

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

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FRIDAY, NOVEMBER 29, 1901.

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THE RELATION OF YALE TO MEDICINE.*

ON this fourth jubilee of Yale University, speaking, as I trust I may, in behalf of many hundreds of physicians who have received their liberal or professional education in this institution, I bring affectionate greetings to our alma mater, and offer our hearty congratulations on this happy anniversary. With all the sons of Yale we join in the prayer of President Stiles: 'Peace be within thy walls, O Yale, and prosperity within thy palaces.'

Yale is related to medicine most directly through her medical department, but also through all who have studied here and subsequently practiced the art or cultivated the science of medicine. The Medical School, although the first department added to the College, was not established until over a hundred years after the foundation of the Collegiate School at Saybrook. From the beginning, however, graduates of the College are to be found in the ranks of medical practitioners, and any account of the relation of Yale to medicine would be most incomplete without some consideration of the alumni of the eighteenth century who were physicians. Their history makes a large part of the medical history of Connecticut during that century, but it is not limited to this State.

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

* An address delivered October 21, 1901, at the two hundredth anniversary of the founding of Yale College.

EIGHTEENTH CENTURY.

Doubtless the student of universal medical history, who, after tracing the wonderful development of medicine in the century of Harvey, Malpighi and Sydenham, is engaged in following medical progress through the eighteenth century, marked by such names as those of Boerhaave, Haller, Morgagni and Hunter, would not turn aside long to note what the physicians of Connecticut or, indeed, of any part of America were doing at that time. Still the records of these early Yale physicians have the interest which attaches to the beginnings of things which have become important, and for us the special and sympathetic interest which belongs to the annals of family and country.

When the first physicians who had received their collegiate training at Yale appeared upon the scene early in the eighteenth century, the state of medicine in this country had not advanced materially beyond the primitive condition of the early colonial days. We encounter, as in the early history of medicine everywhere, three classes of medical practitioners: the priest-physician, the regular physician educated and practicing according to the recognized standards of the day, and the empiric or charlatan. What Cotton Mather called 'the angelical conjunction' of the cure of the soul and of the body was to be found most frequently and in its best type in New England. Here the regular training of physicians was almost wholly by apprenticeship for three or four years to some practitioner of repute. As vividly portrayed by a Connecticut physician, "The candidate 'served his time,' as it was then called, which was divided between the books on the shelf, the skeleton in the closet, the pestle and pill-slab in the back room, roaming the forests and fields for roots and herbs, and following, astride of the colt he was breaking, the horse which was honored with the saddlebags."

Nor was this condition very materially changed during the eighteenth century by the founding of the Medical Departments of the College of Philadelphia (now the University of Pennsylvania) and of King's College (now Columbia) in the decade before the Revolution and of those of Harvard in 1783 and of Dartmouth in 1797. During this century only two graduates of Yale College (John A. Graham, Y., 1768, and Winthrop Saltonstall, Y., 1793) had received a medical degree in course. The number of students from the New England colonies who resorted to the medical schools of Edinburgh, London or Leyden was extremely small, much smaller than that from the Middle and Southern colonies.

With the exception of a law passed in New York in 1760 and a similar one in New Jersey in 1772, there was no effective legislative control of medical practice in any of the colonies. Any one who chose could practice, and the root-doctors and Indian doctors of Connecticut had their counterparts elsewhere. More from the sparseness and poverty of the population than from the absence of disease, the remuneration from medical practice was so small that the physician often added some other occupation, most frequently agriculture, to the practice of his profession.

There were no hospitals, except pock-houses, and practically no medical organization. There was little opportunity for intercourse and interchange of views between physicians in different parts of the country, so that local peculiarities of practice were more common then than now. The only text-books were European, the most authoritative on medical practice being the works of Sydenham and of Boerhaave, later also of van Swieten, Mead, Huxham and Cullen. There was no American medical journal until near the end of the eighteenth century.

With two or three exceptions the few

original medical publications, mostly short pamphlets, by American physicians before the Revolution contained scarcely any personal observations of importance, so that the names of these physicians are remembered to-day by their reputation among their contemporaries and their influence upon their successors, rather than by any actual contributions to medical knowledge.

After this necessarily brief statement concerning some of the conditions of medical practice in the New England colonies, we are better prepared to appreciate the position and work of those graduates of Yale College in the eighteenth century who became physicians.

The course of studies at the College was planned rather for the preliminary training of ministers than of doctors, but it furnished a classical education, which was then more necessary for the study of medical books than it is to-day. There seems to have been at least some interest in the College in medical knowledge, if one may judge from the titles of some of the early theses and from the possession by the College of a human skeleton and 'paintings of the human body skin'd,' as they are inventoried. President Stiles occasionally delivered a lecture on medicine, and in his recently published 'Literary Diary' he gives an interesting outline of one of these lectures, the main headings being, I. Anatomy; II. Pathology; and III. The Methodus medendi (one of the sub-headings here being 'Efficacious medicines but few')—sufficiently comprehensive, it may be said, for a single lecture even in those days.

The success attained by the Yale physicians of the eighteenth century indicates that the College then, as ever since, supplied its graduates with a training of mind and character adapted to the circumstances of time and place, and fitting them for the work of life in any field.

Mainly by the aid of Professor Dexter's

invaluable two volumes of 'Biographical Sketches of the Graduates of Yale College,' covering the period from 1701 to 1763, and a kind personal communication relating to the remaining classes, I have been able to determine that there were at least 224 Yale graduates in course of the eighteenth century who practiced medicine. This figure, which is certainly somewhat below the correct one, is 9.7 per cent. of the entire number of Bachelors of Arts for the same period—a percentage about the same as the corresponding one for the nineteenth century.

Of the seven graduates in arts from the College in the first two decades of the eighteenth century who became medical practitioners, all, with one exception, were also clergymen, and of the seventy-two physicians graduated in arts in the first half of the century nearly one-fourth were clerical, whereas after this there are only a very few names of clerical physicians.

All who are familiar with the early colonial history of New England know what an interesting class the clerical physicians were. Not a few of them were educated, skilful physicians, who ranked among the leading practitioners and teachers of medicine in their day, while others were, on the medical side, scarcely more than 'comforters of the sick,' as they were sometimes called, rather than active practitioners. One of the earliest and most celebrated of this class of physicians was the Rev. Thomas Thacher (1620–1678), of Boston, the direct ancestor of our own honored and beloved Latin professor of the same name. His name is preserved in medical annals as that of the author of the first solely medical publication in America, a broadside folio which appeared in Boston in 1677, and is entitled: 'A brief rule to guide the common people of New England how to order themselves and theirs in the small pocks or measles.'

But of all those who combined the offices

of clergyman and physician, not one, from the foundation of the American colonies, attained so high distinction as a physician as Jared Eliot of the class of 1706, who was the first graduate of Yale College to enter upon the practice of medicine. His name is preceded in the triennial catalog by that of Phineas Fiske of the class of 1704, who was eminent both as a divine and as a physician, but whose shorter professional career did not begin until five or six years after that of Eliot.

The name of Jared Eliot is a worthy one to lead the long line of over 2,300 physicians who have received their liberal or professional education at Yale College. The grandson of the Rev. John Eliot, the Apostle to the Indians, he spent his long, twofold professional life of fifty-four years in the town of Killingworth (now Clinton) in this State, where he succeeded in the ministerial office his teacher, Abraham Pierson, the first rector of this College. Of fine bodily presence and engaging personality, for many years an influential trustee of Yale College, the library fund of which was started through his bequest, the friend and correspondent of Benjamin Franklin, Bishop (then Dean) Berkeley and other learned men, a fellow, it is said, of the Royal Society and recipient of a gold medal from the London Society of Arts, accounted in his day an excellent botanist, chemist and practical and scientific agriculturist, Eliot, as is stated by Dr. James Thacher in his *American Medical Biography* (1828), 'was unquestionably the first physician of his day in Connecticut,' and in chronic complaints "he appears to have been more extensively consulted than any other physician in New England, frequently visiting every county of Connecticut, and being often called in Boston and Newport." It is also said of him that "for forty successive years he never omitted preaching either at home or abroad on the Lord's day."

With evidences of such manifold activity one is prepared to accept the statement in his funeral sermon: "Perhaps no man slept so little in his day, and did so much in so great variety."

It is customary to speak of Jared Eliot as 'the father of regular medical practice in Connecticut,' and when one considers the number of physicians who were trained under him, and that among these were such leaders of the profession and successful teachers of medicine as his son-in-law and successor in practice, Benjamin Gale (Yale, 1733), and Dr. Jared Potter (Yale, 1760), the title seems justly conferred.

Among other clergymen noted in their day as medical practitioners may be mentioned Eliot's classmate, Jonathan Dickinson, the first president of Princeton College, whose paper published in 1740, entitled, 'Observations on that terrible disease, vulgarly called the throat distemper,' is the first medical publication by a graduate of Yale College, and the third on diphtheria by an American; Benjamin Doolittle, Yale, 1716, Northfield, Mass., 'well skilled in two important arts,' according to his epitaph; Timothy Collins, of the class of 1718, traditions of whose practice are still current in Litchfield County; Isaac Browne, of the class of 1729, an early member of the New Jersey Medical Society, the first State Society organized in this country; Moses Bartlett, 1730, the pupil and son-in-law of Phineas Fiske, described on his monument as 'a sound and faithful divine, a Physician of Soul and Body,' and the father of a son of the same name, graduated in 1763, who was one of the last of the clerical physicians; Dr. John Darbe, of the class of 1748, who received the honorary degree of M.D. from Dartmouth in 1782, and is the first graduate of Yale College to become doctor of medicine; and Manasseh Cutler (Yale, 1765), skilled in medicine as well as in many other arts.

The first non-clerical physician in the list of graduates is Jeremiah Miller of the class of 1709, who settled in New London. He seems, however, to have been more engrossed with other occupations than with medicine, so that Professor Dexter names John Griswold of the class of 1721, of Norwich, Conn., as 'the earliest graduate of the College who devoted himself exclusively to the profession of medicine.'

Among the two hundred and more eighteenth-century graduates of Yale whose principal or sole professional occupation was medicine are to be found the names of many physicians whose memories are preserved, and of whose useful lives and faithful service in their calling this College may justly be proud. Some were among the most influential and widely known medical men of their time and country. Such were Alexander Wolcott (1731), whose scholarly attainments in medicine are attested by the interesting collection of his books still preserved; Benjamin Gale (1733), one of the few pre-Revolutionary American physicians who have left published records of valuable medical observations; Leverett Hubbard (1744), corporator and first president both of the New Haven County Medical Society and of the Connecticut Medical Society, for many years the recognized head of the profession in this city and county; Eneas Munson (1753), successful, able and learned, one of the longest-lived and most remarkable physicians of his day, the first name in the medical faculty of the Yale Medical Institution; Jared Potter (1760), described by Dr. Bronson as 'the most celebrated and popular physician in this State' in the first decade of the nineteenth century; Mason Fitch Cogswell (1780), one of the 'Hartford wits,' before the arrival of Nathan Smith, the most distinguished surgeon in this State, whose name has a permanent place in the history of

surgery; Eli Todd (1787), the first superintendent of the Retreat for the Insane at Hartford, who is honored by humanitarians and physicians alike as 'the first in this country to introduce the more humane methods of care and treatment of the insane'; John Stearns (1789), professor of medical theory and practice in the College of Physicians and Surgeons, western district of New York, president of the New York State Medical Society, who has the credit of first calling the attention of the medical profession to the use of ergot in obstetrics, and Thomas Miner (1796), whose ingenious and erudite essays on fevers and other medical subjects, written partly in conjunction with Dr. Tully, attracted wide attention and much comment both in this country and in Europe. To those familiar with this period of American medical history, particularly in Connecticut, other names will occur which might with equal propriety be mentioned, did time permit.

Some who belonged to the medical profession are better known as holders of high public office, and for their services to their country, than as physicians. Of the five medical signers of the Declaration of Independence two were graduates of Yale, both in the class of 1747—Oliver Wolcott, Governor of Connecticut, who studied medicine with his brother Alexander, already mentioned, and practiced for a short time in Goshen, in this State, and Lyman Hall, the first Governor of the independent State of Georgia, where he followed his profession with marked success. Nathan Brownson, of the class of 1761, who was Governor of Georgia, a member of the Provincial Congress and of the Continental Congress, and the holder of other high public offices, was likewise a practicing physician and was appointed by Congress deputy purveyor of hospitals and later to the charge of the southern hospitals in the revolutionary war.

The importance of the services of Yale graduates as surgeons and surgeons' mates in the French and Indian war and the Revolutionary war is not to be measured only by the passing mention which I find it possible to give to them here. I have found the names of ten graduates who served in a surgical capacity in the former war, headed by the doughty clerical physician, Timothy Collins (1718), the first Yale army surgeon.

In 1776 the General Assembly of Connecticut appointed a committee of eighteen of the leading physicians of the State to examine candidates for the positions of surgeons and surgeons' mates in the Continental Army, and some idea of the standing of Yale graduates then in medical practice in Connecticut may be gained by the facts that this Committee was headed by Alexander Wolcott and contained ten graduates of the College.

The earliest Yale graduate who held a commission in the American Revolution was a physician, Joshua Babcock of the class of 1724, Major General of the Rhode Island militia. He had walked the hospitals in London in 1730, being the first graduate of the College to study medicine in Europe, and for nearly twenty-five years was an active practitioner in Rhode Island. Mr. Henry P. Johnston's book, 'Yale and Her Honor Roll in the American Revolution,' gives the records of twenty-three graduates who served as surgeons or surgeons' mates in this war, and of six other physicians who were officers in the army.

The first bestowal of the degree of Doctor of Medicine in America was by Yale College in 1723, when Dr. Daniel Turner, a well-known London physician and voluminous medical writer received the honorary degree. The first American medical degree in course was given by the College of Philadelphia, now the University of Pennsylvania, in 1768. The first graduate of Yale College to receive a medical degree in

course was John Augustus Graham of the class of 1768, who was graduated bachelor of medicine from Columbia in 1772, and the first to be admitted to the doctorate of medicine in course was Winthrop Saltonstall of the class of 1793, M.D. Columbia, 1796.

There are certain directions in which Yale graduates during the eighteenth century especially contributed to the improvement of medical conditions in this country, an improvement everywhere slow and well marked only after the Revolution.

The Yale physicians of the eighteenth century, with a few not very important exceptions, which I have mentioned in a note,* were trained at home and were thrown in unusual degree upon the results of their own experience. While in the main their practice is not known to have differed from that which prevailed at the time, there is evidence of some local peculiarities. There developed early in Connecticut that special interest in the indigenous materia medica which, transmitted in direct succession from Jared Eliot, through Benjamin Gale, Jared Potter and Eneas Munson, became a distinguishing characteristic of Eli Ives and William Tully, the professors of materia medica and therapeutics in the Yale Medical Institution in its early years. This contributed to a less violent system of treatment of diseases than was customary in those days. Even in early colonial days a mild treatment of fevers prevailed in New Haven, according to Hubbard, who in writing of this town in his History of New England recorded that "The gentle conductitious aiding of nature hath been found better than sudden and violent means of purgation or otherwise; and blood-letting, though much used in Europe for fevers, especially in the hotter countries, is found deadly in this fever, even almost without

* The notes accompanying this address are omitted from this publication.

exception." In all probability the unusual success achieved by Benjamin Gale and certain other Connecticut physicians in the inoculation and treatment of smallpox is to be attributed to the mild, cooling and open treatment which they adopted, rather than to the preliminary mercurial treatment to which they ascribed it. These tendencies, for they were only such, did not find, however, their full expression until the appearance of Nathan Smith's work on 'Typhous [typhoid] Fever' in the next century.

Connecticut physicians were pioneers in the work of organization of the medical profession, and in this work graduates of Yale were prominent. The oldest existing medical society in this country is the still active and flourishing Litchfield County Medical Society founded in 1765 and preceded only by two short-lived voluntary organizations, one in Boston and the other in New York.

The first organized effort on the part of the profession to secure effective legal regulation of medical practice in the colonies was in 1763 when physicians of Norwich, Conn., petitioned the General Court for an act of incorporation, which was, however, not granted. The name of Elisha Tracy of the class of 1738 appears among the signers of this interesting memorial. This first unsuccessful attempt was the beginning of a series of efforts which, largely through the initiative of the Medical Society of New Haven County, organized in 1784, resulted in the incorporation of the Connecticut Medical Society in 1792. In the meantime State medical societies had been formed in New Jersey (organized in 1766, incorporated in 1790), Massachusetts (1781), Delaware (1789) and New Hampshire (1791).

The charter of the Connecticut Medical Society is, in most respects, an admirable instrument, and, as regards the organiza-

tion of State medical societies, historically almost as interesting as the famous Connecticut constitution of 1639. It embodies in a simple and practical fashion democratic and federative principles of organization and government resembling those adopted by the Commonwealth, and remains to this day a model for similar societies in other States. Of those concerned in the establishment of this Society graduates of Yale were the most active and influential, and they compose over one-third of the charter members. The first president was Dr. Leverett Hubbard (Y., 1744), and upon his death Dr. Eneas Munson (Y., 1753), was chosen his successor and held the office for seven years.

The most noteworthy contribution to medical literature before the Revolution by a graduate of Yale was Benjamin Gale's (Y., 1733) 'Historical memoirs relating to the practice of inoculation for the smallpox, in the British-American provinces, particularly in New England,' published in 1765 in the *Philosophical Transactions* of London. This creditable and historically interesting paper attracted attention both here and abroad, chiefly on account of its advocacy of the mercurial treatment before inoculation. It may here be mentioned that one of the most valuable of the Yale bicentennial publications, the 'Literary Diary' of President Ezra Stiles, edited by Professor Dexter, contains some interesting historical matter upon this subject of mercurial inoculation, as indeed it does relating to a number of other subjects of medical interest.

After the war of independence we find in American medical writings greater productivity and originality than before, attributable largely to the increased medical and surgical experience gained during the war, and to the higher degree of self-reliance, engendered by the political conditions.

The first original separate medical work in this country after the close of the Revolutionary war was the volume published in New Haven in 1788, entitled, 'Cases and Observations by the Medical Society of New Haven County in the State of Connecticut.' This publication, which contains twenty-six papers reporting cases of disease and autopsies, is an event of importance in American medical bibliography, not so much on account of the intrinsic value of the communications, although several are interesting, but because, in evidence of the newly-awakened medical life of the young republic, there is collected here for the first time a series of independent, original observations and studies by different American physicians. Nothing of the kind had appeared before in this country. One-third of the contributors to this volume are graduates of Yale.

Nine years later, in 1797, was started the first American medical journal, *The Medical Repository*, published in New York, and its projector was the talented and scholarly Elihu Hubbard Smith of the class of 1786, with whom were associated Dr. Samuel L. Mitchell and Dr. Edward Miller. Dr. Smith, the father of American medical journalism, died much lamented the following year. Although so young, he was physician to the New York Hospital, the editor of several works, and a contributor to literary periodicals as well as to his own journal, in which his scholarly papers on the plague of Athens and the plague of Syracuse can still be read with pleasure and profit. The establishment of *The Medical Repository*, which was continued until 1824, was of great service in promulgating medical knowledge and stimulating medical thought and writing in this country at the close of the eighteenth and in the early years of the nineteenth centuries.

The graduate of Yale, however, whose published contributions in the eighteenth

century are of the greatest permanent value to medicine was not a physician, but was that useful and versatile man, Noah Webster, of the class of 1778. Noah Webster is the first epidemiologist which this country has produced. In 1796 he published 'A collection of papers on the subject of bilious fevers, prevalent in the United States for a few years past,' and in 1799 appeared in two volumes a work, well known to all students of epidemiology, entitled, 'A brief history of epidemic and pestilential diseases,' which is of unusual interest, and on account of its records and observations of epidemic diseases in this country has an enduring value. There are scattered papers by him on various medical subjects, and one of these buried in *The Medical Repository* (Second Hexade, Vol. II.) should be rescued from forgetfulness. In this critique of Erasmus Darwin's theory of fever Noah Webster gives a well-reasoned, clear and definite presentation of that modern theory, associated with Traube's name, which explains febrile elevation of temperature by the retention of heat within the body.

NINETEENTH CENTURY.

With the turning of the century Yale College, under the guidance of the first President Dwight, passed not only in name but also in spirit from the eighteenth to the nineteenth century. It was transformed from a local to a national institution, and it entered upon a new era of expansion in which seeds were planted destined in the natural course of development to grow into the spreading tree of a university. The first fruit of this new university idea was the establishment of the Medical Department, some account of which will now engage our attention.

The need at that time of a medical school in this place is apparent from the fact that only eight or nine graduates of the

College before the foundation of the medical department in 1810 had received a medical degree in course, although a much larger number had spent a year in study at a medical school.

A part of the plan proposed in 1777 by a committee of the General Assembly to enlarge Yale College, provided a board of civilians was added to the corporation, included the establishment of professorships of medicine and of law. In the same year Dr. Stiles, before his entrance upon the duties of the presidency to which he had been elected, 'drafted a plan of an university, particularly describing the law and medical lectures,' to be laid before the committee of the General Assembly. These negotiations were at the time unsuccessful, and when at last in 1792 the closer union between the State and College was effected, these early proposals had dropped out of sight.

In two respects the circumstances attending the establishment of the Yale medical department are of peculiar interest. The initiative came from within the College and not from without, and the form of union between the College and the Connecticut Medical Society is something unique in the history of medical schools.

The idea of founding a medical department connected with the College unquestionably originated with President Dwight and was a part of his plan for extending the scope and usefulness of the institution. This broad-minded man was, as is well known, much interested in natural science, and he considered in his writings several matters of medical interest. One of the letters in his 'Travels in New England and New York' contains an argument, really remarkable in the light of our present knowledge, in support of his conclusion that malaria is caused by minute living organisms.

It is clear from several passages in the autobiographical reminiscences published

in Professor Fisher's 'Life of Benjamin Silliman' that at the time of Professor Silliman's appointment to the chair of chemistry and natural history in 1802 a medical department was definitely contemplated, and that his appointment was regarded as an important step toward that end. The plan had from this time the hearty sympathy and active support of Professor Silliman. 'Expecting,' as he says, 'from the first to be ultimately connected with a medical school in Yale College,' he attended both in Philadelphia and in Edinburgh, where he had gone mainly for chemical study, courses of lectures upon anatomy, materia medica, botany and theory and practice of medicine, coming under the influence of such famous medical teachers as Wistar and Barton in the former city, and James Gregory and John Barclay in the latter.

For centuries the medical departments of universities were the home of all that there was of chemistry and of other branches of natural and physical science, and it is significant that the medical department of this University came into being at the time when Benjamin Silliman had made New Haven the most important center for scientific work and influence in this country. It can hardly be an accidental coincidence that among the graduates of Yale College in the early years of Professor Silliman's teaching are found the names of such men as William Tully, Alexander H. Stevens, who represented medicine at the one hundred and fiftieth anniversary of this University; Jonathan Knight, Edward Delafield, John Wagner, Samuel H. Dickson and George McClellan, who became physicians and surgeons of national and international fame.

In 1806 the corporation of the College passed a resolution for establishing a medical professorship, and the Rev. Dr. Nathan Strong, of Hartford, who introduced the

resolution, and Professor Silliman were appointed a committee to examine and report, and to devise means for effecting the object.

It is to be emphasized that the Medical Department is the direct offspring of Yale College, and was not started, as nearly every other medical school in this country has been, by a group of outside physicians who have subsequently sought connection with a college. Even if there were no other claims, this origin should entitle the Yale Medical School for all time to the fostering care and support of its parent.

In order to understand the occasion for the negotiations which now ensued between the corporation of the College and the Connecticut Medical Society, it is to be borne in mind that this Society was possessed, through its charter of 1792, of unusual prerogatives which gave it control of medical education in this State. It was not only an examining and licensing body, which was proper, but also a degree-conferring body, which was decidedly improper and a usurpation of a function which should belong only to a college or university. From the beginning the Society had actively exercised all of these functions, and had furthermore made several regulations, which it was empowered to do, regarding medical education.

It was evidently necessary for the College to come to some sort of understanding with the Medical Society, and to induce it, if possible, to relinquish some of its chartered privileges.

It is not necessary here to enter into the details of these negotiations between the College corporation and the Medical Society, which extended over three years, especially as these have been fully set forth in a readily accessible paper by Dr. E. K. Hunt, a generous benefactor of the Medical School. Suffice it to say that concessions were made on both sides, and that, largely through the

efforts of President Dwight and Professor Silliman, representing the College, and of Dr. Eli Ives, representing the Medical Society, a satisfactory and amicable arrangement was reached, apparently without a great deal of friction, and was embodied in 'Articles of Union,' which constitute the act creating 'The Medical Institution of Yale College,' passed by the General Assembly in 1810 at the October session.

This act fixed the number of professors at four ('to include a complete circle of medical science'), the price of the ticket, and the time of examinations; provided for the establishment of a botanical garden, and of collections in anatomy and in *materia medica*; for a joint committee of an equal number of persons from the Medical Society and the corporation to nominate professors to be chosen by the corporation, and also for a like joint examining board, in which the president of the Society had the casting vote in case of a tie; repealed the right of the Society to grant honorary degrees in medicine, which could thereafter be conferred by the president of the College upon recommendation of the Society; provided that each county could send, upon recommendation of the Society, a gratuitous student, and fixed the term of medical study for college graduates at two years, and for others at three years, attendance upon a single course of lectures being requisite for the license, and upon two courses for the doctorate.

It is evident from this summary that the Connecticut Medical Society shared to a considerable degree with the College the control of the Medical Institution. I do not suppose that the College would have entered into this agreement with the Medical Society, had not the circumstances been such as I have mentioned. Nevertheless this union between the College and the State Medical Society had at that time distinct advantages, the most important of

which was the securing of the active interest of the physicians of the State in the new institution. In general the circumstances connected with the foundation and conduct of most medical schools in this country have not been calculated to secure the interest and sympathy of the great body of the medical profession.

No more competent testimony to the benefits derived from the union which existed here could be desired than that of Dr. Jonathan Knight, who says, in his introductory lecture in 1853: "The result of this arrangement has been eminently happy; all unpleasant feeling was at once and forever allayed; the members of the Society became interested in the School; we have at all times had the benefit of their council and support, and it gives me pleasure to state that no instance of disagreement has ever arisen among the members of the board, or between the School and State Society; on the contrary, each has regarded the other as a fellow laborer in the endeavor to promote and advance the interest of medical science."

The relations continued harmonious throughout the remaining period of existence of the agreement between the Society and the Medical School, but with changed conditions the union ceased to be useful and in some ways had become embarrassing, so that in 1884, by mutual consent, it was annulled, and the entire control of the School, the official name of which had meantime been changed by the new charter of 1879 to that of 'The Medical Department of Yale College,' passed into the hands of the University.

The charter of 1810, by its limitation of the number of professors and of the period of undergraduate medical study and its regulation of other matters better left to the discretion of the College, was an extremely inelastic instrument, and it is not surprising that repeated legislative changes

were found necessary. There have been not less than four distinct charters of incorporation of the Medical School, and in addition five or six amendatory acts. The present charter, which seems to be free from the defects of its predecessors, was enacted in 1879.

At the time of its incorporation in 1810 the Medical Institution of Yale College was the sixth medical school in the United States, the others being the medical department of the University of Pennsylvania, founded in 1765, the College of Physicians and Surgeons in New York, founded in 1807, but a descendant of the medical department of Columbia University, established in 1768, and the medical departments of Harvard (1783), of Dartmouth (1797), and of the University of Maryland (1807).

A commodious stone building on Grove Street, erected by Mr. James Hillhouse, was obtained for the use of the Medical School, and in 1814 this with an adjacent plot of ground was purchased by the aid of a generous donation by the State of twenty thousand dollars, obtained largely through the efforts of Dr. Nathan Smith. This building, which is now South Sheffield Hall, was the location of the Medical School until its removal in 1859 to its present site on York Street.

The members of the first faculty of the Medical School, appointed in 1812, were, in the order of arrangement of their names in the College catalogue, Eneas Munson, professor of materia medica and botany; Nathan Smith, professor of the theory and practice of physic, surgery and obstetrics; Eli Ives, adjunct professor of materia medica and botany; Benjamin Silliman, professor of chemistry and pharmacy, and Jonathan Knight, professor of anatomy.

Dr. Munson, to whom I have already referred, was an octogenarian at the time of his appointment, which was, as was intended, only an ornamental one, Dr. Ives, the adjunct professor, his pupil and friend,

performing the active duties of his chair. The remaining members of this faculty made a group of medical teachers who could challenge comparison with any similar group in this country. Of Benjamin Silliman it is not necessary for me to speak further, as his most important work lay outside of the immediate field of medicine, and will be considered by another speaker.

Dr. Nathan Smith, when he came to New Haven from Dartmouth, was already a star of the first magnitude in the medical firmament. Starting a poor boy in a small village in Vermont, he managed by his own efforts to obtain a good general education and then at the Harvard Medical School and in Great Britain a medical education of a character then almost unknown in New England. He was the originator of the Dartmouth Medical School in 1797, the most distinguished member of the first medical faculty of Yale, and in 1820 the organizer of the Medical Department of Bowdoin College. He did much of his most important work in New Haven, where he remained until his death in 1829.

Nathan Smith shed undying glory upon the Yale Medical School. Famous in his day and generation, he is still more famous to-day, for he was far ahead of his times, and his reputation, unlike that of so many medical worthies of the past, has steadily increased as the medical profession has slowly caught up with him. We now see that he did more for the general advancement of medical and surgical practice than any of his predecessors or contemporaries in this country. He was a man of high intellectual and moral qualities, of great originality and untiring energy, an accurate and keen observer, unfettered by traditions and theories, fearless, and above all blessed with an uncommon fund of plain common sense.

Nathan Smith's essay on typhus fever, published in 1824, is like a fresh breeze from

the sea amid the dreary and stifling writings of most of his contemporaries. The disease which he here describes is typhoid fever, and never before had the symptoms been so clearly and accurately pictured. He recognized that this fever is due to a specific cause and is self-limited. It took courage in those days for a physician to write, "During the whole course of my practice I have never been satisfied that I have cut short a single case of typhus, which I knew to be such," and again, "It does not follow of course that this disease in all cases requires remedies, or that a patient should necessarily take medicine because he has the disease." To him the lancet was not the 'magnum donum Dei' that it was to Benjamin Rush, and he did more to do away with its indiscriminate use than any single man. The treatment which he advocated—cold water, milk, and avoidance of all violent remedies—is practically the same as that now employed, but it was many a day before physicians came to accept Dr. Smith's revolutionary views.

To the surgeon Nathan Smith's paper on the pathology and treatment of necrosis has in course of time become as much of a classic as the essay on typhus fever is to the physician. Here we find the same admirable description of symptoms, and the introduction of methods of treatment which anticipated modern surgery. This is not the occasion, even did time permit, to describe Dr. Smith's achievements in surgery. It must suffice to say that he was the first to perform a number of important surgical operations, and that in this branch, not less than in medicine, he was an innovator and reformer.

Although none of Dr. Smith's colleagues can be placed in the same rank with him as contributors to medical knowledge, they were men of excellent attainments and became distinguished teachers.

Dr. Eli Ives was connected with the

Medical School until his death in 1861, having succeeded to the professorship of theory and practice of physic upon the death of Dr. Smith in 1829, and becoming emeritus in 1853. He was a highly respected physician of large practice in this city. He was widely known as a botanist, and was credited with the most extensive knowledge of the indigenous materia medica of any man of his day, a taste for which he had acquired from his preceptor, Dr. Munson. His mind was richly stored with facts, and all were impressed with the value of his teachings.

Dr. Jonathan Knight, who was only twenty-three when appointed professor, became one of the most influential men in the medical profession of this country, having been twice president of the American Medical Association. He was transferred to the chair of surgery upon the death of Dr. Hubbard in 1838. Of dignified personal appearance and manner, with well-balanced mental powers, and fine literary culture, Dr. Knight has probably never had his superior in any medical school in this country as a finished lecturer. He was an active teacher in the Medical School for fifty-one years, dying only a few months before Professor Silliman, the latest survivor of the first medical faculty.

With this able and devoted group of teachers and a class of thirty-three students the Medical School began its work in November, 1813. To follow in detail its history from that day to this would far exceed the limits of this address. I regret that I can do no more than make mention of some of the professors who have passed to the majority: Thomas Hubbard, of necessity an inadequate successor of Dr. Nathan Smith in the chair of surgery, a plain, self-taught man, of whom Dr. Knight says that he filled his position to the time of his death in 1838 'with great and increasing reputation to himself and benefit to the institu-

tion'; William Tully, a really remarkable man, of whom I had hoped to say much more, erudite, original, an experimentalist, unrivaled in his knowledge of the materia medica, an extensive contributor to medical literature; Charles Hooker, of good scientific training, who had the great merit of introducing the newer medicine with its methods of physical examination into New Haven, a writer of valuable papers on auscultation and percussion and on physiological subjects; Henry Bronson, scholarly, devoted to antiquarian research, contributor of important papers on medical history and biography; Worthington Hooker, interested in medical education and the improvement of professional organization, a facile writer, widely known as a useful popularizer of natural science; Moses Clark White, for thirty-three years professor of pathology, who taught as early as 1860 the use of the microscope in medicine in this School; Leonard Jacob Sanford, a faithful teacher of anatomy for nearly a quarter of a century, devoted to the interests of the Medical School; James Kingsley Thacher, endowed with unusual intellectual powers and capacity for original scientific investigation, eminent as a comparative anatomist, abreast of modern physiology and clinical medicine, whose early removal by death was an irreparable loss to this Medical School and to medical and biological science.

While I refrain in general from mention of the names of those who are still living and are the faithful and able successors of these distinguished men, I cannot in this connection pass over the name of Dr. Charles Augustus Lindsley, a member of the medical faculty for thirty-seven years and its executive officer for twenty-three years, a devoted teacher and eminent sanitarian.

The period of greatest prosperity of the Medical School, until quite recent years, was the first two decades of its existence, in which the average annual attendance of

students was between 70 and 80. The annual attendance then fell to an average of between 30 and 40 for the four decades from 1850 to 1890. Since 1895 it has for the first time exceeded 100. Up to 1894 the largest class was that of 1822, which numbered 92, the largest number of graduates in any year up to 1897 being 36 in 1829. Of the 1,221 graduates of the medical department up to and including 1900, 27.6 per cent. were also college graduates, and of these three-fourths were graduates of Yale College or the Sheffield Scientific School. The highest ratio of college graduates (40.6 per cent.) was in the decade 1881 to 1890, when the total number of graduates was smallest.

It is pleasant to recall that the medical department, established through the efforts of the first President Dwight, entered upon a second era of prosperity in the administration of the second President Dwight, who in his annual reports has forcibly presented the needs and the possibilities of this first offspring of the College.

The standards of the Yale Medical School have always been kept high in comparison with those prevailing at the time, and at certain periods the School has taken the lead in movements to improve medical education, which from about the end of the third to the middle of the eighth decades of the past century was in a woeful plight in America.

At the beginning the course of medical lectures here extended through six months, a longer period than obtained at the time in any other medical school in this country.

The first organized effort to raise the standard of requirements for medical education in the United States was made by a Convention of Delegates from Medical Societies and Medical Schools which met in Northampton, Massachusetts, in 1827. The Yale Medical School faithfully conformed to the recommendations of this convention, and went to the trouble of securing in 1829

from the Legislature an amendment of its charter whereby the period of medical study was increased to four years for all who were not college graduates, and to three for graduates, and knowledge of Latin and of natural philosophy was required for matriculation. The Medical College soon found itself standing almost alone, 'faithful among the faithless,' and, in order to preserve its own existence, it was compelled after three years to return to the old order as regards the length of the period of medical study, although it retained the preliminary requirements, which, however, afterwards became inoperative, as they were so far above the demands of other colleges.

The inadequacy of the system of didactic lectures for the training of medical students was nowhere in this country earlier recognized than here. In 1855 the course was supplemented by daily recitations, and, as their advantages were realized, they received in the following years greater and greater emphasis, until they in combination with laboratory practice became, at least as early as 1867, a distinctive, and certainly a valuable feature of the school.

In 1879 the Yale medical department placed itself in the front rank, as regards its standards, with only a few companions at that time, by introducing a stated matriculation examination and a three years' graded course, lengthened in 1896 to four years. Clinical instruction and the recitation and laboratory plan of teaching, which had been early adopted, continued to be the basis of the course. The thoroughness of the training is attested by the unusual success of the graduates of the Yale medical department in competitive examinations for positions in the army and in hospitals, and in State Board examinations for license to practice.

With the laboratory building erected in 1893, and the clinical building now in process of construction, the teaching re-

sources of the medical department have been greatly increased, and there is every indication that it has entered on a new era of success and usefulness, but it cannot reach the height of its endeavor or of the position properly belonging to an important department of this great University without a large increase of its present meager endowment.

Of the total number of physicians who have received their liberal education at Yale College and the Sheffield Scientific School, less than one-fifth are graduates of the Yale medical department, and it is pertinent to inquire how their alma mater has fitted them for their subsequent professional studies. For the great majority and until comparatively recent years this collegiate training was furnished by the old-fashioned classical course, and there can be no question but that this, combined with other influences of college life, gave an excellent discipline of mind and character, but with no peculiar adaptation to the study of medicine.

The advance of medical science and art during the last half century has given ever-increasing prominence to the value to the student of medicine of a good practical knowledge of chemistry, physics and general biology. It is to the great credit of this University that this need was first clearly recognized and supplied in this country by the Sheffield Scientific School, which in 1870 offered well-planned courses in these branches of science, announced as intended especially for the preliminary training of prospective medical students. With the establishment of the Laboratory of Physiological Chemistry four years later the distinctive pre-medical biological course was fully organized, and since 1889 this has been open also to students in the academical department.

No more convincing testimony to the importance of this new departure in collegiate

education is needed than the mere mention of the names of some of those who were graduated from the Scientific School in the ten years following the establishment of this course and who have acquired distinction in medicine or in sciences akin to medicine. Fortunately I can not illustrate my argument here by the selection of names from those who have passed away, and I trust that it will not be considered invidious if I cite names so familiar to physicians and biologists as those of Prudden, T. H. Russell, Hun, W. B. Platt, Chittenden, Yamagawa, Curtis, Sedgwick, Gilman Thompson, E. B. Wilson, Mitsukuri, H. E. Smith, E. A. Andrews, Ely. Not only has the laboratory of physiological chemistry under the direction of Professor Chittenden been of great service in the preparation of students for the study of medicine, but its contributions to a science of great medical and biological importance are unequaled in number and value in this country and have given it rank with the best laboratories of its kind in the world.

There have been all told not far from 2,300 graduates of Yale in all its departments (including the medical), who have become physicians, not counting twice the names of those graduated from more than one department. Of the graduates in arts (1702-1897) about 1,100 (9 to 10 per cent.) have entered the medical profession, the percentage being about the same for the eighteenth and the nineteenth centuries, but varying considerably in different years and decades, as appears from data which I have inserted in a note.* Especially significant is the fact that from the classes of 1822, 1824, 1825, 1826, and 1828, when the medical department was at the height of its early prosperity, the number of graduates in arts who became physicians was 80 per cent. above the general percentage

* The notes accompanying this address are omitted from this publication.

for the nineteenth century, and that over 41 per cent. of these received their medical degree from the Yale Medical School, as against 24 per cent. in general for the period since the opening of the medical department. Of the graduates of the Scientific School (1852-1897) at least 193 (9.1 per cent.) were later graduated in medicine, 22.3 per cent. of these receiving their degree from the Yale medical department.

It is of course out of the question to attempt to give here even the most summary account of the more than two thousand Yale physicians of the nineteenth century. Among those no longer living are the names of such famous men as Alexander H. Stevens, Samuel H. Dickson, George McClellan, Nathan R. Smith, William Power, Alfred Stillé, Samuel St. John, William H. Van Buren, Edmund R. Peaslee, J. Lewis Smith, Daniel G. Brinton, William T. Lusk and many others deserving of mention did time permit. The graduates of Yale in the medical profession have contributed their full share to the making of the medical history of this country. Over one hundred became professors in medical colleges, especially noteworthy being the number and distinction of those who have been and who are connected with the medical schools in New York City. At least thirty have been presidents of their State medical societies.

In all these two hundred years of her existence men have gone forth from Yale who have adorned the profession of medicine. Among them have been great teachers, leaders who have advanced medical knowledge, improved medical and surgical practice, and raised the standards of professional life and of medical education, men who have served their country in a professional capacity in peace and in war, and many more who have led the useful lives of general practitioners, honored in their homes and by their colleagues, and con-

tributing to the welfare of the communities where they have lived.

In centuries past the greatest renown of many universities lay in their medical faculties. There have been later times when the conditions of medicine and of medical education made it less fit to enter into the life and ideals of a university. It is not so to-day. Medicine has now become one of the great departments of biological science with problems and aims worthy of the highest endeavor of any university, surely none the less worthy because they are associated with human interests of the highest importance.

The union of medical school and university should be of mutual benefit. Medicine needs the influences of a university for its highest development, and the usefulness and fame of a university are greatly increased by a strong medical department. There is to-day no direction of scientific research more productive in results of benefit to mankind and in the increase of useful knowledge than that upon which medicine in these later years has entered, and there can be no nobler work for a university than the promotion of these studies.

But medical teaching and research can no longer be successfully carried on with the meager appliances of the past. They require large endowments, many well-equipped and properly-supported laboratories, and a body of well-paid teachers thoroughly trained in their special departments. With an ampler supply of such opportunities as these there is every reason to believe that the Yale medical department would take that important position in the great forward movement of modern medicine to which its origin, its honorable history and the fame of this ancient University entitle it. May the next Jubilee find medicine holding this high position in Yale University!

WILLIAM HENRY WELCH.