

merchant and lives up to an ideal of service and quality will have customers who will stick to him through thick and thin.

It is a mistake to believe that advertising of any kind will always bring results immediately. We have only to look around us to prove the cumulative value of advertising. When a druggist decides to erect a new building he waits patiently while the building is being erected brick by brick. Ask him to make a change in his business methods or to build a reputation and a business by use of advertising and he expects results of the kind that followed the rubbing of Aladdin's lamp.

I do not believe that any man, however good his advertising, can hope to build a permanent success without business integrity, good old-fashioned honesty, patience and truth. It took years of advertising to educate the public to the purity of Ivory Soap. "The watch that made the dollar famous" did not spring into popularity over night. The public read of it, heard of it and talked of it, long before it believed that it was a good watch for the money. It is only by constant iteration that your message will finally come to be believed.

In conclusion let me urge upon you to consider the thought contained in the words of Benjamin Franklin: "Drive your business or it will drive you." Success is not for the faint hearted. Let your start in advertising be as humble as it may, see that your foundation is firm. Begin with the little things nearest you, plan carefully and keep at it everlastingly.

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#### PHARMACEUTICAL SERVICE IN THE FRENCH ARMY.\*

BY GEORGE M. BERINGER.

The establishment of a properly organized and well-equipped pharmaceutical corps as a branch of the Medical Department of the United States Army is urged as a national necessity by those who are acquainted with the unscientific methods under which potent drugs are controlled and the dispensing of medicines is carried on in our army. In this respect, we can profit by learning the experiences and studying the methods of the foreign armies, those of our allies and the enemy alike, for supplying the medical needs and providing for the hygienic care of their soldiers.

In anticipation of the necessities of war, both Germany and France in recent years again reorganized their respective army pharmaceutical services and greatly extended the duties assigned to the pharmaceutical corps. Not only are these corps charged with the duty of providing the medical and surgical supplies by purchase or manufacture and with the care, distribution and dispensing thereof, but they likewise make the sanitary, clinical and chemical examination for the armies and, in reality, these pharmacists are the chemists of the military service as well as of the sanitary service. Very properly courses of special scientific study and training have been established for the education of the personnel of these corps and, under the regulations, the military pharmacy student must apply himself to the studies and in the required examinations demonstrate his fitness for the service.

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\* Read at the Joint Meeting of the Philadelphia Branch of the American Pharmaceutical Association and the National Pharmaceutical Service Association, October 8, 1917.

These rival countries in the existing war have exhibited to the world the value of modern pharmaceutical and chemical service to the army:

The French pharmaceutical military service has rendered to that country, during this war, services that are inestimable, whether considered solely from the monetary value to their nation or as professional and humanitarian benefits. The Pharmaceutical Corps has been publicly commended "as having proved to be one of the most effective, active and intelligent corps of the French Army."

The organization and the duties performed by the French Army Pharmaceutical Corps will serve as a model for the proposed pharmaceutical corps of the United States Army. The War Department is now actively engaged in organizing an American army in accordance with the plan of the French army organization and our forming units are being drilled according to the French army methods. Would it not be very appropriate at this time for the War Department to likewise adopt our ally's scheme of pharmaceutical corps cadre?

#### HISTORY OF THE FRENCH PHARMACEUTICAL CORPS.

The history of the pharmaceutical corps of the French army, the services performed therein by many eminent pharmacists, the contentions necessary to maintain its standing and to overcome the jealousies of other branches of the sanitary service, the duties assigned from time to time, and the present status and greatly extended usefulness of the service, are interesting subjects of study which can here be given only a cursory consideration.

The writer is very largely indebted for the facts presented in this paper to M. Georges, Chief Pharmacist, Military Hospital for Instruction Val de Grace; L. Guignard, Honorary Director École Supérieure de Pharmacie, Paris; Captain Carl Boyd, Military Attaché, American Embassy, Paris; and above all to Léon Varenne, Phar.D., Pharmacist Major of the Army, for an autograph copy of his book on the Pharmaceutical Service in the Army:

*"Organisation et Fonctionnement du Service Pharmaceutique de L'Armée"* by Léon Varenne, Docteur en Pharmacie—Pharmacien Major de L'Armée. Preface by De M. le Professeur P. Cazeneuve Sénateur du Rhone.

The history of the French military pharmacists can be traced back to the time of Richelieu. In 1630, the regulations of the principal army hospital defined the personnel of the hospital staff and the duties of the physician, surgeon and pharmacist.

The law of December 20, 1718, instituted officially the sanitary service and regulated precisely for the first time the duties of the hospital corps. The regulations of January 1, 1747, made provision for the formulas of the pharmacopoeia of the Royal military hospitals with a list of drugs to be included in their supplies and further provided for commissions for the officers to be issued by the Secretary of War.

The acts of 1774, 1775 and 1777 further organized the sanitary service in the districts of Strasburg, Metz and Lille, with the grades of professors of medicine, surgeon-major and apothecary-major, the commissions for the officers of the Sanitary Council being, respectively, physician-inspector, surgeon-inspector and apothecary-major. Even at that early date the apothecary-major was charged with the duties of analyzing the remedies and providing all medicines.

In 1788, important modifications were made in the organization of the sanitary

service. A sanitary council was formed consisting of six superior officers of the sanitary service; two physicians, two surgeons and two pharmacists (Bayen and Parmentier). At the same time, the number of the military hospitals was increased, the service in the regimental infirmaries extended and necessarily the duties of the physicians and pharmacists considerably augmented.

It is admitted that, at this period, medical influence was in the ascendancy and, owing to the excessive reduction in the number of pharmacists and duties that did not bring them in such close contact with the army, pharmacy was subordinated to medicine. It was the laboratory of Bayen, from which came, in 1765, the memorable analyses of the springs of Bagnères de Luchon and, in 1774, the essay on experiments with the mercurial precipitates, that overthrew the doctrine of Stahl and started chemistry along new lines, that prepared the way for the emancipation of pharmacy. Subsequently Medical Inspector Bégin, in his "Studies of the Military Sanitary Service," declared "that the sciences of medicine and pharmacy were established on a perfect equality, lending mutual support and coöperating together while proceeding separately, nevertheless, in all the services which they render to humanity and in extending the domain of knowledge, they are equally honorable."

The situation created by the law of 1788 was fortunately modified by subsequent regulations and decrees which ameliorated the situation materially and hastened a reorganization of the sanitary service in 1796. The law enacted that year suppressed the Sanitary Council then in existence and their functions and powers were assigned to six inspector generals; two physicians, two surgeons and two pharmacists (the same Bayen and Parmentier), with equal authority over the three subdivisions of the sanitary service. The right of honorable distinction had already been accorded to all these branches of service by the regulations promulgated in 1792 and so the absolute equality of the three professions was established.

In 1803, an attempt was made to reduce the standing of medicine and pharmacy and advance that of surgery; the proposition being to have six inspector generals, three to be surgeons, two physicians and only one pharmacist. Subsequently the war department reduced the number of hospitals and neglected the sanitary service to a point where Talleyrand in his speech to the French armies on April 2, 1814, denounced a policy that expected the soldiers of France "to withstand the fire of the enemy without having subsistence and without hospitals."

During this period the sanitary cadres were very variable, depending largely upon the needs of the army in time of peace or in time of war. In 1812, the effective military pharmacists numbered 1,011 in the total of 5,112 officers of the sanitary service. In September 1824, the personnel of the entire sanitary service numbered only 917 officers, classified as: surgeons, 711; physicians, 59; and pharmacists, 147. By the act of August 12, 1826, this effective was again modified, the number of physicians and surgeons was increased, and the number of pharmacists decreased. This act, however, established the grade of pharmacist aide-major.

In 1852, the sanitary service of the army was arranged into two parallel and independent corps, medicine and pharmacy. The modern history and development of these corps can be stated to have been then inaugurated as a basis for fusion had been established and there was at least a temporary cessation of the rivalry and jealousies that had so long existed.

In 1860, Marshal Vaillant, Minister of War, decreed that the two corps, medicine and pharmacy, should be of equal importance, irrespective of their total effectives. By this decree the pharmaceutical cadre consisted of 159 officers with the following grades:

- 1 Pharmacist-Inspector, with grade of General of a brigade.
- 5 Pharmacist Principals, 1st Class, with grade of Colonel.
- 5 Pharmacist Principals, 2d Class, with grade of Lieutenant-Colonel.
- 36 Pharmacist-Majors, 1st Class, with grade of Chief of a battalion.
- 42 Pharmacist-Majors, 2nd Class, with grade of Captain.
- 55 Pharmacist Aide-Majors, 1st Class, with grade of Lieutenant.
- 15 Pharmacist Aide-Majors, 2nd Class, with grade of Second-Lieutenant.

The shortcomings of the sanitary service during the Franco-German war were severely criticized and a strong demand made for its reorganization. The medical corps demanded exclusive direction and autonomy over the service and that the pharmaceutical corps should become the subordinate and in consequence a systematic reduction of the authority of the military pharmacists. The eminent chemist, J. B. Dumas, gave the weight of his scientific authority in favor of placing the direction of the sanitary service exclusively under the medical and consequently the subordination of the military and administrative influence of pharmacy. The medical inspector-general, Legouest, while ardently advocating the preëminence of the medical over the pharmaceutical, declared that "the project must respect the cadre and rank of the military pharmacists and that there must be preserved to pharmacy all its rank, its appropriation, the conditions of advancement and the various functions of its proper service."

In 1882, a new law was promulgated for the administration of the army and with the amendment thereto of 1889, defined the authority of the military sanitary service and to the present time this governs the duties of the service. This law for the administration of the army divided the military service into five branches, the sanitary service being the last specified. Prior to this time, the military sanitary corps was part of the commissary department. It now became a new autonomy comprising the military physicians and pharmacists under one proper hierarchy and with the grades corresponding to those of the military hierarchy and the officers of the sanitary service enjoying all the advantages of other officers.

Under this law the pharmaceutical cadre is composed of:

- 1 Pharmacist Inspector, with rank of General of a brigade.
- 4 Pharmacist Principals, 1st Class, with rank of Colonel.
- 5 Pharmacist Principals, 2d Class, with rank of Lieutenant-Colonel.
- 30 Pharmacist-Majors, 1st Class, with rank of Chief of a battalion.
- 45 Pharmacist-Majors, 2d Class, with rank of Captain.
- 20 Pharmacist Aide-Majors, 1st Class, with rank of Lieutenant.
- 10 Pharmacist Aide-Majors, 2nd Class, with rank of Second-Lieutenant.

This total of 115 was soon seen to be insufficient, as was shown by the sanitary service in Morocco. When the necessity arose, the reserve pharmaceutical corps was to be mobilized. In 1914, this reserve force numbered 1,229 and, in the territorial army, 1,020, a total reserve corps of 2,249.

## QUALIFICATION AND SERVICE OF FRENCH MILITARY PHARMACISTS.

The pharmaceutical corps in the French army is recruited in part from students of pharmacy who enter the army sanitary service and continue their studies while in the army, and in part from pharmacist graduates who hold first-class diplomas.

The undergraduate who enlists in this service must establish that he is a citizen of France either by birth or by naturalization, that he is over 18 years and less than 23 years of age, must have passed the preliminary scholastic examination and have his fitness for military service certified to. As a student he is allowed an annual pension, while attending the school of applied medicine and pharmacy, of 1,000 francs which, it is stipulated, is allowed on condition that he complies with the rules of the school and passes the examination for admission to the service, otherwise it must be refunded to the war department.

The examination for the first year studies of the military pharmacy student covers a composition on some question of physics or elementary inorganic chemistry; the preparation of one or more medicinal formulas included in the Codex, with an examination on these preparations; the compounding of prescriptions; the determination of fifteen plants or parts of plants pertaining to materia medica and ten chemical medicaments or galenicals and examinations on these.

The examination at the end of the second year includes the following: a composition upon an inorganic or an organic chemical question; examinations in physics; organic chemistry; mineral poisons; galenical pharmacy; botany (natural families of phanerogams); and the natural history of medicaments. The jury composed of the Pharmacist-Inspector (as president) or, in his absence, a Pharmacist Principal of the first class, a professor of chemistry and toxicology of a School of applied Military Sanitary Service and a Pharmacist-Major, 1st Class, classify the students according to the merits of their work and certify to the ministry the list of candidates eligible for appointment to the service.

Pharmacists possessing first-class diplomas may enter the pharmaceutical corps from civil life with a grade of Pharmacist Aide-Major, 2d Class. Such candidate, however, must first comply with the following conditions: be a citizen of France, either by birth or by naturalization, be not over 28 years of age; his aptitude for the service must be certified to by an army physician of not less grade than Physician-Major, 2d Class, enlist for not less than six years in the active sanitary service of the army and accept appointment to the grade of Aide-Major, 2d Class, and in addition must pass an examination to determine his scientific and professional knowledge.

The candidate meeting these rather rigorous requirements for enlistment in this corps with the grade of Aide-Major, 2d Class, receives an indemnity of 575 francs to provide for his first equipment with a condition that this must be refunded if he quits the service before completing his sexannual engagement. The pharmacists are expected to continue their studies and to obtain promotion to higher grade a successful examination is necessary. Each advancement in the corps is dependent upon a minimum number of years of effective service and seniority of service is presumably respected in the advance appointment.

A Pharmacist-Major, 2d Class, is expected to serve not less than two years before advancement.

A Pharmacist-Major, 1st Class, is expected to serve at least four years in the preceding grade.

A Pharmacist Principal, 2d Class, is expected to serve at least three years in the preceding grade.

A Pharmacist Principal, 1st Class, is expected to serve at least two years in the preceding grade.

A Pharmacist-Inspector is expected to serve at least three years in the preceding grade.

The officers of the Pharmaceutical Corps may be retired with pension on arriving at specified age limit for their respective grades as follows: the Pharmacist-Inspector, at 62 years; the Pharmacist Principal, 1st Class, at 60 years; the Pharmacist Principal, 2d Class, at 58 years; the Pharmacist-Major, 1st Class, at 56 years; the Pharmacist-Major, 2d Class, at 53 years; and the Pharmacist Aide-Major, either class, at 52 years.

The limits of this paper preclude the detailing at length of the divers duties assigned to the pharmaceutical corps in time of peace and, still more so, the greatly increased and many special services that have been required in time of war.

## DUTIES OF THE FRENCH MILITARY PHARMACISTS.

The military hospitals are under the command of the medical officers. The "head physician" usually follows the custom of entrusting to the head pharmacist whose official authority extends only over the pharmacists, assistants and medical supplies, the maintenance of discipline and the command of the civil and military attachés of the hospital so that the ranking pharmacist generally becomes the administrative officer charged with the policing, and the commissary as well as the necessary pharmaceutical duties of providing the medical and surgical supplies and attending to the compounding of all medicines and their administration.

The regulations require that the pharmacist must verify the quality of the medicines supplied and select the most suitable conditions and places for their preservation, adopt a system that will prevent errors, see that, at the time of dispensing, the medicines comply with the requirements of the "Military Hospital Formulary" and are labelled according to the requirements, maintain the records of prescriptions and of the supplies according to the official forms. He is likewise charged with the duty of delivering medical supplies to the regimental infirmaries and veterinary hospitals. He must supervise the preparation of food for the invalids. He must systematically care for and examine the supplies of the sanitary service and must receive the various supplies for the clothing and subsistence. He must make all examinations of foods and medicines and those requested by the medical officers for the diagnosis of disease, the hygiene of the troops and the divers services of the army. All of these analyses must be properly recorded with the date, the reason for the investigation and the results set forth. The analyses for the hospital service, with results and observations, are to be promptly transmitted to the physician in charge.

Finally, the pharmacist is charged with the duty of making the meteorological observations.

With the outbreak of the war and the greater demand consequently for military pharmacists, the government instituted a pharmaceutical section in each of the schools for the Army Sanitary Service and the pharmacist recruit was given the choice of attending at any one of these situated at Paris, Montpellier, Nancy, Bordeaux, Lille, Lyon, and Toulon. The faculties of these were composed of medical, pharmaceutical and chemical teachers and many leading pharmacists were detailed to duty as teachers.

The disposition of the pharmaceutical corps was necessarily changed by the existing war conditions and the demands made upon the service by the exigencies arising have been enormous and could not have been foreseen. The objects sought to be attained by the organization of the sanitary corps in the war were: (1) providing for the preparation and execution of measures of hygiene and prophylaxis; (2) the prevention and treatment of sicknesses incident to the march and to the camp; (3) the first treatment in combat, the relief and removal of the wounded irrespective of nationality; (4) hospitals for treatment of the sick and wounded; (5) the replacement of the personnel and the re-supplying of materials of the sanitary formations.

In each of these the pharmacists are assigned specific duties, as for example an ambulance unit in the infantry is provided with six physicians and one pharmacist.

In the campaign, the pharmacists are assigned in the front rank giving service to their regiments and with the infantry ambulance; in the rear, with the ambulances of the section; the evacuation hospitals; the sanitary trains, either permanent or improvised; the supply depots, the reserves of the sanitary personnel.

The pharmacist is charged with the duty of determining the potability of the water supplies and generally likewise acts as bacteriologist of the division. The specified lists of apparatus and reagents needed for these tests are transported according to the regulations by the litter bearers.

It is the mission of the pharmacist to attend the ambulances during battle, to render first aid, remove the wounded, to supply the hospital material and attention at the field hospital. The pharmaceutical personnel by the decree of April 26, 1910, has become the principal formation of the infantry ambulance. This consists of the following under the command of the pharmacist; a detachment of four attendants as litter bearers and nurses, one corporal and a detachment of four men of the military train.

The material comprises three wagons of the sanitary service to transport seven paniers of dressings, seven cases and nineteen bales of hospital materials.

The important duties assigned to the sanitary service in the rear are the evacuation hospitals, sanitary trains, the war infirmaries, the stations for the convalescents and maimed, the reserves for the personnel of the sanitary service of the army, the reserve material for the service, and the supply stations.

Each evacuation hospital is provided with two complete infantry ambulance outfits and provisions for two sectional hospital and two disinfecting apparatus and supplies of disinfectants and fumigating material and two pharmacists are assigned thereto.

The medical supply stations are under the direct command of a pharmacist with a personnel of one sub-officer, one corporal and seven attendants. The various hospitals, temporary, permanent and auxiliary, all meeting at times the local civil demands, draw their supplies from the nearest supply station. An important duty of the pharmaceutical corps is the continuous supplying of the medical needs of the various formations of the sanitary service whether at the army front, in the rear or in the interior or in the territorial hospitals and stations.

The conservation of supplies of important medicaments so that the needs of the army and the civilian population were alike provided for in this war, was one of the greatest national services performed by the Pharmaceutical Corps of the Army.

The regulations provide that the pharmacists in a campaign must assure that the pharmaceutical service conforms to the instructions and to their spirit. Under the orders of the Chief Physician, they must verify the nature and quality of the medical substances and provide these by purchase, manufacture or requisition; they must participate in the inspection of the foods and beverages supplied to the camps and cantonments; must examine all the medicines when received and make monthly reports of receipts and disposition of the supplies on the official forms provided. During the war, the work of the pharmacist has been extended to prepare many of the sanitary materials and medicines the necessity for which has been established by experience. Among these newer preparations may be mentioned sterile solutions in ampoules, artificial serums and compressed oxygen.

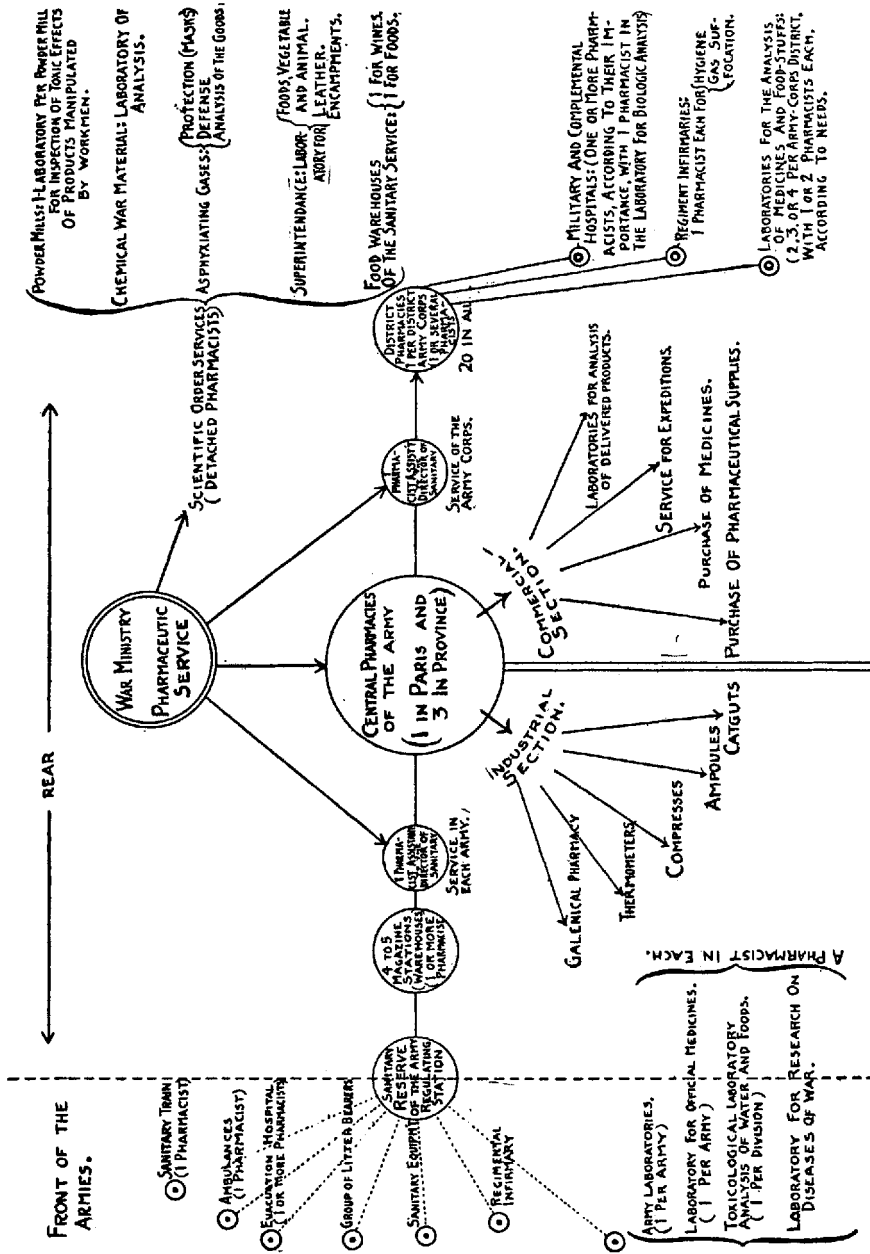


DIAGRAM SHOWING INTERRELATION OF SERVICE OF THE PHARMACEUTICAL CORPS TO VARIOUS DEPARTMENTS



The French War Department has taken advantage of the aptitude of the pharmacists and their professional education and has utilized them as chemists and hygienists. Every means that could be developed by science was applied by German ingenuity to the production of barbarous war instruments and methods. The irritating, asphyxiating and poisonous gases and the pollution of water supplies are notable examples of the methods initiated by the enemy and requiring scientific counteraction.

This demanded extension of the sanitary service could not be imposed upon the military physicians who were too fully occupied with the problems of their own practice and, likewise, it was admitted that they were but poorly prepared for this field of work. Consequently, it became the duty of the pharmacists of the sanitary service to make the innumerable chemical, microscopical and bacteriological examinations necessary. It was soon learned that the analytical outfit accompanying the ambulance was insufficient for satisfactory work under the conditions existing. A complementary cadre was organized consisting of 200 additional pharmacist aide-majors and 220 portable laboratories were equipped. These constitute a special formation of the sanitary service on the front and they are charged with the constant daily surveillance of the water consumed by the troops and the providing for the purification and sterilization of any that are doubtful or purposely contaminated by the enemy.

Despite this scientific work which became more and more overwhelming, and the complex problem of regularly furnishing the medicines and surgical supplies for all of the sanitary formation, some other researches have been carried on and a number of suggestions of importance to the industries of the nation have emanated from this corps. Withal there has been no abatement of the rigid rules of administration and the strict methods of making records and the rendering of surgical assistance as well as purely pharmaceutical service.

The writer is indebted to L. Guignard for the accompanying diagram which graphically portrays the service that the pharmaceutical corps of the French army is rendering to that nation.

The preface to the able work of Major Léon Varenne was written by Prof. P. Cazeneuve, senator from Rhone. It is a concise review of the service being performed by the military pharmacists. He pays a deserved tribute "to their devotion and patriotic service, although silently given, to which the historian must in justice render homage." He states "this work of M. Varenne makes us love and respect this select corps which have contributed, in their modest sphere, most eminent service to save the country." No one reading even the preface of this book should longer doubt the importance of the pharmaceutical corps in modern warfare and the absolute necessity for such service to protect the health and lives of the troops.

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