NINETY-NINTH

# ANNUAL CATALOGUE

OF THE

# MEDICAL SCHOOL

(BOSTON)

OF

# HARVARD UNIVERSITY.

## 1881-82.

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# THE MEDICAL SCHOOL.

## BOSTON.

INSTRUCTION in this School is given by lectures, recitations, clinical teaching, and practical exercises, uniformly distributed throughout the academic year. The year begins on the Thursday following the last Wednesday in September,* and ends on the last Wednesday in June. There is a recess at Christmas, beginning December 23, and ending January 2; and a spring recess, beginning on the Wednesday before Fast Day, and ending on the following Tuesday, inclusive.

The course of instruction has been greatly enlarged, and is so arranged as to carry the student progressively and systematically from one subject to another, in a just and natural order.

In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory-work is substituted for, or added to, the usual didactic lectures, and is as much required of every student as attendance at lectures and recitations.

The course of study recommended by the Faculty covers four years, but until further notice the degree of Doctor of Medicine will continue to be given upon the completion of three years of study, to be as ample and full as heretofore. The degree of Doctor of Medicine *cum laude* will be given to candidates who have pursued a complete four years' course, and obtained an average of 75 per cent. upon all the examinations of this course. In addition to the ordinary degree of Doctor of Medicine as heretofore obtained, a certificate of attendance on the studies of the fourth year will be given to such students desiring it as shall have attended the course, and have passed a satisfactory examination in the studies of the same.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three and four years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed for regular students through their entire course of study. Every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction, at some time during his period of study.

* That the time of study shall count as a full term, students must present themselves within the first week of the term.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department, without paying additional fees. Students in the Medical School who wish to avail themselves of this opportunity of pursuing scientific or other studies, may do so without loss of time counted as medical study, to such extent and in such manner as the Medical Faculty shall in each case prescribe. Undergraduates intending to study medicine are advised to pay special attention to the study of Natural History, Chemistry, Physics, and the French and German languages, while in College.

## FACULTY.

CHARLES W. ELIOT, LL.D., *President.*
CALVIN ELLIS, M.D., *Dean, and Jackson Professor of Clinical Medicine.*
OLIVER W. HOLMES, M.D., LL.D., *Parkman Professor of Anatomy.*
HENRY J. BIGELOW, M.D., *Professor of Surgery.*
FRANCIS MINOT, M.D., *Hersey Professor of the Theory and Practice of Physic.*
JOHN P. REYNOLDS, M.D., *Professor of Obstetrics.*
HENRY W. WILLIAMS, M.D., *Professor of Ophthalmology.*
DAVID W. CHEEVER, M.D., *Professor of Clinical Surgery.*
JAMES C. WHITE, M.D., *Professor of Dermatology.*
ROBERT T. EDES, M.D., *Professor of Materia Medica.*
HENRY P. BOWDITCH, M.D., *Professor of Physiology.*
FREDERICK I. KNIGHT, M.D., *Instructor in Laryngoscopy.*
CHARLES B. PORTER, M.D., *Instructor in Surgery.*
J. COLLINS WARREN, M.D., *Instructor in Surgery.*
REGINALD H. FITZ, M.D., *Shattuck Professor of Pathological Anatomy.*
WILLIAM L. RICHARDSON, M.D., *Instructor in Obstetrics.*
THOMAS DWIGHT, M.D., *Instructor in Topographical Anatomy and Histology.*
EDWARD S. WOOD, M.D., *Professor of Chemistry.*
HENRY H. A. BEACH, M.D., *Demonstrator of Anatomy.*
WILLIAM H. BAKER, M.D., *Instructor in Gynæcology.*
WILLIAM B. HILLS, M.D., *Instructor in Chemistry.*
WILLIAM F. WHITNEY, M.D., *Curator of the Anatomical Museum.*

## OTHER INSTRUCTORS.

FRANK W. DRAPER, M.D., *Lecturer on Forensic Medicine.*
CHARLES F. FOLSOM, M.D., *Lecturer on Mental Diseases.*
HENRY P. QUINCY, M.D., *Assistant in Histology.*

THOMAS WATERMAN, M.D., *Assistant in Anatomy.*
EDWARD N. WHITTIER, M.D., *Instructor in the Theory and Practice of Physic.*
FRANCIS A. HARRIS, M.D., *Demonstrator of Medico-legal Examinations.*
WILLIAM P. BOLLES, M.D., *Instructor in Materia Medica.*
ELBRIDGE G. CUTLER, M.D., *Assistant in Pathological Anatomy.*
W. STURGIS BIGELOW, M.D., *Assistant in Surgery.*
FRANCIS H. DAVENPORT, M.D., *Assistant in Gynaecology.*
GEORGE M. GARLAND, M.D., *Assistant in Clinical Medicine.*
MAURICE H. RICHARDSON, M.D., *Assistant in Anatomy.*
CHARLES S. MINOT, S.D., *Lecturer on Embryology.*
WILLIAM C. EMERSON, M.D., *Assistant in Chemistry.*
WALTER J. OTIS, M.D., *Prosector in Surgical Anatomy.*

The following gentlemen will give special clinical instruction: —

FRANCIS B. GREENOUGH, M.D., *in Syphilis.*
J. ORNE GREEN, M.D., and CLARENCE J. BLAKE, M.D., *in Otology.*
AMOS L. MASON, M.D., and FREDERICK C. SHATTUCK, M.D., *in Auscultation.*
JOSEPH P. OLIVER, M.D., and THOMAS M. ROTCH, M.D., *in Diseases of Children.*
SAMUEL G. WEBBER, M.D., and JAMES J. PUTNAM, M.D., *in Diseases of the Nervous System.*
JOHN HOMANS, M.D., *in the Diagnosis and Treatment of Ovarian Tumors.*
OLIVER F. WADSWORTH, M.D., *in Ophthalmoscopy.*
THOMAS B. CURTIS, M.D., *in Diseases of the Urinary Organs.*
JAMES R. CHADWICK, M.D., *in Diseases of Women.*
EDWARD H. BRADFORD, M.D., *in Clinical Surgery.*

The Medical College is on North Grove Street, Boston, and the address of the Secretary is Dr. R. H. Fitz, 18 Arlington St., Boston.

## STUDENTS.

### Course for Graduates.

| | |
|---|---|
| Cobb, Charles Henry, M.D., | *Boston.* |
| Daniels, Edwin Alfred, M.D., | *Medway.* |
| Gardner, Edwin Fisher, M.D., | *U. S. Army.* |
| Littlefield, Joseph Dana, M.D. (*Univ. of Pa.*), | *Somerville.* |
| Metcalf, Simeon McCausland, M.D., | *Somerville.* |
| Robinson, Samuel Quincy, B.S. (*Dart. Coll.*), M.D., | *U. S. Army.* |
| Sturgis, Russell, 3d, A.B., M.D., | *Boston.* |
| Terry, Charles Church, M.D. (*N. Y. Med. Coll.*), | *Fall River.* |
| Tower, Charles Bates, M.D., | *Cambridge.* |

### Fourth Class.

| | |
|---|---|
| Adams, Henry Fiske, | *Peterboro', N. H.* |
| Beckwith, Fred Jason, A.B. (*Yale Coll.*), | *New London, Conn.* |
| Brainerd, John Bliss, | *St. Albans, Vt.* |
| Buck, Howard Mendenhall, A.B., | *Boston.* |
| Clark, Joseph Eddy, | *Boston.* |
| Denny, Charles Frederic, | *Boston.* |
| Dunbar, Franklin Asaph, A.B., | *Cambridge.* |
| Griffin, Arthur George, | *Litchfield, N. H.* |
| Knapp, Philip Coombs, Jr., A.B., | *Boston.* |
| Wood, Henry Austin, A.B., | *Upton.* |

### Third Class.

| | |
|---|---|
| Aiken, William Henry, A.B., | *Somerville.* |
| Allen, Bradford, S.B. (*Amherst Coll.*), | *E. Bridgewater.* |
| Allen, Gardner Weld, A.B., | *Cambridge.* |
| Atkins, Edgar Chester, | *Marlboro'.* |
| Baird, Reed McColloch, | *Wheeling, W. Va.* |
| Baker, David Erastus, S.B. (*Bost. Univ.*), | *Franklin.* |
| Bell, Robert, | *Boston.* |
| Bigelow, Enos Hoyt, B.S. (*Worcester Free Inst.*), | *Framingham.* |
| Briggs, Frederic Melancthon, A.B., | *Boston.* |
| Broderick, Thomas Joseph, | *Cambridge.* |
| Brooks, Stephen Driver, A.B. (*Amherst Coll.*), | *Salem.* |
| Burgess, Arthur Joseph, | *Cambridge.* |
| Burr, Charles Henry, S.B., | *Cambridge.* |
| Chandler, Frederick Alpheus, | *Addison, Me.* |
| Cheever, Clarence Alonzo, | *Wrentham.* |
| Conant, William Merritt, A.B., | *Bridgewater.* |
| Crosby, John Abbott, S.B. (*Olivet Coll., Mich.*), | *N. Buffalo, Mich.* |
| Delano, Samuel, A.B., | *W. Medford.* |
| Devine, William Henry, | *Boston.* |

| | |
|---|---|
| Dunn, Charles Stein, | *Dover, N. H.* |
| Fales, Willard Henry, A.B. (*Tufts Coll.*), | *Boston.* |
| Ford, Lester Sackett, B.A.S., | *Washington, Conn.* |
| Foster, Warren Wooden, | *E. Killingly, Conn.* |
| Galligan, Eugene Thomas, | *Taunton.* |
| Galloupe, Charles William, 2d, A.B., | *Lynn.* |
| Goss, Ossian Wilbur, | *Lake Village, N. H.* |
| Heustis, James Walter, | *Boston.* |
| Hibbard, Nathaniel, A.B. (*Brown Univ.*), | *Providence, R. I.* |
| Hodgdon, Andrew Hall, A.B., | *Arlington.* |
| Holden, Charles Sumner, | *Leesburg, Fla.* |
| Holmes, William Dennison, | *Boston.* |
| Hubbard, Rufus Peabody, | *Wells, Me.* |
| Huse, George Wood, A.B., | *Newburyport.* |
| Jackson, Alton Atwell, | *E. Jefferson, Me.* |
| Johnson, Frank Mackie, S.B. (*Amherst Coll.*), | *Norwich, Conn.* |
| Jordan, Herbert Stanton, | *Brownfield, Me.* |
| Kennedy, Fred William, | *Lawrence.* |
| Kimball, George Morrill, A.B. (*Yale Coll.*), | *Concord, N. H.* |
| Kimball, Samuel Ayer, A.B. (*Yale Coll.*), | *Bath, Me.* |
| Lawler, Thomas Joseph, | *Boston.* |
| Litchfield, William Harvey, | *Hull.* |
| Mackenzie, Freeman Alexander, | *Boston.* |
| Marden, Orrison Swett, A.M., LL.B. (*Boston Univ.*), | *Boston.* |
| Martin, Francis Coffin, A.B., | *Boston.* |
| Mason, Atherton Perry, A.B., | *Fitchburg.* |
| McLauthlin, Herbert Weston, A.B. (*Amherst Coll.*), | *Kingston.* |
| McOwen, William Henry, | *Lowell.* |
| Miller, George Norton, A.B., | *New York, N. Y.* |
| Mills, Charles Fisher, | *Brooklyn, N. Y.* |
| Morris, John Gavin, A.B., | *Boston.* |
| Morrison, William Frank, | *Bristol, R. I.* |
| Murphy, Joseph Briggs, | *Taunton.* |
| Newhall, Herbert William, A.B., | *Lynn.* |
| Norwood, Ephraim Wood, A.M. (*Colby Univ.*), | *Boston.* |
| Otis, Henry Sharwood, | *Exeter, N. H.* |
| Parker, Hervey Ward, A.B. (*Brown Univ.*), | *New Bedford.* |
| Preble, Wallace, A.B., | *Portland, Me.* |
| Richards, George Edward, A.B., | *Cambridge.* |
| Rundlett, Henry Albert Pierce, A.B. (*Bates Coll.*), | *Dover, N. H.* |
| Shea, Andrew Francis, | *Cambridge.* |
| Shepard, George Clarence, A.B., | *Boston.* |
| Sinclair, Charles Frederic, D.B., | *Boston.* |
| Smith, Asbury Gilbert, | *Stoneham.* |

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|---|---|
| Smith, Howard Hutchins, PH.B. (*Wesleyan Univ.*), | *Middletown, Conn.* |
| Smith, Willard Everett, A.B., | *Newtonville.* |
| Sparhawk, Clement Willis, | *Cambridge.* |
| Stevens, William Caldwell, A.B. (*Amherst Coll.*), | *Worcester.* |
| Sullivan, James Francis, | *Lowell.* |
| Swan, Roscoe Wesley, S.B. (*Mass. Agr. Coll.*), | *Framingham.* |
| Sweeny, Henry Lee, | *Hanover.* |
| Thompson, George Eben, S.B. (*Dart. Coll.*), | *Dover, N. H.* |
| Trumbull, John, A.B. (*Yale Coll.*), | *Valparaiso, Chili.* |
| Tuckerman, Frederick, S.B. (*Boston Univ.*), | *Boston.* |
| Walsh, Frank Winfield, | *Boston.* |
| Weil, Frank Edward, | *N. Andover.* |
| Welch, Stephen Albro, A.B. (*Brown Univ.*), | *Warren, R. I.* |
| Wells, James Lee, A.B. (*Brown Univ.*), | *Hopkinton, R. I.* |
| White, Leonard Darling, | *Uxbridge.* |
| Whitridge, Roland Barker, | *Boston.* |
| Woodbury, George Franklin, | *Sutton.* |

**Second Class.**

| | |
|---|---|
| Aldrich, Albert Clinton, A.B., | *Somerville.* |
| Allen, Louis Edmund, A.B. (*Williams Coll.*), | *Pittsfield.* |
| Atwood, Charles Augustus, | *Taunton.* |
| Ayer, Silas Hibbard, | *Chelsea.* |
| Baldwin, Henry Cutler, A.B., | *Somerville.* |
| Barstow, Henry Taylor, A.B., | *Boston.* |
| Brackett, Elliott Gray, | *Winchester.* |
| Brown, Daniel Joseph, | *Milford.* |
| Buckley, Philip Townsend, A.B., | *Boston.* |
| Carll, Walter Edward, | *Greenfield.* |
| Chase, George Thorndike, A.B., | *Salem.* |
| Clark, Arthur Wellington, | *Lawrence.* |
| Cogswell, Charles Hale, A.B. (*Dart. Coll.*), | *N. Easton.* |
| Cole, Ralph Marcus, | *Middletown, Conn.* |
| Couch, Joseph Daniel, | *Boston.* |
| Currier, George Washington, | *Lawrence.* |
| Cutts, Harry Madison, A.B. (*Coll. of N. J.*), | *Washington, D. C.* |
| Daniels, Frank Herbert, A.B., | *Boston.* |
| Donovan, Michael Ricard, A.B. (*Georgetown Coll.*), | *Lynn.* |
| Faunce, Robert Harris, | *Sandwich.* |
| Field, James Brainerd, A.B., | *Boston.* |
| Finnigan, Patrick Joseph, A.B. (*Holy Cross Coll.*), | *Worcester.* |
| Foster, Charles Chauncy, A.B., | *Cambridge.* |
| French, George Morrill, A.B. (*Boston Univ.*), | *Cambridge.* |

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|---|---|
| Friend, Walter Morrison, A.B. (*Tufts Coll.*), | *Gloucester.* |
| Fuller, Eugene, A.B., | *Cambridge.* |
| Gage, James Arthur, A.M., | *Lowell.* |
| Gay, Frederick Lewis, | *Boston.* |
| Grimm, Charles Henry, | *San Francisco, Cal.* |
| Guitéras, Ramon Benjamin, | *Bristol, R. I.* |
| Hall, William Dudley, A.B., | *Bridgeport, Conn.* |
| Haven, George, | *Portsmouth, N. H.* |
| Holden, Francis Marion, | *Boston.* |
| Hooker, Edward Dwight, | *Cambridge.* |
| Jack, Frederick Lafayette, | *Boston.* |
| Jackson, Henry, A.B., | *Boston.* |
| Keith, Wallace Cushing, A.B. (*Amherst Coll.*), | *Campello.* |
| Kemble, Laurence Grafton, | *Salem.* |
| Kilburn, Henry Whitman, A.B., | *Lowell.* |
| Knowles, William Fletcher, Jr., | *Cambridge.* |
| Lincoln, Arthur Talbot, S.B. (*Amherst Coll.*), | *Dennysville, Me.* |
| Lincoln, John Clifford, | *Norton.* |
| MacKaye, Henry Goodwin, A.B., | *Boston.* |
| McDonald, Rufus Cyrene, | *Brookline.* |
| Nash, George William, A.B., | *Cambridge.* |
| Otterson, William David, | *Nashua, N. H.* |
| Pfeiffer, Oscar Joseph, A.B. (*Dart. Coll.*), | *Portsmouth, N. H.* |
| Pigeon, James Cogswell Du Maresque, A.M. (*Coll. of N. J.*), | *Derry, N. H.* |
| Ripley, Frederick Jerome, A.B. (*Dart. Coll.*), | *N. Easton.* |
| Round, Arthur Morey, PH.B. (*Brown Univ.*), | *Norton.* |
| Scofield, Columbus Sewell, | *Wilbraham.* |
| Simpson, Charles Edward, | *Lowell.* |
| Stetson, Hayward, A.B., | *Bangor, Me.* |
| Stevens, William Stanford, A.B., | *Boston.* |
| Stone, Eugene Potter, | *Boisé Barracks, Idaho.* |
| Symonds, Benjamin Ropes, Jr., | *Salem.* |
| Taylor, Charles Warren, | *Lowell.* |
| Trumbull, Stephen, A.B. (*Yale Coll.*), | *Valparaiso, Chili.* |
| Tyler, Waldo Henry, | *Holliston.* |
| Warren, Charles Everett, A.B., | *Boston.* |
| Webster, Charles Edward, | *Binghamton, N. Y.* |
| Wood, Leonard, | *Pocassett.* |
| Worcester, Alfred, A.M., | *Waltham.* |

**First Class.**

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|---|---|
| Abbe, Alanson Joseph, A.B., | *Dorchester.* |
| Anderson, William Herman, | *N. Woburn.* |

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| Baum, Pinckney Abram, | *Georgetown, S. C.* |
| Bemis, John Merrick, | *Worcester.* |
| Boardman, George Jordan, B.S. (*N. H. Agricultural Coll.*), | *Lawrence.* |
| Boardman, William Sydney, A.B. (*Amherst Coll.*), | *Newburyport.* |
| Boyd, Samuel George, | *Nassau, Bahamas.* |
| Brown, Frank Dillon, A.B. (*Louisville High School*), | *Louisville, Ky.* |
| Brown, Wilfred Gardner, | *Leicester.* |
| Burgess, Oliver Graham, | *Boston.* |
| Burt, Frank Leslie, PH.B. (*Tufts Coll.*), | *Adams.* |
| Byrne, William James Edward, | *Boston.* |
| Colburn, Willis William, | *Boston.* |
| Cole, George Edward, | *Sheboygan, Wis.* |
| Conlan, James Francis, | *Cambridge.* |
| Conlan, Simon Bernard, A.B. (*Holy Cross Coll.*), | *Cambridge.* |
| Coolbroth, Frank Herbert, | *Hollidaysburgh, Pa.* |
| Coolidge, Algernon, Jr., A.B., | *Boston.* |
| Copp, Owen, A.B. (*Dart. Coll.*), | *Methuen.* |
| Cordeiro, Frederic Joaquim Barbosa, A.B., | *Boston.* |
| Craig, Sydney Morgan, | *Pittsburg, Pa.* |
| Durant, Charles Edwin, | *Haverhill.* |
| Farwell, Asa John, A.B. (*Yale Coll.*), | *Hartford, Conn.* |
| Faulkner, Herbert Kimball, | *Keene, N. H.* |
| Fernald, Frank Clinton, A.B., | *Philadelphia, Pa.* |
| Gates, George Wellesley, | *Wilmot, N. S.* |
| Gerry, George Henry, | *Lowell.* |
| Gleeson, William Joseph, | *Boston.* |
| Greenleaf, Robert Willard, A.B., | *Boston.* |
| Holcombe, Charles Henry, | *Milford, N. H.* |
| Howe, Oliver Hunt, | *Dedham.* |
| Hussey, Frederick Daniel, | *Boston.* |
| Hyland, Jesse Burdette, | *Keene, N. H.* |
| Jeffries, John Amory, A.B., | *Boston.* |
| Jelly, Arthur Carlton, A.B., | *Sacramento, Cal.* |
| Jones, Henry Martin, B.S. (*Lewis Coll.*), | *Kingston.* |
| Kimpton, Edwin Sewell, | *E. Somerville.* |
| Kinnier, Dennis Francis, | *Randolph.* |
| Lane, Edward Binney, A.B., | *Cambridge.* |
| Leonard, Charles Gale, A.B. (*Tufts Coll.*), | *Somerville.* |
| Litch, John Goodrich, | *Boston.* |
| Lovett, Robert Williamson, A.B., | *Beverly.* |
| Lux, Frederick William, | *San Francisco, Cal.* |
| MacDonald, William Gregory, A.B. (*Boston Coll.*), | *Boston.* |
| McKee, Stewart, | *Leavenworth, Kans.* |
| Mitchell, John Singleton, | *Boston.* |

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|---|---|
| Morrill, Fred Hiram, | *Nashua, N. H.* |
| Munro, Walter Lee, A.B. (*Brown Univ.*), | *Bristol, R. I.* |
| Munroe, John Cummings, A.B., | *Lexington.* |
| Murphy, Frank Charles, | *Taunton.* |
| Murphy, Joseph Patrick, | *Boston.* |
| Noyes, William, Jr., A.B., | *Malden.* |
| O'Reiley, William Joseph, A.B. (*Boston Univ.*), | *Boston.* |
| Owens, John Gabriel, | *Fredericton, N. B.* |
| Phillips, Jerrie Knowlton, | *Bangor, Me.* |
| Potter, Silas Allen, A.B., | *Boston.* |
| Prescott, William Herbert, | *Concord.* |
| Purcell, Thomas Albert, A.B. (*Holy Cross Coll.*), | *Worcester.* |
| Reynolds, Edward, A.B., | *Boston.* |
| Richardson, William Shedd, | *Sturbridge.* |
| Sanford, Abbott, A.M. (*Amherst Coll.*), | *E. Bridgewater.* |
| Schram, Charles, A.B. (*Yale Coll.*), | *Milwaukee, Wis.* |
| Sears, George Gray, A.B. (*Amherst Coll.*), | *Boston.* |
| Spring, Clarence Walter, A.B. (*Dart. Coll.*), | *Lebanon, N. H.* |
| Stearns, Charles A, A.B. (*Amherst Coll.*), | *Worcester.* |
| Strong, Frederick Emerson, | *Lancaster, Wis.* |
| Stuart, Frederic William, A.B., | *Boston.* |
| Supple, Bernard Francis, | *Boston.* |
| Swan, William Donnison, A.B., | *Cambridge.* |
| Swift, Robert, B.S., | *Boston.* |
| Taft, Charles Ezra, | *Dedham.* |
| Talbot, Ambrose, Jr., A.B., | *Everett.* |
| Thissell, Joseph Abbott, | *Beverly.* |
| Townsend, Charles Wendell, A.B., | *Boston.* |
| Tucker, Curtis Allen, | *Westboro'.* |
| Tucker, Ernest Fanning, A.B. (*Swarthmore Coll.*), | *New York, N. Y.* |
| Tuttle, Karl Rand, | *Watertown.* |
| Twitchell, Edward Thayer, | *Keene, N. H.* |
| Warriner, Myron Anson, | *Warren.* |
| Watson, Willis, A.B., | *Philadelphia, Pa.* |
| Wellington, Charles Berwick, | *Cambridge.* |

## SUMMARY.

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|---|---|
| Graduates' Course | 9 |
| Fourth Class | 10 |
| Third Class | 80 |
| Second Class | 63 |
| First Class | 81 |
| Total | 243 |

# THE MEDICAL SCHOOL.

## REQUISITES FOR ADMISSION.

All candidates for admission, excepting those who have passed an examination for admission to Harvard College, must present a degree in Letters or Science from a recognized college or scientific school, or pass an examination, on the Monday preceding the last Wednesday in June or September, at 10 A.M., in the following subjects: —

1. ENGLISH. Every candidate shall be required to write, legibly and correctly, an English composition of not less than two hundred words, and also to write English prose from dictation.

2. LATIN. The translation of easy Latin prose.

3. PHYSICS. A competent knowledge of Physics (such as may be obtained from Balfour Stewart's Elements of Physics).

4. ELECTIVE SUBJECT. Each candidate shall pass an approved examination in such one of the following branches as he may elect: French, German, the Elements of Algebra or of Plane Geometry, Botany.

Whenever the candidate shall give evidence of having passed a satisfactory examination in any of the above requirements either at Harvard College or at the Lawrence Scientific School, a subsequent examination in such subjects will not be demanded for his admission to the Medical School.

The examinations will be conducted in writing, and specimens of the papers used will be sent on application to the Secretary. In judging the work of the candidate, the spelling, grammar, and construction will be considered.

Graduates in medicine will not be required to pass this examination on joining the school.

No student becomes a member of the school until he has registered his name with the Secretary of the Faculty.

## DIVISION OF STUDIES.

### FOUR YEARS' COURSE.

*For the First Year.* — Anatomy, Physiology, and General Chemistry.*

* Any student who shall have previously passed in the Undergraduate department or Scientific School of Harvard University an examination in General Chemistry (including qualitative analysis) will be exempt from examination in this branch, and may pursue the study of Medical Chemistry during his first year. The latter privilege will be granted to students from other colleges and scientific schools who have received instruction in gen-

*For the Second Year.* — Practical and Topographical Anatomy, Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, Surgery, and Clinical Surgery.

*For the Third Year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

*For the Fourth Year.* — Ophthalmology, Otology, Dermatology, Syphilis, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Obstetrics, Clinical and Operative Obstetrics, Clinical Medicine, Clinical and Operative Surgery, Hygiene, Forensic Medicine.

### Three Years' Course.

*For the First Year.* — Anatomy, Physiology, and General Chemistry.*

*For the Second Year.* — Practical and Topographical Anatomy, Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, and Clinical Surgery.

*For the Third Year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, Clinical Surgery, Ophthalmology, Dermatology, Syphilis, Otology, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Hygiene, Forensic Medicine.

## METHODS OF INSTRUCTION.

The following methods of instruction are adopted in the several departments: —

*Anatomy.* — Lectures; various practical exercises, including abundant dissection, under the direction of the Demonstrator; recitations from text-books; histology.

*Physiology.* — Lectures, recitations, conferences, and practical demonstrations in the Laboratory. To students of the second, third, and fourth classes, opportunities are given for original investigations in the Laboratory.

*Chemistry* is taught mainly by practical work in the Laboratory, the student having his own desk and apparatus. General Chemistry and qualitative analysis are taught during the first year. Besides the laboratory-work, there is a lecture and a recitation every week. In the second year medical chemistry is taught by lectures, recitations, and exercises in the Laboratory.

eral chemistry equivalent in character and amount to that of the first year, on passing a satisfactory examination at the September examination, provided that satisfactory evidence of such previous study be sent to the Secretary of the Faculty one month before the date of this examination.

* See note, p. 12.

*Pathological Anatomy* is taught by lectures, recitations, and practical instruction in pathological histology. The collection of the Warren Anatomical Museum is used to illustrate the lectures; and many morbid specimens are shown in a fresh state. Students also receive practical instruction in the method of making autopsies, and are admitted to those made at both hospitals. Special classes in pathological histology, including the diagnosis of tumors, are formed for those who are provided with a microscope. Such students are required to prepare the various objects. The school possesses a number of microscopes for the use of those students whose means will not permit the purchase of an instrument.

*Materia Medica and Therapeutics.* — Materia Medica is taught by lectures and practical demonstrations. Therapeutics, or the physiological action of drugs and their application to disease, is taught in the third year, by lectures, recitations, and hospital exercises.

*The Theory and Practice of Medicine.* — Lectures, recitations, and hospital visits.

*Clinical Medicine.* — Daily instruction is given in this department by hospital visits and other exercises. Students are furnished with cases for personal examination, and are called upon to report them before the class, where they are criticised. These examinations are held both in the wards and in the amphitheatre. Another exercise, known as the "Clinical Conference," affords an opportunity for more thorough preparation of cases, more time being allowed for their study. The full written report of a case is read by the student who has examined it. It is afterwards criticised by the class, by the Professor of Clinical Medicine, and other teachers in the school. In addition to this, a regular course of supplementary instruction is given in Auscultation and Percussion, and in Laryngoscopy, which affords students an abundant opportunity for acquiring a thoroughly practical knowledge of these methods of exploration.

*Surgery.* — Lectures and recitations. There are also courses on Surgical Anatomy, Minor Surgery, Surgical Histology, Bandaging, and Operative Surgery. In the latter, students of the third and fourth classes are supplied with material for repeating the usual surgical operations.

Instruction in Clinical Surgery is given at the Massachusetts General Hospital and City Hospital, throughout the year, as follows: —

First Half-Year. — Clinical Lectures on cases, per week, 2; Surgical Visits in the hospital wards, per week, 2; public operating days, per week, 2. Total number of exercises per week, 6.

Second Half-Year. — Clinical Lectures on cases, per week, 1; Surgical Visits in the hospital wards, per week, 3; public operating days, per week 3. Total number of exercises per week, 7.

The Professor of Clinical Surgery holds an exercise twice a week, in winter, at the City Hospital. On one day, a clinical lecture is given over surgical cases brought into the operating theatre, illustrated by explorations and operations. On the other day, a bedside clinic is held in the wards. A third exercise is held each week in winter, in the form of a surgical conference, at which third and fourth year students make a full written report of a surgical case, which is then criticised by their fellow-students and by the Professor; a similar exercise is also held at the Massachusetts General Hospital. Every candidate for a degree is required to report a clinical case in surgery.

*Obstetrics.* — Lectures and recitations. Students are instructed in the usual operations on the manikin, and will have opportunities to take charge of cases of obstetrics in their third year. A course of operative obstetrics, with practical illustrations on the cadaver, is given.

*Diseases of Women.* — Lectures, recitations, and practical instruction at the different dispensaries in the education of the touch. Here also every facility is given the student to become familiar with the different forms of uterine disease. A course in operative gynaecology extending throughout the year at the Free Hospital for Women is open to students of the third and fourth classes. To students of the fourth class and to post-graduates cases are assigned for personal examination; these cases are reported in full at the clinical conference, and are made the subject of discussion by members of the class and the instructor. These students are also called upon to assist at the operations in the operative course.

*Diseases of Children.* — Lectures and Clinical Instruction.

*Ophthalmology.* — A complete course is delivered upon the diseases of the eye, including clinical instruction and the use of the ophthalmoscope.

*Dermatology* is taught by lectures and clinical illustrations. The special out-patient department at the Massachusetts General Hospital furnishes ample opportunities for illustration.

*Syphilis.* — Recitations and clinical instruction.

*Otology.* — Lectures and clinical instruction.

*Laryngology.* — Lectures and Demonstrations.

*Diseases of the Nervous System.* — Lectures and Demonstrations.

*Forensic Medicine.* — Lectures and Demonstrations.

*Embryology.* — Lectures.

## TEXT-BOOKS.

The following works are recommended as text-books, and for collateral reading and consultation: —

| *Text-Books.* | *Collateral Reading.* |
|---|---|

### Anatomy.

| | |
|---|---|
| Gray, Wilson, Leidy, Turner. | Quain (edition of 1876). |
| Hodges's Practical Dissections. | Holden's Osteology. |
| Holden's Manual. | Stricker's Manual of Histology. |
| Holden's Landmarks. | Frey's Histology. |
| | Frey's Microscopic Technology. |
| | Tyson's Cell Doctrine. |
| | Klein's Atlas of Histology. |

### Topographical Anatomy.

| | |
|---|---|
| Dwight's Frozen Sections of a Child. | Tillaux, Anatomie Topographique. |
| | Holden's Landmarks. |
| | Dwight's Anatomy of the Head. |

### Physiology.

| | |
|---|---|
| Dalton's Human Physiology. | Pavy on Food and Dietetics. |
| Foster's Text-book of Physiology. | Fick, Compendium der Physiologie. |
| Huxley's Elementary Lessons in Physiology. | Fick, Medicinische Physik. |
| Martin, The Human Body. | Sanderson's Hand-book for the Physiological Laboratory. |
| | Flint's Physiology of Man. |
| | Carpenter's Principles of Human Physiology. |
| | Gamgee's Physiological Chemistry of the Animal Body. |

### General Chemistry.

| | |
|---|---|
| Bloxam's Chemistry, Inorganic and Organic. | Roscoe and Schorlemmer's Treatise on Chemistry. |
| Clowes's Elementary Treatise on Practical and Qualitative Inorganic Analysis. | |

### Medical Chemistry.

| | |
|---|---|
| Neubauer and Vogel, Analysis of the Urine. | Kingzett, Animal Chemistry. |
| Tyson's Guide to the Practical Examination of the Urine. | Gorup-Besanez, Physiologische Chemie. |
| Reese's Manual of Toxicology. | Taylor on Poisons. |
| | Tardieu, Étude médico-légale et clinique sur l'Empoisonnement. |

| *Text-Books.* | *Collateral Reading.* |
|---|---|

### Materia Medica.

| | |
|---|---|
| National Dispensatory, Stillé and Maisch. | United States Dispensatory.<br>Flückiger and Hambury's Pharmakographia. |

### Pathological Anatomy.

| | |
|---|---|
| Wagner's Manual of General Pathology. | Cornil and Ranvier's Pathological Histology. |
| Orth's Compend of Diagnosis in Pathological Anatomy. | Jones and Sieveking's Pathological Anatomy (Payne's edition).<br>Wilks's Pathological Anatomy (Moxon's edition). |

### Therapeutics.

| | |
|---|---|
| H. C. Wood's Therapeutics.<br>Mann's Prescription Writing.<br>Chamber's Manual of Diet. | Stillé's Therapeutics and Materia Medica.<br>Bartholow's Materia Medica and Therapeutics.<br>Ringer's Therapeutics. |

### Obstetrics.

| | |
|---|---|
| Playfair's System of Midwifery. | Schroeder's Manual of Midwifery.<br>Cazeaux's Midwifery.<br>Winckel's Diseases of Childbed.<br>Barker's Puerperal Diseases.<br>Barnes's Obstetric Operations. |

### Theory and Practice.

| | |
|---|---|
| Flint's Practice of Medicine. | Roberts's Hand-book of Theory and Practice of Medicine.<br>Jaccoud, Traité de Pathologie Interne.<br>Bennett's Clinical Lectures on the Principles and Practice of Medicine.<br>Bristowe's Theory and Practice of Medicine.<br>Flint's Clinical Medicine.<br>Niemeyer's Text-book of Practical Medicine. |

| *Text-Books.* | *Collateral Reading.* |
|---|---|

SURGERY.

| | |
|---|---|
| Bryant's Practice of Surgery. | Heath's Minor Surgery and Bandaging. |
| Billroth's Surgical Pathology. | Guérin, Éléments de Chirurgie Opératoire. |
| | Holmes's System of Surgery. |
| | Cooper's Surgical Dict. (1872). |
| | Holden's Landmarks, Medical and Surgical. |
| | Braune's Atlas of Topographical Anatomy, translated by Bellamy. |

GYNAECOLOGY.

| | |
|---|---|
| Thomas on the Diseases of Women. Fifth Edition. | Emmet's Principles and Practice of Gynaecology. |
| | Klob's Pathological Anatomy of the Female Sexual Organs. |
| | Savage, The Surgery, Surgical Pathology, and Surgical Anatomy of the Female Pelvic Organs. |

*The following tabular view will illustrate the distribution of studies throughout the year.*

## 1881-82, FROM SEPTEMBER 29 TO JUNE 28.

### FIRST CLASS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 | Histology till May. | Laboratory. | Laboratory. | Laboratory. | Laboratory. | Laboratory. |
| 10 | | Chem. L. or R., first 10 weeks. | Laboratory. | Laboratory. | Chemistry, R. | Physiology, R. |
| 11 | Physiology, L. or Conf. | Physiology, L. | Chemistry, L. | Histology till May. | Physiology, L. | Laboratory. |
| 12 | Laboratory. | Laboratory. | Laboratory. | | Laboratory. | Museum. |
| 1 | Anatomy, L. till May. | Anatomy, L. till May. | Embryology, Mar. till June. | Anatomy, L. till May. | Anatomy, R. till May. | |
| 3 | Laboratory. | Laboratory. | Laboratory. | Laboratory. | Laboratory. | |
| 5 | Prac. Anat., Jan. till May. | Prac. Anat., Jan. till May. | Prac. Anat., Jan. till May. | Prac. Anat., Jan. till May. | Prac. Anat., Jan. till May. | |

## SECOND CLASS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 | Clin. Med., B. C. H. *Laryngos'py. | B. C. H. Med. Visit. Bost. Dispen. *Laryngos'py. | M. G. H. Med. Visit. till Nov. Clin. Med., L. after Oct. *Laryngos'py. | Materia Medica. *Laryngos'py. | Bost. Disp. *Laryngos'py. | Clin. Med., L. *Laryngos'py. |
| 10 | | B. C. H. Clin. Surg., Dec. till April. | Bandaging. | Chemistry, L. | B. C. H. Surg. Visit. | M. G. H. Surg. Visit. |
| 11 | Clin. Surg., till March. *Auscultation | *Auscultation | *Auscultation | *Auscultation | B. C. H. Op. *Auscultation | M. G. H. Op. |
| 12 | Path. Anat., L. | Laboratory. | Top. Anat. | M. G. H. Surg. Conf., after Feb. | Chemistry, R. | Museum. |
| 3 | Path. Histology. | Path. Anat., R. | Path. Anat., L. | Path. Hist. | Path. Anat., R. | |
| 4 | | Surgery, R. | | | Clinical Conf. | |
| 5 | Pract. Anat., till May. | Pract. Anat., till May. | Pract. Anat., till May. | Pract. Anat., till May. | Pract. Anat., till May. | |

* Till February in sections.

## THIRD CLASS.

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 | Clin. Med., B. C. H. E. and E. Inf. | B. C. H. Med. Visit. Boston Disp. | M. G. H. Med. Vis. till Nov. Clin. Med., L. after Oct. | | B. C. H. Ophthal. Clin. Otology. | Clinical Med., L. |
| 10 | | B. C. H. Clin. Surg., Dec. till April. | Clin. Dermatol. | Theo. & Pract. L. | B C. H. Surg. Visit. Boston Disp. | M. G. H. Surg. Visit. |
| 11 | Clin. Sur., till March. ForensicMed., after Feb. | Dis. of Nerv. Sys., till Feb. After March Mental Dis. | Surg. L. or Conf. till Apr. *Gynaecology till April. | Surg. till Mar. M. G. H. Med. Visit. after Feb. | B. C. H. Op. Dis. of Chil., till Feb. Syphilis. | M. G. H. Op. *Gynaecology till April. |
| 12 | Theo. & Prac. L. | Surg. L. till Dec. Surg. Anat. & Op. Surg., Mar. & Apr. | Diseases of Children, Nov. to May. | Obstetrics, L. | Surg. Anat. & Op. Surg., Mar. & Apr. | Museum. |
| 2 | Gynaecol. L. | | | | | |
| 3 | Obstetrics, L. | Theo. and Prac., R. | Obstetrics, R. | Ophthal. *Gynaecol. | Theo. and Prac , R. | Mental Dis. Clinic. |
| 4 | Therapeutics, L. | Dermatology, L. | Therapeutics, L. | Therapeutics, R. | Clinical Conf. | |

The practical course in Operative Surgery, for third-year students, will be given from 4 to 6 P.M., after May 1st, and the course in Operative Obstetrics from 2 till 4 P.M., during two weeks in February; conflicting exercises will be omitted during their continuance.

* At the Boston Dispensary or Free Hospital for Women, in sections.

The Annual Examinations begin June 12; all conflicting exercises then cease.

## FOURTH CLASS.*

| Hour. | Monday. | Tuesday. | Wednesday. | Thursday. | Friday. | Saturday. |
|---|---|---|---|---|---|---|
| 9 | Ophthal., B.C.H., C & D Oct. Nov. Dec. A & B Ap. May June Otol., E. & E. Inf., A & B, Nov. Dec. Jan. B.C.H., C & D, Jan. Feb. Mar. | Dis. of Ner. Sys., B.C.H. C & D till Feb. Laryngology, Feb. and Mar. | Ophthal., B.C.H., C & D Oct. Nov. Dec. A & B Ap. May Jun. Otol., E. & E. Inf., A & B Nov. Dec. Jan. B.C.H., C & D, Jan. Feb. Mar. | Dis. of Nerv. Syst., B. C. H. C & D till Feb. Laryngology, Feb. and Mar. | Laryngology, Feb. & Mar. | Clin. Med., Bost. Disp. |
| 10 | Dis. of Chil., A & B till Feb. C & D after Jan. M. G. H. Surg. Oct. | Dermatol., A & B till Feb. C & D after Jan. | Dermatol., A & B till Feb. C & D, after Jan. M. G. H. Sur. Oct. | Dis. of Chil., A & B till Feb C & D after Jan. | Dermatology, A & B till Feb. C & D after Jan. | Dis. of Chil., A & B, till Feb. C & D after Jan. |
| 11 | Syphilis, A till Feb. C after Jan. Gynaecology, B till Feb., D after Jan. Clin. Obstet., C Oct. Nov. Dec. A Ap. May Ju. | Dis. of Nerv. Sys., M. G. H. A & B after Jan. Ophthalm., M. G. H. A & B Dec Jan. C & D Feb. Mar. | Syphilis, B till Feb. D after Feb. Gynaecology, C & D till Feb. A & B after Feb. A till Feb. C after Jan. | Dis. of Nerv. System, M. G. H. A & B aft. Jan. Oph., M. G. H. A & B Dec. Jan. C & D Feb. Mar. | Gynaecology, A or B till Feb. C or D aft. Jan. Clin. Obstet., D Oct. Nov. Dec. B, Apr. May, June. | Gynaecology, C & D till Feb. A & B after Jan. |
| 12 | Clin. Surg., M. G. H. after Feb. | | M. G. H. Surg. after Oct. | M. G. H. Surg. Oct. | Urinary Dis. Mar. Ap. May. | |
| 2 | Gynaecol., L. | | | | | |
| 3 | Obstetrics, L. | Gynaecol., Conf. | | Ophthal , L. Gynaecology, Free Hospital, C & D till Feb. A & B aft. Jan. | Forensic Med., A & B till Feb. C & D aft. Jan. | Mental Dis. Clinic. |
| 4 | Orthoped Sur. after March. | Dermatology, L. | Ovar. Tumors, Oct. & Nov. Orthoped Sur. after March. | Clin. Med., B. C. H. | | |

* Divided into Sections A, B, C, D.

The clinical exercises in Gynaecology for A and B till Feb. and for C and D after Feb. 1, are at the Dispensary for Women in Staniford St.

The course in Operative Obstetrics takes place from 2 till 4 P.M., during a fortnight in February.

Due notice will be given of the course in Operative Surgery.

# INSTRUCTION FOR 1881–82 TO STUDENTS OF THE THREE YEARS' COURSE.

## ANATOMY.

Descriptive Anatomy. *Four times a week till May.* Professor Holmes.

Practical Anatomy, with Exercises in Dissection. *Fifteen times a week from November till May.* Drs. Beach, Waterman, Richardson, and Otis.

Topographical Anatomy. *Once a week.* Dr. Dwight.

Laboratory Exercises in Histology. *Twice a week till May.* Drs. Dwight and Quincy.

Embryology. *Twelve lectures.* Dr. C. S. Minot.

## PHYSIOLOGY.

Systematic and Experimental Physiology. *Four times a week.* Professor Bowditch.

Laboratory Exercises in Experimental Physiology.

## CHEMISTRY.

General and Analytical Chemistry. *Twice a week, with an additional weekly exercise during the first ten weeks.* Dr. Hills.

Medical and Toxicological Chemistry. *Twice a week.* Professor Wood. Practical Exercises in the Laboratory for General Chemistry. *Daily.* Dr. Hills. Practical Exercises in the Laboratory for Medical Chemistry. *Daily.* Professor Wood and Dr. Emerson.

## MATERIA MEDICA AND THERAPEUTICS.

Materia Medica, with Practical Demonstrations. *Once a week.* Dr. Bolles.

Therapeutics. *Three times a week.* Professor Edes.

## PATHOLOGY AND PATHOLOGICAL ANATOMY.

General Pathology and Pathological Anatomy. *Twice a week.* Professor Fitz.

Special Pathological Anatomy, with Demonstrations. *Twice a week.* Professor Fitz.

Laboratory Exercises in Pathological Histology. *Twice a week till April.* Drs. Cutler and Whitney.

Practical Instruction in Performing Autopsies. *Throughout the year.* Professor Fitz and Dr. Cutler.

## SURGERY.

Surgery and Clinical Surgery. *Twice a week till March.* Professor Bigelow.

Clinical Surgery. *Twice a week till April.* Professor Cheever.

Clinical Surgery. *Twice a week during the second half-year.* Dr. Porter.

Operative Surgery. *Fifteen practical exercises.* Drs. Porter and Otis.

Recitations in Surgical Pathology. *Once a week during the first half-year.* Dr. Warren.

Recitations in Surgery. *Once a week during the second half-year.* Dr. Warren.

Laboratory Exercises in Surgical Histology. *Twice a week after March.* Drs. Warren and Bigelow.

The Application of Bandages and Apparatus. *Once a week during the second half-year.* Dr. Warren.

Surgical visits are made at the Massachusetts General Hospital by Professor Bigelow and Drs. Hodges, Porter, Warren, and Beach. — At the City Hospital, by Professor Cheever and Drs. Homans, Thorndike, Ingalls, Fifield, and Gay. — The Surgical Cases at the Eye and Ear Infirmary and at the Boston Dispensary are shown by the surgeons in charge.

## OPHTHALMOLOGY.

Diseases of the Eye. *Once a week.* Professor Williams.

Clinical Ophthalmology. *Once a week till January, and after March.* Professor Williams.

## DERMATOLOGY.

Diseases of the Skin. *Once a week.* Professor White.

Clinical Dermatology. *Once a week.* Professor White.

## SYPHILIS.

Practical Diagnosis and Treatment of Syphilis. *Once a week.* Dr. Greenough.

## OTOLOGY.

Practical Diagnosis and Treatment of Diseases of the Ear. *Once a week from January till April.* Dr. Green.

Anatomy, Physiology, and Diseases of the Ear. *Twice a week for three months.* Dr. Blake.

## SPECIAL PATHOLOGY AND THERAPEUTICS.

Theory and Practice of Physic. *Five times a week.* Professor Minot and Dr. Whittier.

Clinical Medicine. *Four times a week.* Professors Minot and Edes.

Practical Instruction in Auscultation and Percussion. *Six times a week during the first half-year.* Drs. Mason, Shattuck, and Garland.

Practical Diagnosis and Treatment of Diseases of the Larynx. *Six times a week, first half-year.* Dr. Knight.

Practical Diagnosis and Treatment of Diseases of Children. *Once a week, first half-year.* Dr. Oliver. — *Once a week for six months.* Dr. Rotch.

Practical Diagnosis and Treatment of Diseases of the Nervous System. *Once a week till February.* Dr. Webber. — *Once a week.* Dr. Putnam.

Mental Diseases. *Eight lectures.* Dr. Folsom.

Forensic Medicine, with Demonstrations. *Twelve exercises.* Dr. Draper.

Medical visits are made at the Massachusetts General Hospital by Professors Ellis and Minot and by Drs. Shattuck, Abbot, Shaw, and Tarbell. — At the City Hospital, by Professor Edes and Drs. Blake, Lyman, Stedman, Arnold, Curtis, Draper, Doe, and Mason. — At the Danvers Asylum for the Insane. — The Medical Cases at the Boston Dispensary are shown by the physicians in charge.

## OBSTETRICS.

Theory and Practice of Obstetrics. *Three times a week.* Professor Reynolds.

Recitations in the Theory and Practice of Obstetrics. *Once a week.* Dr. Richardson.

Operative Obstetrics. *Twelve practical exercises.* Dr. Richardson.

Practical Instruction in Clinical Obstetrics. *Throughout the year.* Dr. Richardson.

## GYNAECOLOGY.

*Twice a week.* Dr. Baker. Two clinics each week during the second half-year. Dr. Baker. Two clinics each week during the first half-year. Dr. Davenport.

# INSTRUCTION FOR 1881-82 TO STUDENTS OF THE FOURTH YEAR.

## CLINICAL MEDICINE.

*Once a week.* Dr. Draper.

*Once a week.* Dr. Garland.

## SURGERY.

*Three times a week in October, once a week after October.* Dr. Warren. — *Once a week after February.* Dr. Porter.

Operative Surgery. *Practical Exercises.* Drs. Porter and W. S. Bigelow.

Orthopedic Surgery. *Twice a week after March.* Dr. Bradford.

## OBSTETRICS.

*Once a week.* Professor Reynolds.

Clinical Obstetrics. *Twice a week for six months.* Operative Obstetrics. Practical Exercises. Dr. W. L. Richardson.

## OPHTHALMOLOGY.

Clinical Exercises. *Twice a week for six months.* Professor Williams.

Ophthalmoscopy. *Once a week for four months.* Dr. Wadsworth.

## DERMATOLOGY.

Clinical Exercises. *Three times a week.* Lectures. *Once a week.* Professor White.

## GYNAECOLOGY.

Clinical Instruction and Operative Gynaecology. *Six hours a week.* Drs. Baker and Davenport.

Clinical Instruction and Twelve Introductory Lectures. Dr. Chadwick.

## DISEASES OF CHILDREN.

Clinical Exercises. *Three times a week.* Drs. Oliver and Rotch.

## DISEASES OF THE NERVOUS SYSTEM.

Clinical Exercises. *Twice a week.* Drs. Webber and Putnam.

### MENTAL DISEASES.

Clinical Exercises. *Once a week.* Dr. Folsom.

### LARYNGOLOGY.

Clinical Exercises. *Three times a week for two months.* Dr. Knight.

### OTOLOGY.

Clinical Instruction, Lectures, and Demonstrations, including Instruction in making Sections and Preparations. *Twice a week for three months.* Dr. Blake. *Twice a week for three months.* Dr. Green.

### FORENSIC MEDICINE.

Lectures and Demonstrations. *Once a week.* Dr. Draper.
Demonstrations. Dr. Harris.

### SYPHILIS.

Clinical Exercises. *Two hours a week during the year.* Dr. Greenough.

### DISEASES OF THE URINARY ORGANS.

Clinical Exercises. *Once a week for three months.* Dr. Curtis.

### OVARIAN TUMORS.

Practical Diagnosis and Treatment. Six Introductory Lectures and occasional Clinical Exercises. Dr. Homans.

### COOKERY.

Practical Instruction in preparing Food for Infants and Invalids. Six Exercises. Miss Parloa.

## CLINICAL ADVANTAGES.

The Medical Department of the University is established in Boston, in order to secure those advantages for Clinical Instruction and for the study of Practical Anatomy which are found only in large cities.

There are Hospital visits or operations daily.

*The Massachusetts General Hospital.*—During the past year, 2,284 patients were treated in the wards, and 20,566 in the out-patient departments. Patients are received from all parts of the United States and the Provinces, and are visited by the students with the attending physicians and surgeons. The opportunities for becoming acquainted with general surgery are very great. Operations are numerous, and are performed in the amphitheatre, which is provided with seats for 400 persons. Clinics in the following special branches have been established in connection with the out-patient department: Dermatology, Laryngology, Diseases of the Nervous System.

The Hospital is adjacent to the Medical College, and its wards are open to the students on four days in the week.

*The City Hospital.* — During the past year, 4,707 cases were treated in its wards, and 10,605 in its various out-patient departments. The Medical wards always contain many cases of acute diseases, and changes are taking place constantly. The opportunities for seeing fractures, injuries, and traumatic cases of all kinds are excellent, since, on an average, 800 street accidents are yearly treated. Surgical operations are performed in the amphitheatre. These include general surgical and also ophthalmic operations. Diseases of the eye, the ear, and the skin are largely treated in the out-patient department. Clinical instruction is given by the physicians and surgeons twice a week.

In these two hospitals, the facilities for witnessing Operative Surgery are unsurpassed. Twice a week in the first half-year, and three times a week in the second half-year, operations are performed in the presence of the class. The number of these operations is large, reaching nearly two thousand a year. The variety is great, embracing every surgical disease and injury, including the surgical operations on the eye and ear.

*The Massachusetts Charitable Eye and Ear Infirmary.* — The nine thousand patients annually treated at this institution present every variety of disease of the ear and eye, and supply a large number of operations.

*The Marine Hospital at Chelsea* receives from the shipping of the port a large number of patients, who furnish examples of the diseases of foreign countries and of distant parts of the United States. Many cases of venereal disease, in its various forms, are treated annually.

*The Boston Dispensary.* — 24,143 patients were treated at this Public Charity during the past year. Students have excellent opportunities to see minor surgery, and many of the diseases of children, and to practise auscultation.

*The Free Hospital for Women.* — In the wards of this institution, which is devoted exclusively to the diseases peculiar to women, abundant opportunity is offered to study the severer forms of uterine disease and to witness operations, which are performed once a week throughout the year.

*Hospital Appointments.* — Twenty or more students are selected annually for House Officers of the various Hospitals. Appointments to the Boston Lying-in Hospital are for a term of four months, and to the Free Hospital for Women for a term of nine months.

## EXAMINATIONS.

The regular examinations are held in the following order: —

*At the End of the First Year.* — Anatomy, Physiology, and General Chemistry.*

* See foot-note on page 12.

*End of Second Year.* — Topographical Anatomy, Medical Chemistry, Materia Medica, and Pathological Anatomy.

*End of Third Year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Surgery.

*End of Fourth Year.* — Ophthalmology, Otology, Dermatology, Syphilis, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Obstetrics, Clinical and Operative Obstetrics, Clinical Medicine, Clinical and Operative Surgery, Forensic Medicine.

The examinations of the first two years are common to both groups of students. The final examinations at the close of the third year are in the following subjects: Therapeutics, Obstetrics, Surgery and Clinical Surgery, Theory and Practice, Clinical Medicine.

The regular examinations are held at the end of each year in June; and a week before the opening of the School in September, on the studies of the preceding year.*

No student shall be allowed to anticipate the examinations in the regular course of studies of his year, except by special permission of the Faculty. No student shall be allowed to present himself for examination in any branch, without notifying the Secretary, by letter, that he intends to do so, one month before the time when the examination is to be held.

The examinations are conducted mainly in writing. No student will receive his degree until he has passed a satisfactory examination in all the subjects of the three years' course, and presented a certificate from the Demonstrator of Anatomy that he has satisfactorily dissected the three parts of the body. Those who fail in any subject may present themselves in that subject again, at the next regular examination. The regular examinations for the year 1881–82 will begin June 12 and September 25.

The following was the order of the examinations held in June, 1881: — Monday (June 13), Therapeutics; Tuesday, Obstetrics; Wednesday, Clinical Medicine; Thursday, Surgery and Clinical Surgery; Friday, Theory and Practice; Saturday, Pathological Anatomy; Monday (June 20), Medical Chemistry; Tuesday, Materia Medica; Wednesday, Anatomy; Thursday, Physiology; Saturday, General Chemistry.

*The examinations for admission* are held at the Medical School, in June and September, on the Monday preceding the last Wednesday in those months, beginning at 10 A.M.

In 1882 the *examinations for admission* will ALSO be held at the following places, beginning at 8 A.M. on Thursday, June 29: —

In *Exeter*, in rooms of the Phillips Exeter Academy; in *New York*, in the lecture-room of the Young Men's Christian Association, Twenty-

* The June examination is for those only who are members of the School at the time, and for those entitled to apply for the degree.

third Street, corner of Fourth Avenue; in *Philadelphia*, in the library-hall of the Academy of Natural Sciences, S. W. corner of Nineteenth and Race Streets; in *Cincinnati*, in the rooms of the Literary Club, 24 West Fourth Street, second floor; in *Chicago*, in the rooms of the Chicago Athenaeum, 50 Dearborn Street; in *San Francisco*, in rooms of the Boys' High School, on Luther Street, between Gough and Octavia Streets.

## DIVISION OF STUDENTS.

Students are divided into four classes, according to their time of study and proficiency, and during their last year will receive largely increased opportunities of instruction in the special branches mentioned. Students following the three years' course are classified as heretofore, and the instruction in the special branches is of the same character as that which has been given for several years. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the advanced classes must pass an examination in the branches already pursued by the class to which they seek admission, and furnish a satisfactory * certificate of time spent in medical studies. No student shall advance with his class, or be admitted to advanced standing, until he has passed the required examination in the studies of the previous year, or a majority of them; nor shall he become a member of the third class until he has passed all the examinations of the first, in addition to a majority of those of the second year.

Students who do not intend to offer themselves for a degree will, however, be received for any portion of the course.

Any student may obtain a certificate of his period of connection with the School.

## REQUIREMENTS FOR THE DEGREE.

Every candidate must be twenty-one years of age, and of good moral character; must give evidence of having studied medicine three or four full years; have spent at least one continuous year at this School; have presented a satisfactory thesis; and have passed the required examinations.

The course of study recommended by the Faculty covers four years; but, until further notice, the degree of Doctor of Medicine will continue to be given upon the completion of three years of study, to be as ample and full as heretofore, to candidates who have passed satisfactorily the examinations hitherto required.

The degree of Doctor of Medicine *cum laude* will be given to candi-

* Certificates from teachers who practise any peculiar or exclusive system of medicine are not accepted.

dates who have pursued a complete four years' course, and obtained an average of seventy-five per cent upon all the examinations above stated. In addition to the ordinary degree of Doctor of Medicine, as heretofore obtained, a certificate of attendance on the studies of the fourth year will be given to such students desiring it as shall have attended the course, and have passed a satisfactory examination in the studies of the same.

Theses of conspicuous merit are mentioned with honor, or read at the University Commencement.

The degree of Master of Arts is open to graduates of the School who are also Bachelors of Arts of Harvard College, and to Bachelors of Arts of other colleges who shall be recommended by the Faculty of Harvard College. Candidates must pursue an approved course of study in Medicine for at least one year after taking the degree of Doctor of Medicine.

## LIBRARIES.

The library at the Medical College is open to the student, on the deposit of five dollars, to be refunded to him when he may desire, after returning all books.

The College Library at Cambridge is open to the students of the Medical School.

The Boston Public Library, which contains a large collection of medical books, may also be used by students recommended by the Dean.*

## BOYLSTON MEDICAL SOCIETY.

This Society, composed of medical students, meets at stated intervals for the discussion of medical topics, and is presided over by a physician selected by the members. Prizes, in money or books, are awarded annually to the writers of essays judged worthy of such distinction by a committee of physicians selected for that purpose by the Society. The prize for 1880–81 was awarded to Charles Harrington 2d of the third class.

## ANATOMICAL PRIZE.

Dr. C. B. Porter offers a prize of fifty dollars, open to all students, and graduates of not more than five years' standing except teachers of anatomy, for the best dissection deserving the award illustrative of surgical anatomy, the specimen to be presented to the Museum. The prize for 1880–81 was not awarded, but the committee reported that the dissection presented by W. P. Lombard was deserving of honorable mention.

* Only those are recommended who have deposited with the Treasurer a bond or the sum of fifty dollars.

## FEES AND EXPENSES.

For matriculation, five dollars; for a year, two hundred dollars (if in two payments, at the first, one hundred and twenty dollars; at the second eighty dollars); for a half-year alone, one hundred and twenty dollars; for graduation, thirty dollars. Of students who do not pay in advance, a bond for $300, executed by two sufficient bondsmen, one of whom must be a citizen of Massachusetts, is required. A copy of such bond will be sent, on application to the Secretary of the Faculty. To students depositing these bonds, term-bills will be presented at the end of the first term, to be paid within two weeks; and also one week or more before Commencement, to be paid on or before the beginning of the next academic year. Such students shall be held responsible for the payment of fees until they shall have notified the Dean of their intention to withdraw from the School, and have subsequently received their bond from the Treasurer. No degree can be conferred till all dues to the School are discharged. The student's general expenses may be reduced, in accordance with his means, to the standard which prevails in other cities. The janitor of the Medical College will always have a list of boarding-houses in the vicinity of the College building, varying in their rates of charges from five to ten dollars a week.

## PECUNIARY AID.

Four yearly scholarships have been established by the Faculty of the value of $200 each, open to meritorious students who have been at the School for at least one year. The Barringer scholarships, of the value of $300 and $200 respectively, will be awarded to deserving students of the fourth class. Only those needing assistance are expected to apply; and from such those holding the highest rank will have the preference.

Two assistants in the Chemical Laboratory are appointed annually from such deserving students as need aid. Students holding this position are exempt from the payment of the fee for tuition during their term of service.

## COURSE OF STUDY FOR GRADUATES.

For the purpose of affording to those who are already graduates in medicine additional facilities for pursuing clinical, laboratory, and other studies, for which they had not previously found leisure, in such subjects as may especially interest them, and as a substitute in part for the opportunities heretofore sought in Europe, the Faculty have established a post-graduate course, of which the following is a programme. The fee in each branch is for a single half-year.

*Histology.* — The various methods of examining the different tissues are employed, and opportunities for original research are offered. Fee, twenty dollars.

*Physiology.* — Opportunities for original investigation in the Physiological Laboratory. Fee, thirty dollars.

*Medical Chemistry.* — Practical instruction in the Chemical Laboratory, in the analysis of the urine and other animal fluids in health and disease, and of poisons; examination of blood-stains and other objects connected with medico-legal investigations, with the application of the microscope to these processes. General analysis, also, if desired. Laboratory-fee, thirty dollars.

*Pathological Anatomy.* — Practical instruction in Pathological Histology and the examination of specimens in the Microscopical Laboratory; and opportunity for witnessing and making autopsies. Fee, twenty dollars.

*Surgery.* — A practical course of operative surgery, and instruction in the application of bandages and apparatus. Fee, twenty-five dollars.

*Laryngology* is practically taught, and diseases of the larynx demonstrated by the aid of the oxyhydrogen light. Fee, twenty dollars.

*Ophthalmology.* — Clinical instruction, lectures on diseases of the eye, and demonstrations of the methods of performing operations. Exercises in the use of the ophthalmoscope. Fee, twenty-five dollars.

*Otology.* — Lectures and clinical instruction in diseases of the ear. Fee, fifteen dollars.

*Dermatology.* — Clinical instruction in diseases of the skin, illustrated by patients in this department of the Massachusetts General Hospital. Lectures. Fee, twenty-five dollars.

*Syphilis.* — Clinical instruction at the Boston Dispensary. Fee, fifteen dollars.

*Diseases of the Nervous System.* — Practical illustrations of the application of various forms of electricity. Lectures. Fee, fifteen dollars.

*Gynaecology.* — Clinical instruction in diseases of women. Fee, twenty-five dollars.

*Obstetrics.* — Cases supplied, and clinical instruction given. A course of operative obstetrics. Fee, twenty-five dollars.

Those pursuing this course may elect the studies to which they will give their attention, and allot the time they will devote to each. They will be exempt, unless at their option, from examinations, and may obtain a certificate of attendance on this course of advanced study. On payment of the full fee for the course, they will have the privilege of attending any of the other exercises of the Medical School, the use of its laboratories and library, and all other rights accorded by the University.

Graduates of other medical schools may obtain the degree of M.D. at this University, after a year's study in the graduates' course. The re-

quired examinations may be passed in such order as is desired, but only at the stated seasons.

| | |
|---|---|
| The fee for a year is . . . . . | $200 |
| „ for a half-year . . . . . | 120 |

For any of the special courses, such fees as are above specified.

For further information or catalogues, address Dr. R. H. Fitz, *Secretary*, 18 Arlington Street, Boston, Mass.

☞ The Medical College is on North Grove Street, Boston.

# EXAMINATION PAPERS.

(*June Examination*, 1881.)

## First Year's Studies.

### ANATOMY. — Professor Holmes.

Describe: —

1. The skin.
2. Periosteum.
3. Nerve cells and fibres.
4. Fibro-cartilage.
5. The sacrum.
6. Os hyoïdes.
7. Sheath of the rectus muscle.
8. The quadratus lumborum.
9. The axillary artery.
10. The most remarkable arterial anastomoses.
11. The knee-joint.
12. The veins of the fore-arm and arm.
13. The retina.
14. The Graafian vesicle and ovum.
15. The bile-ducts.
16. The foramen of Winslow.
17. The cauda equina.
18. The Gasserian ganglion.
19. The openings of the cavity of the tympanum.
20. The ciliary muscle.

### PHYSIOLOGY. — Professor Bowditch.

1. What is the difference between animal and vegetable food in regard to the nutriments which they contain?

2. What are the functions of the saliva?

3. What is the value of gelatine as food?

4. What is the reaction to litmus-paper of the various tissues and fluids of the body?

5. Explain arterial blood tension, the manner of measuring it, and the circumstances which cause it to rise and fall.

6. Describe the effect of ligating an artery upon the blood within the vessel.

7. What organs of the body are richest in blood?

8. How does an examination of the excretions show the amount of nitrogenous and non-nitrogenous substances undergoing decomposition in the body?

9. What is meant by "muscular tonicity," and what evidence is there of its existence?

10. Describe the resemblance and the difference between a muscle and a steam-engine regarded as machines for performing mechanical work.

11. What is the normal range of temperature in the human body?

12. What nerve-centres are situated in the lumbar region of the spinal cord?

13. How is the rapidity of transmission of nerve-force estimated?

14. What is the function of the third pair of cranial nerves?

15. If after looking intently at a red object for some time the eyes be turned upon a green object, the color of the latter appears more saturated than pure spectral green under ordinary circumstances. How is this explained in accordance with the Young-Helmholtz theory of vision?

16. How are color-sensations affected by contrast?

17. Why is the air of a crowded room unfitted for respiration?

18. What is the origin of animal fat?

19. Describe the segmentation of the mammalian ovum.

20. What are the omphalo-meseraic vessels?

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## GENERAL CHEMISTRY. — Instructor Hills.

[In addition to the following questions, a written report of the analysis of a solution containing inorganic substances was required.]

1. Define and illustrate each of the following terms: acid, base, salt, alcohol, compound ether.

2. Read the following equation (*a*) by weight, (*b*) by volume: —

$$CH_4 + 2\,O_2 = CO_2 + 2\,H_2O.$$

3. From the following equation: —

$$BaCl_2 + K_2SO_4 = 2\,KCl + BaSO_4,$$

calculate how much $BaSO_4$ will be precipitated from a solution containing 100 grams $BaCl_2$.

4. What is the significance of the term "free" and "albuminoid" ammonia as employed in expressing the results of water-analyses? Of what value is the determination of chlorine in water-analyses?

5. Manufacture and properties of nitric acid.

6. Where is gold found? In what form does it occur? Properties, physical and chemical?

7. Chemical name, symbol, color, and solubility in water of each of the following substances: black lead, white arsenic, Paris green, plaster of Paris, Epsom salts, white lead, tartar-emetic, corrosive sublimate, calomel, lunar caustic.

8. To what class of organic compounds does carbolic acid belong? Describe its preparation, properties, and uses.

9. To what class of organic compounds do the vegetable alkaloids belong? Describe their general physical and chemical properties.

10. Describe the chemical changes which take place in Trommer's test for grape sugar.

11. Give every test for white arsenic.

12. Why are $NH_4Cl$ and $NH_4HO$ added to a solution containing members of the Barium Group before precipitating with $(NH_4)_2CO_3$?

13. Write the analysis of a solution containing all the members of the Silver Group in combination with nitric acid.

O = 16, C = 12, Cl = 35.5, S = 32, Ba = 137.

## Second Year's Studies.

### MEDICAL CHEMISTRY. — Professor Wood.

[In addition to the following questions, a written report of the analysis of a specimen of urine was required.]

1. State the importance of observing the average daily amount of urine, especially with reference to the diagnosis of the different forms of renal disease.

2. Specific gravity of the urine in the different stages of the various forms of Bright's disease?

3. Approximate estimation of indican? What modification must be adopted if KI is present in the urine? How detect the KI with certainty?

4. Under what circumstances is a very small amount of urea excreted?

5. Under what circumstances is there a largely diminished amount of chlorine?

6. When is the heat test for albumen preferable to the nitric acid test? In performing the heat test why add acetic acid rather than nitric acid?

7. Characteristics of the urine, qualitative and quantitative, in amyloid degeneration of the kidneys?

8. What inferences would you draw from urine having the following characteristics? State reasons in full.

Pale; acid; Sp. Gr. = 1012; amount of sediment slight.

Uph. = —. $\overset{+}{U}$. = —. Cl. = —. E. P. = —.

Ind. = —. $\overline{U}$. = —. Sf. = —. A. P. = —.

Albumen = about $\frac{1}{4}$%. Bile and sugar absent. Sediment = chiefly hyaline and finely granular casts; an occasional blood, epithelial and fatty cast; little free blood and fatty and granular renal epithelium.

Total amount of urine = 2350 cub. cent.
" " " urea = 28.8 grm.
" " " chlorine = 3.24 "
" " " albumen = 6.11 "

9. Difference between corrosive sublimate and calomel? Properties of each? Tests for each?

10. Symptoms of arsenic poisoning? How long may arsenic remain in the living body? If death takes place one week after the ingestion of a fatal dose, in what parts of the body would you expect to find the largest amount?

11. Give briefly Dragendorff's process for isolating organic poisons from animal tissues. At what step of the process would veratrine, atropine, coniine, and strychnine be obtained?

12. Special tests for prussic acid?

## MATERIA MEDICA. — Instructor Bolles.

I. What is a Pharmacopoeia? A Dispensatory? What are Officinal Medicines?

II. Define the following pharmaceutical operations, viz.: 1. Maceration; 2. Dialysis; 3. Percolation; 4. Repercolation; also the following classes of preparations: 5. Fluid Extracts; 6. Spirits; 7. Tinctures; 8. Decoctions; 9. Suppositories; 10. Ointments.

III. Give the composition of: 1. Compound Jalap Powder; 2. Collodion; 3. Compound Soap Pills; 4. Compound Tincture of Gentian; 5. Compound Cathartic Pills.

IV. Doses, and solubility in water, of the following: 1. Salicylic Acid; 2. Bicarbonate of Sodium; 3. Tartar Emetic; 4. Corrosive Sublimate; 5. Subnitrate of Bismuth; 6. Bromide of Potassium; 7. Reduced Iron; 8. Sulphate of Magnesium; 9. Citrate of Lithium; 10. Sulphate of Zinc.

V. Alkaloids: their chemical and physical properties; their usual condition in the plants; their general mode of extraction, &c.

VI. Name all the alkaloids of the following substances: 1. Paullinia; 2. Coca; 3. Ergot; 4. Belladonna; 5. Aconite; 6. Ipecacuanha; 7. Jaborandi; 8. Nux Vomica; 9. Gelsemium; 10. Physostigma.

VII. Name the active principles of the following: 1. Geranium; 2. Krameria; 3. Digitalis; 4. Gentian; 5. Chamomile: 6. Senna; 7. Colocynth; 8. Podophyllum; 9. Galls; 10. Cinnamon.

VIII. Write ten prescriptions for Cinchona, its alkaloids or other preparations; that is: 1, 2, 3, as a tonic; 4, 5, as an antipyretic; 6, 7, with iron or strychnine; 8, 9, 10, flavored, disguised, or concealed; all different.

IX. Describe the Deodorized Tincture of Opium; wherein does it differ from the ordinary tincture?

X. Write a full account of the preparation, characters, and standard strength of Saccharated Pepsin.

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## PATHOLOGICAL ANATOMY. — Professor Fitz.

1. State the main feature in the post-mortem recognition of inflammation, and its causes.

2. Describe the results of a sudden and complete local anaemia.

3. Enumerate the causes of fatty degeneration.

4. Mention the possible disturbances due to Pacchionian bodies.

5. Describe the possible deformities occasioned by congenital hydrocephalus.

6. Enumerate the lesions of other organs than the heart resulting from chronic mitral stenosis.

7. State the relation between aneurisms and chronic endarteritis.

8. Describe the changes in the lungs likely to result from the inhalation of foreign bodies.

9. Explain the relation of tuberculosis to chronic pulmonary phthisis.

10. Mention the alterations of the stomach caused by chronic catarrhal gastritis.

11. Describe the intestinal changes occurring in typhoid fever.

12. Enumerate the lesions producing increased density of the liver.

13. Give the causes, appearances, and possible results of a thrombophlebitis of the portal vein.

14. Enumerate the infarctions of the kidney and state their significance.

15. Describe the probable and possible changes resulting from chronic obstructive enlargement of the prostate.

16. Give the methods of origin of hydrocele.

17. Mention the groups of lesions included under puerperal fever and their method of origin.

18. Give the anatomical history of cancer of the neck of the uterus.

19. Define the various terms applied to the new formation of bone.

20. Describe the changes which may be found in chronic purulent arthritis of the knee-joint.

## Third Year's Studies.

### THERAPEUTICS. — Professor Edes.

1. What are the course and results of acute rheumatism left to itself? By what methods of treatment can you improve upon this?

2. What means may be employed to reduce temperature in febrile diseases? When are they necessary? How do they act?

3. Describe the physiological effects and the therapeutic uses of digitalis; nitrite of amyl.

4. Diaphoretics. What are they? How do they act? When are they useful?

5. Uses and dangers of chloral; of morphia.

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### OBSTETRICS. — Professor Reynolds.

1. Describe the sacrum, stating as fully as you can those points which are of obstetric importance.

2. In what respects is the corpus luteum at the sixth month of pregnancy unlike that which results from ovulation without impregnation?

3. Describe the changes in the resistance of the uterine neck, felt by the examining finger, at the successive periods of pregnancy.

4. What point of the foetal surface (what points, if there may be more than one) does Rotation tend to bring under the arch of the pubes in each of the following three presentations: Cranium (Flexed; and also when unduly Extended), Face, and Pelvic Extremity? (Assume in answering that the position is Left.) In any given presentation, what fact in the mechanism will decide the advance of one point rather than another? What varying circumstances will make the result of Rotation pronounced or ill characterized?

5. In Transverse Presentation, what is meant by Spontaneous Version? Explain the occurrence of Spontaneous Version.

6. Describe with care the method of delivering aftercoming extended arms and head. The child's occiput is directed toward the middle of the left side of the mother's pelvis, a little anteriorly.

7. If eclampsia supervenes during labor, on what considerations will the prognosis in regard to the mother depend?

8. A woman in labor with her seventh child, at term, has placenta praevia, centrally attached. The os uteri is dilated to two inches, and is not especially rigid. There are pains of average force and frequency. The membranes are unbroken. Up to this time, though there has been haemorrhage, the mother does not show marked exhaustion. Her children, male as well as female, have hitherto been born without difficulty. Normal sounds of the child's heart are heard in the mother's right side.

Give in full detail the appropriate treatment of this case. If various procedures may be employed, indicate the relative excellences and demerits of the several methods, and the grounds of disapproval or preference.

9. A primipara has been seven hours in labor. The pains are well marked. The membranes gave way an hour ago. The os is one third open, soft and dilatable. The cranium presents in left position, and is just engaging at the inlet of the pelvis. The mother's condition is satisfactory, and the foetal heart is heard, beating normally, in the left iliac region. There is no evidence that the child's head is diseased or of unusual size. By careful measurement, the length of the true conjugate is known to be exactly three inches and four tenths. The transverse diameter of the brim is fully five inches long. In other respects the pelvis is normal.

Describe the duty of the attendant under these circumstances, and also in the farther conduct of the case.

10. Give the diagnosis, the course, and the possible terminations of that variety of extra-uterine foetation known as Abdominal Extra-Uterine Pregnancy.

NOTE. — Students who complete the term of study in three years are expected to answer the ten foregoing questions. *Three hours are assigned for this purpose.*

NOTE. — The first six of the preceding questions form the questions of the third year for candidates who take the course of four years. *Two hours are allowed for that examination.*

Notice is however hereby given, that this division of students will not be able to anticipate the examination of the fourth year by answering questions Seven, Eight, Nine, and Ten of the present series. A wholly different set of questions will constitute the examination of that year in Obstetrics; in addition to those which will be asked in Clinical and Operative Obstetrics.

## SURGERY. — Professor Bigelow.

Describe the symptoms and give the treatment of

1. Strangulated inguinal hernia.
2. The fractures of the elbow joint.
3. Popliteal aneurism.
4. Talipes varus.
5. Haemorrhoids.
6. Stone in the bladder.
7. Stricture of the urethra.
8. Compression and concussion of the brain.
9. Varicocele.
10. Pott's disease or caries of the spine.

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## CLINICAL SURGERY. — Professor Cheever.

[In addition to the following questions, the clinical report of a surgical case is required, to be presented on or before June 1.]

[One hour and a half is assigned for answering the following questions.]

I. A healthy young man is stabbed in a quarrel. The wound barely admits the finger. It begins two inches above the clavicle in the neck, just behind the sterno-mastoid muscle, extends downwards, forwards, and inwards, $3\frac{1}{2}$ inches. It divides no vessels or nerves. The oesophagus is uninjured. At the very bottom of the wound, and below the level of the top of the sternum, a ragged cut can be felt into the side and back of the trachea. Treatment? Prognosis?

II. A sharp axe falls from a height and strikes a man on the head. It strikes the right parietal bone very obliquely. It cuts through and peels back the scalp. It slices the outer table of the parietal up from the diplöe, in a piece two inches long; this bone-flap is hinged by periosteum and not detached. The man is perfectly conscious. Dangers to be feared? Treatment?

## THEORY AND PRACTICE. — Professor Minot.

1. What are the symptoms and the treatment of bronchitis?
2. What are the symptoms and causes of pulmonary emphysema?
3. Give the rational and physical signs of pleurisy, including effusion.
4. What are the symptoms and causes of pericarditis?
5. What are the symptoms and the pathology of infantile paralysis?
6. Describe a case of tubercular meningitis, and mention from what diseases it must be distinguished.
7. Give the differential diagnosis between measles and scarlet fever, by describing a typical case of each.
8. What are the symptoms and the diagnosis of cirrhosis of the liver?
9. What are the symptoms of opium-poisoning, and its diagnosis?

## CLINICAL MEDICINE. — Professor Ellis.

Give the differential diagnosis, the prognosis, and the treatment of as many of these cases as the time will allow, discussing them in the order in which they are arranged. Assume that symptoms not mentioned are wanting; but as omissions, intentional or not, may occur, state them, if essential. Success will depend more upon the quality than the quantity of the work. The intelligent discussion of the cases will have more weight than a hasty and inconclusive though correct diagnosis.

Case I. — A boot manufacturer, 52 years old, examined in December, 1880. Parents healthy. One brother and two sisters died of some pulmonary disease, not improbably catarrhal pneumonia. Dyspnoea since the time of the great fire in 1872, steadily increasing, until it amounted to orthopnoea. Troublesome cough since 1875. Quite abundant mucopurulent expectoration. Occasionally pain in the left subclavicular region. Appetite fair until within the last two years. Bowels much constipated. A "feeling of coldness" in the latter part of the day, at times, but no fever. Pulse averaged 78, at time of visit 82. Weight had diminished in six years from 180 to 115. Strength pretty good until dyspnoea became troublesome. Oedema of feet and ankles, within the last few days. Emaciation extreme, but no special prominence of clavicles. Heart pulsating violently in the epigastrium, where the sounds are very distinct and most so. No flatness in the cardiac region, but some dulness in the centre of it. Chest resonant to the seventh rib in front and the twelfth rib behind; respiration heard over the same area, somewhat broncho-vesicular under the left clavicle. Expiration slightly prolonged.

Case 2. — Married woman 56 years old. Health previously excellent. Suddenly seized on Nov. 21st with pain in the middle region of the abdomen, described as resembling that of colic, but it disappeared after taking some cordial. On the 22d the pain returned, but was not sufficiently severe to prevent moving about the house. On the 23d, as it persisted, she sent for a physician, who found soreness over the edge of the right ribs, and two inches downwards. The face and eyes were somewhat sallow. A blue pill, followed by a Rochelle powder, acted well, and the next day she went down stairs and stayed there all day without pain. That night the pain returned very suddenly, and with such severity as to require two grains of morphine and two drachms of Elixir of Opium for its relief. This was accompanied by nausea, but the excessive soreness prevented vomiting. Slight pain after this, but no severe paroxysm up to the time when she was seen two weeks later. For first four or five days could move a little, but afterwards soreness prevented all motion without assistance. No chill. Cheeks a little flushed in the afternoons of the last four or five days. Temperature had been about 100°. Perspiration towards morning. Tongue at first "pasty," but it had gradually cleaned and was somewhat red, with a slight tendency to dryness. Appetite wanting since the beginning of the attack. Thirst at times, and dryness of the mouth. Two dejections daily rather than one; not remarkable in color. Some failure of strength. Great tenderness of the abdomen over a region extending laterally from the umbilicus to the mammary line, and vertically from the edge of the ribs four or five inches downwards, the maximum being about in the mammary line. This region was firmer than the surrounding parts, but no line of demarcation could be detected. The adipose tissue, which was very thick, could be grasped and lifted without pain. Marked dulness over the seat of greatest tenderness, diminishing in all directions.

Case 3. — Manufacturer, 66 years old, previously well and actively engaged in both private and public business. For eight years, subject at times to what he called asthma, from which his father had also suffered. More recently, attacks of severe pain, substernal, in the jaws, in the left arm and elbow, during which the face would assume an expression of great anxiety, become "ashy pale," and the dyspnoea would be very urgent, every breath being, perhaps, accompanied by a groan. But, independent of these attacks of pain, dyspnoea would, at times, be extreme, amounting to orthopnoea. In the intervals between the paroxysms of pain and dyspnoea, he attended to his business, appeared well and had a fair appetite. Bowels generally regular. When seen in March, 1881, he looked well. Color good. No swelling anywhere. Pulse 100, strong, regular and well sustained. Micturition had, at times, been very frequent, generally once in the night. The quantity of urine varied much at different times and under different circumstances, but no very accurate data were obtained in regard to this point. The specific gravity was generally low, when the amount was normal. Some albumen for the first few days following the paroxysms described, but none afterwards. Hyaline casts at times. Heart acting strongly, but without any heaving impulse. Second aortal sound sharp and distinct. A slight souffle to the left of the nipple. Over the right side, in front, resonance good to about the fourth intercostal space; below that, dulness; on the left side, good to the cardiac region, but the dulness of this was prolonged to the left, where it became continuous with that of the side, at about the same level as on the right. Behind, dulness below the lower angles of the scapula, most marked on the right side, and rather more extensive. Fine, moist râles, over the dull regions, most numerous at base.

## Fourth Year's Studies.

### OPERATIVE SURGERY. — Instructor Porter.

Describe the operations for: —

1. Ligature of the lingual artery.
2. Ligature of the brachial at bend of elbow.
3. Ligature of the femoral at Hunter's canal.
4. Amputation at hip-joint.
5. Amputation at wrist.
6. Exsection of upper jaw.
7. Tracheotomy.
8. Exsection of elbow-joint.
9. Trephining and the regions to be avoided.
10. The circular amputation of the arm.

### CLINICAL AND OPERATIVE OBSTETRICS.

Instructor Richardson.

1. What should the temperature (Fahrenheit) be of intrauterine carbolized injections?

2. Differential diagnosis between puerperal septicaemia and surgical fever following some local injury to the vagina.

3. Treatment of a threatening mammary abscess.

4. Treatment of puerperal cystitis.

5. The forceps are properly applied; the head is well down in the pelvic cavity; the anterior fontanelle is below the arch of the pubes; the sagittal suture runs backwards; the posterior fontanelle cannot be felt. In what direction or directions (if in more than one) is traction to be made in extracting the head?

## OPHTHALMOLOGY. — Professor Williams.

1. How do the symptoms and treatment of simple catarrhal conjunctivitis differ from those of trachoma?

2. What are the symptoms and treatment of hereditary syphilis as seen in the eye?

3. Describe the changes which may occur in the eye in Bright's disease.

4. Give the symptoms and treatment of an acute attack of glaucoma.

5. How should lacerated wounds of the eyeball be treated?

## DERMATOLOGY. — Professor White.

[Students may select any four questions in addition to No. 6.]

1. Describe the anatomy of the hair and its envelopes.

2. Define the primary lesions.

3. Describe the tissue changes in the vesicle.

4. Treatment of seborrhoea capitis?

5. In what affections do bullae occur?

6. Describe the principal varieties of eczema, and give the proper treatment for each.

7. How distinguish between a patch of chronic eczema and one of psoriasis?

8. What is vitiligo?

9. What are the causes of alopecia?

10. What are the botanical characters of the fungus in tinea trichophytina, and how may the plant best be destroyed?

## GYNAECOLOGY. — Instructor Baker.

1. What is the relation of the peritoneum to the pelvic viscera, especially to the uterus and vagina?

2. In a case of sub-peritoneal fibroid of the size of the gravid uterus at the fourth month retroverted and impacted, what would be your means of diagnosis, differentiation, and treatment?

3. What are the causes of vaginitis?

## DISEASES OF CHILDREN. — Drs. Oliver and Rotch.

1. What directions in regard to the times of feeding would you give a healthy mother who is nursing a healthy baby two months old?

2. Supposing that a baby has to be fed on cow's milk, what directions would you give as to its preparation and administration for a healthy baby three months old?

3. What is Mellin's Food?

4. Give the differential diagnosis between measles, varicella, and scarlet fever.

5. State the number of teeth which constitute the first dentition and at what age they make their appearance.

6. Give some of the principal causes of convulsions in the infant.

## DISEASES OF THE NERVOUS SYSTEM.

### Drs. Webber and Putnam.

1. Give the symptomatology and diagnosis of neuritis of the spinal nerves.

2. Give the indications for treatment of the various forms of neuralgia, and the methods of meeting them.

3. Give the earlier symptoms of locomotor ataxia.

4. Describe chorea.

5. What is epilepsy?

6. Give the diagnosis of syphilitic disease of the brain.

[It will be considered sufficient to have answered any four out of these six questions.]

## MENTAL DISEASES. — Dr. Folsom.

[Each student is requested to select those questions which he prefers to answer. No one is expected to answer all.]

1. (*a*) To what extent are pathological conditions of the brain associated with insanity?

(*b*) How far are they indicative of insanity?

2. (*a*) What are the early symptoms of general paralysis of the insane?

(*b*) What are its diagnostic marks?

(*c*) What the later symptoms?

(*d*) What its history and termination?

(*e*) In what individuals is it most commonly found?

(*f*) What are thought to be the most prominent points in its causation?

(*g*) What are the dangers to be provided against in its treatment?

## LARYNGOLOGY. — Instructor Knight.

[N. B. Each student is expected to answer but two of the following questions, which two he may select for himself.]

1. Describe the appearance of the normal larynx as seen in the laryngoscope:

(*a*) during respiration;
(*b*) " phonation.

What is the normal color of the vocal cords, of the ventricular bands, and of the posterior surface of the epiglottis?

2. Give some of the laryngoscopic appearances in a case of chronic laryngeal catarrh, and the treatment you would propose for such a case as you describe.

Mention some of the relative advantages and disadvantages of brushes, sponges, and sprays in the treatment of this disease.

3. A man, forty years of age, with normal or slightly hoarse voice, presents himself to you with dyspnoea and stridulous breathing of six months or longer duration. On laryngoscopic examination you find that the larynx is perfectly free from any signs of inflammatory action, but that the vocal cords lie very near the median line, being separated from one another by a narrow chink, which becomes still narrower on each inspiratory act. What would be your diagnosis, prognosis, and treatment of such a case?

4. Give the more common laryngoscopic appearances in the early and later stages of laryngeal phthisis, special indications for local treatment, and the local treatment you would recommend.

## OTOLOGY. — Drs. Green and Blake.

1. Describe generally the parts included in
   *a*. the external ear;
   *b*. the middle ear;
   *c*. the internal ear.

2. Describe the membrana tympani anatomically and histologically, and the appearance of the normal membrane on examination with reflected light.

3. What portions of the ear are devoted to the transmission, and what portions to the perception of sound?

4. In a case of one-sided deafness, when is the vibrating tuning-fork, placed upon the forehead or between the teeth, heard better in the diseased ear, and why?

5. Describe the possible complications in connection with a purulent inflammation of the middle ear in an adult.

## FORENSIC MEDICINE. — Dr. Draper.

1. Describe the characteristic marks by which to distinguish ecchymoses from cadaveric lividities.

2. Give the signs of maturity in the new-born child.

3. Describe the physical characters of a seminal stain on white cotton cloth, and the proper manipulation for its microscopical examination.

4. Give an estimate of the total quantity of blood in the adult human body, and the minimum amount of blood that may be lost in a fatal hemorrhage.

5. Describe *rigor mortis*, and give some of the conditions which promote its early access, its prolonged duration, and its maximum degree.

VENEREAL DISEASES. — Drs. Greenough and Wigglesworth.

1. Give the differential diagnosis between a local venereal ulcer (chancroid) and a primary syphilitic lesion (indurated chancre) in the following respects: (*a*) as to the period of incubation, (*b*) the appearance of the lesions when fully developed, that is, their edges, depth, base, etc., (*c*) the condition of the surrounding tissue, (*d*) the character of secretion, (*e*) the condition of the inguinal glands, (*f*) the number of lesions, (*g*) prognosis.

2. A patient, five days after a suspicious exposure, notices some heat on urinating; the next morning he finds a drop of semi-purulent discharge at the meatus. He consults an apothecary, who gives him a transparent injection, which, however, leaves a dirty blackish stain when dropped on his linen. This he has used three times a day. The first injection was quite painful, the second still more so, and now, it being the third day of its use, the pain is almost unbearable. The discharge has diminished in amount, but the smarting during micturition is very severe, and he has to pass his water as often as every hour, his desire to do so being very urgent. Towards the last of the act he complains of a very painful spasmodic contraction, as though there were still a few drops to be forced out.

What is your diagnosis, and what advice would you give? Would you make an examination of his urine? If so, for what?

3. A patient who has been leading a very loose life for six weeks consults you for a "running." On inspection you find a phymosis, which, however, permits the prepuce to be retracted sufficiently to expose the meatus. This condition is, he states, congenital. There is an abundant purulent secretion. Assuming that this is due to simple balanitis, how would you exclude gonorrhoea? Chancroids? Primary syphilitic lesion?

4. A patient developes secondary syphilitic symptoms, and you wish to put him on a course of mercurial treatment, administered internally. He lives out of town, and cannot without great inconvenience and expense visit you oftener than once a week. He has never taken mercury before. What cautions would you give him with regard to possible contingencies which would indicate a suspension of the treatment, and reporting to you at once?

5. A young physician calls you in consultation to see a patient. You find an ulceration on the penis, the appearance and history of which is such that you cannot for the present decide as to whether it is a chancroid or indurated chancre. The patient is engaged to be married in seven months, and is very anxious to be put on specific constitutional treatment, in order not to "lose time." What should you advise? For what reasons?

6. A patient consults you for what you take to be a primary syphilitic lesion. After what length of time should you expect the secondary symptoms? What symptoms should you be on the watch for? Give the symptoms that you would be likely to meet in a typical case of secondary syphilis.

If the patient has been constantly under your observation, and six months elapse without any of these symptoms appearing, what should you conclude?

# ADMISSION EXAMINATION PAPERS.

## LATIN.

Translate either or both of the following: —

Valerius Corvinus, annos tres et viginti natus, consul creatus, Samnites bis proelio fudit. Non alius dux militi carior fuit, quia nullus militi familiarior. Omnia inter infimos militum munia haud gravate obibat. In ludo etiam militari, quum velocitatis viriumque certamina inter se aequales ineunt, Valerius ipse cum eis certabat, nec quemquam aspernabatur parem, qui se offerret. Semper comis et eodem vultu, seu vinceret, seu vinceretur. Quum postea in exercitu orta esset gravis seditio, parsque militum a ceteris defecisset, et ducem sibi fecisset, adversus eos Valerius dictator missus est: qui ubi in conspectum venit, benigne milites allocutus, extemplo omnium iras permulsit, seditionemque compressit: adeo hominum animos conciliant comitas affabilitasque sermonis!

Demosthenes, qui Athenis natus est, fuit clarissimus orator. Artem loquendi magno labore et studio acquisivit. Natura non habuit bonam vocem et quaedam verba recte pronunciare non poterat. Ut disceret loqui accurate parvos circulares lapides in ore posuit. Solebat claudere se in cubiculo, et studere totum mensem simul. Ad littus saepe ivit, et orationes suas ad fluctus pronunciavit, ut strepitum et clamorem populi melius tolerare posset. Multas orationes habuit et privatis et publicis occasionibus. Sed praesertim eloquentia usus est contra Philippum Macedoniae regem, et in compluribus orationibus Athenienses excitavit ut bellum huic inferrent.

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## FRENCH.

Translate: —

Une pauvre petite fille, nommée Christine, âgée d'environ dix ans, cueillait un jour des fraises dans la forêt. La chaleur était étouffante. On ne sentait pas le moindre vent, et le chapeau de paille de la jeune fille ne suffisait pas pour la préserver des rayons brûlants du soleil. Son front était couvert de sueur, et ses joues étaient rouges comme de l'écarlate. Elle continuait pourtant à cueillir des fraises et ne levait pas même les yeux, de peur de perdre un instant; car elle disait en son cœur avec une douce satisfaction: Tout ce que je fais, c'est pour ma bonne mère qui est malade; l'argent que je retirerai de ces fraises, lui procurera quelque soulagement.

Lorsqu'elle vit la nuit s'approcher, elle se mit en route, pour rentrer chez elle avec son panier plein de fraises. Il commençait à pleuvoir, et on entendait le tonnerre dans le lointain. A peine Christine fut-elle sortie de la forêt, qu'il s'éleva un grand vent; la pluie redoubla, et le ciel était obscurci de tous côtés par des nuages menaçants. Christine évita soigneusement de s'approcher des grands arbres: elle se mit à l'abri derrière des broussailles pour attendre la fin de l'orage.

Tout à coup elle entendit, dans le bosquet voisin, un cri plaintif semblable à celui d'un petit enfant. Elle était si compatissante et si bonne, que ni la pluie, ni les éclairs, ni les éclats de la foudre ne purent l'empêcher d'aller voir ce que ce pouvait être. Elle s'avança dans le bois et fut bien étonnée de voir un pauvre petit agneau tout mouillé et tout tremblant de froid. Oh, pauvre petit animal! dit Christine tout émue, tu ne périras point. Viens, je t'emporterai à la maison. Elle prit en effet l'agneau dans ses bras et s'en retourna chez elle aussitôt que la pluie fut passée.

### LE PETIT CHIEN.

Une demoiselle, nommée Caroline, alla se promener un jour sur le bord d'un ruisseau. Elle y rencontra quelques méchants enfants qui voulaient noyer un petit chien. Elle eut pitié de la pauvre bête, l'acheta et l'emporta avec elle au château.

Le petit chien eut bientôt fait connaissance avec sa nouvelle maîtresse et ne la quitta plus un instant. Un soir, au moment où elle voulait se coucher, le chien se mit tout à coup à aboyer. Caroline prit la chandelle, regarda sous le lit et aperçut un homme d'un aspect terrible, qui y était caché. C'était un voleur.

Caroline appella au secours, et tous les habitants du château accoururent. Ils saisirent le brigand et le livrèrent à la justice. Il avoua dans son interrogatoire que son intention avait été d'assassiner la demoiselle et de piller le château.

Caroline rendit grâce au ciel de l'avoir sauvée si heureusement et dit: Personne n'aurait cru que le pauvre animal auquel j'ai sauvé la vie, me la sauverait à son tour.

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## GERMAN.

TRANSLATE INTO ENGLISH: —

Nordheim. Und das Theater? — Ah, das ist noch viel schlimmer! — Das ist jetzt eine Anstalt, wo man sein Urtheil nicht mehr aussprechen darf — wo man uns ein „Still" zuruft — wenn die Seele sich hingerissen fühlt — wo man uns sagt: das ist schlecht, wenn es gut — und das ist gut, wenn es abscheulich ist — und wo das Herz nicht schneller schlagen darf, als nach dem Tempo der bezahlten Claqueurs. — Unsere Schauspieler endlich sind keine Künstler mehr, es sind Krämer, die ihre Gaben, ihr Talent, ihre Späße, ihre Laune und ihr Gemüth in bunten Enveloppes auf Bestellung zu festen Preisen pünktlich zur Minute auf den Markt bringen. — Die Directoren werden Millionäre — denn je größer die Charlatanerie, desto glänzender ist der Erfolg, und wer fragt denn nach dem guten Geschmack des Publicums, nach der Bildung des Volkes? — Zum Teufel damit. — Laß beide einen schmählichen Bankerott machen — was fragt ein Kaufmann danach? — (Nimmt eine Nadel vom Tisch und befestigt Hortense die Schärpe auf der rechten Schulter.) Voilà — ich habe meinen Beruf verfehlt — ich bin zur Kammerjungfer geboren!

Hortense (sich spiegelnd). Vortrefflich! Das haben Sie für einen Junggesellen recht gut gemacht! — Sie sind überhaupt ein ganz liebenswürdiger Mensch.

Nordheim (seufzend). Würdig — nur würdig. — Hm — aber was die Liebkeit anbelangt — mein Gott! — Da gute Nacht! —

Hortense (sich umwendend). Sie gehen? —

Nordheim. Ich? —

Hortense. Sie sagten doch aber —

Nordheim. Gute Nacht — ja — aber nur bildlich! — Ach — ich bin heute ein schlechter Gesellschafter! — Aber daran ist nur diese Toilette schuld — sie wirkt deprimirend auf meine Nerven, und auf die Ihren ebenfalls; ich bin davon überzeugt.

### Der Pfeil und der Adler.

Ein Pfeil, der — eben abgedrückt —
Schnell wie der Blitz die Luft durchzückt,
Sprach stolz zu einer Vögelschaar,
Die neben ihm im Fluge war:
„Seht her, und laßt mein Lob erschallen!
Ich kann, wie ihr, die Luft durchwallen." —

Da lächelte ein alter Aar,
Erwiderte: „Du dauerst mich,
Wirst deinen Stolz noch theuer zahlen;
Durch einen Andern hobst du dich,
Und durch dich selber wirst du fallen!"

## PHYSICS.

1. How are the units of surface and of capacity derived from those of length? Give an example of each unit.

2. What is meant by the resultant of two forces acting along lines which intersect one another?

3. Describe briefly the balance.

4. Define tenacity. What is a convenient measure of tenacity?

5. Explain artesian wells.

6. Why does a balloon rise in the atmosphere?

7. Explain the difference between a noise and a musical sound or note.

8. When are two bodies said to be of the same temperature? Define temperature.

9. What is the general effect of salts in solution upon the boiling-point of water?

10. Essential parts of a telescope? Explain how a telescope forms a virtual and magnified image of a distant object.

## GEOMETRY.

1. The right-angled triangles $A$ and $B$ have an acute angle of the one equal to an acute angle of the other. The hypothenuse of $A$ is 2 c. m. long, while $B$'s area is four times $A$'s. What is the length of $B$'s hypothenuse? Prove the truth of the proposition used in finding the length.

2. Prove that an inscribed angle is measured by half of the arc included between its sides.

3. Show how to construct a mean proportional between two given lines.

4. How may you find the area of any polygon?

5. Show how to construct a square equivalent to a given triangle.

## ALGEBRA.

[All the work is to be preserved.]

1. Multiply $a^2 + a^4 + a^6$ by $a^2 - 1$.

2. Find the numerical value of $x + y$ in the equation

$$x^3 + 3x^2y + 3xy^2 + y^3 = 778688.$$

3. If $a = 4$, what is the numerical value of

$$a^2 - 16a^{-2} + a^0 - \sqrt{a^3}\,?$$

4. A courier left this place $n$ days ago and makes $a$ miles daily. He is pursued by another making $b$ miles daily. In how many days will the second overtake the first?

5. A, B, and C compare their fortunes. A says to B, "Give me $700 of your money and I shall have twice as much as you retain." B says to C, "Give me $1400 and I shall have thrice as much as you have remaining." C says to A, "Give me $420 and I shall have five times as much as you retain." How much has each?

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## ENGLISH.

I. English. Write an English composition (such as a letter, a description of a place, etc.), of not less than two hundred words.

Write from Dictation the first paragraph of Chapter III. of Sir Walter Scott's "Waverly."

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## BOTANY.

1. What are the parts of a flower? their use?

2. What is the structure of an exogenous stem?

3. What is phyllotaxis?

4. With how many species of flowers in your own neighborhood are you familiar? Mention, if you can, two or three peculiar to that neighborhood, and ten (10) which are widely distributed through the United States.

5. Mention four important orders, and give examples of each growing (wild or cultivated) in the United States.