, the Washington convention had arranged by resolution for another convention to be held in 1840. Before that time came, relations between the several districts had so improved that the New York convention, in 1835, was abandoned. The plans for the Washington convention, being generally recog-

nized as more feasible, were fully carried out.

The convention assembled on January 1st, 1840, delegates from all districts being present. Due to the fact that for the first time a committee was appointed to confer with the various schools of pharmacy throughout the country on this revision, considerable delay resulted. The book was not published until early in 1842. In this revision the Latin was omitted. This Pharmacopoeia of 1840 was the first in which the pharmacists of the country had any part in the making, and here only in an advisory capacity.

#### THIRD REVISION

In accordance with a resolution adopted by the convention of 1840, the convention for the third revision met at Washington, May 6, 1850, with thirty delegates present, representing not only medical societies and colleges from various parts of the country, but representatives for the first time from colleges of pharmacy and similar pharmaceutical organizations as well. The revised work was published from Philadelphia in 1851.

#### FOURTH REVISION

Before adjourning, the convention of 1850 made arrangements for a convention to be held on the first Wednesday in May 1860 at Washington. This convention met with thirty delegates present, representing medical and pharmaceutical schools and societies. A committee on Revision and Publication was appointed. This committee met at Philadelphia, revised the pharmacopoeia, and authorized its publication in June 1863.

### FIFTH REVISION

In accordance with a resolution adopted by the convention of 1850, the convention for the fifth revision met in Washington on May 4th, 1870 with sixty delegates present. A committee on Revision and Publication, consisting of fifteen members, was appointed, and given instructions, as to the general plan to be followed in revising the pharmacopoeia.

The completed revision was published in 1873 in Philadelphia.

### SIXTH REVISION

The next convention, which assembled on May 5, 1880, at Washington, met and appointed a committee of twenty five to revise the Pharmacopoeia of 1870. The convention directed the committee to make several important changes in the Pharmacopoeia, the more important being the following:

- a. All articles to be arranged in alphabetical order.
- b. A new chemical nomenclature to be introduced.
- c. Quantities to be stated in "parts by weight".
- d. Description of crude drugs and chemicals to be made more exact.
- e. Numerous tables to be introduced.

The committee completed its work and the sixth revision of the Pharmacopoeia was published at the close of October, 1882.

### SEVENTH REVISION

In accordance with the instructions of the convention of 1880, the convention for the Seventh Decennial Revision of the Pharmacopoeia met on May 7, 1890 in Washington, with one hundred

and seventy five delegates present, representing the medical departments of the United States Army, the United States Navy, the United States Marine Hospital Service and fifteen medical societies, twenty three medical colleges, twenty five pharmaceutical associations and twenty three colleges of pharmacy.

The Revision committee was appointed and directed to abandon the principle of "parts by weight". It was also directed that solids should be weighed and liquids be measured, except in cases where the committee should find it advisable to use weights only. Also, that the metric system should be employed.

The Revision committee, consisting of twenty six members, revised the Pharmacopoeia in accordance with the instructions of the general convention. Before adjourning, the committee directed the President of the Convention to issue a notice on the first of May 1899, to the incorporated State Medical and Pharmaceutical Associations, and incorporated colleges of Medicine and Pharmacy, the surgeons general of the Army, Navy, and Marine Hospital Service, requesting each to appoint delegates, not exceeding three, to the general convention for the revision of the Pharmacopoeia of the United States, to be held in Washington, D.C., on the first Wednesday of May, 1900.

The Seventh Revision of the United States Pharmacopoeia was published at Philadelphia in September 1893, and became official January 1, 1894.

#### EIGHTH REVISION

The eighth revision of the Pharmacopoeia differed from the previous ones in the fact that the business management was instructed to a Board of Trustees, thus enabling the Revision

committee to devote more time to the immediate duties of revision. In order to give greater stability to the organization, on July 7th, 1903, a charter with articles of incorporation, was issued by the District of Columbia, to the United States Pharmacopoeial Convention.

Because of their growing success and importance, the convention directed the Revision Committee to introduce serum products into the eighth revision. Average doses were also to be appended under each article.

By far the most important circumstance in connection with the Pharmacopoeia of 1900, was the passage of an act of Congress, entitled the Food and Drugs Act, of June 30, 1906. The standards adopted under this act were those of the United States Pharmacopoeia and the National Formulary. Previous to this time the standards of the Pharmacopoeia were not compulsory, except in a very few instances. The passage of this act at once compelled official preparations to be made in accordance with the requirements of the Standards of the United States Pharmacopoeia, and a far greater interest was taken in these Standards throughout the country.

The eighth revision became official from September 1, 1905. Some additions and corrections, made necessary by the passage of the Food and Drugs Act were incorporated in a new issue published June 1, 1907.

A Spanish translation of the eighth revision of the United States Pharmacopoeia, was accomplished in 1909, and introduced in the Spanish speaking countries with much satisfaction.





TABLE I (Continued)

State	1900	1890	1880	1870	1860	1850	1840	1830		1820	
								1	2		
New Jersey	9	7	6			2	1	2	2	2	
New York	36	47	39	18	10	6	2		3	3	
North Carolina	4	3	6	8							
North Dakota	1										
Ohio	17	18	7	6							
Oklahoma	1										
Oregon	2										
Pennsylvania	31	34	37	17	9	8	10	5	2	8	7
Rhode Island	7		3				1	1		1	
South Carolina	3	6	3							3	3
South Dakota	3	3	3								
Tennessee	3	9	1								
Texas	5		1								
Vermont	1									2	2
Virginia	8	6	7	1	8						
Washington	2										
Wisconsin	4	4	4								
National Organizations	14	6	6								
U.S. Government	14	6	5	4	2	2	3				

Number of Delegates and Various Institutions in the different States  
 Represented on the United States Pharmacopoeia Revision Committees from

Institution	1830 to 1910 inclusive:									
	1830	1840	1850	1860	1870	1880	1890	1900	1910	1830
Alabama Pharmaceutical Assoc.								3		1
Arkansas Medical Society								2		2
Arkansas Assoc. of Pharmacists							1	3		2
Ark. State Univ. Medical Dept.							1			1
Medical Society of the State of California							1	1		2
California College of Pharmacy							3	3		3
Univ. of Calif. Medical Dept.							1			1
Calif. Pharmaceutical Society										3
Colorado State Medical Society							2	3		3
U. of Denver Dept. of Pharmacy										3
Colorado Pharmacal Association							2			2
Conn. State Medical Society							1	3		1
Yale University Medical Dept.							2	1		2
Conn. Pharmaceutical Assoc.							2	3		3
Medical Society of Delaware										1
Delaware Pharmaceutical Assoc.							3	3		2
Medical Society Dis. of Col.							2	3		3



Institution	1830									
	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920
Illinois Pharmaceutical Assoc.							3	3	3	
Chicago College of Pharmacy							3	3	3	
Illinois College of Pharmacy										3
Northwestern Univ. School of Pharmacy							2	3		
Indiana State Medical Assoc.							1	3	2	
Medical College of Indiana										1
Central College of Phy.& Surgeons									3	
Indiana Univ. School of Medicine							2			
Indiana Pharmaceutical Assoc.							3	3	3	
University of Notre Dame							2			
Purdue Univ. School of Pharmacy							3	3	3	
Northern Indiana School of Phar.								3		
State U. of Iowa-College of Med.							2	3		1
Iowa State Medical Society									1	
Iowa Pharmaceutical Assoc.							1	3	3	
Univ. of Iowa - College of Phar.							1		3	
Valparaiso Univ. Pharmacy Dept.							1	3		
Highland Park College of Pharmacy							1		1	
Univ. of Kansas-Medical Dept.							1		3	
Kansas Pharmaceutical Assoc.							3	3	3	



Table 2 (Continued)

1830

1910 1900 1890 1880 1870 1860 1850 1840 1stE 2ndE 1820

Institution

Institution	1910	1900	1890	1880	1870	1860	1850	1840	1stE	2ndE	1820
College of Physicians & Surgeons of Baltimore	3	3	3								
Baltimore Medical Association					2						
Baltimore Medical College	2	3	3							3	
Woman's Med. College of Baltimore			1								
Johns Hopkins Univ. Med. Depart.	1	1									
Maryland Medical College	2										
Massachusetts Medical Society	1	3	3	3	3	2					5
Maryland Pharmaceutical Assoc.	3	3	3								5
Harvard Medical School	3		2								
Pharmaceutical College of Harvard										2	
Tufts College Medical School Boston	1										
College of Physicians and Surgeons	1	1									
Massachusetts Pharm. Association	3	3	3								
Massachusetts College of Pharmacy	3	3	3	3	2						
Michigan Pharmaceutical Assoc.	2	3	3								
Detroit College of Medicine Pharmacy Department			3								
Univ. of Mich. Dept. of Medicine	3	3	3	2							
Detroit College of Medicine	2	1									
Univ. of Mich. School of Pharmacy	2	3	3	3							

1830

1840 1stE 2ndE 1820

Institutions	1910	1900	1890	1880	1870	1860	1850	1840	1stE	2ndE	1820
Univ. of Minnesota College of Med.	1										
Hamline Univ. Medical Department		3									
Minnesota State Pharm. Associations	3	1	3								
Univ. of Minn. College of Pharmacy	1	3									
Univ. of Missouri - School of Med.	3			1	1						
Missouri Medical Assoc.			3								
Missouri Medical College			1								
Verein Deutscher Aerzte			1								
St. Louis Medical Society	1	1	3								
Washington Univ. Medical Department	1	3									
Kansas City College of Pharmacy	3	3									
Missouri Pharmaceutical Assoc.	2		3								
St. Louis College of Pharmacy	2	3	3	3	3	3					
Nebraska State Medical Assoc.			3								
Univ. of Nebraska Medical Dept.	1										
New Hampshire Medical Society	1									4	4
New Hampshire Pharm. Association			3								
Dartmouth Medical College	1		1	1							
New Jersey Pharmaceutical Assoc.	3	3	3								
New Jersey Medical Society	3	1	3			2	1	2	2	2	2



Table 2 (Continued)

Institutions	1830	1840	1850	1860	1870	1880	1890	1900	1910	1820
Syracuse Univ. College of Medicine							1		3	1
New York State Pharm. Association							3	3	3	
Albany College of Pharmacy							2	2	2	
King's County Pharm. Society							3	3	3	
Brooklyn College of Pharmacy							3	3	3	
Univ. of Buffalo Dept. of Pharmacy							2	3	3	
Literary & Scientific Society of German Apothecaries of New York							2	3	3	
North Carolina Medical Society							2	3	3	1
North Carolina Pharm. Society							1	3	3	
Univ. of North Carolina Dept. of Phar							1			
North Dakota Pharm. Association							1			
Ohio State Medical Association							2			
Scio College - Dept. of Pharmacy							1			
Miami Medical College								1		3
Univ. of Cincinnati - Medical Dept.							3	3		
Ohio State Pharm. Association							3	3	3	
Cincinnati College of Pharmacy							1	3	3	3
Northern Ohio Druggists Assoc.							2	3		
Western Reserve University							3	3		3

Table 2 (Continued)

Institutions	1910	1900	1890	1880	1870	1860	1850	1840	1stE	2ndE	1820
Ohio State Univ. College of Pharm.	3	2									
Univ. of Okla. School of Pharmacy	1										
Oregon Ag. College - Pharmacy Dept.	2										
Medical Society of State of Penn.	2										
Woman's Med. College of Penn.	2	3	1	1	1						
Medical Faculty of the Penn. College							1				
Philadelphia County Medical Assoc.	1	3	3	3							
College of Physicians of Phila.	2	3	3	3	3	2	3	3	2	7	7
Univ. of Penn. School of Medicine	1	3	3	2	2	1	2	1			
Jefferson Med. College of Phila.	3	3	2	2		1	1	1			
Medico Clinurgical College of Phil	3	3	3			1					
Temple Univ. Medical Department	2										
Alleghany County Medical Society	2	3									
Univ. of Pittsburg Medical School	1										
Pennsylvania Pharm. Association	3	3	3								
Philadelphia College of Pharm.	3	3	3	3	3	3	3				
Brown University											1
Alumni Assoc. of the Phila. College of Pharmacy	3	3	3								
Pennsylvania College of Pharmacy			2	3							

Table 2 (Continued)

Institutions	1830	1840	1850	1860	1870	1880	1890	1900	1910	1stE	EndD	1820
Phila. Polyclinic and College of Graduates in Medicine							3					
Power's College of Pharm. & Chemistry							3					
Western Penn. Medical College								2				
Temple Univ. Dept. of Pharmacy						2						
Univ. of Pittsburgh Dept. of Pharmacy						3	3					1
Rhode Island Medical Society						3					1	1
Rhode Island Pharm. Association						3						
Rhode Island College of Pharmacy						1						
South Carolina Medical Assoc.						1	2					
South Carolina Pharm. Assoc.							2					3
Medical College of State of S.Car.						2	1					
Medical College of State of S.Car. Pharm. Dept.								1				
South Dakota Pharmaceutical Assoc.						3	3					
Tenn. Pharmaceutical Association						1						
Nashville Academy of Med. & Surgery												1
Tenn. State Druggists Association												3
Univ. of Tenn. School of Pharmacy						1						
Vanderbilt Univ. Medical Dept.												3
Vanderbilt Univ. School of Pharm.						1						3



Institutions	1910	1900	1890	1880	1870	1860	1850	1840	1stE	2ndE	1820
U. S. Department of Agriculture	3										
American Medical Association	2	3	3								
American Pharmaceutical Associat.	3	3	3								
American Chemical Society	3										
Assoc. of Official Agricultural Chemists	3										
Assoc. of State & National Food and Dairy Departments	2										
National Wholesale Druggists Assoc.	3										
National Dental Assoc.	2										

TABLE 3

GRAPH SHOWING RELATIVE REPRESENTATION OF STATES

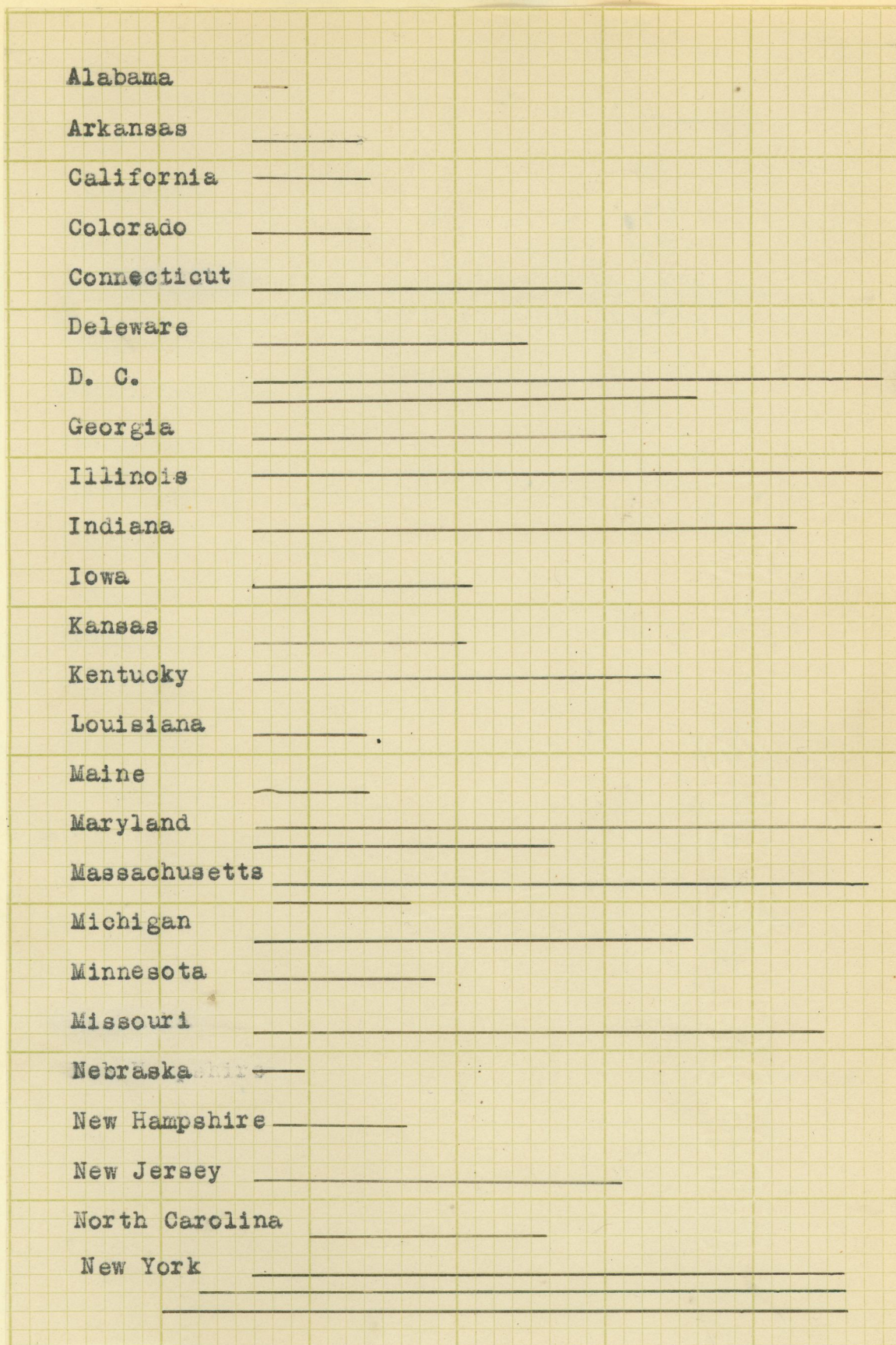


TABLE 3 (Continued)

North Dakota	—				
Ohio	—				
Oklahoma	—				
Oregon	—				
Pennsylvania	—				
Rhode Island	—				
South Carolina	—				
South Dakota	—				
Tennessee	—				
Vermont	—				
Virginia	—				
Washington	—				
Wisconsin	—				
National	—				
U. S. Govt.	—				

TABLE IV

The Following are the Number of Doctors of  
 Medicine Appointed to the Pharmacopoeial Conventions  
 From 1820 - 1910

	1910	1900	1890	1880	1870	1860	1850	1840	1830		1820
									1stE	2ndE	
Surgeon General's Office War Dept.	2	1	2	1	1						
Navy Department	1	1	1	1	1						
Nat. Dental Assoc.											
Am. Medic. Assoc.	3	3									
Am. Pharm. Assoc.											
Marine Hosp. Serv.	2	3									
Alabama											
Arkansas			1								
California	3	2									
Colorado	2	1									
Connecticut	1	4	3			1				4	4
Delaware			3				2	2	1	3	3
Wash. D.C.	13	20	9	9	5	8	5	2	4	3	3
Georgia	5	2						1	1	4	4
Illinois	12	5	3			1					
Indiana	8	6	1					1		5	5
Iowa		1	1								
Kansas	1	1									
Kentucky	3	1	1	2						2	2
Maine	4				1	2	2				
Maryland	10	11	3	4	3	2	4	1	5	5	5
Massachusetts	4	7	5	7						5	5

Individual Degrees Withheld

Table IV (Continued)

State	1910	1900	1890	1880	1870	1860	1850	1840	1830	1820
Michigan		7	6	3						
Minnesota		3								
Missouri		10	8	1	3					
Nebraska		3								
New Jersey		2					2	1	2	2
New York		41	28	15	7	2			3	5
North Caro.			3	1						
Ohio		4	2	4						
Pennsylvania		26	26	14	6	4	8	5	2	8
S. Carolina		5								
S. Dakota										
Tennessee		3	1							
Virginia		3	4	1	3					
Wisconsin		2								
New Hampshire			3	1					4	4
N. Dakota										
Rhode Island							1	1		1
Texas			2							

Individual Degrees Withheld

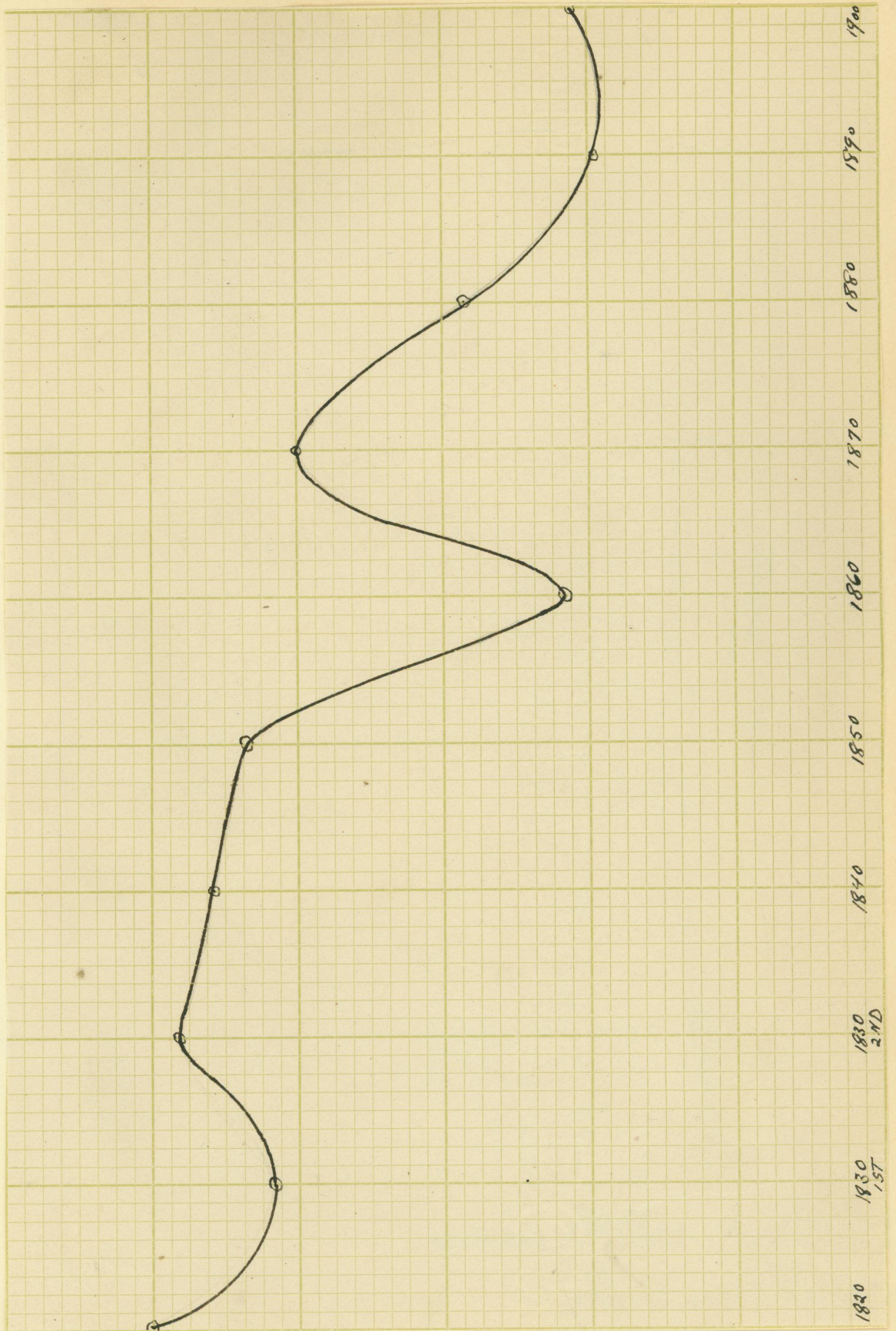
TABLE V

The Following Represent the Delegates With  
Or Without Degrees and Professions Other Than  
Doctors of Medicine

	1910	1900	1890	1880	1870	1860	1850	1840	1830		1820
									1st	2nd	
Alabama			3								
Arkansas		3	1								
California		2	2								
Colorado		1	2								
Connecticut		3	3		1						
Delaware			3							1	
Wash.D.C.		5	1	5	2					1	
Georgia	Individual Degrees Withheld	6	1								
Illinois		9	6	3							
Indiana		4	5								
Iowa		7	6								
Kansas		5	5								
Kentucky		6	5	2							
Louisiana				3							
Maine											
Maryland		7	6	2	3						
Massachusetts		6	7	1			4				
Michigan	6	3	2								
Minnesota	5	3									
Missouri	3	6	3			3					
Nebraska											
New Hampshire			1								
New Jersey		5	6								

TABLE 4.

GRAPH SHOWING GRADUAL DECREASE IN PROPORTION OF DOCTORS OF MEDICINE



Approved *Nellie A. Wakeman*  
*Inst. in Pharmacy*