

III

The National Medical Library

JOHN SHAW BILLINGS BEGINS TO TAKE CARE OF THE BOOKS AND JOURNALS

TO the Surgeon General's office in December 1864 was called a 27-year-old assistant surgeon, John Shaw Billings.¹ Billings had joined the Army in 1861, a year and a half after receiving his degree from Medical College of Ohio. He had been a surgeon in military hospitals and had tended wounded soldiers at the battles of Chancellorsville, Gettysburg, the Wilderness, Spottsylvania Court House, Cold Harbor, and the siege of Petersburg before being assigned a desk job in Washington in August 1864.

Billings reported to General Barnes on January 4, 1865,² and was directed to help manage the myriad of civilian physicians working for the Medical Department under contract. A few months later the war ended, and he was given responsibility for some of the financial matters that arose with the closing of military hospitals. His job as a "disbursing" officer was dull compared with his previous duties as a surgeon in the Army of the Potomac, but he had clerks to handle bookkeeping, correspondence, and other routine work, and the flood of invoices, receipts, vouchers, and similar documents soon crested and receded.³

Around the time the second library catalog was published in October 1865, Barnes decided that the growing collection of books and journals should be placed in the charge of one officer. He chose Billings.⁴ Barnes' reason for picking Billings from among the several staff officers is not known. Billings was a booklover, and this may have been sufficient for the general.⁵

Billings' duties, whatever they were in caring for the books and journals, did not add much to his workload. He seems to have considered the collection as one of his routine responsibilities, and paid no special attention to it. Occasionally he ordered monographs, reference books, texts, and journals requested by officers in the museum, chemistry laboratory, Surgeon General's office, or at Army posts.⁶ But other officers also ordered publications, Surgeon William C. Spencer more often than Billings.⁷

By the beginning of 1866 Billings had systematized his duties and generally had ample free time to follow paths on which his curiosity led him.⁸ He browsed



The notable group of officers who developed the Army Medical Museum and Library, and produced the Medical and Surgical History of the War of the Rebellion, in the years following the conflict.

through medical books, learned to read a little German, dissected small animals and a tarantula, dabbled with chemistry, and meandered through poetry and literature. He was associated with energetic, competent persons, among them George A. Otis, who was developing the museum, and Joseph J. Woodward, a pioneer in photomicrography

The museum, which was to be adjacent to the Library for the next three-quarters of a century, was not merely a repository for medical specimens of the Civil War. Staff members were studying comparative anatomy, anthropology, Indian archaeology, and microbiology, compiling the *Medical and Surgical History of the War*, and teaching such subjects as histology and clinical microscopy to officers. Taking advantage of the laboratory facilities, apparatus, and specimens in the museum and the companionship of talented men, Billings tried his hand at microscopy. He mounted and stained anatomical sections of animals and began to investigate fungi, supposed by some physicians to be the cause of certain diseases called “cryptogamous” fevers.⁹

THE NATIONAL MEDICAL LIBRARY



Ford's Theatre, Washington. This view is half of a stereoscopic photograph taken around 1870 when the Library was shelved on the second floor of the building.

THE LIBRARY MOVES INTO FORD'S THEATRE

The Civil War brought about a permanent enlargement of the Army and Medical Department. No longer could a handful of military physicians take care of the infantry, cavalry, and other troops as they had in the days of General Winfield Scott. Now surgeons were needed to staff scores of barracks, posts, and forts dotting the United States from the Atlantic to the Pacific, the gulf to the Great Lakes. Surgeons accompanied regiments on active service in the West. The Medical Department was given the job of "providing for the comfort

of sick and discharged soldiers." It was made custodian of hundreds of thousands of pension and medical records. It had to provide artificial limbs and trusses for veterans.

In 1866 the department was authorized by Congress to have a Surgeon General, an Assistant Surgeon General, 5 purveyors, 60 surgeons, 150 assistant surgeons, and 5 storekeepers. In addition it had 264 civilian physicians under contract as acting assistant surgeons,¹⁰ scores of clerks and messengers, and almost 200 hospital stewards.

The Surgeon General needed more space for his office, records, and museum. The museum possessed so many specimens that it had had to move into larger quarters twice, and it still needed additional room. The pension and medical records required an area where they could be filed and consulted. The buildings rented from Riggs Bank in 1862 were simply not spacious enough by the war's end.

On Good Friday, April 14, 1865, President Lincoln was assassinated while attending a performance of *Our American Cousin* at Ford's Theatre on Tenth Street. Citizens protested so violently against further performances that the government took over the theater and purchased it the following year "for the deposit and safekeeping of documentary papers relative to the soldiers of the Army of the United States and of the Museum of the Medical and Surgical Department of the Army."¹¹

During the summer and autumn of 1866 the interior of the building was remodeled. The balcony was removed, and two floors, supported by cast iron columns, wrought iron girders and beams, were inserted in the spacious interior, converting the theater into a three-story building. An iron stairway was erected from the first floor to the third.

The new floors were brick, covered with tile. The ceiling of the top floor consisted of plaster over lath nailed to wooden joists. The roof was slate over pine sheathing supported by wooden rafters. Thus the interior of iron and brick was fireproof, but the roof and third floor ceiling were not.

Attached to the south side of Ford's, along Tenth Street, was a smaller three-story brick building (which originally housed Taltavul's Star Saloon on the first floor, a lounge for dress circle patrons on the second, and Ford's apartment on the third) with wooden floors and stairs, and therefore not fireproof. Attached to the back of Ford's to the north was another small structure (originally dressing rooms and a carpenter's shop), also not fireproof.

After alterations were completed, Surgeon General Barnes allotted the third floor of Ford's to the museum, the second to the Division of Surgical Records and the Library, and the first to the Record and Pension Division. In the adjacent building on Tenth Street rooms were converted into offices for Woodward, Otis, and other officers, and into the Medical Department's chemistry laboratory. The small building at the back was converted into workshops for the museum.

During November and December 1866 Surgeons Otis and Woodward su-

THE NATIONAL MEDICAL LIBRARY

perintended the moving of specimens, cases, and apparatus from the museum's temporary location into the third floor of Ford's. Woodward, who managed the Record and Pension Division and the medical and microscopical sections of the museum, was placed in charge of the entire building.¹² In December medical records were moved in. Sometime in 1867 the library books and journals were transferred from Riggs to the second floor.

The second floor consisted of one large hall approximately 100 feet long, 67 feet wide, and 14 feet high. Light came through four windows at the front, two at the back, and the stairwell in the center. Most of the space was occupied by records of the 200,000 men wounded and the 40,000 operated upon during the war.¹³ The Library took up a relatively small amount of space at first, and for several years it would be used almost exclusively by the officers compiling the *Medical and Surgical History*.

The fear of a fire that might destroy museum specimens and the irreplaceable Civil War medical records was always in the minds of the staff. Fire hoses connected to a steam pump were kept handy, and a few years later the joists and other woodwork in the attic were soaked with a concentrated solution of sodium silicate which, it was hoped, would act as a fire-retardant.

BILLINGS BECOMES LIBRARIAN IN HIS SPARE TIME

The collection now contained several thousand volumes and needed someone to keep it in order. General Barnes hired F. L. O. Roehrig as a contract surgeon and on January 10, 1867, placed him in charge of the Library.¹⁴ Roehrig did not select or order books; that was done by Billings and other officers at Riggs. Purchases were received at Riggs, examined (Billings' clerks checked books and journals meticulously to make certain that no pages were missing or damaged) and then sent to Roehrig at Ford's for shelving.¹⁵

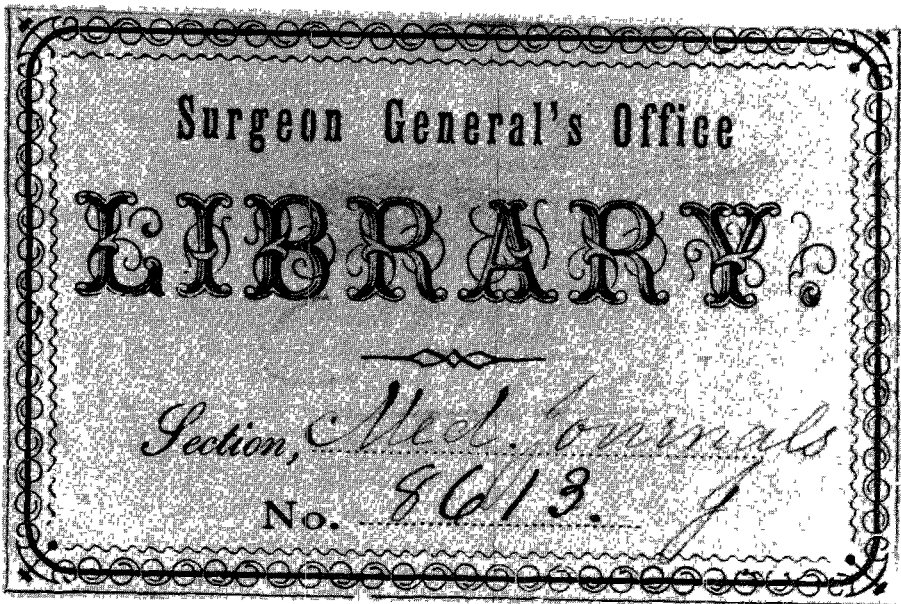
Presumably because of confusion or duplication in ordering by Crane, Spencer, Otis, and Billings for the Library and department, an agreement was reached among the officers in mid-1867 to give Billings sole responsibility for procuring publications. "In accordance with the arrangements made with Dr. Otis, by direction of the SG, USA," Billings wrote his British book supplier, "all orders for purchases for the museum or library of this office will be issued in future by myself, and all bills or accounts against this office, with the correspondence relating thereto, should in future be sent to me."¹⁶ Finally, sometime in 1867 or early 1868 General Barnes asked Billings to devote "all his spare time" to medical bibliography and to developing the Library.¹⁷

The upgrading of the Library and the delegation of authority to Billings seems to have given him a personal interest in the collection and crystallized his instincts in book collecting. A few months later he was informing one of his book agents: "I wish in time to make the Library of this office as complete as possible. . . ."¹⁸

His first priority was publications needed by his colleagues for their re-

searches in the museum, for compiling the *Medical and Surgical History*, and for keeping up-to-date in medicine and allied sciences.¹⁹ Otis, for example, sent Billings a list of 22 books on resections that he wanted, recommended procurement of reports of Lt. Charles Wilkes' "Exploring Expedition," and asked for John Cleland's paper, "Cranial measurements of different races."²⁰ Surgeon Joseph H. Bill, stationed at the Army Laboratory, Philadelphia, requested Billings to purchase nine scientific books, stating in his letter: "I certify that I need the above books to maintain and increase my knowledge of the subjects of which they treat."²¹ But generally Billings was the sole selector of the books he ordered. He visualized a library with every type of publication for military surgeon, researcher, scholar, and practicing physician, and he sought all manner of publications, including reports of hospitals and other health agencies, doctoral dissertations, pamphlets, journals,²² books of the 16th, 17th, and 18th centuries, and even incunabula.²³

He selected books mainly from catalogs of American and European booksellers, sometimes tearing out pages, marking them, and returning them to the dealers, other time sending lists of numbers and short titles. He kept an eye on book trade journals and reviews. Occasionally he sent bids by mail to a book auction or asked a friend to bid for him. Once in a while he picked a book from approvals sent by hopeful dealers.²⁴



Possibly the first bookplate designed for the Library. This is in Boston Medical and Surgical Journal, volume 79, 1868-69. The accession number, 8613, shows the volume was received July 28, 1869.

Billings economized in every way, instructing his agents: "when books can be bought secondhand not much damaged it is preferred that they should be so obtained . . . the above request is made for the reason that our fund for the purchase of books is limited. . . ." ²⁵ He wanted old books but told his agents he could not pay much: "if you meet with any old medical or surgical works (especially if in Black Letter) . . . please send them, if obtainable at a reasonable price." ²⁶

In purchasing books and journals from European countries Billings found it convenient to deal with a few agents who, in turn, acted on his behalf with booksellers in their geographic areas. Among these agents were Felix Flügel, a physician (though apparently not in practice), lexicographer, and medical book dealer of Leipzig; William Wesley, London; Trübner & Company, London; Gustave Bossange, Paris; and Frederick Muller, Amsterdam. ²⁷

These agents sent Billings catalogs issued by sellers in their areas, transmitted Billings' orders to the sellers, received the books and paid for them, packaged the volumes in sturdy water-proof crates and shipped them to the Medical Department purveyor in New York, who forwarded them by express to Washington. In the same manner Billings purchased through these agents microscopes, scientific apparatus, chemicals, and medical instruments for the medical museum and department. The agents distributed Medical Department publications given to or exchanged with European medical libraries, schools, societies, and military medical departments; they also received gifts and exchanges for the SGO Library and shipped them to New York.

This arrangement saved Billings and his clerks much correspondence; minimized the loss of publications in transit, and kept expenses down through use of periodic large shipments rather than daily small shipments; expedited the delivery of current European journals, which the agents sent by fast mail rather than slow express; and was efficient in that the agents were closer to booksellers, apparatus dealers, medical libraries, and organizations than was Billings, thousands of miles away. For their services these agents received a commission of 10 percent (at times more or less) on Billings' purchases, and a stipend for distributing and receiving exchanges and gifts.

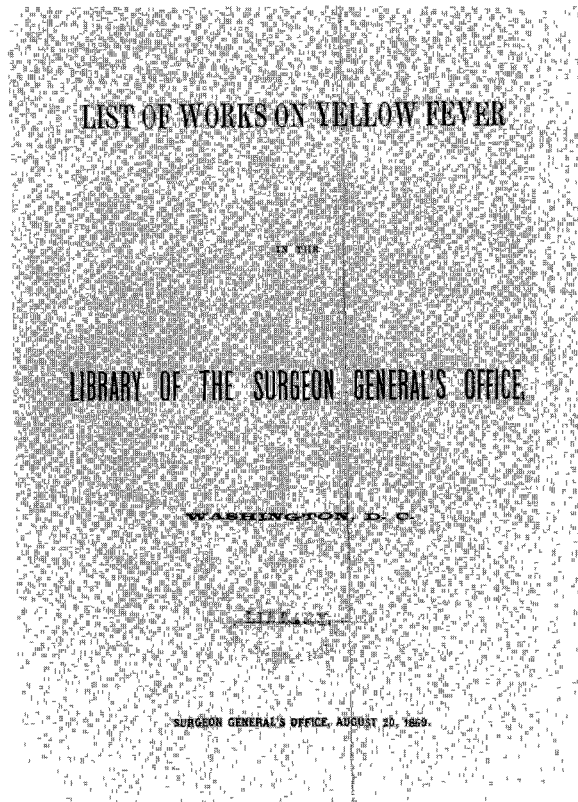
At the time when Billings became the sole purchaser of books, payment to European agents was made through an American firm which in turn sent payment to European agents. The American firm received a commission for acting as middleman. This roundabout method was necessary because, according to government regulations, checks had to be made out to someone in the United States. Billings appointed one of his clerks as middleman—Andrew Bischoff in the 1870's, Frederick W. Stone from 1880 onward. After a bill for books arrived, a voucher and check for the amount were made out to the clerk, who used the check to purchase a bill of exchange for transmittal to the agent. Billings thus saved the expense of a commission. This system was the most convenient and inexpensive one for the Library and it expedited payment to agents. ²⁸ Unfortunately in 1880 clerk Bischoff took to drink, went off with almost

A HISTORY OF THE NATIONAL LIBRARY OF MEDICINE

\$500 instead of sending it abroad, and Billings had to replace the money out of his own pocket.²⁹

THE LIBRARY'S FIRST BIBLIOGRAPHIES

Another indication of Billings's enthusiasm for developing the small Library was the compilation of the first large catalog and the first bibliographies. Owing to the rapid accumulation of publications during 1866 and 1867, the Library had almost tripled in size since the last pamphlet catalog had appeared in October 1865. Apparently Billings planned and, with the aid of clerks, began compiling the manuscript for another catalog in 1867, for it was in the printer's hands in early February 1868.³⁰ The new catalog, the third to be issued by the Surgeon General's office, was published on June 12.³¹ There were now 2,887 titles, whereas the previous catalog had listed 602; now 6,984 volumes where there had been 2,282.³² In 1865 there had been no incunabula, 16th or 17th



One of the earliest bibliographies published by the Library on topics of major importance at that time.

century books, and only six books and one periodical from the 18th. Now there were two incunabula, seventeen 16th, fifty 17th, and 162 18th century titles.

While selecting books Billings had sought works on three subjects of special interest to the Medical Department: cholera, yellow fever, and military surgery.³³ Military surgery was important because of accidents at forts and posts and of wounds received by soldiers in battles with Indians in the West. Yellow fever had invaded the country frequently since colonial times, killing soldiers on many occasions. Cholera had arrived less frequently than Yellow Jack but was just as deadly. In 1864 an epidemic of cholera along the coast of North Carolina had caused 278 deaths among Northern soldiers. In 1866 the disease had appeared at several forts. In 1867 cholera was responsible for 139 deaths and yellow fever 427 in the Army.

The Medical Department published long reports on cholera and yellow fever,³⁴ and Billings prepared bibliographies that were published as pamphlets on August 20, 1869: *List of Works on Cholera in the Library of the Surgeon General's Office, Washington, DC*; *List of Works on Yellow Fever . . .*; and *List of Works on Military Surgery. . .*³⁵ Copies were distributed to surgeons and sent to appropriate libraries and agencies as gifts and exchanges. These were the forerunners of a host of bibliographies to be compiled in the Library during the next century.

BILLINGS AS MYCOLOGIST, HOSPITAL EXAMINER, EDITOR

Although Billings was selecting publications, managing the collection, and compiling bibliographies, he was not yet concentrating on the Library. He studied mycology, off and on, and ordered books on the subject for the Library and himself. He wrote to Flügel, the Library's agent in Leipzig: "I am at present specially interested in the study of fungi, particularly as connected with recent theories of the causation of disease by their means. I find much trouble however in verifying some of the specimens that come into my hands, and want several books if not too costly."³⁶

The infant Bureau of Agriculture was also interested in mycology because it was thought that a prevalent cattle disease might be a "cryptogamous" fever. In February 1869 the Commissioner of Agriculture requested the Surgeon General to permit Billings and Assistant Surgeon Edward Curtis, an expert photomicrographist of the museum, to help the Bureau determine if fungi really infected cattle.³⁷

Intermittently from February to June 1869 the two men experimented at the museum.³⁸ Later that year an account of their investigation, which did not move the Bureau of Agriculture any closer to a knowledge of the cause and prevention of the illness, was published as a chapter, "Report of results of examinations of fluids of diseased cattle with reference to presence of cryptogamic growths" in a government document, *Reports of the Diseases of cattle, made to the Commissioner of Agriculture. . .*³⁹

Billings continued to dabble with fungi until the early 1870's, publishing

three articles on the subject.⁴⁰ In 1878 he sold his specimens and collection of books to the Bureau of Agriculture, which was building its library.⁴¹

In the autumn of 1869 Billings was borrowed by the Treasury Department to make a survey of marine hospitals, at that time loosely organized under the name Marine Hospital Service.⁴² This agency, in existence since 1798, was composed of hospitals, some government-owned, some privately owned, where ill and injured merchant seamen were treated. The hospitals were located in busy ports on the Atlantic, gulf, and Pacific coasts, the Great Lakes, and major rivers.

During the period from September to October 1869 Billings visited many of the hospitals.⁴³ His report, which was not published and which has been lost for almost a century among myriads of government records, has been credited with providing Treasury officials with information and suggestions that led to improvements in the administration and organization of the Marine Hospital Service, which later evolved into the Public Health Service.⁴⁴

Sometime during the winter of 1869–70 General Barnes considered transferring Billings from Washington to an Army post, purveying depot, or regiment in the field. Billings had been in the Surgeon General's office for 5 years and normally he could expect to be reassigned.⁴⁵ This was a crucial time for the Library and Billings. If he had been transferred, he would not have had the opportunity to develop into an internationally famous librarian and bibliographer, and the Library might not have risen to prominence as the world's best. But Barnes changed his mind and retained Billings at headquarters.

General Barnes now asked Billings to prepare for publication a group of reports that surgeons had been writing and sending to Washington for a year, describing medical facilities at Army posts. Billings edited the documents, wrote to the authors to obtain additional information that he felt was needed, secured supplementary information from regular Army officers stationed in Washington, composed a 30-page general introduction, and shepherded the large manuscript through the press. Published in December 1870 under the title *Report on Barracks and Hospitals, with Descriptions of Military Posts*, it is referred to today by historians of western America for the information it contains on old forts, now in ruins.⁴⁶

THE NATIONAL MEDICAL LIBRARY

By the end of 1870 the Library contained approximately 10,000 volumes, more than 8,000 of which had been accumulated since the middle of the Civil War. In less than a decade the Library had become one of the largest medical libraries in the United States, exceeded only by those of the Pennsylvania Hospital and the College of Physicians in Philadelphia.⁴⁷

During 1871 discussions must have taken place in the Surgeon General's office for the purpose of deciding the objective for the Library. Nothing is known of the views expressed there, but alternatives suggest themselves: should the Library level off its rate of growth and merely keep up with new medical literature, or should it continue to expand rapidly; should its use be restricted

NATIONAL & MEDICAL LIBRARY,

SURGEON GENERAL'S OFFICE,

Washington, D. C., , 187.....

Dear Sir:

I have the honor to request that this Library
may be furnished with one copy of.....
.....

in order to complete its files.

Very respectfully,

Your obedient servant,

.....
Surgeon, U. S. Army, in charge of Library.

To.....
.....

Letterhead used by Billings in the 1870's, showing his intention of developing the collection into a national library. This preceded by eighty years the official designation of the collection as the National Library of Medicine.

to government employees, or should it be open to the public? The spirit of ambition that desired to make the Army Medical Museum the greatest medical museum in the world was now directed toward the Library. The important decision, one which required some courage on the part of the Surgeon General because it would necessitate his making annual requests to tight-fisted congressional committees for funds, was made to develop the collection into the "National Medical Library."⁴⁸ To Surgeon General Barnes and Billings, this meant a library that would contain "every medical book published in this country and every work relating to public health and state medicine,"⁴⁹ that would be "as complete as possible in all publications relating to military organization, medicine, and the allied sciences,"⁵⁰ and would be "an universal library of references."⁵¹ Thenceforth Billings concentrated on developing the Library. He did not put aside all other activities in medicine, but for his remaining quarter of a century in the Army his major goal was the building of a library for the American medical profession.

Up to this time the Library was known to Army physicians, to visitors to the museum who passed by as they walked up the stairs to the third floor of Ford's, and to those who heard of it by word-of-mouth. Now Billings set out to inform the American medical profession that the Library existed, was to be developed for the use of all physicians, and that it would welcome support and contributions. During 1871 and 1872 he wrote hundreds of letters to leaders of the profession about the Library. On trips to other towns (at least four trips in 1871 and five in 1872 to Philadelphia, New York, Cincinnati, Louisville, Baltimore, Boston, and other cities) to transact department business he visited influential physicians.⁵² He compiled a new catalog and distributed copies to libraries, societies, and major donors.⁵³ He advertised for journals and books. He asked friendly editors to publicize the library, as did the widely circulated *Boston Medical and Surgical Journal*, which informed its readers:⁵⁴

Many members of the profession are probably unaware of the fact that the Surgeon-General of the U. S. Army has authorized the collection of a medical library in connection with his office and the Army Medical Museum at Washington, and that this collection has so rapidly increased that it has already reached an aggregate of 17,000 volumes

For this national collection of books we are indebted to the intelligent appreciation of the Surgeon-General and the medical gentlemen connected with his office, the most active agent in its increase has probably been Dr. J. S. Billings, Assist. Surgeon U. S. A., who for five years has devoted himself constantly to the library, and still remains in charge of it. . . . Dr. Billings hopes, by means of appropriations made for the purpose and by the aid he shall receive from the profession, to make it a valuable auxiliary in medical study and research.

The establishment of a "national" medical library seems to have been accepted calmly and with approval by the medical profession: at least there is no record of opposition while there is all manner of evidence that influential physicians showed by their subsequent contributions, support, and communications that they favored the idea.

Notes

¹ Billings was relieved from duty with the Army of the Potomac and assigned to the Surgeon General's office by Special Order 476, Adjutant General's office, Dec 31, 1864

² Letter, Billings to Thomas McParlin, medical director, Army of the Potomac, Jan 4, 1865 NA

³ As a disbursing officer Billings paid accounts referred to him by the Property Division, accounts for purchase and distribution of artificial limbs and trusses for apparatus and supplies for the museum, for expenses of compiling and publishing the *Medical and Surgical History*, and for books and journals for the Library Vouchers that he signed are in NLM

⁴ The precise date when Billings was appointed librarian is not known. It is not in Billings' record of military service. Probably the general, seeing Billings several times a day in the small house in which they had their offices, gave Billings an oral order to take care of the books. Fielding H. Garrison, who was associated with Billings for several years in the Library, wrote "In December 31, 1864, Dr. Billings was assigned to duty in the office, acquiring among other things, nominal, though not official, care of this collection of books" (*John Shaw Billings, a Memoir* (1915, pp 213-214) Billings himself said "when the library came under my charge, in the fall of 1865" (*New York Med Rec*, 17: 298-299, 1880). I am disposed to believe the date given by Billings, who was there, rather than Garrison. Garrison made minor errors in writing the biography of Billings, and I believe that this was one of them.

⁵ Letter, Surg. Charles S. Tripler to Billings, Mar 14, 1866, "You are I believe something of a bibliomaniac" MS/C/81

⁶ The first letter, to my knowledge, sent by Billings for a book was dated Nov 6, 1865, to Medical Purveyor R. S. Satterlee, New York. Later letters went to Satterlee on Feb 9, Apr 17, 1866, to Blanchard and Lea, Jan 3, 1866, to David Clapp and Son, Jan 3, 1866, to Frank Taylor, June 5, 1867 NA

⁷ Judging by a comparison of the letters sent by Spencer and Billings for books SGO records, 1865-1867, NA

⁸ See excerpts from Billings' diary, Jan-Nov, 1866, in Garrison, *Billings*, pp 142-150

⁹ According to Billings' diary he began to experiment in microscopy in 1866. See Garrison, *Billings*, pp 144-148

¹⁰ *Annual Report of the Surgeon General* 1866, p 8. The number of contract surgeons varied considerably. On July 1, 1865 there were 1997, on July 1, 1866, 264

¹¹ Information about the Ford Building may be found in George J. Olszewski, *Restoration of Ford's Theatre* (1963), and Henry's and Lamb's histories, referred to previously

¹² Letter, Asst. Surg. Gen. Crane to Woodward, Dec 18, 1866 NA

¹³ "The second floor of the building is chiefly occupied by the division comprising the surgical records", J. J. Woodward, "The Army Medical Museum at Washington," *Lippincott's Mag* 7: 234 (Mar 1871). The Library was so insignificant at this time that Woodward did not mention it in his 10-page article.

On the title page of William Bromfield, *Chirurgical Observations*, 1723, is stamped "SURGEON'S OFFICE/DIV. SURG. RECORDS/454 TENTH STREET." The volume was purchased between 1865 and 1868. One wonders if the Library was considered as part of the Division of Surgical Records for a time. Of course the book may have been purchased for the Division and later placed in the Library, or it may have been stamped accidentally.

¹⁴ Letter, Billings to Roehrig, Jan 10, 1867, "Roehrig is hereby assigned to duty in this office in charge of the library" NA

Roehrig had previously been a contract acting assistant surgeon from 1862 to 1865 in Philadelphia, 1865 to 1866 in South Carolina, and 1866 in the Dept. of the Platte. Roehrig remained at the Library until his contract was terminated on Sept 1, 1868. See note by Billings re Roehrig, Sept 1, 1868, NA

¹⁵ There is little information about Billings' routine as a librarian during this period. Garrison, *Billings*, 214-5, and George M. Kober, *Reminiscences of George Martin Kober* (1930), pp 61-62, 70-71, remark on Billings' quarters at Riggs.

¹⁶ Letter, Billings to W. Wesley, London, July 27, 1867 NA

¹⁷ Letter, Barnes to Senator L. M. Morrill, chairman, Joint Comm. on Library, Feb 9, 1872, "During the past four years a medical officer in this Office has devoted all his spare time to building up the library and to medical bibliographical work." NA

¹⁸ Letter, Billings to W. Wesley, London, Oct 17, 1867 NA

¹⁹ Letter, Billings to Frederick Muller, bookseller, Amsterdam, Feb 19, 1868, "with regard to purchase of books, our fund for that purpose is not large, and as we have to get all new medical and scientific publications, we do not have much to spare for the old books." NA. Billings made essentially the same statement to other booksellers.

²⁰ Letters, Otis to Billings, Jan 25, Feb 14, 1869, Mar 11, 1871 MS/C/81

²¹ Letter, Bill to Billings, Mar 16 1868 MS/C/81

²² The number and titles of journals subscribed to each year may be found in notebooks, as Record of Medical Journals Received, vol 2, 1869, NLM

²³ The earliest incunabulum ordered was Matthaeus Silvaticus, *Liber Pandectarum Medicinæ*, Venice, 1488 See letter Billings to Wesley, Oct 19, 1867 NA Perhaps the volume had been sold before Wesley could purchase it for Billings, it is not in NLM

²⁴ Billings' correspondence with American and European booksellers in NLM and in SGO records NA contain the titles of many books he ordered

Among Billings' early American books suppliers were the following firms Dr Samuel Butler, Peter Doyle, J D Price W A Leary, Jr, H C Lea, Lindsay & Blakiston, and John Campbell, all of Philadelphia, J P Des Farges, Kelly Piet & Co, R A Reed, and Gibson & Co, of Baltimore, James Campbell, Boston William Wood & Co, L W Schmidt, D Van Nostrand, Stechert & Wolff, E Steiger, Frank Mackay, B Westermann & Co, W A Townsend, and F W Chrstern, of New York

²⁵ Letter, Billings to Bossange, Jan 13, 1868, also letter, Billings to Wesley, Jan 4 1868 NA

²⁶ Letter, Billings to Wesley, Oct 17, 1867 also Billings to Wesley, Dec 13 1867 NA

On at least one occasion Billings tried to buy books at less than catalog prices by returning a catalog to a dealer, Frederick Muller, with prices he was willing to pay It is not certain whether Muller agreed to Billings offer Letter Billings to Muller, Mar 26, 1868 NA

²⁷ Later, Billings commissioned additional foreign agents Details of business arrangements with agents may be found in the following letters Billings to Wesley, July 27, Oct 12, 1867, to Bossange and Son, Oct 12, Dec 19, 1867, to Flugel, Oct 14, 1867, Mar 7 1868, to Muller, Jan 13, Feb 19, 1868 Surg Gen Barnes to Secretary of War, Mar 14, 1878, Surg Gen Sternberg to Second Comptroller of the Treasury, Feb 16, 1894, and to Comptroller Mar 30, 1900 NA Trubner & Co to Billings Oct 21, 1871 Wesley to Billings, May 12, 1871 NLM

Much of the correspondence between Billings and his agents, with invoices, bills, letterheads, and other documents, is in NLM

Billings did not inaugurate the custom of using European bookagents The Surgeon General's office had used the services of Flugel in the 1850's, see letter, Asst Surg Charles Smith

to J Henry, Apr 4, 1861 NA The Smithsonian Institution, and perhaps other government agencies, also dealt with European bookagents

Billings' agents in Europe were very helpful, particularly Felix Flugel When Billings first visited Europe in 1881 he sent his uniform ahead to Flugel, preferring to wear civilian clothes until he reached Leipzig Flugel guided him around the city and introduced him to persons Billings wished to meet The two men became friends, and thereafter Flugel occasionally dropped personal remarks into his business letters, telling of young Flugel's progress in medical school, of his own studies in philology, exclaiming about the 'dreadful news from Washington' when Garfield was shot, and telling sadly of his wife's death in 1885 Billings visited Flugel again in 1881 and 1884 Flugel's correspondence is in HMD, NLM

²⁸ Letters, Billings to Wesley, Oct 12, 1867, June 19, 1869, to Bossange, Oct 12, 14, Dec 19, 1867, Surg Gen Barnes to Secretary of War, Mar 14, 1878, Surg Gen Sternberg to Second Comptroller of the Treasury, Feb 16, 1894, and to Comptroller, Mar 30, 1900 NA

²⁹ Letter, Billings to Bischoff, July 3, 1880 MS/C/81

³⁰ Letter, Billings to W Wesley, Feb 7, 1868 "I am now having a catalogue of our library printed " NA

³¹ The 1868 catalog has 147 pages Books and titles are listed alphabetically from A to Z up to page 133, and from A to V in an appendix from p 135 to p 147 To the right of each title is the accession number There is no indication as to why the catalog had to contain an appendix, perhaps the printing proceeded so slowly that Billings accumulated many volumes that he listed in the catalog by means of the appendix

The National Library of Medicine, History of Medicine Division, has five copies of this catalog, one of which has the titles of many later acquisitions written on interleaves

During this period Billings probably started the Register or accession book of the Library The early entries in the Register were not dated, and for that reason the precise date when the Register was begun is not known But the accession numbers were printed along side of the titles in the June 1868 catalog, therefore the Register preceded the catalog Furthermore the listing of titles in the front of Register 1 is similar to that in the catalog of October 1865 but had additional titles indicating that the Register was started some time after that catalog was published

³² According to Garrison, *Billings*, p 214, the catalog of June 12, 1868 contained 2,887 entries, amounting to 6,066 volumes But Reg-

ister No 3, the accession book, recorded volume no 6984 on June 15, 1868. Therefore there is a discrepancy of 918 volumes, I assume that Garrison was wrong in his estimate or there is a difference in the definition of "volume."

³³ Letters, Billings to S W Butler, Jan 14, 1868, and to F Muller, Mar 26, 1868, emphasizing his desire for works on cholera and yellow fever NA

³⁴ *Report on Epidemic Cholera in the Army of the United States, during the Year 1866* War Dept, SGO, Circular 5, May 4, 1867

Report on Epidemic Cholera and Yellow Fever in the Army of the United States during the Year 1867 War Dept, SGO, Circular 1, June 10, 1868

³⁵ Copies in NLM have the original wrappers, and are interleaved with additional titles written in. Titles are arranged alphabetically by author, and are accompanied by the accession numbers. The cholera bibliography has 35, military surgery 22, and yellow fever 10 pages.

³⁶ Letter, Billings to Flugel, Sept 3, 1868. Also letters to F Muller, Aug 27, 1868, to Wesley, Aug 28, 1868, Jan 19, 1869, to Bos-sange, Nov 7, 27, 1868, regarding orders for works on fungi NA

³⁷ Letter, Asst Surg Gen C H Crane to H Capron, Commissioner of Agriculture, Feb 17, 1869, in reply to Capron's letter NA

³⁸ Letter, Surg Gen J K Barnes to Capron, July 1, 1869, transmitting report NA

³⁹ This 190-page book published by the Government Printing Office, 1869, also contains chapters by C N Riley, John Reid, H W Ravenel, and the noted British veterinarian John Gamgee

⁴⁰ "The Study of Minute Fungi," *American Naturalist* 5 323-9 (1871), "The Genus Hysterium and Some of its Allies," *American Naturalist* 5 626-31 (1871), "On Some Minute Fungi," (abstract of a talk by Billings, Feb 5, 1872) *Bulletin of the Philosophical Society of Washington* 1 42-3 (1871-4). Billings also may have written a humorous, fictitious article, "Microscopical Memoranda, by Dr Newlenz," *Philadelphia Med Times* 1 200 (March 1, 1871)

In a letter to S Chaille, April 3, 1876, Billings wrote "I have not done anything with the microscope for several years" MS/C/81. A statement by Garrison in *Billings*, p 152-3, also confirms that Billings put away his specimens in the early 1870's

⁴¹ Letters, W LeDuc, Commissioner of Agriculture to Billings, Mar 15, 1878, Billings to LeDuc, Mar 25, 1878 MS/C/81. Attached to the letter of Mar 25 is a list of Billings' books and specimens with prices—the total price that he asked was \$1,123, a large sum in those days

⁴² Billings was ordered to report to the Secretary of the Treasury on Sept 11, 1869, by A G O Special Order 219

Surgeon General Barnes may have inadvertently brought about this inspection by his comments on a bill to appoint a supervising surgeon general for the Marine Hospital Service, letter Barnes to Senator C D Drake, May 14, 1868 NA

⁴³ Billings was absent from Washington inspecting hospitals from mid-September to mid-October 1869 according to letters to W Wesley, Sept 13, 1869, and October 1869 NA

⁴⁴ This report has not been seen since the 19th century. Therefore some of the statements about Billings' influence on the reorganization of the Marine Hospital Service by biographers are not based on an examination of records and may not be reliable

Billings published an unsigned editorial, "The Marine Hospital Service," *Philadelphia Med Times* 1 97 (Dec 15, 1870), giving views based on his inspection

⁴⁵ Letter, Billings to Flugel, Mar 29, 1870, "My connection with this office will probably cease on the 1 of June. I will notify you as to who is to be my successor," letter, Billings to Wesley, April 1, 1870, with same information NA

⁴⁶ The volume was published by the War Department, Surgeon General's Office, as Circular No 4, Dec 6, 1870. The book has been reprinted by Sol Lewis, New York, 1974, with an introduction by Col Herbert M Hart, U S Marine Corps

⁴⁷ During the Civil War money called the "slush fund" was accumulated at hospitals from the sale of fat, swill, and soap. Upon the closing of the hospitals after the war, Surgeon General Barnes ordered that the fund, amounting to some \$80,000, be used to develop the Army Medical Museum (Circular Orders 15, Sept 27, 1865, reprinted in Lamb, *History Medical Museum*, p 37 letter, Barnes to J M Brodhead, 2d comptroller, July 21, 1866, NA). George Otis, curator of the museum, spent the money for specimens and apparatus, and to have illustrations prepared for the *Medical and Surgical History*. Billings was given responsibility for the accounting of the "slush" and other funds of the Surgeon General's office in 1870. His records (now in NLM) of the disbursement of the slush fund show that the money was used for the museum, not the Library. While it is possible that some money may have been spent on books, it could not have been a large amount. This explanation of the slush fund is given here to modify the statement made by S Wier Mitchell in his obituary of Billings (*Science* 38 830 (1913)),

A HISTORY OF THE NATIONAL LIBRARY OF MEDICINE

copied by Garrison in his biography of Billings (p 214), that the early growth of the Library after the war was owing the availability of the slush fund for the purchase of books

⁴⁶ Letter, Surg Gen Barnes to J Eaton, Nov 25, 1872, "about one year ago it was decided to make this the National Medical Library, and it is intended to make it as complete as possible in that branch of science" NA One wonders how much of this decision Surgeon General Barnes and Billings were each responsible for It is possible that Billings was the prime mover and that Barnes merely signed Library letters written for him by Billings, but in view of the continual support given the Library by Barnes this seems improbable

⁴⁸ Letter, Barnes to Rep J A Garfield, Jan 6, 1872, also letter, Barnes to Sen L M Morrill, Feb 9, 1872 NA

⁵⁰ Letter, Billings to Gen A de Gorloff, Russian Legation, N Y, [Nov] 1871 NA

An editorial in *Boston Med Surg J* n s 9 May 9, 1872, p 305, quoted Billings as stating that the Library's scope was "military hygiene, medicine and surgery, public hygiene, medical police, and state medicine, including epidemics and quarantine, vital and medical statistics, medical and scientific journals and periodical

literature, chemistry, meteorology and physics "

⁵¹ Letter, Billings to A Jewett, May 13, 1872 MS/C/81

⁵² Information on trips is from documents in the National Archives, Xerox copies of which are in MS/C/273

For example, he visited W H Mussey, book collector, Cincinnati (letter, Mussey to Billings, Sept 20, 1872) and T G Griffiths and D W Yandell, editors, Louisville (letters, Billings to Griffith and Yandell, Oct 10, 1872 MS/C/181)

⁵³ Billings and his clerks began compiling the catalog in 1871, and delivered the manuscript to the printer perhaps around the beginning of 1872 Billings hoped to have it "thro the press" in February 1872 (letter to Surg Eugene Abadie and Surg Warren Webster, Jan 17, 1872 MS/C/81) but apparently it was not completed until Apr (letter to Paul Eve Mar 12, 1872 MS/C/81)

This catalog was thrice as large as the previous catalog of 1868 (454 to 147 pages) and listed twice as many volumes (13,330 to 6066) Books were listed alphabetically by author, periodicals alphabetically by title From p 433 on is an index of the principal subjects

⁵⁴ Editorial, *Boston Med Surg J*, n s 9 305-6 (1872)