**Odium medicum and other addresses / by Lewis Stephen Pilcher.**

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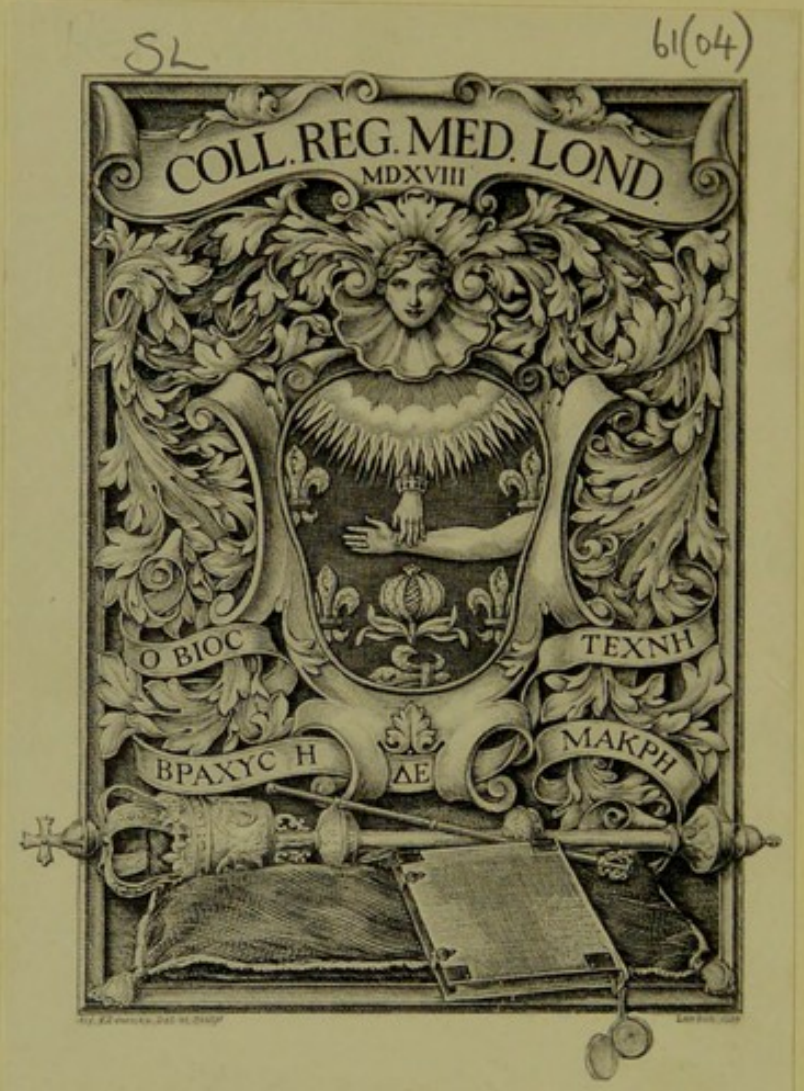
LEWIS STEPHEN PILCHER



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BY

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# FOREWORD

In the following pages are presented thoughts that have been elicited by the conditions of a busy professional life extending over nearly fifty years. To the consideration of some problems peculiar to the medical life of to-day have been added some historical studies involving the work and characters of mediæval worthies. It has been interesting to trace the same influences and ideals moulding medical character in all ages.

Chiefly as addresses on various public occasions has their composition been primarily prompted. They are now gathered together into this little volume partly to gratify the natural desire of the author to make a more permanent record of the observations, impressions and conclusions from his studies of his fellow-workers in the field of medicine and surgery, and partly, perhaps even mostly, to leave in the hands of his children and his grandchildren something which shall tell them of the ideals which actuated him during his years of active endeavor.

The completed book he dedicates to the one, who during the struggles of the earlier years of professional life was his sympathetic helpmate; whose loyalty and devotion continued during the years of achievement and whose love still graces the later years of enjoyment and leisure:

HIS WIFE.

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J. W. Vigo

# I

# "ODIUM MEDICUM"

This address was delivered before the Alumni of the Medical Department of the University of Michigan, June 27, 1888.

Its theme is the Spirit of Devotion to Duty, which the writer believes to be a marked characteristic of physicians as a class, and which universally, though often insensibly, moulds their characters as individuals. This underlying loftiness of spirit is often lost sight of by ordinary observers whose attention is instead preoccupied by less important evidences of defects of temperament, and of occasional jealousies due to a narrow environment, which physicians cannot escape from entirely. These have given rise to the term "Odium Medicum" as one of frequent but undeserved reproach, against which the writer wishes to register his protest.

## "ODIUM MEDICUM."

FELLOW ALUMNI: An old student is irresistibly led away into reminiscence at such a time as this. He goes back over intervening years, and lives over the events of bygone days. Those were days of faith and hope, of dreams and expectations, of ardent pursuit after knowledge, of satisfaction at advancement made. To us our instructors were heroes and sages, and our school the unquestioned superior to any; the most complete in its equipment, the most thorough in its training, the most satisfactory in its results, and its diploma was without question to be the credential which would command for us confidence wherever we should go, the key to open the door of success to us in whatever direction our future paths should be.

Sterner and more practical days have come since then; the years, as they have rolled by, have brought sometimes success and sometimes defeat, but experience and instruction always.

Twenty-two years have elapsed since, with the Class of 1866, I went out from this place. Not infrequently memories of the men who went out with me recur to me, and I wonder what has been the outcome of their professional work. The record of each has certainly been made by this time. Some doubtless are dead. A very large proportion of the class were then already mature men. A very large proportion also were fresh from the army, some from the camps, but most from the hospitals, and the prevalence among us of blue cloth coats and of

vests with brass buttons—relics of previous military magnificence—was a marked feature of the winter. Some had received their first inspiration to study medicine from their experience as patients, nurses or wardmasters in army hospitals; many had served as hospital stewards, medical cadets, or assistant surgeons; a number had even attained the rank of full surgeon. With the dissolution of the great army of volunteers in the summer of 1865, they were left in a position to gratify their desires to complete their systematic studies. For the next two years the halls of the medical colleges throughout the country were thronged with these returned boys in blue who by their age and experience gave a distinct and peculiar cast to the classes of that period.

There comes before me now, as I speak, the face of one man especially, who was one of us that winter, about whose character there was much to admire, and whose early death had about it somewhat that was pathetic. He had been surgeon to a western regiment, and still took pride in the wearing of his regimentals, but he was nevertheless enthusiastic and earnest in his thirst for instruction, his sense of his needs having been sharpened by his experience, and his ambition to excel having been quickened by the honors he had already attained. A year later I found him in the city of Brooklyn, as one of the resident physicians in one of the hospitals of that city. It was then the chief object of his ambition to secure an appointment to the medical staff of the navy. He had already been up for examination for this purpose once, but had failed to pass. But this failure had only made him more intent on final success. His health was not good; pulmonary tuberculosis had already fastened itself upon him, but he nevertheless was throwing himself with unabated professional ardor into his work of preparation

for another examination. When the time came the indulgent Board of Examiners attributed his evident poor health to a too close application to study; he sustained his examination successfully, and in due time received his commission. His position, however, was enjoyed by him for only a brief period. The advance of his tuberculosis was rapid, and within a year his remains were laid away in a New Jersey cemetery.

Doubtless there are still others, perhaps many others, of that class who have entered into rest after years of abundant labors. It is a suggestive commentary upon the slight character of the bond which unites a medical class together, that, after its separation on commencement day, so little is known by its respective members of the after work and welfare of their colleagues. Even the place of residence of many is unknown, and in the official publication of the University a question mark follows their names to denote this uncertainty as to their whereabouts. It is natural that during the earlier years of professional life one's mind should be almost exclusively occupied with the interests that are immediately personal to oneself. The strife for existence, the great struggle out of which is to come the survival of the fittest, has first to be fought out. We are precipitated into it at once after leaving our seats on these benches. Very few of us find places ready prepared for us. We have to conquer them for ourselves, and always be ready to hold them against all comers. But as the years go by, and a lull in the contest occurs, we begin to think more of those who started out with us, and to wish to know how they too have fared. We have a clearer and more comprehensive view, too, of the nature of our common work, and of its effects upon the character of those devoted to it. We have a higher estimate of the

qualities which are displayed by the faithful physician, and our interest is deepened in our fellows to know what the effect upon them has been of the discipline of years of work for their fellow-men.

What a wonderful Godlike thing is the professional spirit which dominates medical men as a class! And only he who has felt it, experienced it, realized its power to exalt its possessors above the ordinary fears and prudences of men, can appreciate its value and its irresistible force.

Says Carlisle: "What profession is there equal in true nobleness to medicine? He that can abolish pain, relieve his fellow-mortal from sickness, he is indisputably usefullest of all men. Him savage and civilized will honor. He is in the right, be in the wrong who may. As a Lord Chancellor, under one's horse-hair wig, there might be misgivings; still more, perhaps, as a Lord Primate, under one's cauliflower; but if I could heal diseases I should say to all men and angels, without fear, *en! ecce!*"

But Carlisle misses the great feature of nobility in those who follow the healing art. The noblest of actions may be done from the basest motives. Just as what men are is more important than what they do, so are the motives of life, the principles of action which the lives of so many medical men display, and which the traditions and influences of the profession tend to create and foster in its members, greater than the visible, tangible results of their work.

As the physician of to-day reads of the scorn with which the bribes of Artaxerxes were rejected by Hippocrates, saying that "honor would not permit him to accept his presents and go into Asia to give succor to the enemies of Greece," or of the courage with which Guy

de Chauliac faced the plague at Avignon, "fearing infamy more than the pestilence," and by his unwearied zeal in the service of his stricken fellows, overcame his own fears, he feels that himself is an heir to this inheritance of honor and courage.

Upon a manuscript copy of a "Treatise on the Plague," preserved in an Italian library, is a brief Latin inscription, which, rendered into English, reads as follows:—"And afterwards Gentilé became worn out through the excessive demands of the sick; this was on the twelfth day of June; and he lived six days, and died. May his soul rest in peace. The year was 1348. And I, Francis of Fuligno, cared for him during his illness, and never left him until his death, and he was buried at Foligini, in the Cemetery of the Eremites." This was the simple record made by a pupil of the work and fate of his master. Gentilé, an Italian physician of note of the fourteenth century, went to the assistance of the inhabitants of Genoa, when that city was being ravaged by the "Black Death." He wrote this "Treatise on the Plague" for the general instruction of the inhabitants, and devoted himself unceasingly to the relief of the sick; at last, being himself attacked by the disorder, he sunk under its effects. That the memory of his work might not be entirely effaced, his pupil and companion, Francis, made this inscription on a copy of his book. What a volume of heroism and self-denial is revealed in the brief record. As we honor the lofty purpose, the Christlike spirit of the noble master who died in saving others, we must not overlook the equal fidelity to his calling and the quiet heroism of the pupil who survived.

The world has been full of such examples in every age. Why are they not made the recipients of public honor, and plaudit and recognition? Is it not because

such acts are taken as matters of course in the work of a physician? What higher honor can the world pay to our profession than such an assumption? We read with admiration of the courageous devotion of Desgenettes who, to reinspire with hope the plague-stricken soldiers of Napoleon in Syria, in their presence inoculated himself with matter from one of the dreaded buboes, drained a glass which had just been taken from the lips of one dying from the plague, and finally himself performed the labor of removing from the camp a heap of infected and putrid articles, which emitted so offensive an effluvia that he had repeatedly to desist and retire to a purer air to recover himself before he finally completed his task. But it is ours with pride to recall that Desgenettes was not alone in his exalted devotion. He himself testifies that all the medical officers were "*sans peur et sans reproche,*" and that if science suffered any deficiencies, it was death which occasioned them.

Let me speak of another epidemic, and one the events of which transpired in our own land. The recital is of the deeds of men whom we claim as our own. Thus runs the record:—"Husbands were found who did not scruple to desert their wives at the critical moment, while the death-beds of many were unsoothed by the presence of their wives. Parents forsook their children; children forsook their parents; masters turned their servants adrift, or consigned them to the tender mercies of the hospital, and on the other hand, some domestics abandoned humane masters at the moment of the greatest need, and, in some instances, those of affluent fortune, who had given daily employment and sustenance to hundreds, were turned over to the care of a mercenary negro, after their wives, children, friends, clerks, and servants had fled away and left them

to their fate. But, among the members of the medical profession, the most entire devotedness to their fellow-creatures was early and continuously displayed. With a few exceptions, they remained at their post, ministering to the sick; amid the appalling scenes of distress and destruction by which they were surrounded the sense of self-preservation was no longer operative. Unheeding the cause of infection, to which more than any other classes they were exposed, they applied themselves to the performance of their laborious professional duties with a calmness and zeal worthy of all praise. In the short space of five or six weeks, not less than ten physicians were swept away by the epidemic. Scarcely one of those that survived, or remained in the city, escaped sickness." (La Roche on Yellow Fever, I, 73.)

This was in Philadelphia in 1793. But scenes of as nearly great distress and of equal heroism have repeatedly been enacted in this country since that day. When the yellow fever raged in the Mississippi Valley in the summer of 1878, there was no lack of physicians to volunteer to go to the relief of the sufferers, and at the close of the epidemic the roll of honor on which were inscribed the names of those who died in the voluntary service to their fellow-men contained over fourscore names. (*Medical Record*, October 12, 1878, page 300.)

"Epidemics," says Simon, "are the battle-fields of medical men. Whilst terror suspends or relaxes at least the greater part of social relations, they, silencing those reasonable fears which their own private danger may inspire, must study, unmoved as science itself, all the characters of the disease, and the various forms which it may assume, and strive to fix at once its prophylactics and the most rational treatment to be followed." It is their duty calmly to pursue their career of knowledge and

benevolence, to mitigate the horrors which they cannot avert, and to administer relief and consolation wherever possible, even at the risk of their own lives. (Mackness: "Moral Aspects of Medical Life," page 273.) "Nothing but the disease itself can, in the midst of the disasters of an epidemic, exonerate the medical man from the imperious obligation which compels him to sacrifice himself entirely to the salvation of his fellow-citizens."

But if epidemics are great battle-fields, the ordinary work of the physician is quite as much a warfare in which he is continually taking his life in his hand; he is always on the picket line. "Most men," says Marx in his Aphorisms, "even soldiers, risk their lives but once; the physician often." "Wherever disease threatens," says Mackness, "and in whatever form—on the pestilential banks of the Niger, in the stifling siroccos of the desert, the frozen stillness of the Arctic zone, the plains of Scinde, or the miasmatic jungles of Bengal—there is found the medical man, intent only upon his duty, braving the danger, and watching with careful eye the progress of disease."

It may be said that he seeks for honor and worldly rewards, and so in part he does; but the risks he encounters, and the sacrifices he makes are often such as are but inadequately compensated, for what he gains is but limited to maintenance in his sphere of labor, that is, the ability to keep on working and suffering. If he sinks amidst those he seeks to save, no national tomb awaits him, no fame attends his name, no wealth or honor is conferred on his family; in the opinion of the world he has only done his duty; and if he escapes no extraordinary reward is his; his devotion is little noticed and soon forgotten.

How little is the spirit of professional enthusiasm

which animates the true physician appreciated or even understood by the people among whom he works. We hear much of the *odium medicum;* the personal difficulties, jealousies and rivalries of medical men are exaggerated and commented upon freely; the amiable and sometimes transparent attempts upon the part of ambitious men to secure notoriety and practice are never under-estimated; the more striking and positive achievements of particular men are fully acknowledged, and usually greatly distorted and exaggerated by partial friends; but the undercurrent of self-denying enthusiasm, upon which all these men are being equally swept along in their work, is rarely thought of, is doubtless often not even appreciated by the men themselves. But it is this alone which makes their work tolerable. How often do laymen, when they stop to consider even the most ordinary duties of the physician, exclaim in wonder that such duties can be accepted by any man. The tedious waiting by the obstetric bed, and the duties which the culmination of the parturient agony devolve upon the accoucheur; the personal services of the most repulsive character which the surgeon is continually being called upon to render; the often ingratitude of those for whom the most has been done and borne; the responsibility of acts and advice upon which the issues of life depend; the wear and tear of mind and body; these all are things, the enduring of which it may well seem strange that refined and sensitive minds should deliberately undertake. If the spirit of trade alone animated those pursuing such a calling, what grovelling and menial tendencies of mind, what callousness of heart, would it argue in them.

But it is not so. The controlling, dominating spirit which sustains a physician in the most trying and in the most undesirable duties of his profession, whether he

stops to recognize it or not, is a divinely sent enthusiasm of labor for the relief of men. Nearly all human beings have this feeling in some degree; he who is devoid of it is a moral monster; but in the physician it is cultivated to its highest degree. It is that which sustains him in all his work, and that which is his only solace in many hours of disappointment and misrepresentation.

Medical men are insensibly molded and developed by this spirit as the years of their work progress. The communities in which they labor do not fail to appreciate the nobility of their character as their later years approach, and when they are borne to the tomb, all classes unite in the lament over a friend of humanity gone.

In one corner of St. Paul's Cathedral, in London, in close proximity to the monuments to Lord Nelson, General Sir John Moore, and General Abercrombie, stands another on which are inscribed the following words:

WILLIAM BABINGTON, M.D., F.R.S.,
Fellow of the Royal College
of Physicians.
Born May 21, 1756. Died April 29, 1833.
Eminently distinguished for science; Beloved
for the simplicity of his manners and the be-
nevolence of his heart; respected for his inflexible
integrity, and his pure and unaffected piety in all
the relations of life. He was sagacious, candid, dili-
gent and humane. Firm in purpose, gentle in exe-
cution; justly confident in his own judgment, yet
generously open to the opinion of others; liberal
and indulgent to his brethren, but ever mind-
ful of his duty to the public. To record their
admiration of so rare a union of intellect-
ual excellence and moral truth, and to
extend to future generations the salu-
tary influence which his living ex-
ample can no longer diffuse, this
monument has been erected by
the public subscriptions of his
contemporaries, A.D., 1837.

Well might such a physician have a monument among the great and honored of a nation. But upon the graves of how many others could not a similar inscription be placed. In every village cemetery throughout the land lie sleeping those who ministered to the wants of their fellows during life, and of whose characters an impartial chronicler could truthfully write, "He was sagacious, candid, diligent and humane."

The spirit of unselfish devotion to the public good is the natural development of the spirit of service to others which the life of the true physician exemplifies. Permit me to give an illustration of this, which I do the more gladly because it enables me to pay a tribute of respect to the memory of a man who was loved and honored by all who knew him for what he was and what he did. In Stillé's "History of the United States Sanitary Commission" I find the following sketch of the work of one of the members of that commission: "He soon exhibited a practical skill, executive ability, and at all times a perfect generosity of personal toil and trouble in carrying on the Commission's work which gave him, during its whole progress, a commanding influence in its councils. Oppressed by serious and responsible professional care he nevertheless watched over with keenest interest the details of the Commission's service, and he set an example of self-sacrifice and disregard of personal interest when the succor of the soldier claimed his attention, or required his presence. The life-saving work of the Commission at Antietam, the relief which it afforded on so vast a scale after the battles of the Wilderness, and the succor which it was able to minister to thousands of our soldiers returning to us from rebel prisons, diseased, naked and famishing, owed much of their efficiency and success to plans arranged by him, and carried out at personal

risk and inconvenience under his immediate superintendence."

This was Dr. Cornelius R. Agnew, on the mold which covers whose grave the grass has not yet had time to grow, whose upright life and spirit of self-forgetful devotion to the best interests of his profession, his city and his country, made him one of the most influential and conspicuous figures among medical men of New York City for more than a quarter of a century.

What more fitting or more profitable thing could there be on the occasion of these Alumni reunions than the recital of the character and work of those of our own colleagues who may have finished their work during the year. Such memoirs would be an inspiration and a pride to those just entering the profession, and a gratification to those who are older. We have just been having our National Decoration Day. With music and parade, with orations and flowers, we have been honoring the memory of those who died for their country. How our pulses have been stirred anew; how our patriotism has been quickened; what memories of sacrifices, and struggles and sufferings and death have been brought thronging back into the chambers of our minds. On such days I never see the scarred, and halt and maimed veterans, and tattered and blackened flags go by without my heart coming up into my mouth, and my eyes filling with tears. With somewhat of the same feeling do I stand in these halls to-day, and recall the men whom I have known here. I would gladly testify to the nobility of their lives and to the loyalty which they have shown to the ideal type of the true physician.

It is a natural transition from thoughts of those who have been instructed here to thoughts upon the possibilities of the instruction given here; bear with me, there-

fore, while I try to state very briefly some considerations which may possibly be well to have noted with regard to their bearing on the future medical instruction in this University.

It would be interesting and instructive to trace the evolution of medical instruction in the United States, from the time, two hundred and forty years ago, when the Apostle Eliot having become convinced that it was a very needful thing to inform the Indians of New England in the use of Physick as an effectual means to take them off from their powwowing, proceeded to show some of the wiser sort of them the anatomy of man's body, and some general principles of Physick. More than a hundred years elapsed, however, before the conditions required for the permanent establishment of a medical school on this side of the Atlantic, were met. In 1765 the first American Medical school was organized in Philadelphia, with two professorships, one of Anatomy and Surgery, the other of the Theory and Practice of Physic. Two years later the Medical Department of King's, now Columbia College, in New York City, was organized. In 1779, a professorship of Anatomy, Medicine and Chemistry was established at William and Mary College in Virginia, through the efforts of Thomas Jefferson; in 1782, the Harvard Medical School, and in 1797, the Dartmouth Medical School were founded. Thus at the beginning of the present century there were five centres of medical teaching in this country—with its five millions of people.

Twenty-five years later, this number had increased to eighteen with a collective attendance of more than two thousand students. In the present year (1888) the number, as given by Dr. Garnett in his recent address before the American Medical Association, is one hundred and

fourteen with a collective attendance of eleven thousand three hundred and two students. It is customary to speak deprecatingly of this multiplication of medical schools and frequent suggestions looking towards the invoking of legislative action for the restriction of their number are always received with applause.

Meanwhile there is something in the genius of our American institutions which prevents these suggestions from ever amounting to much, and practically the privileges of free trade and unchecked competition are permitted to go on applied to medical education and medical practice in this country. To the average American there are three things at least in the choice of which he desires no outside help, namely, his wife, his church, and his doctor! The moment any body of men begin to assert that medicine can be practiced legitimately only through ways and in methods sanctioned by them, that moment they lose influence in a community, and produce a reaction in favor of medical come-outers of all kinds. A recent editorial in the *New York Sun* (May 10, 1888), called out by the address of Dr. Garnett, above referred to, shows well how some of the ideas popular among certain physicians strike the average laymen. The writer says:

"If medical men are to be protected by legislation restricting the number of admissions into the profession, why should not like protection be vouchsafed to persons engaged in other pursuits? A competent brewer would doubtless make more money, support his family in better style, and find life generally more worth living if there were not so many other brewers. A good blacksmith would have more horses to shoe, and could employ a larger number of journeymen to help shoe them, if fewer persons were permitted to pursue that manly voca-

tion. Even the old lady who keeps an apple stand on Broadway under the sanction of the common council, or the Italian who sells gum drops in Printing House Square, would probably like to have competition limited by law. The subject brought to the attention of the public by the American Medical Association is one full of suggestions.

"It occurs to the lay mind, however, that the medical men assembled at Cincinnati would confer a greater benefit on mankind by devising methods to diminish disease, rather than methods to diminish doctors."

As bearing further on this phase of our subject let me quote from one of the delightful essays of the late Dr. John Brown, of Edinburgh, the author of "Rab and his friends" (*Spare Hours*, Third Series, page 239, Houghton, Mifflin & Co., 1883). He says:

"Our petition to Parliament is, make a clean sweep; remove every legislative enactment regarding the practice of medicine; leave it as free, as unprotected, as unlicensed as baking or knife grinding; let our Colleges of Physicians and Surgeons, Faculties and Worshipful companies, make what terms they like for those who choose to enter them; let the Horse Guards, let the Customs, let the Poor Law Boards, let the Cunard Company, demand and exact any qualification they choose for the medical men they employ and pay, just as Lord Breadalbane may, if he like, require red hair and Swedenborgianism, in his Lordship's surgeon to his slate quarries at Easdale. Give the principle its full swing, and, by so doing, be assured we would lose some of our worst quacks; but we would not lose our Alisons, our Symes, our Christisons, Begbies, and Kilgours, or our Brodies, Brights, Lathams, Watsons and Clarks. * * * Let there be no interference, under the name of qualification or license, with free trade

in medical knowledge and skill. There is in the body politic, as in the body natural, a self-regulating power to which we ought to take heed, and trust its instincts, and not our own contrivances. This holds in religion, in public morals, in education; and we will never prosper as we might, till we take the advice Henry Taylor relates that an old lady of rank gave to her anxious daughter-in-law, when asked by her what she would advise as to the education of children: 'I would advise, my dear, a little wholesome neglect.'"

This principle of "wholesome neglect," as far as governmental support and legislative restriction are concerned, has been the atmosphere in which medical education has developed in this country. The principles of natural selection have had their full influence in the formation of its characteristics. What has been the result? Each generation of medical teaching has faithfully reflected the best intelligence of the country, modified by the material conditions then prevailing. Shippen and Rush, Bard and Hosack, Warren and Nathan Smith, Dudley and Drake, Physick and Chapman, Mott and Francis, McDowell, Sims, Hamilton, Gross, Flint, Agnew, Gunn, Palmer, and a host of other names equally illustrious adorn the roll both of teachers and taught in these schools. Some of the least known and most remote of the schools have furnished some among the highest type of practitioners and teachers.

Castleton Medical School of Vermont furnished Sager, Denton and Allen, to the first corps of professors of the Medical Department of the University of Michigan, and the Geneva School of Western New York furnished first Gunn, and then a little later Palmer and Ford. There has developed in this country a body of physicians who in all the higher essentials of their calling, their

ability to relieve and heal diseases and assuage the sufferings of their fellows, are unsurpassed by those of any other country. As a class, more than other period in the world's history, do the physicians of this country and this age illustrate the influence of that divine professional enthusiasm upon which I have already dwelt. I was privileged to be present in the vast and crowded auditorium of the opera house at Washington in September last, when the President of the United States declared open the late International Medical Congress. It had been stated as a reproach to this assembly that there would be lacking in it the presence of most of the more cultured and eminent practitioners and teachers of the Eastern cities, those who represented especially the influence of European training and foreign opportunities. It may have been so. If so, the American representation at this Congress was then all the more a national one, and all the more reason why emotions of patriotic pride should have filled the heart of the American physician as he took in the manifest high character of the men who composed that audience. It was eminently just and appropriate that the man who presided over that Congress should have been a typical American, a farmer's boy, with a country district school education capped by a six month's course at a country academy, a student of medicine with an obscure country practitioner, a graduate in medicine from an inland country medical college, and yet one who by dint of his own talents and energy and the unrestricted competition open to him had long ago conquered the first place among the physicians of America, and an easy equality with the highest of any land. It is not in accordance with the genius of this age, nor of this land, to create monopolies or privileged classes. Paternalism in morals, politics or medicine does not thrive here.

Tradesunionism and boycotting are less popular than they were a few years ago, all insidiously as the spirit which they represent tends continually to crop out among men with established privileges. As physicians it behooves us to be on the alert against the further development of any of these tendencies among us. We want no medical monopolies; medical paternalism is fit only for medical idiots, and as for the tradesunion spirit which would convert every physician into a walking delegate going about to see whether his fellow was practicing and charging and consulting according to the by-laws of the union or not, what is more abhorrent to true professional spirit! But shall the multiplication of medical schools be permitted to go on unchecked? I answer, why not? subject only to such checks and guards as a community may think best to impose to prevent fraud and imposition. It is difficult to exaggerate the importance to a community in the quickening of its medical men, which arises from the establishment within it of a properly organized institution for medical teaching. It means a new life and vigor all along the medical line; it means more study, more attention to detail and principles, more investigation, more criticism, more comparison of results. It means sooner or later, the rising up in a community of a body of trained reasoners, acute observers, and specially skilled practitioners; it means a wider diffusion of knowledge of importance to the public; it means a higher class of medical practitioners, and a community better educated to appreciate them. There is something in the act of attempting to impart information to others which benefits the teachers quite as much as the taught; so that the subordinate tutorial work which many young men find the opportunity of engaging in under the supervision of older men in medical institutions, is constantly furnish-

ing many who are really entitled to be called "Doctors," namely, *teachers*. And to you, young men and women, who have just completed your course here, and who are about to leave this place with this University's seal of approval upon your work thus far, I can give no better advice than that you at once try and find some opportunity to teach to others the knowledge you have gained. In no better way will you be able to clinch what you really do know, and in no more certain and speedy way will you be able to appreciate how little this is.

The teaching of medicine is, however, not the same thing to-day that it was even twenty years ago. There is less of the theatrical about it, the corps of professors consisting of one or two stars with a stock company of less conspicuous colleagues, going through their parts in the arena of an amphitheatre for the admiration and edification of an audience on the benches above. There is more of personal training, laboratory work, special demonstration, bedside teaching, post-mortem investigation. There is less talk about sickness, and more about sick men. The eager and unrestricted competition, which I have already eulogized, has continually exerted a levelling up influence. Hospitals have multiplied, maternities and dispensaries have been established, great pathological and bacteriological institutes have been founded and endowed. An increasing wealth and intelligence in our communities have both increased the emoluments of medical practice and increased the standard of medical attainment demanded. The medical institutions and men of other countries have been brought near to us by the annihilation of time and space which steam and electricity have accomplished, and our competition is no longer between ourselves alone but it is with the best of every country.

A natural question for us to ask is, Where is the University of Michigan to stand in the future of medical education in this country? She may not rest on her laurels. There is no divinity that doth hedge her about. If as a teaching body her medical department is to keep pace with the demands of the day, the University must furnish not only laboratories in which the science of medicine is taught, and rostra from which the principles of medicine are proclaimed, but also, in adequate degree, sick people with whom students may come personally in contact; parturient women, sick children, acutely ill or disabled men, with whose symptoms and treatment the student may be made familiar. Pathology, the foundation of all rational medicine, must be taught in post-mortem rooms where diagnoses shall be verified or corrected, and the meaning of symptoms explained. Just in measure as these needs shall be supplied in the future may we expect to see this school maintain its past prestige and develop still more value and power as one of the great medical centres of the land.

# II

# EVOLUTION OF THE AMERICAN SURGEON

The Presidential Address delivered before the Medical Society of the State of New York, February 8, 1893.

# THE EVOLUTION OF THE AMERICAN SURGEON

## WITH A PROLOGUE UPON THE SURGEONS OF THE TIME OF COLUMBUS

THE Columbian year has just expired. The pomp and glitter of processions, and the rhetoric of eloquent oratory, the marshalling of historical items from the annals of the past, the resources of imagination, the fruit of the printer's type, the painter's brush, the sculptor's chisel and the architect's pencil have all been combined in celebrating the faith and courage and persistence of the Discoverer, and the wonderful material progress of the Discovered. For the time being we have been making of chief interest in our thought the times in which the Discoverer lived, the place that gave him birth, the conditions that molded him in his development, the influences that drove him on in his purpose, and sustained him during the many days of his daring advance across the unknown waters toward the land of his dreams. It is but natural, therefore, that an assembly of medical men, sharing in the general epidemic influence, should turn with special interest to the condition of their own profession at this particular period of the world's history, and should with interest, and mayhap with profit, trace the changes which have marked the development of the medical world during the four centuries that have since elapsed. To a more restricted field still would I

invite attention during the present hour, and ask attention first to the surgeons and surgery of the Columbian era, this being more especially for the purpose of giving me a fitting background for the picture of the American surgeon of 1893, which it is my desire to present to you, in the course of an effort to discharge the duty which the accident of my position for the present hour has laid upon me.

More than a hundred years have elapsed since Saint Louis, the truest and last of the Crusaders, had expired among the sands of Africa, and the last Crusade had burnt itself out. Men have ceased to care that the holy places are in the possession of the infidel. It is an age of religious apathy but of intense interest in classical learning and artistic effort. No longer are men divisible simply into the three classes of masters, dependents, and clerics. The crust of the feudal system which had enthralled the nations of Europe has been broken up and a new social order has emerged from its ruins; commerce has been created, art again has begun to charm men, while literature and philosophy command the devotion of multitudes. Most important result of all has been the rise of the middle class, the true safeguard of nations, the repository of faith and patriotism, the source of progress, the conservator and producer of wealth, the mother of merchants, navigators, architects, artists, and scholars—a class which is ever the true index of a nation's greatness. The character and attainments of the physicians of an age or nation in a particular degree is always an exponent of the average character and attainments of this class, plus the added refinement and elevation of character which the pursuit of medical study and practice inevitably attaches to its devotee. The civilization of Greece, which produced Pericles, Socrates, and

Plato, added additional lustre to its record by the birth and teaching of Hippocrates. The Golden Age of Rome, when, if we can trust the judgment of Gibbon, the human race was most happy and prosperous, and when the vast extent of the Roman Empire was governed by absolute power, under the guidance of virtue and wisdom, is no more celebrated for the production of a Marcus Aurelius than for the life and work of the man whose teachings were to determine medical thought for 1400 years, Claudius Galen. The enlightened and liberal reigns of the Bagdad caliphs, when all Europe was obscured by the ignorance of the dark ages, preserved to the world learning and philosophy, and created Rhazes and Avicenna; while in the west, the civilization which culminated in the Alhambra was adorned by the work of Avenzoar and Averrhoes. Time fails to permit me to give in detail the evidences of this close relation between general intelligence and medical progress which crowd upon the notice of the student of history. It is no less true in the present age than in the distant past. The quickening thought, the broken barriers, the elevation of the common people that followed the French Revolution made the French medical profession of fifty years ago to lead the world, resplendent as it was with the names of Larrey, Dupuytren, Laennec, Louis, and Velpeau, and a host of others. The hundred years of growth among the common people of England that followed the Cromwellian period, despite the mediocrity of the princes that nominally ruled the country, created the conditions that made possible and called forth the Scotch cabinet-maker's apprentice, John Hunter, the London merchant's son, John Abernethy, and the Norfolkshire clergyman's son, Astley Cooper. While the Victorian era, with its material splendor, its heaping

up of wealth, its advancement in literature, science, and art unparalleled, its glorification of the common people, has given us out of the bosom of this people a Simpson, a Paget, and a Lister. And Germany, rising from its abasement of 1807, by its educational and civil reforms has created a new people, whose power and attainments are fitly typified, not alone by a Bismarck or an Emperor William, but quite as much by the names of Virchow, Langenbeck, and Koch. In a word, the medical profession is peculiarly "of the people and for the people." Medical men come nearer to the heart of the people than do men of any other calling. What shall be the standard of their attainments and their training is a matter that is largely self-regulating, especially among an intelligent people, in accordance with the great principles of demand and supply.

Three hundred years before the Columbian period which now engages our attention, the accomplished and enlightened emperor, Frederick II, had attempted to regulate the medical profession in his kingdom of Naples and Sicily, and had made an ordinance in these words: "Since no progress can be made in medicine without a knowledge of logic, we will and ordain that no person shall be admitted to the study of this art unless he has given himself at least three years to logic. Afterward he shall devote five consecutive years to medicine, and at the same time to surgery, which forms a part of medicine. Then only and never before this time shall he be admitted to examination and receive permission to practice." Still further, he ordained that the first year of the neophyte's practice should be done under the eyes of an old and experienced physician. Wise ruler! No better regulations could be devised by the most enlightened legislators of the close of the nineteenth century!

But Frederick was 300 years ahead of his time. He was doubtless acting under the counsel of the teachers of the School of Salernum, which school was then at the height of its renown, while southern Italy was all aflame with the new life which the times of the Crusades had awakened.

With the lapse of the conditions that awakened this temporary brightening up of scholarly life in southern Italy the life itself languished, the school of Salernum fell into decay, the influence of the average attainments of the people reasserted itself. Pope Innocent III, in 1215, promulgated his bull that as the Church abhorred all cruel or sanguinary practices, not only should no priest be permitted to follow surgery, or to perform any operations in which instruments of steel or fire were employed, but also that they should refuse their benediction to all those who professed and pursued it. No wonder that 200 years later, in the beginning of the Columbian century, according to the statement of Malgaigne, the surgeons of Italy were in general timid practitioners, who scarcely dared to handle a knife; all their resources consisting in multiple recipes, of many of which they made a secret. Professors of medicine in that age were, for the most part, only commentators, taking up some author of whom they could read at first the text, then illustrating this text by their comments. Thus their lessons were true "readings," and the professors properly bore the name of "*lecteurs*"—readers.

Beginning with the end of the fourteenth century the two authors most in vogue for the complete courses of internal pathology were Avicenna, for general affections or fevers, and Rhazes' ninth book, for local maladies. And as this ninth book took up all diseases in the order of regions from head to foot, the commenta-

tor had necessarily to pass in review the affections of the ears, the eyes, the mouth, the intestines, the genito-urinary organs, in a word, all surgical affections proceeding from internal causes. Mechanical lesions alone remained out of the category. Operations for stone in the bladder were still abhorred by respectable surgeons and relegated to itinerant specialists, who were the "orificial surgeons" of that day. The first of the Colots, Germain, had, however, already risen superior to this prejudice, and in France had established the operation of lithotomy by the "apparatus minor," as a legitimate surgical procedure, while the use of the apparatus major had not yet, perhaps, suggested itself to the young surgeon of Cremona, Joannes de Romanis, who thirty years later was to communicate the method to Marianus, through whom the Marian operation was to become introduced to the world.

The Columbian period is not distinguished by any pre-eminent name in surgery, nor by any epoch-making discovery. The changes in the social state, the fermentations in the intellectual vat of the time had not yet reached the point where their full effects were to be realized in the field of endeavor. It contains much of interest, however, to the student of the evolution of surgery in the indications which are already discernible of the brilliant achievements of the succeeding century. The Italian universities of Bologna, of Padua, of Pisa, of Ferrara are being crowded with students from all parts of Europe. During the first quarter of the century Peter of Argelata has been teaching surgery at Bologna and writing his work on surgery. No vulgar or timid salve-monger was Peter. He taught philosophy and medicine as well as surgery. As an operator he trephined the cranium, he bored the tibia for the relief

of osteomyelitis, a sequestrum within the femur did not daunt him, he drew back only from caries of the hip and of the vertebræ. He operated for hernia and for stone, he embalmed the body of a pope with his own hands, he did not hesitate to dilate the uterine cervix and to carry his hand into the cavity of the organ and with hooks and forceps to bring out therefrom a retained fœtus, and when he died his admiring contemporaries erected to his honor a statue in the amphitheatre of the university to whose fame he had contributed so much. In 1480 his book, *De Chirurgia Libri Sex,* was first put into print at Venice; a second edition appeared in 1492, and a third and a fourth rapidly followed each other before the close of the century. Two more editions were called for in the early part of the sixteenth century. This book of Argelata was the *vade mecum* of the better class of Italian surgeons of the close of the fifteenth century. To one copy of it attaches an interesting history. More than 200 years after the death of the author, an assistant surgeon at a Florentine hospital, while rummaging among musty archives for another purpose, came accidentally upon a copy of the *De Chirurgia Libri Sex* of Argelata. The broad margins of its folio pages he noticed were covered with copious notes. His curiosity was stimulated to decipher them, and thus was brought to light the "One Hundred Observations" of Marcellus Cumanus, which a few years later, in 1667, were published by Welsch, among his "Six Hundred Medical Observations" (*Sylloge Curationum et Observationum Medicinalium, Centuriæ Sex*). Marcellus Cumanus was a Venetian surgeon, of whose birth or death, or family or personality, nothing is known. We simply know that in 1495 he was serving as a surgeon in the Venetian army during the invasion of Charles VIII; that he was

a man who had both the mind to observe and the talent to record what he saw even among the distractions of wars and camps. These observations, written down upon the margins of his surgical text-book, still remain to rescue his name from oblivion, and to testify to us in these days of the calibre and quality of an every-day surgeon in Venice four hundred years ago. One cannot help but wish to know more of him, of his family, his education, his social position, his business success. His notes show that he did not venture far out of the track marked out by his master, though he was already compelled to strive with two important elements of military surgery that were unknown to Argelata, viz., gunshot wounds and syphilis.

When Argelata laid down his work, Leonard Bertapaglia took it up and continued it at Padua and at Venice until his death, in 1460, but in a manner that commands our respect far less than that of his predecessor. Operative surgery he abandoned to bathers and barbers. He shared in the astrological superstitions of the day. He evidently understood human nature, and had the faculty of recommending himself to the rich and powerful, for it is recorded that he enjoyed a great reputation at Padua and afterward at Venice, and that he amassed such a fortune that he was able to amuse himself in his later years with the erection of magnificent buildings at Padua and its environs, an amusement which some of us can testify is not altogether inexpensive even in these later times. The best thing I have been able to discover about Bertapaglia is that he himself dissected two human cadavers, and thus helped to foster that public sentiment which enabled the famous anatomists of the next century, Vesalius, Realdus Columbus, Gabriel Fallopius, Hieronymus Fabricius, and Eustachius, to inaugurate

their systematic and continued dissections of the human body. These were the times of seed sowing and preparation. When Columbus sailed from Palos, in 1492, Guinterius, the future teacher of Vesalius, was a boy of five years playing in the streets of Andernach; Paracelsus, the iconoclast of traditional medicine, was a baby in his mother's arms, and the apothecary of Cremona, whose son, Realdus Columbus, was to become the first discoverer of the pulmonary circulation, had yet two years in which to amass the money to buy that son's cradle before it should be needed. The picture which Sprengel draws of the surgery of the fifteenth century is a very depressing one. It is evident that Bertapaglia, far better than Argelata, represented the spirit of his time in the position that he took in disdaining to occupy himself with operative surgery, and in abandoning manual interference to ignorant bathers and barbers, who could neither read nor write. Even in the latter part of the fifteenth century, the period in which we are now most interested, educated and skilful surgeons were so rare that when Matthias Corvinus, king of Hungary, wished to be recovered of a wound that he had received in battle, he was forced to send proclamations into distant countries, promising honors and riches to whosoever should succeed in curing him.

Paris and Italy were the chief centres of learning, and inevitably within the bounds of the enlightenment that extended from their universities were to be found the highest types of both medical and surgical effort. Though the revival of Greek learning and the pursuit of philosophy on classical lines had already contributed much to change the face of science, and though at the centres of this cult great advances had been made, nevertheless the most part of the physicians of the fifteenth

century remained, like those of the preceding age, superstitious adorers of Arab idols, blind imitators of their predecessors and ignorant empirics (Sprengel, II, 469). Up to the middle of the fifteenth century the only practitioners of the healing art in most of the cities of Germany were the bathers, who occupied so low a position in the social scale that no artisan would accept the son of one of them as an apprentice. As yet without universities, as a nation poor, the German barbers, unable to buy books, without any systematic instruction attainable, dependent upon the system of apprenticeship for education, did not extend their ambitions beyond what they had seen their masters do. In the free city of Strasburg did the first tendencies to betterment show themselves. It was from here that Hans of Dockenburg went to cure the Hungarian king, and it was here that Jerome of Brunswick was practicing and writing his *Buch der Chirurgia und Wirkung der Wundarzney,* while Columbus was plowing his way westward over the Atlantic. English surgery was yet to be created. From the time of John Ardern, who lived during the last half of the fourteenth century, when he wrote his treatise on "Fistulæ in the Fundament," to that of Thomas Vicary, who lived in the middle of the sixteenth century, there is not a single English surgeon whose work is of importance enough to find a place in the annals of surgery. There is one British name, however, that is intimately associated with the learning that characterized the best of the Italian surgeons of the Columbian period, who doubtless came in contact with them as a fellow-student at the court of the magnificent Lorenzo de Medicis, and who in turn may have exerted some influence on them. I mean that Derbyshire gentleman, Oxford fellow, polite scholar, and elegant classicist, Thomas Linacre, who

about 1484 went to Italy and spent some years at Bologna, Florence, and Rome pursuing studies in classical learning, natural philosophy, and medicine, and who in the courts of Italian princes perfected himself in those graces which later made him the medical arbiter to three successive English kings, and enabled him, by the institution of the Royal College of Physicians in London, to lay the permanent foundations of rational medicine in Great Britain.

The state of surgical affairs in Paris at the close of the fifteenth century is both interesting and instructive. For more than 200 years the surgeons of the College of Saint Come had been attempting to regulate the practice of surgery in that city and district through the privileges originally granted to the organization by Saint Louis at the instance of Pitard and Lanfranc. The College of Saint Come was a society of surgeons, self perpetuating, into whose membership were to be admitted only surgeons of recognized orthodoxy, both in theory and practice, while they were clothed with the power to forbid the practice of surgery to all who should fail to obtain their approval. As time passed the college had increased in importance and influence; its members wore long robes, delivered lectures, granted certain degrees, and modeled themselves after the faculty of medicine, though imperfectly. The number of its members was always small, from nine to fifteen, usually. But the prevailing prejudice of the time, that regarded all manual effort as degrading, had not been without its influence on these surgical aristocrats. The more highly they esteemed themselves the more they disdained surgical handicraft, until they came to regard it as beneath their dignity to reduce a dislocation or dress a fracture; minor operations were relegated to the barbers, and many major

ones, as those for stone, hernia, and cataract, were abandoned to specialists called *"inciseurs,"* and in the restricted territory that was left they busied themselves simply with the prescription of topical applications and internal remedies. More and more ordinary surgery in Paris fell into the hands of the barbers. Profoundly self satisfied, content with the teachings of Guy de Chauliac, Lanfranc, and others of the Arabists, intent on preserving their prerogatives from the encroachments of the aggressive barbers about them, no scientific progress was made by the surgeons of the long robe during all the generations that had elapsed since their organization; no great name graces their annals. During this very last decade of the fifteenth century all their energies were being devoted to prevent barbers from being admitted to courses in anatomy and surgery in the vulgar tongue, that the faculty of medicine were proposing to open for their instruction, an effort which was successful for a time only, since in 1499 these courses were finally organized, resulting in the formation within a few years of a new corporation known as "barber-surgeons," in the steady decadence of the influence of the College of Saint Come, and, in the course of the next generation, in the development, from among the barber-surgeons, of that prince among surgeons, the real founder of rational surgery in France, whose influence has been felt in all countries and in every generation since, Ambroise Paré.

The members of the College of Saint Come confined their work entirely to Paris, where only were to be found those social surroundings and financial rewards that were befitting their aristocratic aspirations. In the provincial cities and throughout the country the barbers and "inciseurs" had undisputed possession of the surgical field. That the class of work which they did

must often have been fair, and that the training to which many of them were submitted was of considerable merit considering the age and time, the statutes of the city of Bordeaux for 1457 inform us, according to which we learn that a candidate for admission to the guild of barbers in that city had to appear before four examiners, in the shop of each of whom he had to spend eight days, during which he had to demonstrate his skill as a barber, while the examiners were to assure themselves that he had good sight and a good and true hand for shaving and bleeding; that he knew how to make lancets sharp and pointed; that he knew the veins from which blood could be taken; and how to do other things belonging to the trade of barbery and surgery. Especially in the matter of surgery the examiners were to assure themselves that the candidate was learned and expert in the anatomy of the human body, in abscesses, fractures, lacerations, wounds, dislocations, chancres, fistulas, and generally in all other maladies that can befall the human body, and in all other things necessary and belonging to the office and trade of surgery; likewise, that he knew how to stitch, bind up, and suture a wound, and was acquainted with the herbs and other things required for making ointments and plasters. In a word, they were to examine him upon everything else which seemed to them proper and reasonable for the good and profit of the public and for the honor of the aforesaid trade. This examination was a public one, in the presence of the mayor and other officers of the city. The candidate, once accepted, was to swear to exercise his functions well, and to obey the laws, to lead an honest life, to keep good ointments in his shop, and not to exact excessive fees, and to keep the secrets of his clients.

We turn with a sense of relief from the picture of

narrow selfishness and pretentious assertion that is preserved for us in the records of the Parisian surgeons of the long robe, to make brief mention of three additional characters of a nobler type from among the Italian surgeons of this period, with the mention of whom must close this glance which we have attempted at the surgeons of the Columbian period; and first I must mention one in whom culminated the surgery of the Middle Ages, and whose writings for fifty years, far toward the close of the succeeding century, dominated surgical thought and practice in Europe, until they are swept aside by the masterful originality of Paré, whose acquaintance with Arabians and Arabists, with Hippocrates, Galen, and Celsus, with Aristotle, Cicero, Ovid, and Suetonius, as evidenced in his writings, testifies to his erudition and scholarship, and who was withal a fortunate and skilful practitioner as well as an erudite scholar, Jean de Vigo, who in 1492 was a young surgeon of thirty-two years of age, at Genoa, but who later attracted the attention and secured the confidence of Pope Julius II, who called him to Rome, where he composed his *Practica in Arte Chirurgica Copiosa,* a book which had prodigious success, going through twenty-one editions in less than thirty years, a book which still survives to give to us a summary of the surgical knowledge of the day.

The rival and opposite of Vigo was Jacopo Berengario da Carpi, the boldest surgeon of his time because the most skilled in anatomy. He himself claimed to have dissected several hundreds of cadavers, and was commonly believed to have also dissected living men that he might study the beatings of their hearts. He was ten years younger than Vigo, having been born in 1470. He was the son of a surgeon of Carpi named Faustino, was a schoolfellow with the young Duke of Carpi, was a

pupil of Aldus Manutius, and later a friend of Benvenuto Cellini, with whose fiery temper he evidently had much in common. He was both a doctor of philosophy and of medicine, and was professor of Surgery at Bologna, and later went to Rome, where he enjoyed great fame and accumulated much wealth. He was proud and bold enough to refuse the request of the Pope himself that he should enter his service, disdainfully saying that he preferred to be at the service of every one who should seek him. At his death he left behind him the great fortune of 40,000 crowns.

The last name that I shall mention is that of a Florentine physician, Antoine Benivieni, whose period of active practice extended from 1470 till his death in 1502. He was of noble family, and was an active participant in the mental activities and splendors of Florentine life during the most brilliant period of the Medicis. He enjoyed the friendship and instruction of Poliziano and Ficino, whose counsels he shared with the young English medical student, Linacre. He cultivated belles-lettres, philosophy, and Greek, as well as the technical studies of his chosen profession. In his work he embraced the entire art of healing, but devoted himself more to surgery than was usual to the physicians of his time. Before his death he had collected into a manuscript volume a large number of personal clinical observations; these were printed after his death under the title of *De Abditis Morborum Causis*. All of which show him to have been a profound observer and a skilful surgeon. He enjoys the singular honor of having been the first to habitually seek for the *hidden causes of disease* by examination of the body after death. He was not content to perform autopsies upon the bodies of his own patients only, but he sought with ardor for every opportunity for such examinations.

These three names, all contemporaries of the Columbian era, fitly round out the picture of the surgery of that era, when the door of the Middle Ages was closing, and the signs of the oncoming of the achievements of modern times were beginning to appear. Vigo represents all that was good of the past, with its prejudices and its limitations; Carpi, fearless and skilful as anatomist and operator, had in himself all the force and the potentialities of the surgery of the present day; Benivieni is a type of the clinical observer and the pathological investigator, those elements of modern scientific progress to which most of the vaunted achievements of the present day are due.

In the references to the surgeons of the Columbian period which I have made, it has not been my plan to speak in any detail of the particular procedures and methods which they adopted; it has not been so much the state of the theory and practice of surgery that has engaged my attention as it has been the character and training and social status of the practitioners themselves. It was still a rude age; the enlightenment that had dawned upon Europe was still in its early morning, and the chains of tradition and of ignorance still held the masses; the houses even of the great harbored filth and dirt; the bottom layer of the rushes that covered the clay floors of the dwellings of the people was left undisturbed for years; the principles of hygiene were unknown; the labors of the people were hard and illy rewarded; the disturbances of war were incessant; and yet, in their way, the men of the fifteenth century doubtless enjoyed life, and barring the effects of pestilence and the sword they lived out the measure of their years as men do now. Their physical wants were crude, their ideas of the necessity of medical treatment and surgical relief

were doubtless as fully met by the practitioners of that day as are those of the people who call upon us in this day and generation. And we have seen that in that age, as in this, every grade and quality of person was to be found in the ranks of those who professed to heal disease. The disdain which was then general for anything which savored of manual labor tended to relegate the operative and technical side of surgery to an inferior place in the healing art, and correspondingly to elevate in the estimation of men those who only theorized and prescribed. Much of superstition still clung about every branch of medicine. The efficiency of a prayer said during the compounding of an ointment; the favorable conjunction of the planets for the undertaking of an operation; these were matters of importance to the best of the surgeons of this age.

Nevertheless, as we have seen, there were never wanting men of originality and power, who rose superior to prejudice and superstition and shed lustre on the surgical art. Such were men of liberal education who were versed in medicine as well as in surgery, of good social position, even sometimes of noble birth; they sat at the feet of philosophers and shared in the conversation of poets and artists; they were the friends and companions of cardinals, princes, and kings; they were the favorites of popes, and often were loaded with honor and wealth.

The careers of these fifteenth century surgeons abundantly illustrate the same truth which those of the nineteenth century are proving to be no less true now than then, viz., that in the paths of surgical effort the enduring rewards of public confidence, of honor and emolument, are the most certain to be secured by those who, to natural mental gifts, chastened and enlarged by liberal and broad training, shall add enthusiasm and ap-

plication, coupled with an ability to rise superior to the obstacles of prejudice, tradition, and conventionalism.

My theme is "The Evolution of the American Surgeon." What has preceded may be considered as the prologue to this theme. The worthies of the fifteenth century have faded from our vision, and in their places rise Warren and Bigelow, Mott, Parker, Wood, Hamilton, Sands and Sims, Physick, McClellan, Pancoast, Gross and Agnew, Brainard, Gunn and Parks, McDowell and Dudley and a host of others who within the last hundred years upon this new continent by their lives and their works have contributed to the development of a type of work and of workers in surgery which may properly be called a distinct school, that of American surgeons.

The absence of a hereditary superior class, the necessity of building from the foundation in the whole social as well as political fabric, the atmosphere of freedom, the prevalence of intelligence and education, the restless ambition and strife for advancement, the discontent with humble things and the possibility of betterment open to all, the mingling of races and of ideas, the sense of personal worth, the contempt of tradition and of conventionalities, the self-reliance, the adaptability to circumstances, and the ability to shape circumstances to conform to wishes, the stimulating climate, the fertile and responsive soil, the rich rewards to be secured by labor in every department of human effort, the prevailing religious tone, the regard for learning, the pride of citizenship and of sovereignty—these, among other influences, have contributed largely to the development, in the course of time, of a special type of manhood in the New World that waited for its discoverer 400 years ago.

Among such a people, if there is any truth in the close relation of the character of the medical advisers of a people to that of the people themselves—which was maintained in the earlier part of this address—it is inevitable that a new type of physician should arise. Here all shades of medical thought and pretence have had an equal arena. No vagary so wild, no pretention so preposterous, but that it has been here afforded a hearing, and the principle that every individual shall be free to choose his own medicine as well as his own religion, has been permitted its full sway. That governmental paternalism which says to the people: "Since you are not in the natural order of things capable of judging in these technical and recondite matters, you shall be saved the trouble of making such choice, and only those shall be permitted to minister to you whom the officers of the government have tested and determined to be qualified," however wise and desirable such paternal oversight might be, has had but little acceptance among this people. Whatever of medical advance and medical equipment has occurred among them has been of spontaneous development. A greater proportionate number of individuals have devoted themselves to the art of healing among this people than among those of any other nation, for two reasons—the social position of such practitioner has always been honorable, and a fairly adequate pecuniary reward has always waited on good judgment, industry, and perseverance. Is it not a noteworthy fact, as indicative of the sterling good sense of this people as a whole, that among them, with the growth of years, a continually increasing influence has been accorded to rational medicine, and that the standard of attainments, both in general culture and technical knowledge, that is required by the public opinion of its practitioners, has steadily ad-

vanced? The composite photograph of the medical man of the New World at the present day, if critically scanned, will reveal a man who to general culture and technical knowledge adds self-respect and self-reliance, together with fertility of resource and adaptability to circumstances, practicality of thought, the ability to see the special needs of the case in hand without regard to theories, and to apply the remedy needed; and beyond these, a catholicity of mind that lays all nations under tribute, and appropriates for his arsenal weapons forged in the fires of many lands.

It was to such a man as this, a typical American, who to the opportunities and influences of his Virginia boyhood and Kentucky youth had added the stimulus and culture of the most famous of European schools and the ripening power of fourteen years of general practice among the pioneers of the West, to whom, in the month of December, eighty-three years ago, came riding from sixty miles distant, Mary Crawford, supporting her projecting abdomen upon the pommel of her saddle, begging relief from the ovarian tumor that was sapping her life. In all the history of surgery there was no precedent to warrant an attempt at interference in any such case. Possibly in the oratorical flights of his former Edinburgh preceptor the possibility of successfully interfering for the relief of such a condition may have been hinted at, but no one as yet had had the courage, the lofty enthusiasm, the wisdom, to make the attempt. But this woman did not make her appeal in vain. She was ready to endure; the surgeon did not hesitate to venture; guided by correct pathology and possessed of trained operative skill, he performed his part; the tumor was removed; the patient restored to health, "ovariotomy" was given to the world, and the name of McDowell im-

mortalized. That day, in the modest dwelling of the Danville surgeon, was born into the world "intra-peritoneal surgery," a field of surgical effort whose vast possibilities for good are only now beginning to be realized by mankind.

In 1839 Velpeau in Paris wrote: "To avoid pain in surgical operations is a chimera which it is not allowable to pursue at the present day." In October, 1846, in London, Sir Benjamin Brodie said: "All physicians and surgeons have been looking in vain from the days of Hippocrates down to the present time for the means of allaying or preventing bodily pain." Within twenty-four hours of the utterance of these words, in the operating theatre of the Massachusetts General Hospital in the United States of America, an American dentist, before a host of skeptical witnesses, had demonstrated beyond cavil that the inhalation of ether would induce such a state of insensibility that under its influence prolonged surgical operations could be done without pain or consciousness on the part of the patient. A new fact, to name which a new word had to be coined, was demonstrated to the world, a word which is now so common that it is difficult to believe that less than fifty years ago the word "anæsthesia" was unknown. With what national pride, as well as profound thankfulness to God, will American surgeons always hereafter read on the marble shaft in Mount Auburn Cemetery, which preserves the name of this benefactor to mankind, this inscription: "W. T. G. Morton, Inventor and Revealer of Anæsthetic Inhalation. Before Whom in all Time Surgery was Agony. By Whom Pain in Surgery was Averted and Annulled. Since Whom Science has Control of Pain."

The present century has witnessed the addition to

surgical possibilities of three facts, which in the range of their importance as to both their direct and remote results are of supreme moment in surgery; these in the order of their appearance have been: The opening of the peritoneal cavity to operative interference, the discovery of surgical anæsthesia, and the demonstration of the relation of micro-organisms to disturbances of the healing of wounds. All these are the direct fruit of the practical tendency of the Anglo-Saxon mind, and two out of these are, without any demurring, universally acknowledged to be the fruit of the American spirit.

To these two pre-eminent contributions it would be possible to add a list, of an importance only secondary to them, which if given in detail would too greatly extend the limits of this address. I can but suggest a few of them in further illustration of the claim that I have made for a special character attaching to the tendencies due to the spirit and environment present in this western continent. The name of Mott was made famous by his ligation of the innominate artery in 1818, but to it could be added the names of many other American surgeons, who both before and after that date displayed anatomical knowledge and operative dexterity in ligating important blood-vessels during the period when such operations were considered as among the most important essays of surgical skill.

The demonstration of the principle that in dislocations of the hip and shoulder, the chief obstacles to reduction are tense ligamentous fibres, untorn portions of the capsule, which may readily be relaxed by proper manipulations, a truth which has revolutionized the surgery of dislocations, is due to the perspicacity and labors of our countrymen—Smith, Reid, Gunn, and Bigelow.

What surgeon at this day would be willing, in the treatment of fractures of the femur, to dispense with the simple method of extension by a weight and pulley, the weight exerting traction upon the leg through properly applied strips of adhesive plaster? a method which dates back only to 1851, and is due to the practical common sense of Buck, of New York City.

In orthopædic surgery the devising of apparatus whereby sufferers from tuberculous inflammation of joints might secure necessary fixation and extension, and yet not be deprived of the benefits of fresh air and exercise, has brought special lustre to American surgery, a field of work in which the names of Davis, Sayre, Taylor, and Shaffer are especially to be noted as leaders.

In the department of genito-urinary surgery, the key to the most important advances in the surgery of the urethra and bladder was furnished by Otis, of New York, when he demonstrated that the urethra, after incision of the meatus externus, could be normally distended to a much greater extent than had hitherto been supposed practicable, and that by full distention with linear incision of contracted areas, permanent and radical cure of strictures was possible. After the recognition of the capabilities of the urethra to receive instruments of larger calibre, came naturally the proposition of Bigelow for immediate and full removal of crushed stone at a single sitting, a proposition made practicable by the invention of instruments for litholapaxy, which attest the fertility of resource of that surgeon and the skill of his instrument makers. The urethroscope and cystoscope present themselves as later corollaries to Otis's primary work.

In the domain of gynæcological surgery, the work of Marion Sims at once comes to mind—his enthusiasm, his

pertinacity, his skill and ingenuity, as he step by step evolved his operation for the cure of vesicovaginal fistula, discovered the best means of exposing the interior of the vagina to inspection, came to adopt silver wire as a material for sutures, and finally established that woman's hospital in New York City which, for a third of a century, has been a centre of original work and teaching in its special field. It is here that the wisdom of Emmett discerned the true relation of lacerations of the cervix uteri to the etiology of a large proportion of woman's special ills, and pointed out the path of relief, a contribution to woman's welfare the importance of which will certainly become more widely and unreservedly acknowledged with the lapse of time.

In the surgery of the abdomen, the introduction into successful practice of the rational treatment of penetrating gunshot wounds of the abdomen by systematic exploration of the cavity, and careful suturing of perforated intestines, will always be associated with the names of Bull and Parks; the brilliant possibilities of intestinal anastomosis testify to the acumen and skill of Senn and Abbe and many others of our countrymen; but of the most far-reaching importance have been the contributions to knowledge of the pathology, symptomatology, and treatment of inflammatory affections of the vermiform appendix, which has been a distinct contribution of American surgery, and in the evolution of which the surgeons of New York City have especially led, the names of Sands and McBurney, Weir and Bull, Stimson and Fowler, leading in the long list of the many who have contributed to its present state of perfection.

Not the least in importance among the examples of the fruit of the peculiar practical character of the American mind when turned to surgical problems, and by no

means to be omitted from even so incomplete an enumeration as this, is the elaboration and perfection of the operation of intubation for the relief of laryngeal stenosis, an operation which admirably supplements tracheotomy, which is accepted in a much larger proportion of cases than the latter, and has already been the means, in the hands of American surgeons, of saving thousands of lives. To a New York surgeon, again, O'Dwyer, is due the credit of the conception and entire elaboration of this operation.

It is with reluctance that I turn from further chronicling the achievements of American surgeons. With the increase of population, of the conditions that produce the demands for surgical acumen and skill, with the multiplication of hospitals, schools, and publications, there has been a corresponding increase in every quarter of this land of active, alert, learned, skilled and enthusiastic practitioners of surgery. There is no surgical possibility that has been achieved by any surgeon anywhere that has not been paralleled by these men. There is no truth or suggestion of advance presented in any tongue or nation that is not seized with avidity by them and submitted to the test of experience by their practical and trained intellects. Their work is held in honor, not only by their professional colleagues, but also by an intelligent and discriminating public, and I regret that it is not possible for me at this time even to begin to enumerate the leaders of this army of surgical workers. I do not think that I am wrong in saying that among the American people surgery has always been held in greater esteem than internal medicine. The very freedom and clashing of theories and methods which have prevailed in medicine have tended to create a wide-spread distrust of the real merit of any of them. In surgery, however,

there has been something tangible which could be seen and measured and judged by all. The merit which is gladly accorded in this land to any worker who can do anything well has been freely accorded to the successful surgeon. In a land where there is no hereditary leisure class, where all work has been honorable, the manual element of surgical work which has caused in other lands, until very recently, a certain social taint to attach to its practitioners, has in no way detracted from the social standing of the chirurgeon. While greater honor has been accorded him, greater responsibility has likewise been exacted from him. The frequency of malpractice suits in America has, doubtless, its origin in the prevailing sentiment that whoever offers himself for surgical responsibilities must be first fully equipped to discharge them, or else be held accountable for the result of his shortcomings. It has always been recognized that "surgery forms a part of medicine," so that up to the present time there has never existed in America a class of surgical practitioners distinct from physicians. In those comparatively few instances in which, by a process of natural selection, practitioners have come to limit their work to external medicine and operative efforts, it has been as a development from the status of a general practitioner.

The demands of the present day as to the training of him who shall undertake any part of the healing art are multiplying greatly. The interests which are at stake are too great to allow any possible source of useful attainment to be neglected. The complexity, the abstruseness, the wide-reaching relations of many of the branches of knowledge, mastery of each of which is essential to the fully equipped physician, are such as to require, as never before, well-trained minds to approach the study

of medicine. If Frederick II was right 700 years ago, that no one should be admitted to the study of medicine who had not given himself at least three years to the study of "logic," certainly in these days a no less full course of training in those preliminary studies that tend to develop the reasoning and observing faculties, and to furnish the mind with a sufficient store of general knowledge is required from the medical neophyte who aspires for excellence in his profession. The ability to master the principles and to become skilful in the practice of the medicine of to-day—meaning by this the science and art of healing in its broadest sense—requires, in the highest degree, a trained mind, a trained eye, and a trained hand. Each decade has witnessed in this land a notable increase in the facilities for obtaining this training which has been furnished those who seek it. No men have been more ready to realize its importance, or to impress on the general public its necessity, than the great body of physicians of already mature age who themselves were denied it. As individuals and as organized societies they have always been the leaders in securing the advances in medical education which have been steadily going on, and are still in progress.

As a result, in the great universities of the country, courses especially preparatory to the study of medicine have been instituted; the number of students who bring with them to the benches of the medical school minds already well disciplined in the study of the humanities and the sciences has greatly increased; the courses of study in the medical schools have been multiplied, lengthened, and systematized; laboratories have been equipped; dispensaries and hospitals have been furnished; and clinical training, to a very considerable degree, has been added to experimental and theoretical teaching. The

friend to humanity who stops to consider the present condition of training in this country will be pleased, however, not so much with what has been done already, but with the ever-widening influences which it is evident must accrue in the future. Among the schools, a certain rivalry as to which shall furnish the best and most comprehensive training, among the people, a higher ideal of what their physician should be, and a better appreciation of the value of positive knowledge and trained skill, and among the practitioners of the healing art themselves, through the working of the law of the survival of the fittest, a steady elevation to higher types of training and attainment. The relation of these influences, now enumerated, to the creation of a high type of surgical character and achievement, is manifest. I turn to my dictionary and find that a surgeon is defined to be "one who performs manual operations on a patient." I appeal to philosophers and educators, and find that the highest type of mental development requires for its attainment not only the training of the intellect, but the exercise of the hand as well.

I survey the history of medicine, and find that only as the labor of the hand has become honorable and its skill has been brought to the unraveling of the mysteries of life and disease, has any progress been made. Knowledge in physiology, pathology, histology, bacteriology, anatomical research, are all the fruits of special manual efforts, and are cultivated only in *labor*-atories. I look over the revelations of disease as brought to light by modern research, and find an ever-increasing number that are most surely relieved by methods that require manual interference. I inspect the methods of modern surgery, and find that its manual operations are no longer chiefly the setting of broken bones, the extraction of

teeth, the opening of veins, the application of plasters and poultices, the introduction of stitches, the incision of abscesses, or even the amputation of limbs, but that they are examples of the most perfect technic of philosophical research, often intricate and delicate, invading the most hidden recesses of the body, sparing no organ, not even the heart or brain, but going everywhere, in their mission of mercy, where a distinct condition susceptible of possible relief has been demonstrated to be present; that they require for their suggestion and for their guidance the most intimate knowledge of the processes of life and the disturbances of disease, and the most thorough and exhaustive application of all the resources of diagnosis; and that in their execution they require cool judgment, strength of nerve, confidence in ability to overcome difficulties, and physical endurance to guide and control the skilled hand that performs the work.

The surgeon of the present day, therefore, if we are correct in the statement of the conditions that have attended his evolution, is necessarily a physician in the broadest sense. One of the peculiarities of the medical profession of this country has been the frequent use of the double title of "physician and surgeon" by the practitioners of the healing art. I have thought that its use was becoming less frequent than formerly. Perhaps, indeed, it is not necessary, since the one word, physician, "one who practices the art of healing," is broad enough to cover the whole field of medicine, whether therapeutical or operative. At all events the custom of coupling the two terms together has been significant of the attitude of the American people to surgery as being a part of medicine. It is in a line with local custom and traditional use that in concluding this sketch of the evolution of the American surgeon I present him under

the words, a *physician and surgeon.* To no man is it given to possess in a perfect degree the highest qualities of his type, but to many of the men who are doing the surgical work of this land to-day, the common voice of an enlightened public and their discriminating colleagues can attribute with justice in an eminent degree the same qualities which were conspicuous in the leaders of surgical endeavor 400 years ago; we delight to honor them just in proportion as we see in them the erudition and regard for past experience that marked a Vigo, or the broad culture and philosophical attainments devoted to pathological research and clinical observation of a Benivieni, or the devotion to unraveling the mysteries of the human frame, and the fearlessness of operative attack, and the energy and character of a Carpi.

# III

# THE PLACE OF THE MEDICAL SPIRIT IN THE IDEAL HOSPITAL

Delivered as an after-dinner address before the Board of Directors and the Medical and Surgical Staff of the Jewish Hospital of Brooklyn.

# THE PLACE OF THE MEDICAL SPIRIT IN THE IDEAL HOSPITAL

MEDICAL training, medical practice and medical tradition all tend to create in medical men a state of mind in which the commercial side of their calling is continually minified and the altruistic and scientific elements are magnified. A community never looks in vain to its physicians for counsel and help in the prevention of disease and in the solution of sanitary problems which, in the ratio that the public is benefited, have as their immediate and direct result a diminution of the conditions upon which physicians apparently depend for their livelihood. There is no other calling in which the demands for self-effacement are so continually made upon its followers, and the experience of all ages and of every land is that medical men have never failed to respond to such calls to sink their personal gains for the general weal. Fortunately this spirit by no means prevents medical men from being good business men and able to guide wisely the business element in their own work and in the work of public institutions with which they may be connected, for it is a truth which can be easily substantiated that while during the last generation the hospitals of the world have assumed an importance in the world's work never before occupied by them, those institutions have attained the greatest degree of efficiency in the discharge of their functions as hospitals in which medical men have been accorded special

influence in their administration, not necessarily to the extent of having the entire executive control vested in them, but in a manner and degree that has secured to them the opportunity to infuse into the work and development of such institutions, in a marked degree, their own special medical spirit. It is peculiarly under such conditions that is most likely to be secured in a hospital the desirable combination of high professional aims, the appreciation of the requirements of adequate discipline in all departments, the knowledge of the interrelation and the relative importance of each department of the different sides of the complicated world that exists in an hospital, and such a close and intelligent sympathy with each, that a harmonious and just discharge of every obligation may always be effected.

The unquestionable superiority of the hospitals of Germany during the last fifty years may be traced directly to the dominance in their affairs of the medical men who, as chiefs in their several departments, have been vested with influence and power to direct the affairs committed to them to a degree unequalled in any similar institutions in the world.

I am earnestly desirous not to unduly exaggerate the important part which its medical men may have upon the character of a hospital, but so important is the proper adjustment of this side of a hospital organization to every department of it that in any attempt to speak of an ideal hospital it inevitably forces itself into the first and most conspicuous place. That it should be appreciated in its full magnitude by lay members of Boards of Hospital Management is very greatly hindered by the readiness with which such managers find that they are able to obtain the coöperation of medical men in hospital work. The difficulty is always not so

much to obtain a sufficient number of medical men to do the work of an institution, as it is to select from the large number of eager applicants the restricted number required for the work of the institution. The result is that the hospital manager is led to feel that the hospital connection which he controls is of such special value to its holder by reason of the added professional prestige, acquaintance and opportunities which it presumably gives, that it is a full compensation for the work that the appointee does in the institution and that whatever of consideration may be shown him in influencing administrative affairs, or even in the choosing of his associates or the subordinates upon whom the carrying out of his own special work intimately depends, is of grace rather than of right.

Perhaps this view is correct. Certainly there is some basis for it whenever a hospital appointment is held by a man solely to increase his professional reputation and to increase his professional gains, who looks upon the hospital simply as a field to be worked for what he can personally get out of it.

In the ideal hospital, however, the case is far different. It would be absurd for any one to claim that the thought of added professional prestige and the resultant business advantage does not enter largely into the minds of hospital physicians and surgeons; naturally they appreciate this element of a hospital connection, and in return they are ready to give a full measure of service for all that they receive.

But above and beyond this plane of material business give-and-take, in the relations between a hospital and its medical staff, is a higher and more important one into the genesis of which the special "medical spirit," to which I have referred, enters most fully. The med-

ical man of lofty character and lofty aims sees in the opportunities afforded by a hospital by its aggregation of patients and its fulness and elaborateness of equipment, an opportunity of the most favorable character for teaching continually advancing methods of diagnosis and treatment, for the working out of the problems which the obscurity and intricacy and multiplicity of human ails are continually pressing for solution, and for applying his knowledge to the relief of his fellow-men.

It is with the spirit of an enthusiast, a worker in the great laboratory of human progress, that the medical mind of the character that I have described approaches the possibilities of a hospital and throws himself into its work. Whatever of the spirit of charity moves the most sensitive human being in the presence of human need and human woe, is equally felt by such a man as he passes from bedside to bedside through the wards of the hospital in which he is permitted to labor; but, more than this, into the work of relief he infuses a part of himself, and, in doing this, is often actuated and sustained by a peculiar spirit of enthusiasm which lifts him entirely above the ordinary plane of barter and trade, profit and loss, of calculating commercialism, and just in the degree with which medical men bring to their work this spirit, do they find themselves in the company of the noblest names of their profession throughout all the centuries. It is this spirit which is at the very base of all good and noble and true medical work, both in the home and in the hospital. In the development of the ideal hospital it is most important that it should be pervaded by such a "medical spirit." It is the soul of a hospital, its most vital element.

Is it not true that property may be bought, that bricks and mortar, iron and glass and marble, may be

assembled in the most perfect structure, that an organization may be perfected for supplying sufficient income, that the doors may be opened and the beds filled with patients, and if there still remain wanting the physician and the surgeon of adequate skill to make use of all these materials and to bring to the sick and the wounded the relief of which they stand in need, the hospital is lacking in the most important essential of all? On the other hand, neither a great material equipment, nor a position in the centre of a great population, nor historical traditions, nor the possession of a great endowment, make a great hospital. The truth in the epigram attributed to President Garfield, that a log in the woods with Dr. Hopkins sitting on one end of it and a student on the other sufficed to constitute a great university, is equally applicable to a hospital.

The simplest equipment, hampered it may be by many limitations from lack of means, may afford an arena in which a master may do the greatest work.

Possibly, in connection with these words, there may come into the minds of some, the history of a hospital in a small town in a northwestern state, whose fame, first local, then extending far and wide among medical men, has now become the general property and pride of every intelligent American. What is the secret of the unparalleled work which has been accomplished there and which promises to continue indefinitely?

There has been nothing about it of ostentation or pretense, nothing smacking of meretricious advertising, but steadily and regularly every morning two surgeons, brothers, in adjoining rooms address themselves to their work and accomplish for the relief of men the possibilities of modern surgery. They are sagacious, judicious, painstaking, skillful, but in no greater degree than

many other surgeons in all parts of the land; their work is bold yet conservative, and by its success justifies its doing; in its quality, however, it does not differ in any marked degree from that which is shown by many surgeons in many places, but in its quantity, it has attained dimensions which have attracted such wide-spread attention. Their hospital, founded and maintained by a charitable sisterhood, was at first small and restricted in its facilities; the growth which it has made has been simply that required to follow the demands of the increasing work brought to it by its surgeons, until in its last Annual Report it had to record the results in over 4,000 patients treated during the year. I have had the honor of the personal friendship of these men for many years, and have watched with interest and gratification the phenomenal growth of their work. What is its secret? Their personal qualities and attainments, of course, may not be overlooked, but while one gives them every credit due for these, it does not appear that they are so exceptional as to have entered in any chief degree into the result under inquiry. To a very marked degree, however, have they displayed in their work the special medical spirit which I have described; they have been able to make it dominate the institution in which they have worked; here they have been able continuously to exercise their influence as they have done their work day after day and year after year; there has been no interruption by the coming in of other men or other influences. Continuity of work, continuity of influence, continuity of responsibility, with the loftiest ideals and highest aims, added to their personal qualities and the loyal and continued support by the sisterhood in whose hospital they labored—these are the elements which have made known the world over

the little Hospital of Saint Mary, in the town of Rochester, Minnesota, and the names of the men who have labored in it.

In other fields and other years many similar records have been made. John Hunter and Benjamin Brodie will forever give lustre to Saint George's Hospital, in London; Percival Pott and Abernethy make Saint Bartholomew's notable; Sir Astley Cooper gave to Guy's Hospital an abiding fame. The old Infirmary of Edinburgh will always be associated with the name of Syme, and the world will never forget that in the wards of the Glasgow Infirmary Lister first demonstrated the doctrine of antisepsis. In this country, the Warrens and their successor, Bigelow, for fifty years made the Massachusetts General Hospital the chief hospital in New England, in which Morton was privileged to give to mankind the knowledge of ether anesthesia; and, more recently, the hoarded millions of Johns Hopkins have been made to contribute to the welfare of mankind by the work of Billings and Hurd, of Welch and Osler and Halsted and Kelly and of those whom they have trained and brought around them.

Is it not clear that the most essential requisite of all for the making of an ideal hospital is that its medical staff should be dominated by a lofty medical spirit, and that this spirit should be permitted to have its legitimate influence and place in the councils of the hospital?

No exhortation nor emphasis is needed from me on this theme to my colleagues who listen to me; possibly, however, others may not have had their attention called to it in an equal degree and its discussion may not be considered untimely nor unprofitable. I know how impossible it is ever to fully realize an ideal; there are always limitations and modifications which circumstances

impose upon the practical working out of any plan, however good in itself it may be, still it is always well to have an ideal to work towards; and as a part of the ideal hospital which it is the aim and desire of all hospital managers to create, I would hold up as its most important element, the "medical spirit." It is a priceless possession, which may be stimulated and encouraged, or may be repressed and destroyed, according to the attitude towards its medical staff which its Directorate may assume.

# IV

# SPECIALIZATION IN SURGERY AND HOSPITAL SURGEONS

A paper read before the Brooklyn Surgical Society in 1907.

# SPECIALIZATION IN SURGERY, AND HOSPITAL SURGEONS

AMONG the American people surgery has always been held in special esteem. A partial explanation of this may be found in the peculiar degree to which, in this land, merit has always been gladly accorded to any worker who could do any thing well.

This spirit has been especially favorable to the development of the surgeon in a country in which, always, work has been considered honorable, and the manual element of surgical work—which has caused in some other lands a certain social taint to attach to its practitioners—has in no way detracted from the social standing of the surgeon in this. Here, also, it has always been recognized that surgery forms an integral part of medicine, so that up to the present time there has never existed in America a class of surgical practitioners distinct from physicians; in the vast majority of instances, the practitioner of the healing art remains throughout his life a physician and a surgeon.

To all who are to enter upon the practice of the healing art, the same curriculum of preparation is required; such specialization as occurs takes place after a broad general foundation has been laid, and the best cases of specialization are those in which—by the process of natural selection, in which opportunity and environment and special aptitude all enter—a man, in the course of years, comes to limit his work to some one or more of the par-

ticular fields of medical and surgical activity; the specialization being a late development from the status of the general practitioner.

The tendency to specialize is naturally greater in large centres of population, where it is possible for special groups of affections to be brought together in sufficient numbers to occupy the entire time and labors of a man who may be willing to devote himself especially to the study and treatment of any one of such groups. In more sparsely settled districts, as in the ordinary towns and villages of our country, and in the rural districts, such special aggregations are impossible, and those who would practice the healing art find themselves called upon in turn to minister to the widest possible diversity of disease. Such a man well deserves the title of "general practitioner." In the fertility of his resources, in the breadth of his experience, and in the full all-roundedness of his mental equipment, such a man when imbued with a lofty medical spirit is an example of the best type of the medical character.

No men, more than such general practitioners, appreciate the necessity and value of expert knowledge in particular fields, of which they may avail themselves from time to time for their own patients when among them arise conditions of special difficulty in diagnosis or in treatment. Even in our great cities it is now, and always will be, the case that the great mass of ailments, both surgical and medical, must be cared for by the general practitioner. I know that at the present moment the tendency of the public mind is in the other direction, and that the so-called specialist engrosses public confidence. This is particularly noticeable among the classes that are fairly well-informed, that possess some social distinction and financial resources. In the minds of

such, every ailment with which they may be seized or which they may fancy they have, is of so great importance that no one who is not supposed to be a specialist in that particular department will be trusted to safely guide them back to health. Lacking the special knowledge required for wisely judging the relative merits of so-called specialists, they are as likely in the selection of their specialists to follow after a charlatan as after a man of real merit. Indeed, it is largely from this class —the fairly well-to-do and well educated people—that are drawn the bulk of those patrons who contribute to the transient success of every variety of medical or surgical pretender.

It is but natural, therefore, that a physician seeking for public confidence and patronage should feel that an added advantage would attend his own association with some specialty. Influenced by such considerations, the multiplication of specialists will doubtless go on for—who can say how long?—until a surfeit has been produced, specialism is made ridiculous, and public sentiment rebounds to the other extreme of unjustly condemning it.

In this tendency to specialism, the domain of surgery is the one which is the most attractive to the average young medical man. To do an operation is the dearest ambition of most hospital internes. The Operating-Room is made to bulk hugely in the Hospital Microcosm. The patient study and observation of the cases in the wards, diagnostic problems, pathological investigations, the natural course of a disease, the results of medicinal and hygienic treatment, the careful noting and recording of symptoms, results of treatment and the varying phases of disease—those things which are to form the most important elements of the future work of the young

medical aspirant—are too often slurred over or ignored altogether, and the work of the operating-room is permitted to engross the chief attention. Thus early in the medical career, is noticeable a tendency to departure from sound reason and practice; the early prodroma, if I may so speak, of a later *furor secandi* or *mania operativa.*

Nevertheless, far be it from me to seem to depreciate in any degree the importance of surgery as a specialty. What I want to do, if possible, is to define more clearly its proper province and to point out the path along which the man should tread who may aspire to enter upon it.

The old distinctions between internal and external medicine no longer can be made; so large a number of the ailments that had always belonged to the domain of the internist have, during recent years, been frankly surrendered to the externist as susceptible to more certain and lasting relief by operative means, that the work of the latter is quite as much engrossed by affections of the internal organs as by those of the more superficial parts. This vast extension of the domain of surgery, this multiplication of the possibilities of operative interference continually being demonstrated in the daily practice of the art, these naturally have appealed to the interest and enthusiasm of the world as well as of the medical neophyte. It is the tendency of all enthusiasms to run to extremes; it is the privilege and the duty of the experienced and sober-minded to call a halt at times.

Surgical ailments may now be classified roughly as follows:—

I.—Cases that are incurable. Such are many of the cancers, the more violent and overwhelming traumatisms, many of the pyemias and septicemias, the scleroses and general vascular degenerations and their results.

II.—Cases in the management of which special expert technical skill or the resources of an elaborate operating-room *entourage* are not required for insuring a favorable outcome. This class includes the greater proportion of the daily surgical occurrences, such as most of the traumatisms, including wounds and fractures; all of the superficial infections and suppurations; the lesser deformities and neoplasms; most skin lesions; affections of the mucous outlets and of the extremities, etc., etc. These constitute the surgical field of the general practitioner; certainly a sufficiently large field to satisfy the needs and ambitions of even the most energetic man if he combines with it the demands of a general medical and obstetric practice.

III.—Cases in the diagnosis and treatment of which delicate and difficult instrumentation is needed, and special training and constant manipulative practice is required to afford necessary skill for its application.

This is the field in which most of the restricted legitimate surgical specialties have their place, such as those of the eye, the ear, the nose and throat, the genito-urinary passages. Here come in the manipulation and interpretation of many special diagnostic means, such as the ophthalmoscope, the laryngoscope, the bronchoscope, the cystoscope.

How much of comfort and help has been brought by the development of these specialties! We sometimes feel like criticising the microscopic minuteness with which the representatives of these specialties divide up and classify the minuter conditions noted in the narrow territory to which they devote themselves, and the natural tendency to magnify shades of difference which they detect; but whenever our more serious problems trench upon the territory of any one of them, how glad

we are to avail ourselves of their special knowledge and skill!

IV.—Cases in the diagnosis and management of which a greater familiarity with surgical methods and with anatomical relations is demanded than it would be reasonable to expect from the general practitioner, and particularly all those in which failure to avoid infection in the course of operative work would entail great danger to life or to important function.

This is the domain of surgery as a specialty, and these are the cases in the proper management of which the surgeon needs to surround himself with all the advantages and helps that a well-appointed hospital alone can afford.

I have been interested to see what has been the development in Brooklyn of these two elements of surgery as a specialty, the HOSPITAL and the SURGEON. It is not so many years since the number of those who assumed the responsibilities of the greater problems of surgery was very limited. It was at a period just at the threshold of the great surgical development that attended the general acceptance of the doctrines of Lister and his followers, thirty odd years ago, that so acute an observer as the late Dr. Shrady—whose position as a surgeon born and bred in New York City, and as Editor of the Medical Record, gave him the best opportunities for knowledge—used to aver that there were not a dozen men in New York City who would venture to do major surgery. He lived long enough, however, to see that number increased many fold.

During the earlier years of the writer's own residence in Brooklyn, there was but one among the physicians of Kings County that was known as a surgeon outside the restricted circle of his own personal follow-

ers, and the energies and time of that one man were much more occupied with attendance upon cases of pneumonia, typhoid fever, rheumatism, childbirth and other like work of a general practice, than they were with the special work of a surgeon. When the Chair of Surgery in our local medical school was to be filled, the Regents felt impelled to send to distant states for men fitted to fill it. Crosby, from New Hampshire, and Green, from Massachusetts, in turn occupied the Chair, but never became identified with the profession of the city.

At the present time there are within the borders of the Borough of Brooklyn thirteen general hospitals containing fifty or more beds each, and five more of a capacity of less than fifty beds each, with a total capacity of 2639 beds. The Attending Surgeons to these hospitals number 76; that is to say, if one-half the beds are occupied by surgical patients * there is one surgeon to every 17-plus surgical patients. There are, however, a large number more of Associate Surgeons, Adjunct Surgeons, Assistant Surgeons and Surgeons to Special Departments, the total of which more than doubles the original number given and to a material degree lessens the size of the service enjoyed by each.

It is a well-understood tenet of hospital organization and management that to insure the continuous personal interest and attention of an attending surgeon in the work of an institution, it is essential that the number of patients confided to his care shall be sufficiently

* In some of the smaller hospitals the surgical patients outnumber the medical, but in the larger institutions the proportion is reversed, so that in reality the number of surgical patients is less than is allowed in the argument.

great to keep up such a succession and variety of surgical conditions among them that his interest shall be continually stimulated, his study shall be rewarded and his experience shall be increased, so that he shall have an adequate return for the regular attendance and the degree of labor, skill and judgment which the institution has a right to expect from him, and upon the exercise of which depends the best interests of the patients.

The size of the service necessary to answer these requirements must vary naturally according to the character of the service itself; that is to say, the acuteness, variety and importance of the cases composing it. In general, however, it may be said that common experience has shown that it requires not less than forty beds, and possibly a maximum of ninety, to form an adequate surgical service, if the cases are of average acuteness and variety of quality.

If this is correct, and I think I speak advisedly when I say that it is in accordance with the opinion of all practical surgeons and of authorities on hospital organization everywhere, what inference are we to draw from the figures as to the hospital conditions in Brooklyn just given?

Before proceeding with the discussion of this question, I desire to dwell for a moment on another important element in the training of a surgeon and in the furnishing to a community of the best possible skill for its reliance in times of need.

The past fifty years has witnessed a constant growth in our knowledge of diseases, and the causes of disease, and of the means of diagnosis and treatment. Sound pathology is a creature of this period; the microscope has brought its revelations; physiological chemistry has added its contributions; experimental physiology has

vastly widened the scope of knowledge; bacteriology has been created, has revolutionized both theory and practice and points to a future of yet greater promise; hæmatology has revealed secrets of the highest diagnostic and prognostic value. Instruments of precision for diagnostic investigation have multiplied. All these are weapons to be used constantly by the surgeon of the present day if he is adequately to come up to the requirements of his work in the graver problems of surgery. To do this fully and well, he must have had long and special preliminary training, and he must be at his work continuously, and the fullest opportunity for carrying on his work must be given him; the coöperation of the pathological laboratory, the physiological laboratory, the chemical laboratory, the X-ray room, assistants skilled in special and delicate means of diagnostic investigation must be at his side and at his command. This for diagnosis alone.

When, however, he advances to the application of operative methods of relief, other elements of a more personal character have to be considered; these involve judgment in the choice of methods, imperturbability in the presence of emergencies, manual dexterity and skill in incision and manipulation and adjustment; these in their highest degree are obtained and retained only by constant use and practice added to personal aptitude and mental poise. The master in surgery is not the occasional surgeon, but the constant surgeon. Just as the musician maintains himself at a satisfactory point of proficiency only by hours of daily practice, and is conscious of a distinct loss of power if his practice is intermitted for only a day, so the surgeon is brought to and maintained at the highest level of his art by daily and varied practice in the operating-room.

You will at once see the conclusion to which my reasoning tends; *viz.*, that not only a fairly large and varied service, but also a continuous service,—of all the varied elements of which he is the absolute master and head —is requisite to fit a surgeon adequately to discharge the duties of his place; and further that the work of no important and exigent surgical service in a hospital can be adequately performed except by men who have been thus trained and kept in training.

This is absolutely and eminently true in the present state of the science and art of surgery; it was possibly less urgently true fifty years ago in the comparatively crude and limited surgery of that day, although it must always have been of importance. Great surgeons have always been the product of great clinical opportunities.

A method that became prevalent in the organization of hospitals in this country fifty years and more ago was to multiply the number of appointments by shortening the period of service of each to a fraction of a year, so that the same service might be enjoyed in rotation for a time by different men! This arrangement had the advantage of increasing the number of medical men who could enjoy whatever honor and advantage connection with the hospital should bring, and of pleasing a larger number of people and thus enlarging the circle of those interested in the institution. Still further, men busy and prominent in the community, with extensive private practice, would accept appointments under such conditions knowing that their services would be required for only a brief time annually, and thus the advantage to the institution of their names would be gained, while they themselves would enjoy whatever of additional prestige a hospital connection would bring, with a minimum expenditure of time and labor on their part.

This arrangement served an excellent purpose at the period when it was introduced and for many years thereafter. As long as the requirements of surgery rarely passed beyond those of the first two classes mentioned on a former page, the service which it afforded fairly met the situation; it made possible the establishment and maintenance of many hospitals, and doubtless it will continue to be resorted to in small communities in which it may be desirable to maintain cottage hospitals, attended by the general practitioners of the vicinage. An interesting outgrowth of this method of interrupted and rotatory hospital services has been this, that in large cities in which a number of hospitals are maintained, certain energetic and influential men have found it possible to secure appointments in more than one hospital, and so by a suitable arrangement as to the succession of times of service in the different hospitals, have created for themselves something like a continuity of service and a duplication or triplication of the advantages derivable from a hospital connection. Thus of the 76 general surgical services existing in the 18 hospitals of Brooklyn, 49 of them are held by 20 men. In twelve instances, two places are held by one surgeon, in seven instances, three; and in one instance four different hospital appointments are held by one man! Like surgical Mormons with their plural wives are these peripatetic surgeons with their plural hospitals, they pass from hospital to hospital leaving no strong nor abiding impress on any; owing special allegiance to no one.

This arrangement of plural appointments is undoubtedly of some advantage to the particular surgeon who can compass it. A certain continuity of his work is ensured, and the breadth of his experience is increased. The aspiration to it reflects only credit upon the sur-

geon himself; nevertheless, so unsatisfactory is it that those who have been so happily circumstanced as to be able to realize it in its highest degrees are the most dissatisfied with the conditions that make it possible, and the most appreciative of the greater possibilities that would attend the doing of an equal amount of work in one place.

Yet another influence has of late entered into the hospital problem. So frequently do the well-to-do now desire to avail themselves of the facilities and help to be obtained in a well-organized hospital, when they are in need of special surgical treatment, that a new and important field of hospital work has been opened in the line of providing for hospital care for patients who are able to pay for what they obtain; and hospital managers have begun to look toward the receipts which might accrue from private patients as a very important source of income. The attempt is being made in many institutions to combine under one management and in the same institution the charitable work of a hospital which, by reason of its organization for the help of the destitute poor and the needy appeals to the sympathies and support of men, with an institution which offers its facilities and care simply to those who are able to pay, being in that respect a private sanitarium run on a commercial basis. The natural effect of the attempted combination is to set up a new standard in the minds of hospital managers as to the requisites for the medical staff of the institution under their care.

Instead of the old questions as to the best organization required for the welfare of the patients who are the recipients of the charity of the hospital, comes the question of how many appointees are needed in order to secure from their respective clienteles the desired number

of pay patients to fill that portion of the hospital which has been set aside for the care of such. Instead of the question as to the scientific attainments of those to whom the interests of the patients of the hospitals are to be committed, has come the size of the doctor's practice outside of the hospital and the probabilities of his ability to send his own private patients into the hospital to fill its pay-rooms. The standard, therefore, is not so much the ability to bring scientific knowledge and technical skill to the service of the institution, as it is to make a practitioner's local popularity in the community contribute to the income of the institution.

Here, then, is the unfortunate dilemma in which our local surgical world is placed at the present time. On the one hand is the imperative pressure for workmen of the most comprehensive training and most practical skill to measure up to the possibilities of the high specialization of which surgery has been the subject in these later years; here is the recognized importance of elaborate and perfect equipment and drill of operating-room organization, and of many grades of assistants requiring the continuous direction and supervision of one master mind to insure the maximum of success in results. Here is the one truth in hospital surgical work that universal experience and the common consent of all who are acquainted with the subject unite in asserting, that the best surgical work can only be secured when it is entrusted to one who does continuously a large and varied amount of work.

On the other hand there is an archaic system of hospital organization, fifty years behind the times, for the perpetuation of which many interests combine:— This organization, with its multiplication of appointments and minification of services, occasioning confu-

sion of methods, division of responsibility, diminution of experience, weakness of judgment, imperfection of results, waste of resources:

With its short and rotating periods of service, preventing the establishment of any continuous policy and frittering away the resources of the best men; discouraging research; lessening *esprit du corps*:

With its plurality of positions held by the same men, provocative of envy, dividing interest, wasting time, exhausting energy, dissipating mental resources, preventing concentration of influence and interest in any one institution, tending to superficiality and mediocrity.

To perpetuate and strengthen the old methods of organization comes the newly introduced idea of the use of the surgeon as a purveyor to the private rooms of the hospital, and thus an important element as an income-earner for the institution, for from this standpoint a natural, but short-sighted, view for the hospital manager to take is, that the larger the number of surgeons that can be attached to the hospital, the better.

To strengthen still more and to emphasize this view, comes the urgency of the large number of men who are ambitious for surgical reputation and for hospital opportunities leading thereto, and who have no hospital connection. Often having inadequate realization of the responsibilities involved, and of the long course of preparation needed to really fit them for such duties, but feeling that they are as capable as many of their colleagues who already occupy such positions, they are clamorous for recognition and are exerting a constant pressure upon hospital managers to enlarge the hospital staff that they may have place thereon:

Comes also the personal interests of the large number of men who now have surgical appointments, and who

feel that it would be a hardship to them if the number of such appointments were to be restricted:

And, finally, comes the most powerful interest of all; namely, that due to the innate difficulty in bringing about a change in methods, long established, about which have grown up traditions and vested interests.

I have every confidence, however, in the applicability of the doctrine of "the survival of the fittest" in determining the final result of this strife of influences; that which is selfish and ignoble, unfit and imperfect, will certainly give way in time to that which is manifestly more perfect in results and more fruitful for good to the largest possible number.

It is evident when the standards of high efficiency are applied to many hospitals, that they fall lamentably short of the position which they should occupy. In the review which we have made, these defects have appeared:—

1.—Unnecessary swelling of the surgical staff by the multiplication of surgical appointments.

2.—Diminution, to an injurious degree, of the size of the services assigned to each appointee; either absolutely, by splitting the total service into very small divisions, or by limiting to a short period the time during which a service shall be held, or, as in some cases, by adopting both methods at the same time.

I have already discussed the important relations to the best interests of a hospital which may be borne by a lofty and enthusiastic medical spirit in the medical staff. That so little appreciation of this is often manifested by Boards of Lay Managers of Hospitals, is largely due, I think, to the unfortunate state of the medical organization of these institutions. Again would I call attention to the lamentable results following failure to appreciate

the ultimate value to a hospital that might accrue from the continued undivided devotion to its work by men of high character, attainments and skill; the more of support and advantage such men received from the hospital, the more would they give it in return of good work, of reputation from cures effected, of influence extended, patronage and income increased. Is it not true that in just so much as our hospitals fail to do this thing in providing for the surgical side of their work, many elements of detriment result? Patients suffer, in the degree that they may fail to receive that certain and complete, and speedy relief that otherwise might have been their lot; the surgeon suffers in the limitation to his own development and usefulness, the lessening of his skill, the increase of his burdens and responsibilities that follow; the general practitioner suffers in the degree that the skill in diagnosis and perfection of treatment, and fulness of judgment that he has a right to expect from his surgical consultant, is wanting, and the equipment of the hospital for relieving the patient whom he sends to the hospital is defective; the institution suffers both in reputation and purse; the world suffers in the degree that any hospital fails to make its proper quota of contribution to knowledge and experience.

Is it not from a lack of familiarity on the part of many hospital managers with all the intricacies of the hospital problem, that has arisen their failure to give due weight to such considerations as those which I have outlined in the foregoing remarks? Otherwise it is difficult to understand why any such methods of hospital organization could become prevalent as those which have been described as a part of our "American system."

# V

# ON THE ORGANIZATION OF THE SURGICAL STAFF IN GENERAL HOSPITALS

From an editorial in the *Annals of Surgery* for November, 1885, being the results of observations and studies made by the writer during 1884 in visits to the leading hospitals of England, France and Germany. At that time he was one of the managers selected by the late George I. Seney to develop plans for an hospital to be conducted under the auspices of the Methodist Episcopal Church. At the beginning of the year 1884 the advancement of the buildings for the proposed hospital had become such as to lead to the expectation that at no distant date the problems connected with the organization and administration of the new hospital would require determination. The writer, led by his interest in the enterprise and a desire that the new institution should be organized after the best models, laid aside his professional work and proceeded to visit the best institutions in the leading capitals of Europe, devoting four months to the study. Every facility for familiarizing himself with conditions was given to him by hospital authorities everywhere; he met nothing but interest upon the part of all to whose attention he brought his desires, and especially was the interest increased upon the part of many for the reason, as they expressed it, that in the new enterprise, not hampered by traditions nor vested interests, it might be possible to realize more ideal methods than could be found in any of the older institutions. What was the result of his study is here set forth.

# ON THE ORGANIZATION OF THE SURGICAL STAFF IN GENERAL HOSPITALS

THE matters relating to the question of the organization of the Surgical Staff in a General Hospital have recently been brought strongly to the attention of the writer in connection with the duty of advising as to the organization of the staff of a new hospital. The most cursory attention to the subject was enough to show that this question was one of the utmost importance in its bearing upon the quality of the work done in a hospital, and upon its influence upon surgical teaching and practice beyond the walls of the institution. In the possibility, therefore, of building *ab initio* which a new enterprise afforded, there resided good reasons why a comprehensive review of the whole subject ought to be made, so that those methods might be recommended which such a review should demonstrate to be of the most value when taken in connection with the special circumstances of the particular hospital.

The interest in a general review of this subject ought not to be confined merely to those connected with institutions now in their creative stage, for one can not proceed far in an examination of already existing institutions before discovering that serious faults of organization are rendered less conspicuous and harmful by a superior quality of the personnel of the staff. It is also equally true that the most perfect organization may

be neutralized by an inferior personnel. But neither of these possibilities presents any valid reason why perfection of organization should not still be sought for. The better the organization the better will be the work that is done, and in quantity as well as in quality will the increase be seen; while for inferior work the responsibility will be the more certainly located.

It is a mistake to suppose that the members of the Directing Boards of hospitals, or those immediately connected with the surgical or medical work of the same, are the only ones much interested in questions pertaining to the interior organization for carrying on the scientific work of the same. While it goes without saying that the first object for which a hospital is created is for the relief of the sick that fill its beds, it should never be forgotten that by the aggregation of the sick, and by the facilities for systematic investigation, observation and treatment which a hospital presents, the greatest opportunities are afforded for advancing medical knowledge. In the extent and manner to which these opportunities are utilized every one, and especially every medical practitioner, is vitally interested. To obtain a hospital appointment is a privilege that may well be sought for by any one with the qualifications for it, but he who is honored with the opportunities which such a position affords becomes thereby a debtor to all his fellows, through the obligation which attaches to the position, to use it, not only for the immediate good of the hospital inmates, but also for the common good. The medical profession at large have a right to sit in judgment upon the favored few of their number who hold hospital positions as to the manner in which they fulfill this obligation. But further than this—and this is the point most germane to the special theme

under discussion, for which the preceding thoughts have been necessary as a prelude—the medical profession, as a whole, are deeply interested in the manner in which hospital authorities organize their institutions so as to favor this broader and higher scientific work of their medical staffs. There is a special reason for an active manifestation of this interest, both in the United States of America and in Great Britain, dependent upon the fact that in many cases it is undoubtedly true that methods and practices have been adopted in public, as well as in the more private incorporated institutions, which are quite in disregard of the considerations as to the broader and more general relations of the scientific work within their walls above referred to. The rectification of such abuses must be a matter of time, and in their final accomplishment much will depend upon an enlightened consensus of opinion throughout the medical profession. As a contribution to the formation of such a desirable consensus of opinion the present discussion is intended.

A personal inspection of the methods of organization adopted in representative hospitals in France, Germany and England, as well as in the United States of America, will show decided differences to exist among them. Each method has, of course, its history. What at present exists is the result of a process of development, influenced by the particular needs, modes of thought and social conditions existing in each country.

In France, as exemplified in the hospitals of Paris, the Government controls the hospitals, and by the complete system of centralization which exists, the entire number of public hospitals are combined to form a most important part in the arrangements for medical education provided by the state. All hospitals and other insti-

tutions for medical relief in Paris are under the direction of a board termed "*L'Administration Générale de l'Assistance Publique,*" whose central office is in the center of the city. All the appointments in connection with the medical staff of these hospitals are obtained by competitive examinations and tests called *concours.* The primary relation of all appointees is a general one, "to the hospitals of Paris." When thus first nominated, the nominees have to attend at the central office, and do duty for any of the hospital physicians or surgeons that may be absent. As vacancies occur in the hospitals they receive appointments in the order of their nomination. When the surgeons reach the age of sixty-three, and physicians that of sixty-five, they retire from hospital duty. Their positions are permanent, their services continuous. A small salary is paid to them; 1,200 francs yearly to those attached to hospitals centrally located, and 1,900 francs to those at greater distance, and 3,000 francs to the surgeons of the hospitals of Tenon, Bichat, Bicêtre and Incurables. Each surgical service is completed by a corps of clinical assistants, called *internes* and *externes,* which positions are likewise obtained by "*concours.*" The number of beds assigned to a single service will be from fifty to seventy-five, and for such a service from two to three internes, and double the number of externes will be provided. The interne is the immediate assistant of his chief; he accompanies him in his morning visit—8 o'clock in the morning is the usual hour for hospital visits—and himself visits the patients in the evening. The externes constitute a corps of junior assistants. The *externat* is an essential step to the *internat.* The internes are appointed for two years, and the highest honor attainable in the competitions for prizes that yearly take place is the privilege of

two additional years of *internat*. Internes receive 600 francs yearly for the first year, 700 the second year, 800 the third year, and 1,000 the fourth year. Some are also provided with lodging, fire and light; others receive 400 francs in lieu of this. In addition, a corps of hospital pupils, "*élèves stagiaires*," is assigned to each service in accordance with the regulations of the Faculty of Medicine, which requires that every aspirant to the grade of Doctor of Medicine shall fulfill a certain amount of clinical pupilage in the public hospitals of Paris. The assignments of pupils to particular hospitals is made by the central board of Public Charities, already named, except that students who pass their yearly examinations with exceptional merit are permitted to select the hospital to which they may prefer to be attached.

The advantages of such a system as this are very great. As a matter of organization it is perfect, but it could be duplicated in its details only in social and governmental conditions that were identical with those in Paris. Out of this system was developed the great superiority which French surgery enjoyed a generation ago. It has its dangers, however, in that it tends to foster a spirit of self-satisfaction by reason of the feeling of superior merit which a successful competitive effort tends to engender in the victor in the contest—a feeling which, if wide-spread, tends to hamper progress and render its possessors oblivious to progress being made elsewhere. It is to be urged against the *concours* also that it is by no means an accurate gauge of the real worth, attainments or working power of men. To this it may be replied that it is a much better gauge than that which is supplied by family or political or personal reasons that so often govern such appointments where the *concours* is not in vogue. No one who knows

anything of human nature would claim that such considerations were not sometimes of weight in determining the result of a *concours* even, but still, upon the whole, it is undeniable that among younger men whose work is yet to be done, simple merit is much more likely to obtain the advancement which it deserves through the method of the *concours* than by any other method. Aside from this peculiarity of the French system, the most noteworthy feature is the unity of each service. From the chief of the service to the junior *stagiaire* it is a unit, and is capable of being handled as a whole. It does not undergo disintegration at short intervals, there are no divided counsels, no interrupted work. Responsibility can always be fixed, and merit can be determined. For any line of work or observation the chief of a service has a trained corps of assistants that belong to him personally, upon whom he can rely. In this connection, too, it must be considered that the number of beds assigned to each service is sufficiently large to afford an ample and constantly interesting field for its chief, while not too great to enable him, with his corps of assistants, to personally direct the whole of it. It is in these latter matters that the most valuable suggestions as to the organization of the surgical or medical work of a hospital in such a country as the United States are to be found.

In Germany important and representative hospitals may be found under the control of the state, of municipalities, and also of religious bodies. Some of its finest hospitals are those provided by the state for furnishing clinical facilities for its universities. The German method—not to go unduly into detail—is to divide the patients in a hospital into the two great classes, medical and surgical, and to entrust the direction of each class, however large the number, to a single person, there being

thus to each institution one chief physician and one chief surgeon (Oberaerzte). These gentlemen spend a portion of every day, generally the mornings, at the hospitals, and devote the remainder of their time to their private business. For the management of the internal economy of the institution a third director, a layman, is appointed. A salary is paid to these directors sufficiently large to enable an institution to always command the continuous service of the most eminent men. In cases of vacancy occurring, it is not unusual for a man to be imported from another city to fill the vacant position when men of sufficient note are not at hand in the particular city. As types of this method may be cited the municipal hospitals of Berlin (at Friedrichshain) and of Hamburg. In the former of these the surgical director receives 6,000 marks yearly, and a residence, with allowances for maintenance, and in the latter 12,000 marks without residence or other allowance. It should be observed that these sums represent a purchasing power in that country to natives of nearly double what the same amount would have in the United States; and, also, that the ordinary fees for medical service in Germany are less than half as great as in this country.

To assist these chief medical attendants in the details of the treatment of individual patients a corps of assistants is appointed, the number varying, usually being determined by the wish of the chief. These are young men, graduates in medicine (the French internes are always undergraduates); they live in the institution, devote their entire time to it, and receive a salary of 200 marks a month. As a rule, such an assistant is expected to spend two years in his position, then giving way to a new appointee, but there will generally be one who, by reason of having shown exceptional ability, will be

retained for a longer period, with an increased salary. Such an one is known as the "first assistant" and acts as the representative of the chief, when for any cause he may be absent. This system suits well the peculiar genius of the German nation. It is notable in the large amount of material that it puts under the continuous direction of one man, who is paid outright to look after it. It enables masters in their profession to impress their personalities upon the institutions with which they are connected; favors comprehensive, long-continued, accurate and minute observations and investigations into diseases and into methods of treatment, and is fruitful in the training up of skilled medical men. To these conditions, together with the unequalled care and wisdom displayed by the general government in fostering the medical teaching at the universities, is due the acknowledged prominence to-day of German medicine in all its departments.

The method is open to the objection that the chief and responsible attendant sees but little of the individual patients, whose care is committed to too large a degree to the assistants. In mitigation of this it should be said that the skill and attainments of these assistants is usually of a high order, and with the opportunity that they have of consulting at once their chief in all cases of doubt or difficulty, the interests of the patients are generally safe in their hands.

In the hospitals organized in connection with the medical schools of the universities some minor modifications of this general plan may be found, but the method in its essential principles is retained.

Coming to the prevailing English system, taking the chief hospitals of London as types, an entirely different method of organization is found. The multiplication

of individual hospitals is much greater, though this by no means involves a corresponding increase in the total hospital accommodation afforded. The tendency to the establishment of institutions devoted to the treatment of special classes of ailments is very marked. There is no central organization or general administration by which a harmony and economy of work may be secured. With the three exceptions of the old endowed hospitals of St. Bartholomew, St. Thomas, and Guy, they are dependent mainly on voluntary contributions of the charitable for their support, which they secure by appealing to the sentiment of the public, and in order to make this appeal successful they are obliged to magnify the purely charitable character of their work; no payments for treatment are required from their beneficiaries, and, although the charity of these hospitals is confessedly abused by large numbers of persons who are able to pay for their treatment, the peculiar basis on which these institutions are sustained, and their attitude as rival claimants for the donations of a charitably disposed public, is such that their managers find themselves unable to check this abuse.

Founded as institutions for the dispensation of gratuitous medical relief, there was reason that they should look for the coöperation of the medical profession to furnish the needed medical attendance without salary, as its contribution to the general charity. This expectation was fully met, and at no time has any difficulty ever been experienced in securing the unpaid services of the required number of medical men for these institutions.

On the contrary, it has come to be the case that the most favorable avenues to high professional position are found in these hospital positions, and hence they have

become prizes to be sought for. To some extent, at least, the great multiplication and subdivision into specialties of London hospitals is believed by writers upon the subject to be due to the pressure of ambitious men for hospital facilities and appointments which previously existing institutions have not been sufficient to gratify. That to a hospital connection should be attached so much importance by medical men is owing, in the main, to three causes: first, the opportunities for professional observation and experience that the wards of a hospital afford; second, the especial prominence and influence among his fellows of the profession that a medical man may gain if he be permitted to use his opportunities for original research and for teaching; and, third, the increased public acquaintance and the certificate of professional merit that a hospital appointment confers. It is in the combination of medical teaching with the duties of attending the sick in the wards that the greatest amount of advantage is derivable from a hospital connection. Hospital authorities have recognized this, and, by affording such facilities to the gentlemen composing the medical staffs of the institutions under their care, have sought to attach to these medical appointments in this indirect way a tangible compensation for the services required. The interests of the patients are likewise believed to be advanced by encouraging medical teaching in connection with their treatment, since each case is more likely to receive careful attention and to be thoroughly investigated, and the action of remedies to be more minutely weighed and watched under the publicity that attaches to medical teaching. As the result of these considerations, in all the larger general hospitals of London systematic medical teaching is carried on as an integral part of the hospital's work.

The number of patients that are assigned to the care of one physician or surgeon varies from twenty to one hundred according to the size of the hospital; the number not being determined so much by the amount of work to be done, as by the number among whom the honor of appointment must be divided. It happens, therefore, that nearly, if not quite, as many gentlemen will be found dividing among themselves the care of 150 or 200 patients in the smaller institutions as are found sufficient to care for three and four times as many in the larger ones.

The physicians and surgeons of a London hospital visit their wards daily, and make a personal visit to each patient. Their work is made more onerous, and the number whose care one man might direct is restricted by the peculiar system of assistants that has grown up in these hospitals. From a desire to extend the benefits of hospital training to as many as possible, a large number of assistants are appointed, and the term of service of each is made quite brief. These include, first, a corps of resident assistants, recently qualified medical men, called house surgeons or physicians, who are responsible for the care of the patients in the intervals between the visits of the attending staff; in most of the hospitals the term of service of the house staff is but six months; in a very few only is it as long as twelve months; as a rule, rooms and commons are enjoyed by the house staff of a hospital in lieu of other remuneration. Second to the house staff is a more numerous body of assistants known as dressers; these are medical students, somewhat advanced in their studies, who look after the details of the treatment and of the dressings of particular patients that are committed to their care; the dressers usually hold their appointments without salary

for from three to six months; in some institutions, indeed, the dressers pay for the privilege of holding their appointments.

Under this system a member of the attending staff is subjected to the necessity of constantly educating new assistants, only to lose them as soon as they have become of value to him. Much of his own energy must be directed to watching and educating his subordinates, and he is compelled constantly to give an amount of time and labor to the details of his cases, which, under a different system, could be safely relegated to his assistants. Strangers view with surprise the personal attention to routine details of dressings which the most eminent and distinguished men constantly give in the wards of these hospitals.

Yet another feature of the organization of English hospitals are the so-called Assistant Surgeons and Physicians. These are youngish medical men who attend to patients who apply for treatment at a hospital, but who are not ill enough to demand the refuge of a bed in a ward. These out-door, or walking patients apply in great numbers, and for their examination and treatment special rooms are provided. In the absence of any of the chief medical attendants, one of these assistants will also attend to the patients in his wards in the hospital, and in cases of vacancy occurring among the chiefs, it is usually filled by the appointment of the senior assistant. It is not infrequently the case that young and ambitious medical men in London spend many years, devoting a large part of every day to their duties as surgeons or physicians to the out-door patients of large hospitals, without pay, in the hope of ultimately securing positions as members of the principal medical staff of the hospital proper.

What may be termed the American system of organizing the surgical and medical staff of a general hospital has been modelled upon the English, but differs from it in some important particulars. American hospitals, like the English, are very largely under the control of private corporations, more frequently, perhaps, representing different religious bodies, in this respect differing from those of England. Though often partly endowed, the greater number of them are to a large extent dependent upon the voluntary contributions of the charitable, supplemented by sums received from patients who are able to pay something for their treatment, and in some cases, by subsidies from the state or municipal treasury. There are also many municipal and county hospitals that are of importance.

The English idea, that the honor and general professional advantage arising from a hospital connection are sufficient to make such a connection desirable, even without salary or fees of any kind, has had sufficient weight to enable managers or governors of hospitals in America generally to secure the services of able surgeons and physicians, without pay, to direct the treatment of the patients in the wards of the institutions under their management. In many cases, indeed, as the result of the necessity for pleasing different elements in a community, or in order to avoid any appearance of partiality, or as the result of social or political pressure, the managers of hospitals have felt themselves obliged to provide more medical men with places than the needs of the patients required. Two classes of appointments have been created in order to meet this necessity. The one class is purely honorary, having no regular duties or responsibilities, and involving but little more than the publication of the names of the incumbents in the list

of the officers of the institution. To this class is given the name of the *Consulting Staff* of a hospital.

The Consulting Staff likewise opens an opportunity for an institution to secure the connection with its officiary of names which by reason of their eminence would bring strength and respect to the institution, although their possessors could not be expected to render much, if any, personal service. It affords also a position which may be conferred upon gentlemen who have served the institution actively for a long time and who may desire to be relieved from their active work and yet not be compelled to entirely sever their connection with the institution.

The second class of appointments includes those to whom the duty of regular attendance in the wards of the hospital is delegated. These compose what is known as the *Attending Staff*. It is in connection with the manner in which the services of this Attending Staff are rendered that is to be found the most notable peculiarity of the American system. This is the division of the staff into classes, each of which serves the hospital for a brief period, most frequently three months, and then is followed by another, after which the first may again come on duty; and so on in rotation—in some instances an attendant enjoys but one such period of duty each year. This enables a much larger number of medical men to derive whatever advantages there may be from the name of being connected with the institution, and gives a much larger number of places for the managers of the institution to fill than would otherwise be the case. In cities where there are several hospitals it not infrequently happens that one medical man succeeds in obtaining positions in more than one, serving each in turn, and thus doubling the advantages which

such a hospital connection may give. It is not probable that the American system of hospital service was originally devised to secure such ends. Its origin has rather been due to the attempt to follow the English system of obtaining medical attendance for hospitals without pay, while these hospitals have not been able to give in return those positive advantages to their medical attendants which would be considered as a compensation for regular, prolonged and continuous service, since the social conditions which are present in the United States, the classifications of physicians, the relations of physicians to the public, and the mutual relations of hospitals and the public, differ from those which exist in Great Britain.

In general, the gentlemen who occupy hospital positions in the United States are persons already in large and engrossing general practice, and their hospital service, given as a charity, necessarily occupies a secondary place in their attention. In order to make the burden of the hospital service as light as possible, the ready device of making short terms of service, rotating with terms of entire relief, was devised.

This system of multiple appointments and of short, interrupted terms of service is unquestionably detrimental to all the best interests of a hospital. Against it may be urged, with very great force, that it tends to foster superficial and hasty service, to produce confusion of treatment, to destroy the *esprit du corps* of an institution, to interfere with making those accurate, prolonged and repeated observations that alone can be of scientific value, and to diminish the educational results of the institution. Neither the greatest advantage of the patients nor the full accomplishment of the possibilities of a hospital for the general good, are attainable

by this method. Its only defensible *raison d'être* is the facility which it affords for obtaining the gratuitous services of prominent and busy men.

For the purpose of carrying out the details of treatment under the direction of the attending staff, the American system provides a class known as the Resident or House Staff, which is composed of young physicians, recent graduates, who desire to supplement their systematic collegiate education by residence in a hospital for a time, where they may give their services in exchange for the experience they may gain, receiving also their board and rooms in the institution. The usual term of service is one year. In some institutions this is preceded by a term of service of six months, during which they do not reside in the hospital. Owing to the peculiar shifting character of the service of the attending staff, the amount of responsibility which is thrown upon the house staff is very great, much greater than the age and experience, or rather than the youth and inexperience, of its members justifies.

Connected with many institutions are dispensaries for the treatment of "out-door" patients. The gentlemen who are appointed to the duties of this department likewise serve without pay, but, as a rule, they do not bear the close relation to the organization of the hospital proper as do the "assistant surgeons" of the English hospitals.

I have thought best to thus put side by side these brief statements of different methods of providing surgical and medical attendance for the inmates of hospitals, that by comparison the merits and demerits of each might appear, and that from a general review of them some practical application might be made in the line of improvements upon existing methods.

It is apparent that a root idea in the methods of hospital organization prevalent in the United States and Great Britain is that the recompense to be received by a visiting staff shall be indirect in its character, rather than in the nature of a fixed pecuniary stipend. As has been already stated, this is the natural result of the voluntary charity which our hospitals represent, and of the competition for hospital positions upon the part of medical men, occasioned by the supposed professional advantages which they confer.

It may be accepted without discussion that this idea of a non-salaried staff will indefinitely remain a controlling one, except possibly in the case of institutions richly endowed, or of those located in places where a sufficient number of persons of the required professional skill are not attainable. The fact ought not to be lost sight of, however, that these services, though nominally rendered gratuitously, are really to be paid for in some way. The idea of getting something for nothing will not be found a safe one to build on in hospital work any more than in any other field of human endeavor; and in this particular direction, as well as in all others, it will be found very surely that in the long run the amount and quality of the service rendered will be quite accurately determined by the value of the compensation received. The prime object, from the standpoint of a hospital, in the appointment of an attending staff, is to secure able, skillful, careful and assiduous treatment of the patients. The rewards which a hospital may offer in return are fourfold:

1.—The prestige of the position itself. Whatever may be the case elsewhere, it is true that this really amounts to but little in the United States. The mere fact of a hospital appointment gives its possessor but

little vantage in the professional race. The very multiplication of positions which the strife for them has occasioned has in itself lessened any prestige attending them. It is equally attainable by a position on the consulting staff or upon the visiting staff. This object alone would be likely to induce a tendency to bring down the amount of work done to the minimum required to enable the position to be held. The natural result is hasty and superficial work and the relegation of undue responsibility to subordinates. Short terms of service and prolonged periods of relief are proper accompaniments.

2.—Opportunities for self-improvement by the study and observation of disease.

This is the most powerful attraction which a hospital position offers to the earnest and able student. In the results of the untrammeled use of these opportunities the governors and patients of a hospital are also deeply interested, for out of them must proceed a constant increase of ability and skill upon the part of those to whom the professional work of the institution is committed. It is the important contributions to knowledge that are constantly emanating from great hospitals that confer upon them their greatest prestige. It is the character of the work done in them by their surgeons and physicians that commends them to the admiration, the sympathy, and the support of the public. How important, therefore, that every opportunity and help for the very best work should be always and unstintedly put at the command of the surgical and medical staff of a hospital!

The first step in the direction of supplying this second source of compensation is to give into the charge of the surgeon or physician a sufficient number of patients to insure to him continuously an adequate and stimulating field of observation, so that his interest may be maintained

and his experience enriched. The number must be large enough to afford both a variety of cases and many cases of the same kind, so that he may have sufficient amount of material for comparison and for investigation, and for testing different methods of treatment, enough to occupy not only the time which he may himself be able to give, but also to command the work of younger men whom he may be able to enlist under his direction.

The number of beds which might suffice to answer all these desiderata would differ, of course, according to the peculiarities of different cases and the complexion of the cases likely to be most numerous in the particular hospital.

The number of patients whose treatment might be directed to good advantage by a single man must vary also according to the thoroughness and minuteness with which each case is investigated and its phenomena recorded, and whether they are made the subjects of medical teaching or not.

The quality and number of the assistants that may carry out the details of work, under the direction and supervision of the principal, must also be an element of very great importance, while the character of the nurses and the arrangement of the wards as to the classification and grouping of the patients will also have their influence. Still, there is sufficient experience available to fix in a general way the size desirable for an average service in a general hospital. Without attempting to give the data on which the conclusion is based, it is enough to say that reference to both French and English experience sustains the conclusion that between the numbers of forty and seventy-five beds will be found that most conducive to an efficient and continuously interesting and valuable service.

Such a service, if the best work is desired, should form a unit in the hospital organization, of which one man should be the permanent and responsible head, in all matters pertaining to the surgical or medical care of the patients. The number and qualifications of his assistants should be subject to his control. The chief nurses, at least, should likewise be permanently attached to the service. Everything likely to interfere with continuity of service and the fixing of responsibility should be avoided. From the most inferior servant to the chief of the service, a spirit of enthusiasm in the results of that particular service might thus be fostered.

It might be questioned, especially in the United States, where methods of a diametrically opposite kind have so long prevailed, whether men of the desired ability would be willing to devote so much of their time continuously to gratuitous hospital duties, as would be required by the method now advocated. The writer, in answer to this, would say that it is probable that a very considerable proportion of the gentlemen already charged with large and engrossing private practices, who are willing to occupy hospital positions as at present organized, would find it undesirable to fill them if their duties were enlarged as recommended. That an institution might not lose the advantage of the connection of these men with it in some form, the "Consulting Staff" suggests itself as a desirable means.

The greater the variety of the cases that may be found in a hospital service, and the greater the professional interest attaching to the individual cases, the more will the service be esteemed as valuable by a professional man. This is the primary thing to be kept in view, therefore, in dividing the work of an institution, if it is wished to secure the continuous, undivided and

enthusiastic labors in the treatment of the patients of the class of men to whom it would be desirable to commit such responsibility. The experience of other countries, and the slight experience already beginning to accumulate in a very few hospitals in the United States, sufficiently demonstrates that, under conditions such as have been described, men of the highest skill and attainments are not wanting to fill such places, especially if the governors of hospitals give them facilities for realizing the other sources of compensation next to be briefly considered.

3.—A third source of compensation is found in the opportunities which a hospital position may give to its occupant, by the publicity of his work, to extend his reputation, and especially to gain the confidence of his professional colleagues in general practice. The latter is always a particularly justifiable object of ambition, and may be especially accomplished if the hospital attendant is free to invite the profession at large to witness his work in the hospital. It is no more than right, therefore, that hospital authorities should afford every facility to its visiting staff to habitually make public clinical demonstrations in the wards of the hospital, as far as is consistent with the well-being of the patients.

4.—The last tangible source of compensation to be mentioned here is closely allied to the preceding, and consists in the opportunities for disseminating useful knowledge by teaching and writing which a hospital affords. The responsibilities in this direction attaching to hospital positions have already been alluded to in the introductory part of this paper. The fulfillment of these responsibilities brings a rich reward in increase of reputation and influence in any community. Every hospital should be a school of instruction, not necessarily where

full courses of systematic instruction leading up to a degree in medicine are given, but all the same a practical school, in which, to as full an extent as possible, medical teaching should be carried on. The combined effect of all the conditions which have been enumerated will be, not only to supply to a diligent and earnest student rich materials, out of which to make valuable written contributions to the science and practice of medicine, the results of personal observation and original research, but also to stimulate him to the performance of such work, a work that will reflect credit upon the institution from which it emanates quite as much as upon the individual worker.

There remains for brief consideration the question of what system of assistants will be most likely to promote the welfare of the patients, carry on the work of a hospital most economically, and render the labors of the principal medical attendants most efficient and least onerous.

The work of a principal member of the visiting staff would be advantaged, and could be extended, if there were associated with him an assistant who understood his methods and shared in his aims, and whose professional attainments were of a character to enable him to carry on the work of his chief during any necessary absences, as well as to lighten his labors by taking charge of cases that might be delegated to him in the ordinary course of work. To him, also, could be delegated the duty of directing the necessary work of an out-door, or dispensary department, if such should exist. Since such an assistant would be the direct representative and co-adjutor of his chief, the privilege of nominating him should be delegated to the chief and the term of service should be at the pleasure of the same officer, the Board

of Governors simply reserving the right of confirming the nomination before it should become a finality. For the completion of the organization of each service, in addition to its chief and his principal assistant, there will be required still a certain number of young medical men, whose position, while it is that of pupils, the object they seek being experience and practical education, is still one of responsibility and importance, since under the direction of their superiors the details of investigations, of observations, of records, of dressings, of treatment, must be carried out by them. Frequent changes in the personnel of such a staff, either by rotation of duty among those already resident in a hospital, or by short terms of service and new appointments, would be quite subversive of the thorough and continuous work, and the highest efficiency of each particular staff which the interests of the institution as a whole demand. It is true that by this method a larger number of individuals would be enabled to gain some practical experience that would be of value to them personally, but this would be at the expense of every other interest involved. Undoubtedly methods of clinical teaching might be devised that would accomplish as much in the way of instruction, without trenching so dangerously upon the efficiency of the responsible staff of assistants. The French system of *Externes* and *Stagiaires* is suggestive in this direction. The English system of Dressers is susceptible of being developed so as to fully meet the case, provided a greater degree of permanence and responsibility were given to the members of their House Staff. Under the designations of Junior Assistants, Clinical Assistants, Clinical Pupils, Dressers, or whatever other term may be devised, it is quite possible to attach to each service as many students or young practitioners as the size and character

of any particular service may warrant. The term of service of such pupil-assistants may be as brief as their own convenience and wish may dictate, or as long as the scheme of medical instruction in accordance with which they are working may require.

The number and length of service of the real clinical nucleus, the responsible House Staff or *Internes,* is a matter of more importance. For the adequate discharge of the work of each service of the size which has been recommended, averaging perhaps sixty beds, a staff of at least two internes would be required, three would be better. Appointments to these positions should be by competitive examinations and tests of a practical character open to all comers. The full value to the hospital, as well as to the chief of the service to which these assistants are to be attached, can not be obtained by a short service. A term of two years suggests itself as a desirable one. This might be divided into a preliminary period of six months, during which the appointee need not reside in the hospital, but should report daily at a stated hour, to be entrusted with junior duties, and to serve as an assistant to the residents proper, while he is being trained to assume more responsible duties. This should be followed by a period of one year of actual residence in the hospital, rooms and commons being provided by the hospital. This is a period of constant and unremitting attention to the detailed duties of ward work. At the expiration of this period the services of these men, through the training and experience which they have had has become of some value to the institution. To let them go now and fill their places by new and raw men, entails not only increased care and friction in the work of the hospital, but a real pecuniary loss in the more prolonged residence of patients and the waste

of material used in the treatment of patients through the inexperience of new incumbents. It is not improbable that a real saving in the expenses of a hospital would be effected by the payment of a sufficient salary to its senior internes to induce them to prolong the term of their duty in the hospital. A further service of six months, with a small salary, in addition to their meals and lodging, would complete the full term of two years. Meanwhile, by a proper alternation in the time of making new appointments, the service would never be without the presence of men of considerable training and experience.

This plan contemplates that the young man who occupies a position as interne shall pass through all its grades in the same service, to the full success and development of which he renders his continuous work. He is trained in the views and methods of the chief of the service, he assists him in his researches, he has an opportunity of winning a confidence and friendship that may be of great advantage to him in his after-career. It is safe to assume that to such positions men of the highest character and most thorough training would be attracted.

In conclusion, it may be said that there is much in the condition of professional affairs in the United States at the present to encourage the discussion of such questions as this. Though the changes which recent years have witnessed in many matters connected with medical education and practice have been very great, as yet everything is still in a plastic state. Especially in matters connected with hospital organization and the relation of hospitals to medical education are there evidences of dissatisfaction with past methods, and a desire for improvement. Perhaps nothing is contributing more to this than the advances which have been made in sur-

gery, and the demands for a more thorough training and a greater attention to matters of minute detail upon the part of those upon whom the surgeon must rely for assistance in carrying out his work. Fields hitherto closed to operative attempts are now confidently and safely entered into, and procedures formerly uncertain and perilous in their nature are now surely conducted to undelayed recovery, provided in the course of their execution the requirements of an exact experiment in natural science are complied with. The constant supervision of the same directing mind and the most perfect familiarity with the objects and methods to be adopted upon the part of all sharing the work have assumed an importance never before existing. While it is true, indeed, that the considerations which have been urged in the foregoing pages are of importance in the organization of the purely medical as well as the surgical work of a hospital, it is especially in connection with the latter that they are urged.

# VI

# THE CURE OF CANCER

An address delivered before the Surgical Society of Brooklyn, N. Y., in February, 1909, and before the Medical Society of Hartford, Conn., in March, 1909.

# THE CURE OF CANCER

THE cancer problem constantly forces itself upon the attention of mankind. It remains an enigma which thus far has baffled solution. By reason of the mystery that attends its origin, the apparent increase of its prevalence which seems to have followed increasing civilization and luxury, and the steady course to a fatal termination that is its characteristic, it is a dark cloud which hangs on the horizon of every family. Like a thunderbolt out of a clear sky it is continually finding its victims where least expected and among people in whose antecedents nothing to suggest its possibility can be traced.

To the humanitarian and to the political economist it is a factor in our modern life that involves an amount of personal suffering and loss of energy impossible to compute; to the biologist and to the pathologist it presents phenomena of cell growth that are lawless and thus far inexplicable; to the therapeutist it presents conditions beyond the control of any remedial agent known to him; and to the practical surgeon, who alone in any degree has thus far been able successfully to cope with any of its manifestations, it brings the greatest responsibility and, too frequently, the most lamentable defeat.

There are some things, and cancer is one of them, the elementary principles underlying which cannot be too often reviewed nor too strongly emphasized. The repetition of these elementary truths is still needed; it is still desirable that, "rule upon rule, precept upon precept," certain vital facts of cancer data be repeated until they

become a part of the professional conscience of every physician.

There is a larger audience, also, to which I would speak, which I would that my message could reach—of patients, of friends—a general public that sits in judgment on the possibilities of surgery and on the recommendations of the surgeon, among whom ignorance and unreason often cause delay in seeking adequate help until an easily extinguishable spark or flickering flame has become fanned into an all-conquering conflagration. To this latter audience it is ever in order to "cry aloud and spare not"; to such ears it is never inappropriate to speak.

It may well command general and deep consideration if there be any truth in the claim made by some that, under the conditions of existence at present obtaining in modern communities where the occidental type of civilization prevails, cancer is a disease more to be dreaded than is tuberculosis.

This statement is especially based on the statistical exhibit that during the last half of the nineteenth century the cancer mortality for one country—England—tripled, while during the same period the tubercular death-rate declined to the extent of nearly one-half. It is acknowledged that the decline in the prevalence of tuberculous diseases is the direct outcome of better food and of improved hygienic conditions. Can it be that under these conditions there develop bodily states in which an increased predisposition to cancer is created? Or can it be that some of those who are thus saved from tuberculosis still possess a peculiar predisposition to vicious cell-growth so that they more readily fall before the conditions that give rise to cancer and thus increase the number of those developing the latter disease? I find it difficult to bring myself to accept the thought that the

increasing prevalence of cancer among peoples who are living in greater comfort and under better hygienic conditions is in any measure due to these improved conditions of life *per se!* But there is food for thought in the fact that during recent years the cancer death-rate has more than doubled in the cities of New York, Chicago, and Philadelphia, it has more than trebled in Boston and Baltimore, it has more than quintupled in New Orleans, and in San Francisco it has increased sevenfold.[1]

These figures emphasize the importance of study and investigation as to the cause of the disease and to whatever may predispose to it or foster its multiplication and extension. How it may be checked and eradicated when once it has developed has become a question of supreme importance.

The theory that cancer is due to a specific microbic *contagium vivum,* in support of which there is much that may be said, still remains "not proven." Notwithstanding the extensive and unremitting search which the most accomplished and trained investigators have made during recent years, everything pertaining to the cause of cancer is still entirely hypothetical.

The idea that cancer is in any degree contagious rests upon such disputable data that it may practically be ignored. Certainly if there be any contagious element about it, it is of the feeblest possible virulence, and demands a special and rare susceptibility to its influence upon the part of the exposed individual to render it effect-

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[1] Williams: Natural History of Cancer, p. 76.

New York, in 1864, 32 per 100,000 of population; in 1900, 67: Chicago, in 1880, 32; in 1900, 63: Philadelphia, in 1861, 31; in 1904, 70: Boston, in 1863, 28; in 1903, 85: Baltimore, in 1864, 18; in 1903, 63: New Orleans, in 1864, 15; in 1903, 82: San Francisco, in 1866, 16; in 1900, 112.

ive. It cannot be put in the same class with syphilis or tuberculosis or actinomycosis. It is not, specially, a disease of the poor and destitute, nor does it manifest itself with special frequency among peoples who are huddled together under unfavorable hygienic conditions. Surgeons and nurses who are in constant contact with this disease do not more frequently develop it than do other classes. It does, however, show itself with special frequency in certain families, and in certain localities, which facts may with as much reason be referred to the existence of a special predisposition in the members of those families or the dwellers in those particular places, due possibly to conditions of heredity or of environment, as to a specific local contagium particularly rife in such families or localities.

Research has not yet been able to demonstrate the existence of any new entity in cancer. There is no peculiar cell that may be called a cancer cell; the framework of a cancer is the connective tissue of the region in which it develops, its cell elements are the cells of the organ in which it is seated, and wherever a secondary growth develops the same cell is to be seen.

It is in the lawless proliferation of pre-existing epithelial cells in luxuriant, irregularly-arranged masses that invade underlying and surrounding tissues, permeating them, destroying them, and finally themselves attaining a mass which can no longer be adequately nourished by any accessible blood-supply, and which itself then falls into central decay while at the periphery the process still goes on, that cancer consists.

To my mind it is nothing more strange and inexplicable that in occasional instances an epithelial cell should go wrong and like a riotous outlaw manifest uncontrollable tendencies to multiply to the disadvantage

of surrounding structures and ultimately to the destruction of life itself, than that from the original maternal cell the highly specialized tissues of an adult body should develop; or, to take a more restricted view, that from a hair-follicle of the scalp there should be a continual proliferation of cell elements that are pressed out each by the other and arrange themselves into such an elongated silky thread as the human hair, attaining lengths of many inches, sometimes of several feet, until its longer growth is arrested only by the breaking off at the tip of such portions as are no longer adequately nourished by imbibition from the original matrix!

The warts of childhood, the papillomata of bladder and rectum in later life, the condylomata and leucoplakias of other conditions, are examples of excessive abnormal epithelial growth which differ from those of cancer chiefly in this, that they grow upon the surface of tissues and not downward among them, and that they preserve a regularity of arrangement of their constituent elements like that of the normal tissues of which they are over-growths. The frequency, however, with which, in these very cases of simple and regular epithelial hypertrophy, after a time an irregular invasion of the cell elements into the base of such papillomatous or leucoplaxic areas does take place, suggests that the two processes are near akin to each other.

The due and orderly development of all the tissues and organs of the body presupposes the existence of some force which stimulates, directs, or inhibits the developmental power inherent in the primitive cell. Under this supervision the body grows, differentiation takes place, function is established, all the phenomena of life are carried on. Whenever this force is imperfect or arrested or interrupted, an error or imperfection of development results.

It must be that by the exercise of this force epithelial activity is directed and kept within the bounds which are consistent with normal development and life. Normally, the original power of proliferation, inherent in the epithelial cell, is exercised during the period of growth, is in abeyance during the period of maturity, is lessened during senility, and is finally lost at death.

I can conceive that sometimes during the changing conditions of life there may arise conditions in which for a group of cells this inhibiting influence is lost, or disturbed to such a degree that the tendency to proliferate, with which the primitive cell was endowed, is renewed in these descendants, and all the phenomena of unlicensed and irregular cell growth ensue. Carcinoma occurs most frequently in areas which are rich in cells still capable of growth and proliferation. The female breast is the most frequent primary seat, with the uterus a close second; then, though much less frequently, follow in consecutive diminishing order, the tongue, the skin, the rectum, the stomach, the external genitals, the lips, and the œsophagus, and in still lesser degrees almost every area or organ of the body.[2]

I have no positive opinion to defend as to the nature and cause of cancer. I share only in the general intense desire of all surgeons that the truth may be ascertained. Fortunately, the course and progress, the natural history, of the cancer growth is not involved in any obscurity or uncertainty. The initial lesion of cancer is generally solitary and minute. If even but a single cell should have become endowed with the tendency to riotous proliferation, the development of a palpable tumor is simply a matter

[2] The proportions are as follows: Breast, 18; uterus, 15; tongue, 8; skin, 5.5; rectum, 4; stomach, 3.5; external genitals, 3.4; lip, 3.3; œsophagus, 1.8. Williams, *op. citat.*, p. 394.

of time. In the further growth of the tumor the masses of epithelial cells as they proliferate form processes which permeate and ramify into the adjacent tissues; no sharp line of demarcation divides the diseased from the healthy tissue. The continuous centrifugal extension of the disease forms ingrowing epithelial processes which spread most rapidly in the directions of least resistance, usually along the adjacent lymphatics and perivascular sheaths. Cord-like processes of cancerous growth are formed which may extend from the parent tumor far into the surrounding tissues.

Metastases, or secondary growths, are always formed by the transmission of cells from the primary growth—cells endowed with the same propensity to riotous, unrestrained proliferation characteristic of that growth—through the efferent lymphatic vessels to the first row of lymph-nodes to which they run. Here the process is arrested for an uncertain length of time, until this glandular barrier is broken through and again the lymph-stream bears a disorderly cell onward to a new point of deposit. Just how early the beginning of this process of transmission of lymphatic cell-emboli to the first chain of glands first takes place, cannot be stated; it is certainly often at a very early period. Many observations have demonstrated that whenever a carcinomatous nucleus has attained sufficient size to attract attention, the near-by glands will probably be found already infected, an observation of the very greatest practical importance, as indicating to the surgeon who attempts extirpation of the disease the necessity of including in his extirpation the adjacent possibly infected glands also, if any permanent, radical benefit from his operation is to be expected.

The dissemination of carcinoma from the primary focus by emboli transported by the blood-current takes

place rarely; but that it does occur in exceptional instances is probable. How, otherwise, can be explained the sudden appearances of secondary growths in many and widely-separated portions of the body, areas to which extension by permeation is out of the question, and which have no direct lymphatic connection either with the primary focus or with each other; as, for example, in cancer of the breast, secondary growths in the spinal meninges, in the bones of the extremities, or in the skin of distant parts of the body? Cancer cells evidently possess but feeble power of cohesion, and to this is due the readiness with which they become detached in the lymph-spaces and float away like derelicts in the lymph-stream. The lining of normal endothelium which is present in the wall of even the finest capillary may be presumed to be the protecting agent which forms the barrier to the entrance of cancer cells into the lumen of the capillaries or larger blood-vessels that ramify among the cancer masses, causing such relative immunity to embolic transmission through blood-vessels that such an occurrence may practically be disregarded in the surgery of carcinoma.

*Cell Implantations.*—Of great importance is a recognition of the fact that a recently-detached cancer cell may readily become engrafted upon any raw surface of the same body in which it has been generated, and that in the course of surgical procedure for excision most favorable conditions for such implantations may occur. The well-known potentiality of normal epithelial cells to such engrafting is not lessened when the tendency to lawless proliferation is acquired; indeed, it seems to be increased as regards the tissues of the body in which the primary cancer developed. Upon this quality depends the formation of all metastases, for it is a material cell detached

from the primary cell mass that must be transmitted and implanted in the distant situs in order to make possible the secondary growth. Upon this quality depends the rapid repullulation of cancer in areas from which carcinomatous tissue has been imperfectly excised. This it is which explains why, after many operations, the growth springs up again so soon at so many and separate near-by points, and spreads itself with a rapidity and intensity distinctly greater than it had manifested previous to operation. Here is the key to the fact that after destruction by caustic or cautery a return is often late in manifesting itself, or, possibly, never takes place. For with the use of the latter agents not only is the main growth removed, but all engrafting material is also absolutely destroyed; no live cell is left to become a graft, and when the eschar falls only a healthy granulating surface remains.

It is obvious that in many ways cancer-cell liberation and implantation may occur in the course of attempts to remove a cancerous mass. Piecemeal excision of carcinomatous tissues in some cases is unavoidable; more frequently, however, does the section unintentionally go through an unnoticed or unrecognizable minute, tenuous proliferation of the disease, extending some distance away from the recognizable tumor into fasciæ or muscle; again, lymphatic channels that are cut across at a distance may be the bearers of cancer cells, which then become sown in the wound surfaces. Healthy cut surfaces that have been divided in order to get access to deep-lying disease, as the abdominal wall for cancer of the contained viscera, or the loin for kidney cancer, or the vagina for uterine cancer, may become the seat of implantation of minute fragments brushed or scraped off from the diseased tissue that is brought out through them. Of this I have seen

some very notable examples. Rough handling of a growth in attempts at its extirpation may squeeze into the efferent vessels particles that are carried at once beyond the area of extirpation to develop later into recidives, which would not otherwise have occurred.

Older surgeons will remember the positiveness and force with which thirty years ago John Byrne used to assert, in discussing the treatment of cancer of the uterus, that " in whatever manner excisions or amputations, high or low, may be effected, subsequent cauterizations of the entire surface and edges of all parts from which cancerous material may have been removed will be found to be the best safeguard against a recurrence of the disease." His view was that " little may be hoped for from amputation of a cancerous cervix in whatever manner unless followed by actual cauterization." His method of attacking uterine cancer by the electrocautery was based on this view, and the results which he claimed to have secured were so far better than those of other surgeons that they received only partial credence. Though a naturally enthusiastic temperament may possibly have caused him to see some things *couleur de rose,* nevertheless I am convinced of the reliability, in the main, of his contentions, his practice was founded on sound pathology, and its value has been confirmed by increasing knowledge of the natural history of all cancer.

The recent statistics published by Rovsing (Copenhagen), as to final results of his operations for removal of cancerous kidneys, demonstrate in another way the value of the adoption of adequate measures for preventing the liberation of cancer material into the operation field. In the discussion on the subject at the recent meeting of the International Society of Surgery (1908), he alone was able to report any considerable number of per-

manent good results in such cases, sixteen per cent. of his cases having already survived from five to sixteen years since operation. These results he believes with reason to be due to his scrupulous observance of the principle that the affected kidney should be taken away absolutely intact and closed.

The great increase in the proportion of permanent cures which are now being obtained by operation in cases of carcinoma of the breast, is in part due to a more sedulous and intelligent attention to prevent cancer material from being sown in the wound while the primary growth is being removed. The pitiful ten per cent. of permanent recoveries after operation which were claimed by surgeons previous to 1885, grew in the next decade to thirty-five per cent., and in the decade from 1895 to 1905 to 46.5 per cent.[3]

In carcinoma of the breast we possess an ideal type of the disease in which to measure the efficiency of methods and agents proposed for the treatment of cancer. In its usual manifestations it is a type of the more virulent form of the disease, as shown in its tendency to rapid growth, to invasion of adjacent tissues, to the formation of metastases, and to death. Concealment or error in a well-advanced case is practically impossible. These circumstances make it the most favorable of all localities for "trying out" the efficacy of methods for cure, as well as for the study of pathology; while its great frequency affords a vast field for experience to a multitude of observers. Unfortunately the very extensive raw surface which is left after any attempt to remove all possibly infected tissue, makes it practically impossible to institute in most cases such cauterization of the surfaces left after

[3] Statistics compiled by Depage: Trans. Internat. Soc. of Surgery, 1908.

surgical ablation is concluded as have been referred to as applicable to many uterine cancers. May it not be, however, that the attempts to secure early healing by immediately covering the wound surfaces by extensive sliding flaps, supplemented, if need be, by immediate skin graftings, have sometimes been done at the expense of a greater ultimate benefit which might have accrued if, as a matter of routine—even after the operation for breast cancer—free applications of caustics were more frequently made to follow at once in some parts at least of the track of the knife; if more often the wounds were kept open and healing by granulation instead of *per primam* was sought for? This practice would be especially indicated in dealing with the more advanced cases, in which uncertainty as to success must always attend the operator's attempts to have kept his incisions well outside any possible extension of the disease. It is certainly now a universally accepted surgical dictum that the technic of operative attack in cases of breast cancer should always contemplate the removal, *en bloc*, of fascia, of axillary fat with its nodes and lymphatics, of underlying pectoral muscles, and of the breast and its overlying skin. In cases in which early diagnosis has been made and immediate operation has followed, the careful and thorough operator may be reasonably certain that his incisions, thus planned, will have at all points been carried wide of the disease. In many cases, unfortunately, the disease will have attained an advance, before he is permitted to interfere, that will make it very uncertain that he can escape traversing already infected tissue except by carrying his incisions so widely, and sacrificing so great an amount of tissue, as to hazard life or function to an unjustifiable degree. These are the cases especially in which cauterization might well supplement the knife. The recently intro-

duced method known as " fulguration " is one method of carrying out this indication. In this procedure a shower of electric sparks is directed upon the raw surface left after the extirpation of a cancerous mass for ten to fifteen minutes, until the surface is converted into a superficial eschar, with the effect also, it is claimed, of the destruction of any deeper-lying deposits of carcinomatous cells. The effects of the X-ray and of radium belong in the same category with the fulgurating rays as escharotics, and doubtless have a distinct value. This triad of agents, like the electrocautery " roastings " of Byrne, would seem to have their chief value in influencing any deeper-lying foci of cell nests that may be already fixed among the tissues in the area underlying the primary growth. For the destruction of liberated cancer cells that are lying loosely upon the free surface of an operation wound, a more diffusible, practicable, and superficial escharotic should suffice, and, if I am right in my premises, should be more frequently resorted to. As an escharotic suitable for such use chloride of zinc takes the first rank. It is powerfully caustic and quite devoid of toxic properties itself; it is soluble in any proportion in water. A 10 per cent. solution if swabbed over even an extensive wound surface would produce a thin, film-like eschar by its destructive action upon the tissues with which it comes in contact, in which to a notable degree would be included any free cells that might have been shed upon the surface of the wound in the course of the operation. Upon more limited areas, which might be more especially the subjects of suspicion, a solution of greater strength, even a saturated solution if deemed advisable, could be applied. The use of chloride of zinc as an escharotic for the destruction of appreciable malignant growths is an old and well-recognized procedure,

and is extremely efficient. It is a quite different use of it that I am now suggesting for the more diffused and superficial caustic action which a more dilute solution might exercise upon a wound surface that had presumably been the seat of casual cancer-cell implantation. Primary union would probably be interfered with by such caustic swabbing, but the ultimate healing even of extensive wound surfaces would not necessarily be greatly prolonged by the measure. In wounds connected with mucous outlets, as the mouth or the rectum, the value of such a caustic is especially great, not only for the destruction of residua of cancer cells, but also to seal up the wound surfaces by a layer potent to preserve them from the septic fluids which come in contact with them.

*Is there no cure for cancer other than extirpation by caustic or knife?* No case of cancer presents itself to the surgeon but this question accompanies it.

The records of mankind present nothing that illustrates more fully the unreliability of ordinary testimony in matters pertaining to the relation of remedies to disease, or the readiness of mankind to believe the most preposterous claims, if they are only asseverated with sufficient positiveness and frequency, than does the list of professed cures for cancer. In the late sixties, when Mr. Colfax was Vice-President of the United States, the mother of Mrs. Colfax developed cancerous disease. The public interest in her case was quickened to an extreme degree by a message received from the representative of the United States Government to one of the Republics of South America, that in the bark of a plant indigenous to that part of the world a virtue existed which the peoples of that country had found to be a specific for cancer. At the same time a quantity of this bark was forwarded for the use of the afflicted lady. The most

extravagant claims as to its effects forthwith filled the public press, with the natural result that a demand for the bark arose throughout the country far greater than could be supplied. What its merits really were became known later when, within the year, the mother-in-law of the Vice-President died from cancer, the course of the disease having been uninfluenced by the new remedy. Nor, in the large number of other instances in which at that period this bark was used, did any happier result ensue, so that *condurango* fell as quickly into oblivion as it had sprung into request.

But a few years later, an eminent surgeon of England, Mr. Clay of Birmingham, published a serious claim that in the use of Chian turpentine he had found a specific against cancer of the uterus; a virtue which, in the hands of no other surgeon, has that product been found to possess! The number of agents which have enjoyed a reputation in ordinary domestic medicine as specifics for cancer is very great, such as, to mention a few: applications of the leaves of the common dock; infusions of couch grass; a plaster of rose-leaves, olive oil, and turnip-juice; applications of pure ox-gall; infusions of red-clover-tops. In a patient of my own who was dying from an inoperable cancer, I was begged to permit the use of infusions of dogwood-bark, the recommendation for its use being accompanied by the most positive statements from persons of the highest social position as to cures which had followed its use. I gladly consented to the use of the infusion and watched for any benefit that its use might bring; but the steady progress of the patient to the grave was not affected by it. Of late years the public has been inundated with pamphlets setting forth the merits of a treatment devised and carried out in a certain Boston institute. The claims made for this treat-

ment are very specious and have deceived many. Some of the cases who have been led to subject themselves to this treatment for a time, have finally, driven by the unmistakable advance of their disease, appealed to me for surgical help, having been in no way benefited by the treatment they had received.

Some years since, one of our Brooklyn physicians persuaded himself that in the hypodermic use of protonuclein he had discovered a specific against carcinoma, and imagined that in the case of a patient who had been operated on in my service and who had later manifested a renewal of the disease, he was about to secure a cure by this method of treatment. A temporary remission in some of the symptoms of the patient seemed at first to give encouragement to his hope, but within a short time her death from the usual advance of the disease demonstrated the groundlessness of his claim. He was only a little in advance of, and in the same category with, those physicians who, in the use of trypsin, have gained great notoriety by their claim that thereby cures of cancer had been effected. The cruelty of the widespread dissemination through the public press of such claims as those that have been made in the matter of trypsin is great, and can with difficulty be adequately characterized. The most that it has seemed to accomplish has been, in some cases, apparently to cause the melting down and falling into necrosis of that part of a cancerous mass that is already approaching the limit of further nutrition; while the actively proliferating portions at the margin, and metastatic growths elsewhere, continue their development uninfluenced. Meanwhile, false hopes have been raised; all radical measures of surgical relief have been postponed; and the possibilities of absolute cure greatly lessened, in many cases wholly lost. I dwell a little more emphati-

cally upon this particular professed cure because it has been surrounded by such pseudoscientific pretentions as to research and demonstration that it has appealed to the belief of many intelligent people; and the manner in which it has been exploited through the public press and through articles in popular magazines has given it great diffusion and credence. In actual use, however, it has entirely failed to produce the results that its original exploiters claimed for it; and it has already been practically placed on the same shelf of exploded claimants with proto-nuclein, condurango, and Chian turpentine.

In no more favorable terms may be mentioned the merits of the anticancer serum lately devised and exploited by a Parisian surgeon. A fair commentary upon the proper status of the agent in question is the recent suit against this surgeon by an American gentleman to recover from him a large sum of money that he had been induced to pay to him in advance under the assurance that if he did so a cure for his wife, who was suffering from cancer, would be produced by this surgeon through the use of his serum; with the result of in no wise arresting the course of the disease, but simply of separating the anxious husband from a large amount of money that went into the pockets of the serum exploiter. In these days of vaccines and serums, which have their place in connection with demonstrated microbic diseases, it is very easy for one who accepts a microbic hypothesis as to the genesis of carcinoma, to look to the obtaining of a vaccine or antitoxin prepared from cancer material itself for a specific against the disease; and it has been easy by exploiting this idea to play upon the credulity of people. Should the demonstration be ultimately made, for which so many look, it may be that in this direction the cure for cancer will appear; but it must be stated—with regret

that it is so—that up to the present time no such method of cure has been announced worthy of any credence.

Is there any hope or advantage in the use of the thymus-gland extract, as suggested by Gwyer, of New York, within the past year? Here again it is to be feared that the expectations formed by the first experimenter as to advantage from the thymus treatment were too sanguine. It does not appear that in any of the cases so treated that have been published, any permanent good results have been secured. In three cases of my own, to which Dr. Gwyer was good enough to apply his treatment, no advantage has resulted in any case.

In the *Roentgen ray* and the *salts of radium* we have found agencies that have a distinct deterrent influence on the cancerous process, although, unfortunately, only to a limited degree. The anticipations which were at first indulged as to the curative powers of these agents have, however, so far failed to be realized that the pendulum of professional favor has now swung, possibly, too far in the direction of disregard, until there is danger that they will be neglected altogether. Their action is restricted to the area upon which the light rays or the radiation streams can be concentrated; it is so superficial that any considerable mass, or any mass buried in the tissues of an organ or in a body cavity, is not appreciably affected by either of them. I have already referred to them in connection with escharotics, but it is not necessary in order to obtain their specific beneficial action that they be pushed to the degree of causing actual tissue destruction. It is in dealing with superficial squamous-celled carcinomata involving the skin, or the mucous outlets, that they have their greatest field of usefulness. Unfortunately, the X-ray has been found to be a cancer-maker as well as a cancer-curer; and no sadder chapter in

the list of surgical tragedies is to be found than the history of the years of struggle against nutritive changes, obstinate ulcerations, and, finally, multiple cancerous degenerations that developed in the persons of some of the earlier surgical workers with the Roentgen rays.[4]

In the X-ray, when applied a sufficient number of times to a part, seems to reside the peculiar combination of depressant and irritative qualities required to free epithelial cells from the laws of orderly and restricted life by which they are normally directed and restrained, and to excite them to the lawless and unrestrained multiplication which is cancer! So many cases of this kind have now been watched and followed through every stage of their development, from a primary erythema to the final, multiple, internal metastases and death, that the exact nature of this artificially induced cancer is well understood and the steps of its progress clearly outlined. What we know of it, it may be remarked in passing, seems to lend support to the idea that cancer is the result of chronic irritation upon tissues which have inherent or acquired susceptibility, rather than of the special activity of a specific microbic organism.

Since the salts of radium are more easily manipulated, are more free from unpleasant, or undesirable, or, possibly, dangerous, complications in their use than is the X-ray, while they are quite as efficient in their specific anticancerous qualities, they are to be preferred to the latter, and would doubtless be much more generally used were it not for the scarcity of the substance and its excessive cost.

There is another phase of cancer life which must not be lost sight of in any attempt to place a proper value on

[4] Vide Porter and White: Annals of Surgery, November, 1907, vol. xlvi, p. 649.

means supposed to have been used for its cure. Irregularities of growth and even temporary arrests of growth are among the common phenomena of cancer life. Cases in which cancerous growths, after having attained some magnitude, have remained stationary for many years, until in the course of nature death has taken place from other causes, are on record. More rarely, but still in undoubted instances, spontaneous retrogression has taken place; in some cases such retrogression in the primary growth has been noted at the same time that secondary foci in distant parts of the body were actively growing. It has repeatedly occurred to surgeons that after operations that were certainly incomplete, and after which speedy renewal of the growth was looked for, either no return or a greatly retarded return has appeared. Unfortunately, such a course is always among the unexpected, the rare, events. Far, far more frequent is it that even in instances in which apparently radical and thorough extirpations have been done, going well outside the supposed limits of extension of the disease, later reappearance of the disease, either *in loco,* or in regions at a distance, has shown that the surgeon's attempt was already either too late or too restricted.

At the present moment, it is true that with the infinitely little and practically negligible exceptions noted in the last paragraph, *the cure of cancer depends alone upon the actual excision or destruction of all tissues endowed with the cancer impulse, wherever located.*

Much of what I have endeavored to present in the foregoing pages now has its practical application of the highest importance in the light which it gives the surgeon in directing his efforts for the extirpation of cancer along those lines which will give the greatest probability of ensuring total removal of the diseased tissue.

The ideal desideratum is that the cancer condition should be detected while it is still an isolated focus, before any considerable permeation of the adjacent tissues has occurred, and before lymphatic emboli have been detached and conveyed to distant points. Unfortunately, carcinoma has no symptomatology of its own. It is silent, insidious, and gradual in its development; and only when it has attained a degree of advance which interferes with the function of the organ or part in which it has its site, or has attained a mass that arrests attention by its gross qualities, does suspicion as to its existence become aroused.

When the disease develops on the surface of the skin or on the margin of the mucous outlets, as on the lips or tongue or anus, it early arrests attention; but when it is seated in a deep-lying surface or organ, as uterus or ovary or stomach or kidney or intestine, it is certain already to have reached an advanced stage of its development before its presence is recognized, and even then, though suspicion as to its presence may have been aroused, it often is very difficult to demonstrate it beyond question. Even in so superficial an organ as the breast, it is surprising to note in how many instances the cancerous process is much advanced before it is discovered by the patient, and in other cases how much uncertainty may exist, before removal, as to whether a discovered growth is really a cancerous one or not. These are the unavoidable circumstances that constantly embarrass the surgical relief of cancer, and introduce a great element of uncertainty into much that is done for it.

**In the present state of the art of surgery, it may be said that, possibly with the exception of the lower œsophagus and the pancreas, there is no region of the body in which carcinoma often develops which the surgeon**

**cannot with confidence and comparative safety approach, and from it remove a cancerous mass in its earlier history while it is small and solitary, with the assurance that after such removal has been effected a cure of that particular outbreak, at least, may be relied upon!**

Of the highest importance, therefore, is the early recognition of the disease, together with any conditions, if any such there be, which experience has shown to be open to the suspicion of favoring its development—precancerous conditions, properly so-called.

In the present address, time does not permit the discussion at any length of such precancerous conditions, but they should not be passed over without some mention. Accumulating observations have established, with reasonable certainty, that as possible precursors of cancerous development should be regarded certain chronic ulcers such as those of the stomach, of the cervix uteri, of the tongue, and of the lips; those due to the action of the X-rays, and to the irritations sustained by workers in such substances as soot, tar, and paraffin. Neglected nævi, papillomata, retention cysts, some eczematous patches, and the seborrhœal patches of the aged come also into this category. Cases of carcinomatous degeneration of myomatous, fibromatous, and adenomatous tumors have come within the observation of most surgeons. The surgeon who admits the importance of such conditions as these now named as possible precursors of cancer, will find in his treatment of them a hopeful and fruitful field for prophylaxis of cancer.

What value is to be attached to the *hæmolytic reaction* which may be exhibited by the blood of persons affected by carcinoma? If such a test should prove to be a reliable and a specific one in the early stage of a carcinoma,

it would be of inestimable diagnostic value in a multitude of cases in deep-lying situations. The results reported by some of the earlier experimenters [5] seemed to indicate that the reaction could be obtained in the greater proportion of cases of cancer, and that when it did occur it was practically specific for malignant disease. Others [6] have confirmed, though less positively, the preceding observers.

On the other hand, yet other observers [7] have obtained the same reaction also in certain non-malignant diseases, which suggests that the reaction is not specific for malignant diseases, and leads to the conclusion that, at the present time, hæmolysis is of uncertain value in the diagnosis of carcinoma.

The real value of hæmolysis in the diagnosis of cancer remains, therefore, to be established. The practical surgeon cannot yet depend upon it, however much he might desire that by some such means his diagnostic resources might be increased.

Of great importance is the attitude of the surgeon to what may be called border-line cases, in which, after all practicable methods of examination have been exhausted, he still remains in doubt as to whether a particular tumor is malignant or not. In the great majority of cases no such uncertainty will exist, but still in a certain proportion of cases such doubt cannot be avoided. What increases the importance of such cases is the fact that among them will lie many cancers in the earlier period of their development, when their adequate removal is relatively easy and the prospects of permanent cure are rela-

[5] Kelling: Berlin. klin. Wchschr., 1907, 1355; Crile: Jour. Am. Med. Assn., June 1, 1908, 1883, and December 12, 1908.

[6] Weil: Jour. Am. Med. Assn., 1908, i, 64; Janeway: Annals of Surgery, Jan., 1909.

[7] Fischel: Berlin. klin. Wchschr., 1908, 882; Whittemore: Boston Med. and Surg. Jour., Jan. 21, 1909, p. 77.

tively great. Shall the surgeon, in determining his course, give the benefit of the doubt to benignancy and wait until unmistakable signs of malignancy have developed; or shall he proceed at once to extirpation, notwithstanding the possibility that he will find that he has removed only a retention cyst or a simple adenoma or fibroma? To this question, the facts which I have attempted in this address to set in order, which are the common knowledge of all surgeons, give but one logical answer.

**The line of highest safety and of the best interests of the patient is ever against the policy of delay and in favor of immediate and radical removal of any growth to which the slightest possibility of malignancy attaches.**

It is far better to be able to assure a patient that the growth which has been removed was found to be benignant in its character and that there is no prospect of its return. If, on the other hand, it is found that the growth is one in which the beginnings of malignant change are demonstrable, the probabilities of having effected a radical and permanent cure have been greatly increased. The force of this reasoning is emphasized when the tumor-bearing patient has approached middle age or is in advanced years. It would seem as if it might be superfluous to dwell upon this phase of my subject, but the fact is that even in this day many patients present themselves to the surgeon only after they have been kept under observation many months by some physician who has been awaiting the development of more positive signs that the growth is malignant.

Medical men, however, are not always the ones that are responsible for the delay in seeking surgical aid.

Patients themselves sometimes conceal for a long while the fact of the existence of a suspicious growth, and do not apply for professional advice until the growth has become far advanced. In the greater readiness to seek surgical help which characterizes laymen at the present day, such concealment is not so common as in the past, and, as a result, at the present time a graver responsibility and a greater opportunity than ever before rest upon the physician first consulted as to a growth which is possibly malignant.

Often of great influence in preventing timely resort to the best means for securing cure of cancer is the widespread and deep-seated opinion that no surgical operation in a case of cancer is of permanent benefit, an opinion for which there is apparently abundant reason in the records of many neighborhoods of repeated operation and persistent recurrence and ultimate death in cases of cancer. Traditions as to the unfortunate experiences of the past still remain to create doubt as to the possibilities of the more improved methods of the present.

The result is that, whether from the insidiousness and symptomlessness of the development of the disease, or the unfortunate conservatism of the medical advisers first consulted, or the natural dread of or lack of confidence in surgery on the part of the patient, most of the cancers that come to surgeons have already reached a relatively advanced stage. It is a fair question for consideration whether it would not be wiser and more humane, in a broad sense, for surgeons to decline to interfere in well-advanced cases, lest the problematical benefit that might be secured for the individual patient should be far outbalanced by the probable discredit to surgery which would ensue from the later unchecked and possibly accelerated course of the disease. While there is sound reason to

commend the course of those surgeons who decline to operate upon other than recent and hopeful cases, nevertheless there is something in the appeal of a cancer-bearing patient, even though the disease be so well-advanced that the possibility of its radical removal is quite uncertain, which the humane surgeon cannot easily resist. He knows that occasionally in very unpromising cases unexpectedly good results have been secured; the thought that by a little more boldness and thoroughness in extending the range of his efforts, even in this case, he may possibly get beyond the extension of the disease, urges him to make the attempt; and the knowledge that even if he fail the fate of the patient is not made more certain than if no attempt be made, and the feeling that if the radical extirpation be not secured, yet some alleviation for a time of both mental and physical suffering is probable, these determine his action.

In estimating the value of surgical operations in the cure of cancer, it ought always to be made plain that these advanced cases belong in an entirely different category from those still in the early stage of the disease. To the latter, surgery offers a very great promise of permanent cure; to the former, surgery offers some hope, but with a preponderance of probabilities of eventual recurrence. To both, surgery alone offers any hope whatever.

It is not within the scope of the present address to enter upon the consideration of the special technic to be observed in fulfilling the indications for the cure of cancer in particular regions or organs. My aim has been to state once more, as systematically and comprehensively as possible, those general principles which are applicable to the cure of cancer in any of its phases, and which must be kept in mind by the surgeon in all his contests with it, wherever situated. If it be all old, it is because the eager

and deep search of many observers has not thus far been able to bring to light anything new. Even old things, however, may sometimes be restated in such a way as to make a new impression.

RÉSUMÉ.

*a.* Carcinoma at its inception is generally solitary and always minute in its extent.

*b.* The cancerous process, once started, tends steadily to advance from the original focus by permeation and embolic diffusion, uninfluenced by any drug or method of treatment whatever save to a limited degree, when situated superficially, by the X-ray and by radium.

*c.* As long as the process is limited to the area of original growth, the excision or destruction of that area puts an end to the process, and in the cicatrix formed no reappearance of the cancerous process takes place.

*d.* The early appreciation of the beginning of a cancerous growth is of the highest importance, that it may lead to the immediate steps required for its excision or its destruction.

*e.* Excision by the knife or destruction by caustic or cautery should follow with the least possible delay the discovery, in any tissue or organ of a man, of a nodule of new formation, which is not unmistakably of benign character.

*f.* Whenever any room for doubt exists as to the nature of a tumor formation, the benefit of the doubt should be given to malignancy and its removal instituted the same as if its malignancy were unquestionable.

*g.* Chronic ulcerated conditions due to continuous irritation, especially if seated upon areas of active cell life, should be regarded as possible precancerous conditions and should receive whatever surgical attention is requisite

to secure their healing, even to excision of the ulcer-bearing area, if necessary.

*h.* The possibility of creating new cancer foci in the course of the excision of an already existing cancerous mass should engage the earnest attention of the surgeon in all cases; whenever it is possible that the diffusion of the cancerous process is so extensive that the widest practicable lines of incision are still not so distant as not to ensure that they do not traverse any lines of cancer permeation, the knife should either be supplemented or supplanted by caustic or cautery.

*i.* The technic of all operations for the removal of cancer should be ordered on the idea of beginning division of tissue at the periphery of the possible affected region, and so carried out as to remove *en bloc* all disease-bearing tissue, from the most distant secondarily affected glands with the connecting duct-bearing isthmus to the underlying muscle and the outlying fasciæ and the overlying skin.

*j.* Wherever the wound surfaces left after the ablation of a cancer-bearing mass are not so extensive nor so closely related to important organs as to make the use of an escharotic highly hazardous, such surface should finally be seared over by cautery or caustic to guard against possible operative cancer implantation, or to make still more radical and far-reaching the excision done.

*k.* No instrument, such as knife, or scissors, or needle, or clamp, which has traversed a cancerous mass, should be used further in non-cancerous tissue; and any suspicious surface exposed in the course of incision should at once be seared over by the cautery.

*l.* No drug, or laboratory product, or medicament of any kind, has yet been discovered that exerts any specific

effect to modify the cancerous process, save in a feeble degree the X-ray and radium.

*m.* The cure of cancer involves the absolute destruction or extirpation of all cancer-bearing tissue. In cases submitted early to surgical relief the probability of permanent cure is very great; the longer the postponement of surgical intervention, the less are the probabilities of cure.

# VII

# ETHICAL CODES FOR MEDICAL MEN

"ETHICS.—The science of right conduct and character; the science which treats of the nature and grounds of moral obligation and of the rules which ought to determine conduct in accordance with this obligation; the doctrine of man's duty in respect to himself and the rights of others."—*The Century Dictionary.*

This essay was written in 1883 as one of a series of papers contributed by a number of members of the Medical Society of the State of New York, which were published in a volume entitled "An Ethical Symposium," intended to explain a recent action of that society in modifying the code of ethics prescribed by the American Medical Association. Though the conditions which called this symposium into being have now largely passed, it has been thought best to preserve this particular essay as a Statement of principles which the writer believes should govern medical men in matters pertaining to the regulation of conduct and character, principles which will never become antiquated.

# ETHICAL CODES FOR MEDICAL MEN

ETHICAL questions relate to the most delicate relations of life; they have to do with the hidden springs of action which prompt to any given course; they involve the instincts and impulses, as well as the reason and judgment of the individual; they constitute a domain in which every man is his own rightful sovereign, and an uninvited intrusion into which by others he has the right to regard and resent as an impertinence.

Every principle and instinct of manhood leads an individual to assert his right of independent judgment in matters that pertain to his feelings and conduct, and to admit of no restrictions by his fellows upon his practices, so long as the comfort and well-being of others is not trespassed upon.

The paternal government to which children are subjected is based on the truth that children are incapable of judging for themselves and must be guided and corrected until they arrive at years of discretion. But even with children there may be such a thing as too much government. It certainly is the part of wisdom for a parent to realize when his parental solicitude may be relaxed, and to adapt himself to the changed circumstances. A parent may formulate a set of rules to which he may require the child to conform in his outward conduct as long as the child is dependent on him for support. An employer may establish similar rules, conformity to which he may require as a condition of remaining in his employ. In both instances such conformity is a mark of dependence or a badge of servitude, and endured only by stress of necessity. A freeman rejoices in the right to

regulate his own conduct, his manners, and his morals, subject only to those limitations which the equal rights of others impose upon him.

After this statement of general truths as to rules of ethics, it becomes of interest to inquire whether there is anything in the peculiarities of membership in the medical profession which should make matters of medical ethics an exception to those principles which apply to ethics in general.

Any remarks upon the nobility of the profession of medicine would be trite; it claims for itself, and the willing tribute of others accords to it, the pre-eminence among the callings to which men give themselves, for the devotion to humanity, the high courage in the face of danger, the self-sacrifice for the relief of others, the public spirit, the liberality of views, and the general culture which the duties, the studies, and the influences of the profession tend to develop, and which its members, as a class, display.

A physician is not a member of a guild or corporation, the rules of which he must comply with in order to retain his membership therein, and to enjoy its benefits, but a member of a liberal profession, the rules of which are the unwritten law of humanity, and the special requirements of which must vary much according to the peculiarities of his environment. The approval of his own conscience, the respect and good will of his colleagues, and the confidence of the people will always be the marks that will indicate the perfection with which he complies with the ethics of his profession, while their loss is the worst of penalties that can follow his dereliction.

Of all classes of men, physicians are certainly least in the condition of children that need paternal watch-guard and rules of conduct; and yet the singular spec-

tacle is witnessed in the United States of America of a very large proportion of its physicians insisting upon the necessity of such provisions, either for their own guidance, or as a standard by which they may try the conduct of others. Why is this so?

Even were it true that there were such difficult elements or complexities either in the relations of physicians to the public, or to each other, that it would be improbable that the average educated mind would be capable of deciding for himself his duty in the various junctures that might arise, what authority exists from whom the needed ethical laws could emanate? The physician is a freeman; he has ceased to recognize paternal interference with his judgment; he wears the livery of no employer; he acknowledges the restrictions of no trades-union. True, as an individual if he chooses to abdicate his dignity and put himself under a yoke, he has the right to do it, but he has no right to require that others shall follow his example. When, therefore, associations of medical men prescribe certain fixed rules of conduct for their own members, they are acting within their privilege; but when they assume that the laws which they have formulated for their own guidance should be universally accepted as the standard by which should be fixed the right to professional fellowship of all physicians, they manifestly transcend their privilege.

However praiseworthy may be the desire to foster an elevated ideal of professional conduct among physicians, in which these codes have undoubtedly had their origin, the attempt to arbitrarily force them upon the acceptance of individuals is really a trespass upon individual rights.

At the first annual meeting of the American Medical Association, held in Baltimore in May, 1848, the presi-

dent, in his opening address, made the statement, that the profession of medicine had become corrupt and degenerate, to the forfeiture of its social position, and of the homage which it had formerly spontaneously and universally received; that the truth of this averment was everywhere recognized and proclaimed, and that as an association they were imperatively instructed to purify its taints and abuses, and restore it to its former elevation and dignity, and that they were to seek a reform in medicine through a proper regard to its future glory and usefulness.

To remedy this state of things, to purify and elevate the profession of medicine in the United States, was to be the vocation of the association, and as one of the earliest steps to be taken, the formulation and adoption of a code of ethics was considered necessary, a code which, in the words of Austin Flint, should be indispensable for the sake of reference whenever differences of opinion should arise, an index to the proper course to those whose moral perceptions may be defective, and a safeguard against the bias of personal interest. (*New York Medical Journal,* March 17, 1883, p. 286.)

So this association adopted a code, and required that all its members, and all organizations which would be affiliated with it, should accept it as the rule of their future conduct.

This code contained many sentiments marked by a spirit of propriety and dignity, which manifested an exalted ideal of the mission of the physician. It was chiefly a copy of certain rules of ethics prepared at the close of the eighteenth century, by a learned and pious physician of England, Dr. Percival, of Manchester, for the direction of his own son, who was about to engage in the practice of medicine. In the dedication, the father

states that in its composition his thoughts were directed to his son "with the tenderest impulse of paternal love," and the body of rules which he framed form a proper legacy from a father to a son, while they reflect the greatest honor on the mind and heart of the author which they mirror.

It will not fail to suggest itself, however, that what may have been a very fitting and touching legacy from a father to his son, may become quite another thing when set up as the ultimatum of ethical law for the profession of a continent, and that ideas and directions, however noble the thought that animated them, which were timely in the days when Pitcairn was still carrying the "gold-headed cane," may demand to be differently stated in the latter part of the nineteenth century.

Waiving, for the present, the question of the right of any association of men to assume to dictate laws of conduct for a profession, it is to be acknowledged that it was done, and that other local associations, State, county, and town, accepted without question the code provided, until an organization was perfected that extended over the whole country, bound together by this code as its common bond. For a whole generation the great mass of the educated physicians of the country have been professedly dominated by it, and not until recently has its rule been called in question.

During all these years, nevertheless, its enforcement, whenever attempted, has been a trespass on individual rights. The conditions which reigned in the medical profession in this country a generation ago, may or may not have been of a character to create the necessity of attempting its enactment; it is immaterial now to inquire into that. The living question to-day is whether the benefits derived from it in the past, and certain to be

conferred by it in the future, are of that extreme character which alone could pardon an attempt to continue its existence.

It is claimed, that the result of the promulgation of this code in the special manner described has been to cause medical men of the present day to feel it a duty to sustain the younger members of the profession, to treat them with courtesy and kindness, to save them from their errors, and to encourage them in all their good work; that it has put the seal of condemnation on all "isms," and developed an *esprit de corps* that has enlarged the boundaries of medical science, and greatly increased the usefulness and social standing of the profession.

It may be claimed with equal force, on the other hand, that the period has been one in which there has been a general improvement in the material, mental, and moral tone of the country; that it has been a time of wonderful change and progress in every department of life; and that the medical profession has simply responded to the stimulus of its surroundings, the causes of whatever changes may really have taken place in its tone and bearing being extrinsic quite as much as intrinsic. It may be said—and much might be found to corroborate it—that it has not even kept pace with other learned callings in the advances which these years have produced, although the latter have not enjoyed distinct codes of ethics. It may be said that equal, even greater, relative progress in elevating the standard of attainments among medical men, of advancing the science of medicine, and of securing for its practitioners the respect due them, has taken place during the same period of time in other countries where the safeguard and help of a formal ethical code has not been provided.

There is room, then, for differences of opinion as to the real causes that have been most active in making the medical profession of this country what it is to-day.

As for myself, after a careful consideration of the pros and cons as to the benefits which the profession of the United States have thus far derived from this particular Code of Ethics, I am not able to see that they have been or are likely to be of such an extreme character as to reconcile me to the claim that it should be the sole and authoritative guide by which my professional conduct must be fixed, nor to cause me to recognize in any man, or set of men, the right to bring me to bar for judgment.

Moreover, my own observation of medical men and manners during the years that have passed since, as a medical student, I first felt myself identified with the medical profession, has caused me to feel, more and more strongly as the years have passed by, that the attitude of medical men in this country in matters of ethics, toward each other and toward the community, was radically wrong, and that it was working injury to the best interests of the profession as a whole.

The first injury, that I have believed discernible as flowing from the attempt to define in detail the methods by which the conduct of physicians in the various relations of life should be performed, is that it has tended to foster the creation of, and to give prominence to, men who put much stress upon the strict letter of the code, often to the forgetting of its spirit—medical Pharisees, who tithe the anise and cumin of medical etiquette, who make broad their ethical phylacteries, and thank God that they are not as other men are, but who nevertheless feel at liberty to coolly ride rough-shod over the rights of others, when such rights are not protected by any distinct provision of the code.

The second count in my indictment against the code is, that it has fostered and maintained a spirit of censoriousness in the profession. It tends to make every man a spy upon his neighbor, and has made persecutions of the most petty nature possible. It has placed in the hands of certain men a weapon to use against those that are weaker. It has created a multitude of star-chambers all over the land, in which men have assumed the right to sit in judgment upon and to exercise discipline over their peers as to the motives and methods of their professional conduct. The kinds and doses of medicines he uses, the theories of cure that he may indulge, his methods of commanding the confidence of his patients, the amounts he may charge for his services, the persons to whom he may give advice,—these and many like things physicians have claimed to be empowered to regulate for each other under the provisions of the code.

A third imputation upon the practical workings of the code is, that most of its provisions have, in general, been ignored, while attention has chiefly been centered upon a single part of its provisions, and that the least important, which has been so interpreted and enforced as to cause public attention to be continually attracted to a single form of medical error, in such a way as to create for it sympathy and to promote its growth in the esteem of the public.

A fourth evil has existed in the great unevenness which has prevailed in the manner in which infractions of the code have been subjected to discipline. It has often appeared that its provisions could be observed or disregarded at will by men who were prominent and influential, while the obscure and weak alone were expected to implicitly comply with it. Men who have been notorious for their infractions both of its spirit and letter

have repeatedly received the honors of the association which created and maintained it; and in every city there are many who violate it without any attempt being made to subject them to discipline. Flagrant violations by powerful medical organizations have for many years been the subject of general comment, but never of discipline.

These are some of the harmful tendencies, which thus far seem to me to have accompanied the domination of this particular code of ethics in this country. The statement of them is not intended in any way to detract from the value of this code as a treatise on the moral aspects of medical life, useful for reference and counsel.

These remarks were called forth in 1883 as part of the discussion which was caused by a recent action of the New York State Medical Society in modifying for its guidance the Code of Ethics of the American Medical Association. During the years which have elapsed since that action, many modifications of its Code have been adopted by the association itself, and a lamentable breach in the medical profession of the State of New York, which existed for many years and most pertinently illustrated the force of some of the comments upon ethical codes for medical men in the preceding paragraphs, has been healed. A more liberal construction has been given to the claims for control in ethical matters, and a fuller response has been created to the progressive spirit of the century. Nevertheless I am inclined to think that the general remarks which have been made on the merits of formal codes of ethics are still pertinent and worthy of being kept in mind. The conduct of men in all conditions of life must always be chiefly determined by the general standards of the community in which they live. Certain men will be the guide and mentor of their fellows

always, and certain centres will establish the standards for a region. The specific applications will change with the conditions of locality and of time. The great principles of ethics will endure, and must be applied by individuals according to their own judgment as evoked by the conditions of the moment. To the writer no ethical breach seems more to be condemned than the spirit of censorious criticism of others which is almost the natural result of such formal and detailed codes of ethics as he has been discussing.

# VIII

# TRAINED NURSES

An address delivered at the commencement exercises of the Nurses' Training School of the Johns Hopkins Hospital in 1895. It was afterwards delivered at a commencement of the Training School of the Methodist Episcopal Hospital in Brooklyn, and later of the Wilkesbarre Hospital, of Pennsylvania.

# THOUGHTS APROPOS OF TRAINED NURSES

THE present is the day of the Trained Nurse. The emphasis is upon the adjective *trained*. A nurse is no new thing. Ever since the advent of helplessness, infirmity, and sickness, into this world, the vocation of the nurse has been imperative, and in every land there have not failed kindly human hearts and hands to respond to the call.

There never has been a time, even in the darkest ages and among the most degraded of races, when the blessed ministrations of nurses have been wanting to show the traces of man's alliance to Divinity. What glowing tributes may not be given to the devotion of woman in particular to the care of the helpless and sick through all times. The history of the Christian church especially is resplendent with the amount of systematic and organized work of this kind, in which has been the fruit of the teachings of the Nazarene planted in the heart of woman.

The Parabolani of the early church, the brothers of the Misericordia of the Medieval period and the Sisters of Charity, and Orders of Deaconesses of the later days may be mentioned as examples of this response to the needs of men as far as they were appreciated.

The latter half of the nineteenth century, however, has witnessed a new movement for the relief of men that was to be commensurate with the increasing scientific knowledge and enlightened conscience of the period.

The speaker is old enough to remember the events of the Crimean War and to have had his heart stirred by the

reports of the sufferings of the sick and wounded among the allied troops of the Crimea from lack of provision for their care that was manifested. He remembers, too, the thrill that went through the heart of Christendom at the later report of the results of the work of a single woman to change these conditions.

It is related of this woman that from her early childhood wherever there was sorrow or suffering she was sure to be found.

Of gentle birth, when she grew up, instead of devoting herself to the social pleasures usual to those occupying her station in life, she gave herself to the study of hospital nursing and organization. In the hospitals of Germany, France and England she spent her time and served her apprenticeship, and when the great cry from Crimea went up, she was ready, trained for the response. Organizing a corps of assistants, women like herself, she proceeded to the field. The story of Miss Nightingale's labors at Scutari, says an English writer, is one of the brightest pages in English annals. She gave herself body and soul to the work. She would stand for twenty hours at a stretch to see the wounded accommodated. She regularly took her place in the operating room to hearten the sufferers by her presence and sympathy, and at night she would make her solitary round of the wards, lamp in hand, stopping here and there to speak a kindly word to some patient. Though for a time prostrated by fever she refused to leave her post, and for nearly two years continued her labors. The enthusiasm aroused in England by her work was indescribable. A fund of $250,000 was presented to her upon her return, and with this she founded the Nightingale Home for Training Nurses at St. Thomas' Hospital in London, which was the beginning of the new movement for Training Schools

for Nurses, that has since attained such magnitude and importance.

This was less than fifty years ago—to-day schools for the training of nurses, direct descendants of this first Nightingale school, are to be found in many places, not only in connection with the hospitals sustained by benevolent incorporations or by the endowments of private munificence, but also in municipal and county institutions, even in ecclesiastical institutions formerly served by sisterhoods of a more sacred character. Even more than this, there have been organized schools connected with no hospital at all, but constituting a kind of district headquarters where the physicians of the vicinage give to women engaged in nursing, instruction in the intervals when they are not required to be at the bedsides of the sick.

In 1895 in the United States alone there were 148 training schools for nurses, in which were between three and four thousand pupils then under instruction. From these schools nearly five thousand nurses had already graduated. Since that time, if from each of these schools there should have graduated an average class of even ten pupils this number would have increased four-fold in a single decennium. Many thousands of young women have graduated from these American training schools. It is impossible to exaggerate the importance to the community of the presence in its midst of such a great army of trained messengers of health, of helpful workers in homes of sickness, of apostles of hygiene and intelligent living at all times.

They have given exactness and positiveness to medical observations and remedial administrations, and thus have been helpful to the physician from the standpoint of diagnosis as well as of treatment. They have revolu-

tionized the internal conditions of hospitals. They have invaded even the jealous precincts of the army medical organization and won from unwilling and reluctant officials high praises for their devotion and helpfulness in military conditions.

The total number of women trained nurses who thus served in the hospitals of the United States army during the recent Spanish American War reached the number of 1,563.

The American trained nurse is a peculiar product of our American civilization, just as the American girl is a distinct being from her British or Continental sister. The two classes of lady nurses and of nurses drawn from the number of those who may not be classed as gentlewomen, which are to be found among those enrolled as pupils in the British and Continental Hospital Schools, have no analogues in the young women who constitute the pupils of the Training Schools of America.

It has seemed to me as I have watched these women in various training schools and have met them in their work afterwards, that the very best resultants of our free institutions were to be found exemplified in them as a class. Always essentially womanly and gracious, self-respecting, self-reliant, possessed of good education, they have about them a special spirit or atmosphere of moral elevation, of devotion to the highest good, added to the military virtues of order, discipline and loyalty to a noble calling, which give dignity to the least attractive of their labors and compels at all times the respect and admiration of men.

The first of our American training schools for nurses was established in 1870. Their rapid multiplication, the universal favor with which their work has been received, the unqualified testimonials as to the benefits, both in hos-

pitals and private homes, which have attended the presence of those trained in them, all prove that in the conditions of the times there existed circumstances that made them ripe for the calling of the trained nurse.

There is, however, danger, I sometimes think, that in an appreciation of the value of the training now enjoyed by professed nurses we may too indiscriminately underestimate the character and services of the nurse of former time. Without dispute, the mercenary, the idle, and the ignorant, have often assumed the duties of caring for the sick, but the qualities of intelligence, devotion, and experience, have by no means been difficult to find. There will always remain among the cherished memories of my own family the qualities of such an one, an old-fashioned nurse, who for twenty-five years was closely associated with whatever of illness came into the family life. Let me try to sketch her as one whose career may still have lessons profitable for the consideration of the trained nurse of the present day.

She was a native of Long Island, nurtured in a country home, with the educational privileges of an average intelligent country girl. She married and came to the city to live, having a comfortable home. Into the midst of this quiet prosperity, after a few years death came and left her a widow with one child, but without sufficient means for their support after the bread-winner had gone. Her physician, who had noted her character and knew her need, suggested that she undertake the labors of a nurse. Distrustful of her own capabilities, but encouraged by him, she began the work. Her training had been in no hospital, nor had she heard lectures upon anatomy, physiology and hygiene. But she had a mind appreciative of the relative proportions of things, not given to fads and hobbies, an experience that included all the

household training of an American farmhouse, added to that of the head of a city home for some years. A mother herself, she knew the sufferings and needs of maternity; in the care of her own child she had been trained in infant nursing; by the bedside of her husband during the long illness that terminated in his death, she had gained some experience in the management of the sick. By nature she was quiet, gentle, calm, and dignified, though always cheerful and helpful. She had sufficient modest distrust of herself so that she was never opinionated, was always loyal to the physician in attendance and scrupulous to carry out to the letter his directions. In the matters which she understood and which came especially into her domain she was judicious and self-reliant. She never gossiped, never created a breeze nor any excitement, was devoted and indefatigable in watching and working for her patients, but knew as well the virtues of patient waiting. Into whatever household she went she brought order and peace. She became the friend as well as the nurse; in unostentatious ways she found means to be helpful to every one; her departure was always a source of regret, and a warm welcome ever awaited her return. Families contended with one another as to which should have the pleasure of her presence as a guest when her services as a nurse were not required. Upon my recommendation she became the helper in the family of one of the most talented and influential men in the literary and religious world; meeting this gentleman a few months later he said to me, "she is all that you represented her to be!" From no other hands would the dying son of this family receive the cares that solaced his last hours; into her keeping the dying mother, a few weeks later, confided her few months' old babe, and as mother, nurse and friend, she continued to nurture the frail life that was put in her charge until it had be-

come a robust growth that needed her special care no longer, while with dignity and discretion she meanwhile presided over all the household affairs of the stricken family. Finally when she was permitted to resign her responsibilities in this family, and to listen to other calls, there were a dozen homes clamorous for the privilege of receiving her into them. She still lives, having passed much beyond the threescore and ten line, feeling the weight of her years and declining to accept new duties which she feels her strength no longer sufficient for, but still honored and loved by all among whom she has labored in the past. Her modest, unostentatious, quiet life has been one unbroken line of good deeds; according to the measure of her strength and knowledge she has labored; her name deserves to be inscribed high among "the lovers of their fellow-men." Yet this woman, so useful, had very little of the technical knowledge which we expect from the trained nurse; the hypodermic syringe, the catheter, the temperature chart, and the antiseptic tablet were all unfamiliar to her; of the role of bacteria in the infection of wounds she knew nothing; the words protoplasm and cell conveyed no meaning to her; in urinalysis and massage she had received no instruction, while that there was such a thing as "Ethics of Nursing" she never dreamed.

I do not wish to be understood as underrating the value and importance of this technical knowledge, but I do wish to emphasize the fact that they constitute merely the accessories and not the real soul of the nurse. Just as there were "Kings in Greece before Agamemnon," so there have been many nurses who exemplified the highest qualities of that calling who never wore the blue gown and the white cap and never received a diploma tied with blue ribbon.

The coming of the trained nurse is not the result

either of sentiment or of fashion, but it is the direct result of the changes and advances in the methods of medical and surgical practice which these years have witnessed, and as these become more positive and delicate still, will the necessity for the help of the technically trained nurse to carry them out become yet more extended.

The practitioner who would avail himself of the most recent and accurate methods of investigation and treatment must have the assistance of a trained helper on every hand. The effect of his remedies must be watched and the administrations discontinued or increased as the vital signs may indicate. His baths, his enemata, his washings of the stomach, his hypodermic administrations, his massage, his electrizations, all require the aid of a trained mind to judiciously use and of a trained hand to properly administer.

From the work of the surgeon the trained nurse has already become inseparable. To him she is indispensable. To her vigilant and intelligent skill he looks for the adequate and perfect preparations and details without which his best directed efforts would often result in disappointment and disaster.

Important fields of work open before the trained nurse in certain phases of what may be termed Home Missionary work. The District Nurse, the Red Cross Nurse, and the Deaconess Nurse are all examples of this branch of nursing effort. Evidently these movements are yet in the germ, but the germ is one which contains potentialities of great importance in the practical solving of the social problems which are now thrusting themselves into prominence.

The trained nurse movement had its origin in the quickened conscience of men, illuminated by medical science; on the one side the wants, the needs, the dis-

tresses of men had become more clearly seen; on the other side, the means by which many of these could be prevented, and others could be alleviated, were pointed out. The Divine Right of Womanhood to be an almoner of relief has again asserted itself. In the institution of the trained nurse, mercy and knowledge are met together.

Since, then, this movement is the natural outgrowth of enlightened conscience, added to that of a vastly increased and more positive scientific knowledge, its outcome is evident; its future is bound up with all the highest interests of mankind. It is part of the great moral and scientific trend of the present time. There will doubtless be changes of phase and developments in special lines in this nursing movement as time passes, but the movement itself is a permanent addition to the forces of civilization.

The ladies of every graduating class are to be congratulated upon the opportunities for breadth and thoroughness of instruction and variety of experience which the hospital in which they have worked has afforded them. What they take away with them that is of the most importance is, however, not the technical instruction which they have received, not the mastery of scientific facts which they have acquired, nor even the personal familiarity with the care of the sick which they have gained, important as all these, indeed, are, but rather the effects upon their character of the discipline to which they have been subjected, and the ideas of order and method which have been ingrained into their mental life, and above all, the higher ideal of the noble calling into which they have entered which is the inevitable result of the conditions in which they have been placed. I am not so ignorant of average human nature as to for a moment suppose that the leading object which prompted

most pupils to enter upon a course of training was any other than to fit themselves for gaining a respectable livelihood. Such an object is worthy of all praise; but with this alone to sustain them, they would find their calling menial and irksome. Instead of this, as the years of training have passed, they experience a growing knowledge of the possibilities and relations of their profession, a growing nobility of ideal which commands now their loyal devotion, and which will always dignify its least attractive duties. Mr. Gladstone, in the course of an address upon the character of the late Sir Andrew Clark, who was his physician and friend, related how on one occasion, as Sir Andrew Clark's summer holiday was drawing to an end, a friend had condoled with him in having to return to work, whereupon he had replied: "Sir, I love my profession." Mr. Gladstone went on to say also, that while such men remained, it should not be said that the age of chivalry was passed.

The nurse may find in her calling the same kind of possibilities of applying knowledge to the relief of suffering which commanded the devotion of a Clark, and may entertain the same spirit of chivalrous devotion to the highest ideals of her work.

In illustration I may recall to memory the record of one of the Bellevue nurses, who died a few years ago, and to whose name much honor has been done; how that, when on many ships cholera was being brought to our shores, and at the quarantine station in the lower bay of New York Harbor many cases of that disease, and many more suspects, were confined, and the whole country was panic struck by the danger which threatened it, this woman volunteered for duty at the cholera station. It is further related of her that by her energy, thoroughness

and efficiency she became a powerful agent in controlling the threatened epidemic, confining the disease to those already stricken and thus averting the danger that threatened the land.

In charge of the Hospital for Contagious Diseases in New York City is a trained nurse who has been repeatedly called upon to leave her other work and to take charge of typhus fever patients isolated on one of the islands of the East River. When these calls come, she as unhesitatingly proceeds to her post as a soldier to his field of duty. Knowing the perils of this service, she always has had administered to her the rites of the church first, and then goes to her work, knowing that she takes her life in her hands.

From among the former pupils of one of the training schools in Brooklyn, some time since, there was occasion to send a nurse into the family of one of the multi-millionaire magnates of the land. After some weeks she returned to her duty at the hospital with the exclamation, "I am so glad to get back to my dirty Italians again!" To lift up the degraded she felt to be a more grateful task than to serve in the luxurious homes of the rich.

Such characters as these I have mentioned constitute the chivalry of the nursing profession. To emulate them is the privilege of every nurse; the awakening and fostering of this spirit is the most important of all the results of the training through which they pass.

On the other hand, there are four spirits against which the nurse should guard, viz.: The spirit of *Dilettanteism,* the spirit of *Procrusteanism,* the spirit of *Commercialism,* the spirit of *Professionalism.* Time does not permit me to elaborate upon these several themes. A sentence or two upon each must suffice.

Tennyson, in "Maud," speaks of "the snowy banded, dilettante, delicate handed priest." Some succeeding poet laureate may find occasion to speak in the same terms of "the snowy capped, dilettante, delicate handed nurse," who is ever on dress parade, who ruthlessly disarranges the entire domestic economy of the households in which she may be, who is willing to assume charge only of certain selected classes of cases, who is more solicitous of her relief and her hours off than of the welfare of the patient, who in the intervals between the necessary attention to her patient thinks of herself, amuses herself, works for herself.

There is a phase of the trained nurse system which tends to the fostering of such a spirit; true the antidote is also at hand, but still to some natures the bane is more natural than the corrective, and hence I may be pardoned at least for the mention of this spirit of Dilettanteism!

As to the spirit of Procrusteanism, institution work is necessarily somewhat procrustean in character. In a hospital methods and rules are constructed for the average patient, and personal peculiarities count for but little. Each person is one of many, and only by the observance of quite a rigid routine can the efficient and timely discharge of the duties of a ward full of patients be secured. What more natural than that the nurse who has been trained in such an atmosphere should carry it with her to a considerable degree when she enters upon her work in private homes! This spirit I think to be one of the most prominent causes of the objections to trained nurses that are often made. The standards and methods of a hospital will always have to be modified and adapted to the conditions, even also to the prejudices of the home. The nurse may bear herself too loftily and dictatorially to accomplish the best results from the care she desires to

give to her patient. Such a tendency should ever be sedulously repressed. The nurse should not carry into the homes she enters the methods and spirit of the hospital as an inflexible standard up to which the conditions of such homes must be made to measure. She should cultivate in herself rather the spirit of adaptability of manner, the true Pauline spirit of "being all things to all men;" study the tone of the household, as well as the peculiar mental and spiritual states of the patient. Such flexibility of bearing will prove a great source of advantage and power.

The spirit of Commercialism is a difficult one to exorcise. This is the age of money and money getting. Money is the prevailing standard by which everything is gauged, and to say that she, who following the calling of a nurse has regard chiefly for the money which there is in it, follows it from a low and unworthy motive, seems to be doing violence to the general principle of the age. But reflect for a moment. The work of a nurse is always personal service. Personal service done simply for pay is menial service. However high her motives and elevated her character, the nurse will at times find herself laboring for those who are money-blind and who see in her services only something that their money is paying for. And she will need all her strength of character and sense of high devotion to duty as duty to sustain her in her work at such times. The money side of the nurse's work must be an incident and not a chief end. Her work in this respect is closely related to that of the clergyman and the physician. The same ethical principles govern it.

The spirit of Professionalism is less open to reproach than the three I have just mentioned, but it is still one to be carefully avoided. Said a patient to me once who had

been skillfully nursed through the difficulties that attended a series of surgical operations: "Doctor, how soon can I dispense with a trained nurse?" When asked if the nurse had not been attentive and satisfactory, she exclaimed: "It is not that; the nurse is beyond reproach, but I want to be 'mothered' a little!" Tender sympathy and interest in our individual welfare is what we hunger for when we are ill, and that nurse loses half her power who does not get beyond the purely professional aspects of her "case" and fails to infuse an element of tender personal sympathy into all her cares.

And now, finally, I would sketch in outline an ideal nurse thus:—

One who to thorough technical training and the experience of long service adds a high sense of the nobility of her calling and a conscientious devotion to duty; who to scrupulous personal self-respect adds quietness, gentleness and tenderness of manner, and who to earnestness and thoroughness in all her work adds the sympathy of a heart burning with love to her fellows.

# IX

# BERENGAR DA CARPI

Remarks made at a dinner of the Brooklyn Surgical Society in 1902 and afterwards printed as the initial paper of the first number of the Medical Library and Historical Journal, January, 1903.

# JACOBUS BERENGARIUS CARPENSIS AND HIS COMMENTARIES ON MUNDINUS

ON the right bank of the Arno, facing on the quay which leads from the Ponte Vecchio to the Ponte San Trinità, among hotels and shops devoted to sculpture, antiquities and jewelry, is the Libreria Antiquaria of Leo Olschki. One who is fond of old books finds himself here in a veritable paradise of the ancient, the valuable, and the curious products of the typographic art. Here, one day in April, 1902, I made the acquaintance of the proprietor, affable, energetic, enthusiastic, polylingual, with a trick of bringing his heels together and assuming a military attitude in saluting that bespoke a soldier's training. On the afternoon that I spent with him, I found him bubbling over with enthusiasm over a rarely perfect copy of the "Commentaries" of Berengarius da Carpi upon the "Anatomy" of Mundinus which had just come into his possession from the library of the noted Venetian family Bentivoglio d'Aragona.

Choulant, in his *Geschichte der anatomischen Abbildung*, says that there was but one edition of this book and that it is very rare—"die einzige und sehr seltene Ausgabe davon." Olschki had never seen a copy in such perfect condition as this one, and as an antiquarian and a bibliophile was correspondingly enthusiastic about it. Its pages were clean and white and perfect; the black-letter print was clear cut and beautiful—an ideal example of the typography of the early part of the sixteenth century. "Impressum Bononiæ per Hieronymum de

Benedictus Pridie Nonas Martii M.D.X.X.I."! (Printed by Jerome de Benedictis of Bologna, on the day before the Nones of March, 1521.) The vellum binding was perfect and there was not a dog's ear nor the trace of a bookworm throughout its whole extent, though an occasional marginal note showed that it had been studied at some time by an attentive and intelligent reader. The illuminated title page alone was thumb-marked, showing that it often had been looked at by casual examiners whose interest did not extend to the contents of the volume itself.

The enthusiasm and interest of the bookseller were contagious; the more so in my own case because I had become especially interested in the career of Berengarius da Carpi ten years before, when I was looking up the surgeons of the Columbian period in the preparation of a presidential address before the Medical Society of the State of New York. I coveted the book! Since 1883 I had been the owner of a very fine copy of da Carpi's *Isagogæ Breves et Exactissimæ in Anatomiam Humani Corporis* ("Short and most exact Introduction to the Anatomy of the Human Body"), which I had purchased when the library of J. Foster Jenkins was broken up; and since 1881 I had owned a copy of the 1513 edition of the book of Mundinus, *De Omnibus Humani Corporis Interioribus Membris Anathomia,* which had fallen to my lot when the great Davidson library of Breslau was sold. In all propriety, therefore, this most desirable and perfect copy of the "Commentaries" of my hero upon the book of his great predecessor should come to me and be placed on the same shelf by the side of the Mundinus and the *Isagogæ Breves et Exactissimæ.* But the price! When I knew it, I laid down the book and went away sorrowing!


Fac-simile of the title-page of "Commentaries of Carpus upon the Anatomy of Mundinus."

After a couple of days I went back to the Lungarno and looked at the book again! The title in red letters—*Carpi Commentaria cum amplissimis Additionibus super anatomia mundini una cum textu ejusdem in pristinum et verum nitorem redacto* ("Commentaries of Carpus upon the Anatomy of Mundinus, with most extensive additions, with the text of the same restored to its original and correct elegance")—this title, I say, stood out clear and bold like a tablet, framed by vine-entwined columns which supported an entablature upon which were displayed the arms of the Medici upon the Papal Keys, and the legend Leo X., while in the base was depicted a dissecting-room scene with professor, cadaver and pupils. (*See Plate.*)

Could this treasure be permitted to escape from me? Perish the thought! What were paltry dollars beside the pleasure and privilege of owning this copy of the great Carpi's great book, which, if it was once safely housed in my library at home, might be handled and looked at every day of my life if I so chose? In short, the result simply illustrated the truth of the adage, "He who hesitates is lost." Olschki took the money and I have the book!

Berengarius da Carpi was born in 1470 and died in 1550. He was the son of a surgeon named Faustino, was a schoolfellow with the young Duke of Carpi, was a pupil of Aldus Manutius, and was a friend of Benvenuto Cellini, with whose fiery temper he had much in common and by whom he was repeatedly mentioned by name in his autobiography. He was an admirer of Cardinal Giulio de Medici, to whom he dedicated his *Commentaria* two years before that prelate ascended the Papal chair as Clement VII., and to his friendship with this, the second Medicean Pope, is to be attributed, doubtless,

his subsequent visit to and wonderful vogue in Rome. The last twenty years of his life were spent at Ferrara, where he enjoyed the protection and the intimate fellowship of the Duke of Ferrara, to whom he left his fortune of fifty thousand ducats at his death.

It was within this same period and in this same castle of the Duke of Ferrara, protected by the learned and strong-minded Marchioness Renée, wife of Duke Hercules, that John Calvin spent some time, about the year 1536, when he was in retreat from the storm which was provoked by the publication of his "Institutes of the Christian Religion." Unless I read his character wrong, da Carpi had a cast of mind in direct antithesis to that of Calvin—the one, logical, spiritual, ascetic; the other, practical, worldly, given to the pleasures of life; both intense, energetic and prolific. In the four hundred years that have elapsed, the influence of neither has been lost, but for most of the time that of the theologian has been far the greater in moulding the opinions of men and in influencing the affairs of the world; but it must be acknowledged that the spirit of the twentieth century finds much more to harmonize with its tendencies in the restless spirit of inquiry and the readiness to enter into new paths of positive knowledge which da Carpi typified, than in the theological reasonings of a Calvin.

The eighty years of the life of da Carpi embraced events in the history of this world unequaled in importance by any like period since the birth of Christ, until the nineteenth century. It was the time when the sun of the renaissance of art and letters in Italy had reached its noontime glory. At Rome, Alexander VI., Julius II., Leo X. and Clement VII. were each in succession running their glorious or inglorious careers, but every one

fostering art and letters. In England, Henry VIII. (1491–1547); in France, Francis I. (1494–1547); in Spain and Germany, Charles V. (1500–1558), were ruling and were bringing a splendor to their courts hitherto unknown.

The towering genius of Michael Angelo, sculptor, architect and painter, was performing its gigantic labors during this same period. Born five years after da Carpi, he lived to be ninety years of age before his eye was dimmed or his natural force abated. There were giants in those days! When one looks at the rugged and impressive and majestic lines of Angelo's "Moses" seated in San Pietro da Vincoli as a part of the monument to Pope Julius, one loses sight of Pope and Law Giver and thinks only of the lonely sculptor who has wrought himself into this marble and who still speaks to those who have minds open to hear him.

The short life of Raphael, crowded full of its wonderful achievements, began after and ended before that of da Carpi. Leonardo da Vinci was well advanced in his work before da Carpi reached his maturity, although for forty-nine years their careers ran side by side. Da Carpi was thirty years old when Cellini, the irrepressible, irresponsible, marvelous child of genius, was born, and was outlived by him nineteen years.

It was a time, too, when men's ideas of the globe on which they lived were undergoing strange expansions. Da Carpi was twenty-two years of age when Columbus made his momentous voyage in pursuit of a western passage to the Indies. It was not until 1515 that the desperate Balboa from the rugged heights of the mountains of Darien, first caught sight of the boundless waters of the Pacific, which were to be entered five years later by the ships of Magellan. Still during the lifetime of da

Carpi were played out in Mexico and in Peru the tragedies of Cortez and Pizarro.

These were the times, such were the conditions in which the restless, energetic son of the Italian surgeon found himself when he arrived in 1470. Stimulated by the example of the great Medici in Florence, it was the thing in those days for the nobility everywhere to foster learning and to patronize the learned. The University at Bologna was making its influence felt in the neighboring castles, and stimulated by the works of Mundinus and Argelata, there was a special curiosity to know "the anatomy of the interior members of the human body." So it was not remarkable that Albert Pion, Seigneur de Carpi, should conceive the idea of having a public anatomical demonstration made upon the carcass of a pig; nor was it remarkable that the young, enthusiastic and able son of the local surgeon should be called on to make the dissections. At all events, so history relates the story of the first public work of Jacobus Berengarius da Carpi.

This was but the beginning. What marks the difference between the ordinary man and the man of genius is that the former, when he makes a beginning, goes no farther; content with what he has done, satisfied with the attainments common to the period, he rests. Not so the genius, who, endowed with the divine gift of taking pains and fired with the inspiration for higher knowledge, goes on from his beginning to indefinite, infinite efforts for greater things. So da Carpi, leaving his pig, gave himself up with ardor to the dissection of human bodies and to the personal study and description of the structure of the hidden parts. The result is to be seen in his great commentary.

The original "Mundinus" was a thin little book of

but few leaves; * the great "Commentary" of da Carpi contains five hundred and twenty-eight leaves. The method of the latter was to print first a section from Mundinus as a text and then to subjoin his comments. In addition to descriptive anatomical details, he added physiological and surgical dissertations, and, most notable of all, in development of works upon anatomy, were the engravings with which he embellished his work.

The *Fasciculus Medicinæ* of Johannes de Ketham, 1491, and the *Antropologium* of Magnus Hundt, 1501, each contained some crude attempts at anatomical illustrations. The edition of "Mundinus" of Strassbourg, 1513, has a diagram of the heart, and on its last page the well-known astrological figure of an opened cadaver displaying the viscera of the thorax and abdomen surrounded by the signs of the zodiac. The *Spiegel der Artzny* of Laurentius Phryesen, Strassbourg, 1518, also contains two anatomical woodcuts, one of the viscera *in situ* and one of the skeleton. The publication of this book antedates that of da Carpi by three years, and the execution of the plates is far superior to those of de Ketham or Hundt, but they are still so sketchy and diagrammatic as to prevent them from being taken seriously into consideration as anatomical illustrations. To Berengarius da Carpi, then, belongs the credit of the

* The first printed edition of the *Anathomia Mundini* was a folio of 22 leaves, issued in 1478, at Pavia. Other editions quickly followed: in 1482, at Bologna, folio, 19 leaves in two columns of forty-five lines on each page; in 1484, at Padua, quarto of 34 leaves; in 1493, at Leipzig, quarto; in 1494, at Venice, quarto; in 1498, at Venice, folio. From 1500 on, there were at least eighteen other editions printed, the latest being a duodecimo issued in 1580 at Venice. Mundinus himself died in 1325. Tradition assigns the year 1306 as the date when his first dissection of a human body was made, and 1316 when he wrote his "Anatomical Compend" for his pupils.

first real attempt to illustrate by drawings the texture of the human body and to introduce them into a printed book, and this "Commentary" of his upon Mundinus has the rare interest of being the first illustrated work upon anatomy that was published.

It will not be forgotten that a fellow countryman of his who professed anatomy at Pavia, Marcantonio della Torre, had previously undertaken a work on anatomy which was interrupted by his death in 1506, and that Leonardo da Vinci had made a series of anatomical drawings to illustrate it, but these were laid aside and were not published until more than two hundred years later. Thus, while a knowledge of these drawings of da Vinci adds interest to the subject of the development of the art of anatomical illustration, it does not lessen the force of the statement that this work of da Carpi stands unquestioned as the pioneer in the use of anatomical illustrations. The tradition is that these plates were engraved by the celebrated artist Hugo da Carpi.

Perhaps I cannot bring this sketch to a close in a better manner than by quoting the passage in the autobiography of Cellini in which he makes the most extended reference to da Carpi (*Symond's Translation,* 1896, p. 47). It reads as follows: "There arrived in Rome a surgeon of the highest renown, who was called Maestro Giacomo da Carpi. This able man, in the course of his other practice, undertook the most desperate cases of the so-called French disease. In Rome, this kind of illness is very partial to the priests, and especially to the richest of them. When, therefore, Maestro Giacomo had made his talents known, he professed to work miracles in the treatment of such cases by means of certain fumigations; but he only undertook a cure after stipulating for his fees, which he reckoned not by tens, but by hundreds of

crowns. He was a great connoisseur in the arts of design. Chancing to pass one day before my shop he saw a lot of drawings which I had laid upon the counter, and among these were several designs for little vases in a capricious style which I had sketched for my amusement. He was anxious that I should finish one of them for him in silver; and this I did with the fullest satisfaction, seeing they exactly suited my own fancy. The clever surgeon paid me very well. The next day following he betook himself away from Rome. He was a man of much learning who used to discourse wonderfully about medicine. The Pope would fain have had him in his service, but he replied that he could not take service with anybody in the world, and that whoso had need of him might come to seek him out. He was a person of great sagacity, and did wisely to get out of Rome; for not many months afterwards, all the patients he had treated grew so ill that they were a hundred times worse off than before he came. He would certainly have been murdered if he had stopped."

# X

# THE MONDINO MYTH

A study in the History of Human Anatomical Dissections prepared for the Charaka Club, of New York, and read before it November 21, 1906. It was later read before the Historical Club of the Johns Hopkins Hospital, and published in the Medical Library and Historical Journal, of December, 1906.

# THE MONDINO MYTH

## A STUDY

### OF THE CONDITIONS ATTENDING THE REVIVAL IN THE THIRTEENTH AND FOURTEENTH CENTURIES OF THE PRACTICAL STUDY OF HUMAN ANATOMY FROM THE CADAVER

TO a physician who is at all interested in the history of the development of medicine, the old Italian universities will ever furnish a most interesting field of study and regard. The heroic age in medicine was lived beneath Italian skies. How many of the men who were the creators of medical learning lived in Italian cities? In Padua, Vesalius, Columbus, and Fabricius of Aquapendente taught; Harvey studied; and Galileo, after he had exchanged Hippocrates and Galen for Euclid and Archimedes, carried on his researches into the constitution of the universe.

At Pisa, Cesalpinus taught, and Galileo studied. At Salernum, whose school of medicine was cradled in the cloisters of the monastery of Monte Casino, and was fostered by the Normans during their rule over southern Italy and Sicily, medical learning was developed to its highest degree, and achieved its greatest reputation during the times of the Crusades, when it healed the wounds and cured the diseases of cross-bearing knights and potentates. Salernum preserved and taught the elements of medicine, as transmitted through the Arabians, from the seventh to the fourteenth centuries, during which period it was the chief seat of medical learning in the civilized world. Its history remains as one of the most brilliant and interesting chapters of the Dark Ages.

When Salernum had already begun to decline, and Padua was in its infancy, the school of Bologna was at its apogee. Begun in the middle of the eleventh century with schools of sacred letters and civil and canonical law, by the close of the thirteenth century there had been added schools of medicine and philosophy; and to it had been attracted in a single year, not from Italy alone, but from every part of Europe as far north as the British Isles, ten thousand students. To Bologna was assigned the rare privilege of connecting the old learning and the new, and of occupying a place of equal prominence in each. Its medical school, however, belongs to the new, for it begins with the date 1260, when Taddeo di Alderotto came from Florence and began the teaching and practice of medicine in Bologna.

Taddeo was one of those men who have the gift of impressing those with whom they come in contact with exalted ideas of their worth and attainments. He seems to have burst upon the Bolognese in full-orbed splendor, for of his previous training and career there is no record, even his parentage is a matter of dispute. Settled in Bologna, he acquired in a short time extraordinary celebrity and immense riches. He was easily the first citizen of the city, whose fame shed glory on all his compatriots; they heaped honors upon him as a benefactor of the community, even so far as to vote that he should be relieved from the burden of paying taxes to the commonwealth, in which we see a suggestion of the modern practice of relieving churches and hospitals of taxation. To the school of medical teaching, which he instituted, the City Council granted all the privileges, which up to that time had been allowed only to the teachers and students of law, with which older schools that of Taddeo was thus placed upon an equal footing.

The contemporary historian, Giovanni Villani, speaks of him as "The greatest physician in Christendom;" and Dante, who spent some time in Bologna, shortly after the death of Taddeo, before he wrote the "Divina Commedia," must have found the spirit of Taddeo still dominant, for when (del Paradiso, Canto XII, v. 83) he would contrast the spiritual aim of St. Dominic with that of men of more earthly mold, Thaddeus' name flows from his pen, thus:

"Not for the good of this world for which men now toil, following him of Ostia and Thaddeus, but for love of the true manna, he (Dominic) became in short time a great teacher." (Translated by Norton.)

Taddeo was not only an influential man of affairs, a physician of high repute and a teacher of great power, but he was a philosopher and an author. It was he who first made use of the writings of the ancient philosophers in commenting upon the works of Hippocrates and Galen; he translated the "Ethics" of Aristotle; he exhausted the erudition of the Arabs. To the spirit which from his professorial chair he infused into the teaching and study of medicine, undoubtedly is due the high position which, for many generations thereafter, the school of Bologna continued to maintain as a centre of medical teaching. It needs no great stretch of the imagination to picture somewhat of the effect that contact with such a man might have in molding the character of his young neighbor and pupil, the chemist's son, who, a few years later, by his devotion to the study of human anatomy was to re-establish the pursuit of practical study on the human cadaver as the common privilege of the skilled physician, and was to establish his own name ineffaceably on the records of medicine.

Any comprehensive attempt to trace the real influ-

ences to which was due so great a step as a return to the practice of dissections of the human body, seems to me must be very defective if it failed to take into consideration the influence of such a man as Thaddeus. That he was able to impress himself in the way in which history records that he did, both upon the general public and upon the scholastic foundations of Bologna, shows a strength of character and a mastery of the peculiar conditions of the moment in the fields of science and philosophy which made him a master and an inspirer. If, as no one denies, the knowledge of the structure of the human body in a most minute degree is the foundation upon which all rational medicine and surgery must be built, then it is impossible to exaggerate the importance of the pivotal moment when, in the development of science, the human body began to be anatomized. Nor is any fault to be found with that custom which has crowned with the laurels of universal appreciation the names of those men who began and who continued anatomical study, who vulgarized the practice of dissection.

In my own investigations and reflections upon the conditions which led up to this happy renewal of scientific search into the composition of the body of man, it has seemed to me that writers have hitherto fallen short of tracing through to its ultimate source, the earlier spirit of enthusiasm for knowledge, of insight into the problems of disease, and of contempt for traditionary shackles, to the influence of which, as shown by the master, Taddeo, the later work of the pupil, Mondino, was in great measure due.

During the early years of the Renaissance, the glory of the University of Bologna was its school of medicine, and the glory of the school of medicine was its teaching

of anatomy. As the restorer of anatomy, Mondino has ever received universal acclaim. Special interest must therefore attach to an attempt to search out somewhat more fully the underlying causes and influences which led this particular Bologna professor to this special work.

He was born at a time when everywhere throughout Italy free thought was being awakened, curiosity and speculative audacity were being encouraged, and the pursuit of learning new things had seized upon all classes. There is no figure in all history that represents this spirit more fully than Frederick II (1194–1250), King of Sicily and Emperor of the Holy Roman Empire, the indomitable, the learned, the law-giver, patron of the arts and sciences, warrior and statesman. For nearly fifty years he was the dominant figure in the life of Italy.

In his spirit, in his work, in his methods, we see illustrated and focalized that spirit which, diffused over the country as a whole, brought into the world, in the same generation, Giotto in art, Dante in literature, Thaddeus in medicine, and, in the succeeding generation, Boccaccio, Petrarch, Mondino. It was, then, as a part of the newly awakened freedom of thought and spirit of investigation into all learning that the pursuit of anatomical study naturally arranged itself, and in the fullness of time began to be practiced.

We are accustomed to think of the practice of dissection as having been recreated by Mondino, and at once, fully developed, springing into acceptance. The year 1315 is the generally accepted date for the first public anatomical demonstration upon a human body made by Mondino, and yet it is true that among the laws promulgated by Frederick II., more than seventy-five years before (A. D., 1231), was included a decree that a human body should be dissected at Salernum at least

once in five years in the presence of the assembled physicians and surgeons of the kingdom, and that in the regulations established for admission to the practice of medicine and surgery in the kingdom it was decreed that no surgeon should be admitted to practice unless he should bring testimonials from the masters teaching in the medical faculty, that he was "learned in the anatomy of human bodies, and had become perfect in that part of medicine without which neither incisions could safely be made nor fractures cured." [1]

Salernum was not alone in its legalization of the

[1] "Nec tamen post completum quinquennium practicabit, nisi per integrum annum cum consilio experti medici practicetur. Magistri vero infra istud quinquennium libros authenticos tam Hippocratis quam Galeni in scholis doceant, tam in theorica quam in practica medicine, salubri etiam constitutione sancimus ut nullus chirurgicus ad practicam admittatur, nisi testimoniales litteras offerat magistrorum in medicinali facultate legentium quod per annum saltem in ea parte medicine studuerit, que chirurgie instruit facultatem, praesertim anatomiam humanorum corporum in scholis didiceri et sit in ea parte medicine perfectus, sine qua nec incisiones salubritur fieri poterunt, nec facte (fracte?) curari."

TRANSLATION.—Nor yet shall he practise after the five years' course has been completed unless he shall practise for a whole year with the advice of an experienced physician. Though the masters may have taught in the schools during that period of five years the authentic books of both Hippocrates and Galen, on theoretical as well as practical medicine, yet we order for the public good that no surgeon be admitted to practise unless he shall bring testimonials from the masters teaching in the medical faculty that he has studied at least one year in that part of medicine which develops skill in surgery, that he has learned in the schools especially the anatomy of human bodies, and has become perfect in that part of medicine without which neither incisions can safely be made, nor fractures cured.

Law of Frederick II (1212–52) requiring Study of Human Anatomy by Students of Surgery, promulgated A. D. 1231. *Vide:* Huillard-Breholles, Paris, 1854. Historica Diplomatica Frederici II; Tom. iv, pars I. Constitutiones Regni Sicilae, Liber III. Titulus XLVI, 3.

dissection of human bodies before the first public work of Mondino, for, according to a document of the Maggiore Consiglio of Venice of 1308, it appears that there was a College of Medicine in Venice, which was even then authorized to dissect a body once every year.[2] Common experience tells us that the embodiment of such regulations into formal law would occur only after a considerable preceding period of discussion and, in this particular field, of clandestine practice. It is too much to ask us to believe that in all this period, from the date of the promulgation of Frederick's decree of 1231 to the first public demonstration by Mondino, at Bologna in 1315, the decree had been a dead letter and no human body had been anatomized. It is true there is not, as far as I am aware, any record of any such work, and commentators and historians of a later date have, without exception, accepted the view that none was done, and thereby heightened the halo assigned to Mondino as the one who ushered in a new era. Such a view seems to me to be incredible. Be that as it may, it is undeniable that at the beginning of the fourteenth century the idea of dissecting human bodies was not a novel one; the importance of a knowledge of the intimate structure of the body had already been appreciated by divers ruling bodies, and specific regulations prescribing its practice had been enacted. It is more reasonable to believe that in the era immediately preceding that of Mondino human bodies were being opened and after a fashion anatomized. All that we know of the work of Mondino suggests that it was not a new enterprise in which he was a pioneer, but rather that he brought to an old practice a new enthusiasm and better methods, which, caught on the

[2] Cavazzo: Antico Studio Bolognese, 1896. Page 153.

rising wave of interest in medical teaching at Bologna, and preserved by his own energy as a writer in the first original systematic treatise written since the time of Galen, created for him in subsequent uncritical times the reputation of being the Restorer of the practice of anatomizing the human body, the first one to demonstrate and teach such knowledge since the time of the Ptolemaic anatomists, Erasistratus and Herophilus.

The changes have been rung by medical historians upon a casual reference in Mondino's chapter on the uterus to the bodies of two women and one sow which he had dissected, as if these were the first and the only cadavers dissected by him. The context involves no such construction. He is enforcing a statement that the size of the uterus may vary, and to illustrate it remarks that "a woman whom I anatomized in the month of January last year, *viz.*, 1315 Anno Christi, had a larger uterus than one whom I anatomized in the month of March of the same year." And further, he says that "the uterus of a sow which I dissected in 1316 (the year in which he was writing) was a hundred times greater than any I have seen in the human female, for she was pregnant and contained thirteen pigs." These happen to be the only references to specific bodies that he makes in his treatise. But it is a far cry to wring out of these references the conclusion that these are the only dissections he made. It is quite true that if we incline to enshroud his work in a cloud of mystery and to figure it as an unprecedented awe-inspiring feature to break down the prejudices of the ages, it is easy to think of him as having timidly profaned the human body by his anatomizing zeal in but one or two instances. His own language, however, throughout his book is that of a man who was familiar with the differing conditions of the organs

found in many different bodies; a man who was habitually dissecting.[3]

He was graduated in medicine in 1290, and the date 1306 is accepted as that when he assumed the professorial chair which he continued to occupy with such rare acceptability until his death twenty years later, in 1326. If, as seems most probable, under the inspiration of Taddeo the occasional dissection of a human body was a matter of routine at Bologa during the student days of Mondino, it is not difficult to imagine that as a student he gave himself to anatomical study with ardor and enthusiasm, in which he was favored not only by the special aptitude and energy of his own character, but by the popularity and influence of his master, by the high standing in the community of his own family, and

[3] Here are some quotations from the work of Mundinus which show his familiarity with dissections. The leaf and line references are to the Dryander edition, Marburg, 1541.

"I do not consider separately the anatomy of component parts, because their anatomy does not appear clearly in the fresh subject, but rather in those macerated in water." (Leaf 2, lines 8–13.)

" . . . these differences are more noticeable in the cooked or perfectly dried body, and so you need not be concerned about them, and perhaps I will make an anatomy upon such a one at another time and will write what I shall observe with my own senses, as I have proposed from the beginning." (Leaf 60, lines 14–17.)

"What the members are to which these nerves come can not well be seen in such a dissection as this, but it should be liquefied with rain water, and this is not contemplated in the present body." (Leaf 60, lines 31–33.)

"After the veins you will note many muscles and many large and strong cords, the complete anatomy of which you will not endeavor to find in such a body, but in a body dried in the sun for three years, as I have demonstrated at another time; I also declared completely their number, and wrote the anatomy of the muscles of the arms, hands and feet in a lecture which I gave over the first, second, third and fourth subjects." (Leaf 61, lines 1–7.)

by the general spirit of interest in new learning of every kind which had begun to move Italy.

Shortly after his death, the young Guy de Chauliac, of Montpellier, came to Bologna to study anatomy under the tuition of Mondino's successor, Bertrucius. When he wrote his own treatise, "La Grande Chirurgie," thirty years later, he prefaced it with an appreciation of the study of anatomy, saying, "It is necessary and useful to every physician to know first of all anatomy"; and that a knowledge of anatomy was to be acquired by two means; these are," he says. "the study of books, a means useful, indeed, but not sufficient to explain those things which can only be appreciated by the senses, the other, experimentally on the dead body, . . . according to the treatise of Mondinus, of Bologna, which he has written, and which [experimental anatomy on the cadaver] he [Mondinus] has done many times"—"*et ipsam fecit multitoties.*" (*La Grande Chirurgie,* ed. Nicaise, 1890, page 30). Two women and one sow would not merit the term "*multitoties,*" nor would the knowledge gained from such a limited field make a great anatomist!

Mondino himself uses the very same word, *multitotiens,* in speaking about his own work. He is describing the hypogastric region, which he calls the "Sumen." Through this region, he says, pass to the surface certain veins which transmit fluid in the fœtus in utero, for which reason they are better studied in the unborn than in the fully developed, since they become useless upon full development, "As I have demonstrated *many times*" . . . "*Ego hoc modo multitotiens monstravi.*" (*Anatomia Mundini, Impressit Argentine Martinus Flach,* MDXIII, Cap. II, Paragraph VI.)

We are helped to a better comprehension of the real nature and extent of Mondino's work by what may be

learned of two of his assistants, to whom attaches a distinct element of romance. His prosector, at least during the later years of his work, was a certain Otto Agenius Lustrolanus. Otto is repeatedly referred to as Mondino's assistant by subsequent writers. With him was associated a remarkable girl, Alessandra Giliani, of Persiceto. (Persiceto was a populous district ten miles west of Bologna.) This young woman, when barely more than a child, manifested extraordinary interest in learning, and repairing to Bologna became a pupil of Mondino, first in philosophy, it is said, and later in anatomy. She became an enthusiast in the work of the dissecting-room; to facilitate this work she assumed a man's garb; she acquired great skill as a prosector. According to the chronicle, "She became most valuable to Mondino because she would cleanse most skillfully the smallest vein, the arteries, all ramifications of the vessels, without lacerating or dividing them, and to prepare them for demonstration she would fill them with various colored liquids, which, after having been driven into the vessels, would harden without destroying the vessels. Again, she would paint these same vessels to their minute branches so perfectly and color them so naturally, that, added to the wonderful explanations and teachings of the master, they brought him great fame and credit."

The authority for this statement is a quotation by Michele Medici (Compendio Storica della Scuola Anatomica di Bologna, 1857), from Alessandro Machiavelli (Effemeridi sacro-civili perpetua ecc, pp. 60–61), and from the Cronaca Persicetana of Orlandi. Medici in giving the quotation speaks doubtingly as to its credibility. Although it is more than probable that later writers have drawn largely on their imaginations for this description of the work of this young assistant of Mon-

dino, it is well authenticated that Mondino did have as an assistant this Alessandra Giliana; that she was skilful and devoted; and that she survived Mondino but a very short time, but died the very same year as her master. We know the very place where she was buried in front of the Madonna delle Lettre in the Church of San Pietro e Marcellino of the Hospital of Santa Maria di Mareto, where her associate, Agenio, mourning and inconsolable, placed a tablet with this inscription:

"D . O . M.
Vrceo . Contenti
Alexandræ . Galinæ . Pvellæ . Persicetanæ
Penicillo . Egregiæ . Ad . Anatomen . Exhibendam
Et . Insignissimi . Medici . Mundini . Lucii
Paucis . Comparandæ . Discipulæ . Cineres
Carnis . His . Expectant . Resurrectionem
Vixit . Ann . XIX . Obiit . Studio . Absunta
Die . XXVI . Martii . A . S . MCCCXXVI
Otto . Agenius . Lustrulanus . Ob . Eam . Demptam
Sui . Potiori . Parte . Spoliatus . Sodali . Eximiæ
Ac . De . Se . Optime . Meritæ . Inconsolabilis . M . P."

This inscription may be translated as follows:

"In this urn enclosed
Are the ashes of the body of
Alexandra Galiani, a maiden of Persiceto;
Skillful with her brush in anatomical demonstrations
And a disciple, equalled by few,
Of the most noted physician, Mundinus of Luzzi,
She awaits the resurrection.
She lived 19 years: She died consumed by her labors
March 26, in the year of grace 1326.
Otto Agenius Lustrulanus, by her taking away
Deprived of his better part, inconsolable for his companion,
Choice and deserving of the best from himself,
Has erected this tablet."

Later writers have surmised that Alessandra ruined her health by too close application to her work in the dissecting-room among diseased and pestiferous bodies.

Bologna expected Otto Agenius to carry on the work of his master, but such expectations were frustrated by the sudden death of Otto also, before he was thirty years of age.[4]

An instructive and interesting side-light on the conditions attending the study of practical anatomy in the days of Mondino may be found in a record,[5] still extant of a legal procedure, which occurred in Bologna in the year 1319, four years after Mondino had begun his public demonstrations, and at a time when Otto and Alessandra were doubtless enthusiastically working with him. According to the record, four students—three from Milan and one from Piacenza—were accused of having gone at night-time to the cemetery of the Church of San Barnaba, outside the San Felice gate, and to have sacrilegiously violated the grave in which was buried the body of a certain Pasino who had been hung on the gallows near the Ponte di Reno. It was charged that the students had taken up the body and carried it to the school in the parish of San Salvatore, near the pharmacy of Giacomo de Guido, where master Alberto (Zancari) was teaching. There were witnesses who affirmed that they had seen the body of Pasino in the school, and the

[4] Michele Medici (Compendio Storico della Scuola Anatomica di Bologna, 1857) quotes the following from Joseph Fernandus Guglielmus:

"Enim vero quid non profecisset Bononia ab Otto Agenio Lustrolanus quo Mondino assidui pro sectore utebatur, nisi sexto nondum vitæ suæ prætergresso lustro celere invidaque morte fuisset sublatus." That is to say: "What advantage indeed might not Bologna have had from Otto Agenius Lustrolanus, whom Mondino had used as an assiduous prosector, if he had not been taken away by a swift and lamentable death before he had completed the sixth lustrum of his life."

[5] Racconti del Mazzoni Toselli, Vol. III, p. 118, quoted by Michele Medici, *op. citat.*

students and others intent upon dissecting it. It was the sixth of December, when the arrests were made, but the final outcome of the trial is not stated.

Here certainly is the touch of human nature that makes us all akin. The medical student of the fourteenth century was very much like his fellow of the nineteenth century, and Mondino would have felt at home with Robert Knox and John Hunter and Astley Cooper.

It is not difficult for us of this day to put ourselves in sympathetic relations to these cadaver-lifting students of 600 years ago. We know what their mental processes were for we have all been through the same ourselves in our own day and generation. We know what their zeal must have been; what the intensity of their interest to see for themselves the things which Mondino had described and Agenio had demonstrated. The tale gives us an insight into the enthusiasm and ardor for anatomical work that had been awakened in Bologna. One gets no suggestion of timidity or superstitious fear to profane the human body. It was evidently neither a new nor a rare thing which the body of this Pasino was to be subjected to.

In 1316, Mondino issued his book. He must have been then about fifty years of age. The exact year of his birth is unknown. If in 1290, however, he graduated in medicine, it is probable that we are not far wrong if we assign an age of twenty-five years for him at that time. If so, he may have been fifty-one when his work was completed. As an introduction to it he gives the reason why he has written it. He says: "A work upon any science or art—as saith Galen—is issued for three reasons: *First*, that one may satisfy his friends. *Second*, that he may exercise his best mental powers. *Third*, that he may be saved from the oblivion incident to old

age. Therefore, moved by these three causes, I have proposed to my pupils to compose a certain work on Medicine.

"And because a knowledge of the parts to be subjected to medicine (which is the human body, and the names of its various divisions) is a part of medical science, as saith Averrhoes in his first chapter, in the section on the definition of medicine, for this reason among others I have set out to lay before you the knowledge of the parts of the human body which is derived from anatomy, not attempting to use a lofty style, but the rather that which is suitable to a manual procedure."

This, then, was the origin and object of the book. It was written out of the fullness of his experience and labors as a part of the general subject of medicine. Its copies could be multiplied by hand only, and it was one hundred and seventy-five years before the first copy of it, printed from movable type, was produced. For more than two hundred years it remained as the final authority in that department of medicine, "*De omnibus humani corporis interioribus membris Anathomia.*"

No other great original anatomist arose to dispute the supremacy of Mondino, until Vesalius appeared in the sixteenth century, and modern anatomical research was started on its career.

It does not come within the scope of the present paper to consider at any length the book of Mondino nor its later wonderful vogue for so long a time; it is with the man himself rather that we have to do. The book must always remain of rare interest to the medical antiquary and historian, and especially to those particularly interested in the development of anatomical research. No translation of it into the English tongue has ever been published that I am aware of. The rude medieval

Latin in which it is written makes its deciphering so difficult that the task would be undertaken only by an enthusiast. The manuscript of such a translation, however, is in my possession, executed years ago by my brother, Dr. James E. Pilcher, of the U. S. Army; the work having been assumed by him to relieve the tedium of garrison life in a western post. It ought to be published, but the favorable moment never seems to have presented itself. Its existence had almost been forgotten until inquiry, prompted by the present study of Mondino himself, has again brought it to memory.[6]

At the same time that Mondino was dissecting and teaching in Bologna, Henri de Mondeville was teaching anatomy and surgery at Montpellier, in France, and was writing a treatise on surgery, which occupied him during the period between 1306 and 1312. This treatise, able and interesting as it is, was supplanted in the next generation by that of De Chauliac, so that it remained buried in manuscripts until the close of the nineteenth century, when it was unearthed from the libraries in which it was preserved, by a German antiquary, and first published from a German press. (*"Die Chirurgie der Heinrich von Mondeville, zum ersten Male herausgegeben von Dr. J. L. Pagel,"* Berlin, A. Hirschwald, 1892.)[7]

This book of Mondeville is especially valuable to us in our present study, as giving some light on the real state of anatomical study at that date. Mondeville had

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[6] Correspondence in connection with the bibliography of Mundinus has brought out the existence of another manuscript translation into English of this book done at the instance of Dr. Howard A. Kelly, of Baltimore.

[7] A fine edition of the *Chirurgie de Mondeville*, translated into French, was published in 1893 under the auspices of the Ministry of Public Instruction of France, edited by E. Nicaise.

studied at Bologna, following especially the lessons of Theodoric in surgery. Theodoric died in 1298. Mondeville had then returned to France and had begun his teaching at Montpellier, so that we know that his Bologna studies must have been previous to that date. We have seen that Mondino had taken his medical degree in 1290, so that it is unquestionable that Mondeville and Mondino were contemporaries as students of medicine in the school of Thaddeus and Theodoric.

When Mondeville returned to Montpellier and began to teach anatomy, he had to content himself with charts and models to illustrate his teaching, for public opinion in France was not such as to permit public dissections of the human body to be made then, nor for many years thereafter (in France the first dissections of the human body were done at Montpellier in 1376), for when his successor, De Chauliac, would learn the structure of the human body, he, too, had to repair to Bologna for the purpose. The manuscripts of Mondeville's chapters on Anatomy indicate that there were from twelve to nineteen separate charts used by him. The designs[8] are not reproduced in these manuscripts, but the legends have been preserved, so that we may have a pretty clear idea what they represented. I will refer to but two of these.

Selecting two, No. 3 and No. 9, which are fairly representative, the legend of No. 3 is as follows:

[8] One of the manuscripts contains fourteen miniatures which show only the general subject. Because of their minuteness they represent no detail. The first one shows a surgeon standing, holding in his hand a razor with which he is making in the different parts of a man who stands naked before him different incisions, according to the variations of the parts, and according to the teaching given in the text which follows. NICAISE. *Chirurgie de Maitre Henri de Mondeville.* Trad. Française, Paris, 1893.

*"Figure of a man in whom, by an opening of the belly and of the chest, one sees the veins and the large arteries arise in the liver and the heart and go to the distant parts of the body, as the nails and the hair."* Page 20.

No. 9 reads: *"Figure of a man cleft open in front from the middle of the forehead to the anus, that is to say through the middle of the nose, of the mouth and of the tongue; in the interior appear whole the knuckle of the throat, the food and the air ducts, the heart, the lungs and the diaphragm, the stomach and the epiploon, the liver, the spleen and the intestine, according to the manner in which they are grouped and exist in the living man, as accurately as possible."* Page 37.

Who made the first sketches for these plates, who wrote these legends, we do not know; certainly someone who had looked into the opened cadaver and described what he there saw. It may possibly have been Mondino himself; more likely the masters by whom both Mondino and Mondeville were first instructed as to the mysteries of the interior structure of the human body, *"De omnibus humani corporis interioribus membris Anathomia."*

The point of importance in connection with the present theme is that the making of such charts adds an increased probability to the truth of the conclusion of the writer that there were dissectors before Mondino.

As further illustrative of the energetic quality of Mondino's mind, his readiness to seize upon and make the most of the possibilities of the moment, there has been preserved to us a notable evidence in the sculptured sepulchral tablet, which he erected over the tomb of his uncle, providing, at the same time, that it should mark his own final resting place.

The custom of honoring the professors in Bologna

by rich tombs had long existed.[9] For such monuments grand pyramidal structures had prevailed during the thirteenth century, and magnificent examples of these still remain in the old cemeteries of San Francisco and San Domenico. When, however, the jurist, Rolandino Passaggeri, died in the year 1300, for his monument a new style was devised. The remains were placed in a huge marble sarcophagus, on the side of which was a sculpture in high relief representing the professor in the act of giving a lesson to four of his pupils who are seated before him upon very low benches holding their books supported upon small desks. The benches and desks are roughly made and of primitive form, and the whole sculpture is rather rude and archaic. It contains, however, very clearly and distinctly, the idea of preserving the memory of the teacher doing his life work with his pupils about him.

Eighteen years later, Liuccio di Luzzi, the uncle of Mondino, died. This uncle was a laureate of the medical school in 1281; in 1292, he became professor of physics in the University, and in 1307, he began to teach medicine, holding a chair both in the colleges of philosophy and medicine. His father, Albizzo di Luzzi, is believed to have come from Florence, and the records show that as early as 1270 he had established, in company with a certain Bartolommeo Raineri, a pharmacy in Bologna. It later passed into the entire control of the Mondini and thereafter became the Spezieria del Mondino. It had for its ensign a doctor, and was maintained as a drug-shop until the beginning of the last century.[10]

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[9] Corrado Ricci. Monumenti sepolcrali de lettori dello studio bolognese. Bologna, 1888.

Cavazza. Antico Studio Bolognese, 1876, p. 191.

[10] Michele Medici. *Op. citat.*

This pharmacy was near the Church of San Martino dei Caccianemici, in the Piazza del Aurora, in the quarter of the Porta Nuova, in which the School of Medicine was situated.[11]

Liuccio, with his brother Nerino here continued to exercise the art of Pharmacy, a vocation which in those days was evidently not inconsistent with the position of a professor of physics and of medicine in the University. It was among such surroundings that Mondino spent his boyhood and grew up into the medical school which was near by. His uncle Liuccio was, in his eyes, a great man. Upon his shoulders the mantle of Taddeo had fallen. Through his influence and inspiration his own career as an anatomist had been developed. A tomb befitting his merits it should be the duty and privilege of the nephew to erect, one which Mondino himself might share when "inevitabile fatum" should have overtaken him also.

The Passaggeri *bas relief* had doubtless been the subject of much comment among the scholars of the University, and the idea which it contained appealed to the peculiar quality of Mondino's mind, which rendered it ever open to novelty and merit. Such a tablet should commemorate the virtues and attainments of his uncle, and should mark his own final resting place. To the sculptor Roso, of Parma, was given the commission, and the result is one of the most perfect and characteristic sepulchral bas reliefs of that period. (See Plate.) Seated in a massive professorial chair, surmounted by an imposing canopy, with a large folio resting upon a reading desk before him, the professor is represented as in the act of commenting upon the text. It is possibly a

[11] Cavazza. *Op. citat.*, p. 12.

copy of Galen, or, more likely, of Averrhoes or other of the Arabian writers that was before him. With outstretched hand he is enforcing his comment. The fur-bordered cap and the hooded robe that mark his high position in the University are distinctly delineated, and the features—though now after six hundred years they show the corroding effects of time—we may well believe presented a marked likeness of the man whose memory the sculpture was to preserve.

The professor is represented as of heroic size compared with his pupils that sit before him; an attempt to represent in physical proportion the mental dissimilarity that was supposed to exist, a custom which was common among the painters of that age in their representations of the Saviour and the Saints as compared with their followers. Seated on benches, in front of the professor are the scholars, clothed in long togas, the head covered by a kind of turban. Before each is a reading desk upon which lies a great folio, which each pupil is intently regarding. By one of these desks stands one who is apparently an assistant or demonstrator, who is pointing out to a perplexed student the matter which the professor is expounding; while in the distance is seen approaching one, who by his manner of dress is evidently of a different grade from the pupils, who is bringing in an armful of books.

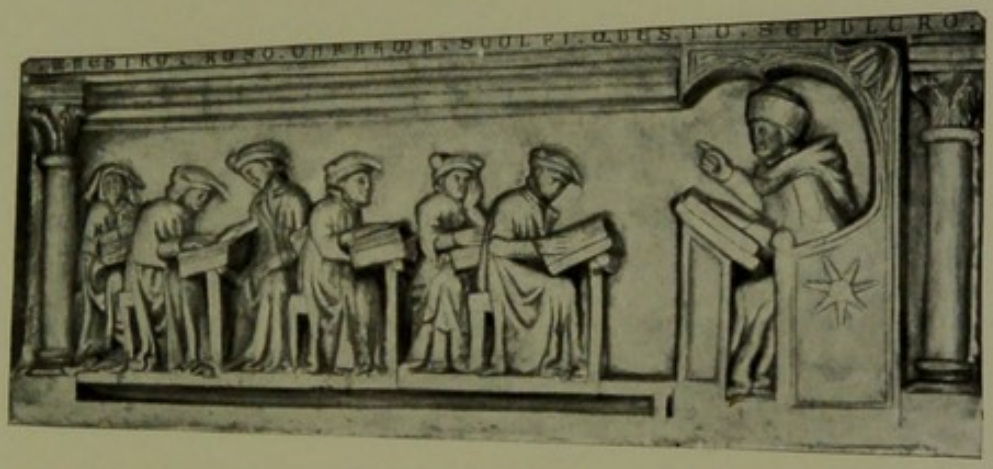
Thus we see in this tablet the professor, his assistant, the pupils, and the beadle, all represented. The costume of the age and place is preserved to us, and a most realistic presentation of the medieval University classroom is given to us.

This tablet still remains affixed to the wall of the portico of the Church of San Vitale in Bologna, marking the spot where the remains of both Liuccio and Mondino

di Luzzi were buried. With but one other exception, all other sepulchral tablets of its class in and about Bologna have been removed from the place in which they were originally set up, and assembled in the halls of the Museo Civico, a kind of desecration which does violence to one's sense of sanctity and propriety. The churches of San Domenico and of San Martino, the Cathedral and the Cloister of San Giacomo degli Ermitani have all been despoiled of these sculptures which in their original setting would ever have had the highest historical interest, and they have been made simply specimens in a civic museum! Fortunately, thus far, the Mondino tablet has escaped the spoiler.

One April afternoon I stood before this tablet and mused upon its significance and memories. The dim light of the church portico was quite in keeping with the dimness and vagueness of our knowledge of the men to perpetuate whose memories it was erected 600 years ago. Here, however, was something tangible that brought me directly into contact with an energetic master-mind, one who was the chiefest figure in the domain of medicine over a period of two hundred years, who was the morning star of its renaissance. This marble he had planned to perpetuate the memory of one whom he had revered, as well as to mark his own final resting place; his own hands had been upon it; with loving solicitude he had placed it in the portico of this ancient church in the quarter of the Porta Nova among the men whom he had taught and who loved him. Certainly this was a shrine to which the medical pilgrim might well bend his steps, and before which he might bow in reverence.

Below the bas relief is a plain marble slab affixed to the portico wall, containing the following inscriptions:



SEPOLCRO MONDINO DEI LUZZI NELLA CHIESA DI S. VITALE. BOLOGNA.

"Gloria Nature Medica Virtute Leuci,
Cujus Erant Cure Morientes Redere Luci
Invidia Fati Recubas Jam Nomen Adeptus
Compar Ypocrati Sublimi Marmore Septus
Annis Millenis Tercentum Bisque Novenis
Dum Sol Terdemis Augustum Torquet Habenis."

which may be translated into English thus:

"To the innate glory and medical worth of Leucius,
By whose skill the dying were restored to life;
To an hateful fate thou dost submit.
Now thy name, esteemed equal to that of the renowned
Hippocrates, is embalmed in marble. August
30, One thousand, three hundred and eighteen years."

Below this is a second inscription containing the words:

"Sepulchrum Magistrorum Leucii et Mondini
de Luccis et eorum Heredum."

that is to say:

"The sepulchre of Masters Leuccius and Mondinus de
Lucci and their Posterity."

The tablet presents to the left of the first inscription the sculptured outline of an open book, the pages of which bear the words, "*Vita Brevis Ars Vero Longa.*" On the right of the inscription, in low relief, is a shield bearing two fishes, presumably the special insignia of the Luzzi family (Luzzi=Pikes).

At the time of my visit to the Church of San Vitale, the thought occurred to me that it might be possible to obtain permission to make a plaster cast of this sepulchral tablet and transport it to my own home; a trophy that would always be a source of pleasure to me and possibly to other students of medical history. I was able to enlist the active co-operation of Mr. Frank, of

the Hotel Brun, through whom the necessary permission of the civic authorities was secured, the only stipulation being that I should have a second cast made which should be deposited in the Museo Civico. This I was the more glad to accede to, since possibly the presence of such a cast in that museum might tend to lessen the probability of the original itself being transferred from the place where Mondino himself had put it, to the miscellaneous walls of a public and heterogeneous collection. An artist in plaster was at once secured and the contract made, and in due time the completed cast reached me and found its present resting place in my own library.

# XI

# A SURGEON TO THE POPE

This study of the character and work of John de Vigo was undertaken in response to an invitation from the Historical Section of the College of Physicians, of Philadelphia, to present a paper before that body. It was afterwards read before the Historical Society of the Johns Hopkins Hospital, of Baltimore, and later before the Charaka Club, of New York. It was published in the third volume of the Transactions of the Charaka Club, 1910.

# A SURGEON TO THE POPE.

A REVIEW OF THE CHIRURGIA OF JOHN DE VIGO—ESTIMATE OF HIS POSITION IN THE HISTORY OF SURGERY

WHEN Cardinal Giuliano della Rovere ascended to the Papal Chair in 1503, as Julius II, he brought with him as his personal physician a surgeon who had been long known to him as a practitioner in his native town of Savona; thus was introduced into Rome Joannis de Vigo, Genuensis, or, John de Vigo, the Genoese.

Throughout the whole period of the Pontificate of Julius II, de Vigo retained his place as the Pope's counsellor. He had already become familiar with the peculiarities of military surgery as a participant in the inter-city wars in which the Italy of that period abounded, and he must have found in the character and career of his patron—who was more warrior than priest—much to increase his interest and experience in military surgery. De Vigo was already a mature practitioner when he removed to Rome, being then forty-three years of age, having been born about 1460 at Rapallo, near Genoa, hence his name, "The Genoese." He was the son of a surgeon of distinction, Battista de Rapallo, whom the Margrave of Saluzzo, in an edict of 1473, mentions as "Fidelis consiliarius noster magister Battista dictus de Rapallo," and speaks of his skill in the removal of calculi from the bladder. A chronicler of the time, Bernardino Orsello, also speaks of "Maestro Battista de Rapallo, ditto lo Genoghese," as "Homo scientiato et experientissimo nella chirurgia";—"A man learned and most skilled in surgery." He was thus the friend and

counsellor of the Margrave Ludovico of Saluzzo, and to honor him named his son De Vigo; it is related that the Margrave was ever deeply attached to his namesake.

It is not difficult to see through the biographical fragments which have remained to us of the life of Giovanni de Vigo, evidences of an amiable and attractive character as well as of a studious and judicious temper, which attracted to him throughout his whole life the love and confidence of those of every degree with whom he came in contact. Not only in the quiet provincial life at Savona did he have the confidence of the Cardinal Giuliano, but throughout the ten exciting and strenuous years of his Pontificate at Rome was he able to retain it, and after the death of the Pope he remained as physician to his near relative, the Cardinal Cisto Gara della Rovere, with whom he resided in the delightful scenes of Tivoli as late as the year 1517, where the latest record that we have of his career leaves him still at work, but in poor health, suffering much from asthma.

The Court of Julius at Rome, of which he made a part, was a beehive of intense industry and ambitious effort, all animated by the master spirit of the intense Julius. Bramante was erecting the Church of St. Peter, Michael Angelo was painting the ceiling of the Sistine Chapel, and Raphael was covering the walls of the Stanza of the Vatican with his marvellous frescoes. The man most eminent of the Roman medical faculty was Giovanni Anthracino of Macerata, of whom we now know little except that he was the friend of De Vigo and of his son Aloysius. It is in the friendship of this Giovanni Anthracino that we get one of our glimpses into the amiable character of De Vigo as suggested by the formation of such a friendship rather than an envious rivalry, a friendship which should have lasted through

the life of De Vigo and have been transmitted to his son after him.

It was while surrounded by this stimulating atmosphere of the Court of Julius, that De Vigo found himself prompted to undertake the great work of his life. Work, intense work, was in the air everywhere. The amiable De Vigo, had he remained at Saluzzo, would have been content to follow quietly in the footsteps of his father—perhaps that may be too much to say, for it does not appear that he in any large degree measured up to the practical abilities of his father in real surgical work, but it is rather as a scholar and a counsellor than as a practitioner and an operator that he excelled. In any event, after repairing to Rome the contagion of work seized him, and urged by his friends and especially by the Doctor of Arts and Medicine, Master Giovanni Anthracino of Macerata, he proceeded to compile a full and complete treatise upon surgery, which task, as he tells us, he brought to completion on the first day of January, 1513. His own words, as appended to the end of the ninth book, being:—

"We have completed and sealed and brought to an end, with the approval of God, the whole work of our surgery at Rome, in the year of our Lord MDXIII, on the first day of January, Julius II reigning, in the tenth year of his Pontificate, at which time also we were assisting his Holiness by discharging the duty of surgeon to him. Praise be to God and to the most glorious Virgin Mary, blessed be whose name."

The book, after having been written, was submitted to his friend, Giovanni Anthracino, by whom it was carefully corrected and revised before publication, and who supplied a preface in which he gives the history of the book and the reason for its preparation. It is very

evident that Anthracino was behind the whole thing, and we are led to think of De Vigo as an amiable, accomplished surgeon, an agreeable companion, a courtier acceptable in the halls of princes, fully equipped in learning but rather indolent in doing, who has been spurred up to his work by the continued urgency of his friend. Thus in Anthracino's preface he begins by saying: "When, most accomplished reader, *I* (Anthracino) had considered that now for a long time nothing had been published pertaining to the surgical profession, notwithstanding very many things had been added by more acute and modern observers . . . *I* have asked and earnestly entreated, most talented reader, that illustrious and noted surgeon of Pope Julius II, John De Vigo, of Liguria, that he should compose and publish a most worthy and full work on Surgery for general use, for the convenience of posterity and to his own praise and glory, as well as that of his friends and his native land. For the printing, he has entrusted it to those most careful and diligent printers, Stephen of Loreno and Hercules of Bologna. You will have, therefore, dear reader, a work, modern, I confess, but in which nothing departs from the opinions of the ancients, nothing pertaining to the subject is left untouched; you will have teaching of singular excellence; you will have, indeed, a work scholarly and complete, so that with it whether you wish the satisfaction of friends or the praise and glory of strangers, you will attain them all most abundantly; a work which, indeed, all men, unless perchance they are envious and malevolent, will extol and frankly admire." Then after some further remarks along this same line, he concludes: "Whoever, therefore, shall have this book in his possession will have been learned either deeply or in less degree; whether he remain in the city or navigate

the sea he will secure this assuredly admirable result and greatest glory, and will cherish, indeed, immortal thanks to the author, the most honest man and excellent, who, in so great a degree has honored himself, his native land, and, indeed, our age, by so sublime a work."

Anthracinus evidently had determined that the work of his friend should not suffer from the lack of adequate praise and proper characterization by him! This is upon the first page; upon the last page Anthracinus again appears, for the concluding paragraph is as follows:— "The present work was printed at Rome by Master Stephen Guillireti and Master Hercules of Bologna associated, having been most accurately corrected and revised by that most careful and excellent man, Johannis Anthracinus of Macerata, in the year of our Lord MDXIIII, Leo the Tenth reigning, in the second year of his Pontificate, April 15."

Our knowledge of the surgical literature of that time justifies the claim of Anthracinus that no recent contributions to the literature of surgery had been made. The substitution of printed books for manuscripts was just beginning to become general, and the presses of Venice, Lyons, Paris, Strasburg, and other cities were issuing as printed books copies of the works of the older authors, which, until that time, had been accessible in manuscript only. The chief hand-book of Italian surgery, at least, was that of Peter of Argellata, who had taught and written at Bologna one hundred years earlier; his book, "Die Chirurgia, Libri Sex," first appeared as a printed volume in 1480; Leonardo Da Bertapaglia, the Paduan surgeon, had composed a work on surgery between the years 1402 and 1429 based upon the observations of Avicenna, which was first issued in printed form from a Venetian press in

1490; Jerome of Brunswick had issued in the German tongue from a Strasburg press as early as 1497, his "Chirurgie" which, although of great merit, naturally gained no vogue in Italy. (The "Surgery" of Brunschwig underwent nine editions, the last of which was published in Augsburg in 1539; there were two English translations, 1525; one Dutch, 1535; and one Bohemian, 1539.) A "Collectio Chirurgica" had been printed in folio at Venice in 1498, which contained the writings of Bruno, Theodoric, Lanfranc and Bertapaglia; that is, authors who dated back from one hundred to two hundred and fifty years and whose writings were practically epitomes borrowed from the Arabists of yet earlier centuries. The work of Guy de Chauliac had been made accessible by a French edition printed at Lyons in 1478 and by a Latin edition printed at Venice in 1490. The works of others also of the older writers were already available in printed form, but Anthracinus was fully justified in his statement that for a long time nothing new had been added to surgical literature.

It is easy to believe that Pope Julius, even in the midst of his more important and complicated tasks, was interested in the work of his personal surgeon and friend, which, by its publication, he might well believe would bring additional lustre to his own reign. Unfortunately, he did not live to see it in print, for within a few brief weeks of that first day of January, 1513, when De Vigo had, as he says, "completed, and sealed, and brought to an end" his book, his great patron, Julius, had died, and when the printed book was ready to receive its colophon, it was with the sanction of Leo X instead of that of Julius II.

The book bore the following title:

**PRACTICA IN CHIRURGIA, Copiosa in Arte Chirurgica Nuper Edita, a Joanne De Vigo, Julii Secundi, Pon. Max. Olim Chirurgico, Que infrascripta Novem Continet Volumina.**

"An Exhaustive Treatise upon the Art of Surgery, newly compiled by John De Vigo, formerly Surgeon to Julius II, Pontifex Maximus, which contains the below-mentioned nine volumes." And then followed in due order a descriptive index of the respective books.

The first book was devoted to the consideration of Anatomy; the second to that of Apostemes,—a most comprehensive class into which were collected abscesses, inflammatory swellings, glandular swellings, and neoplasms of every kind; the third book was devoted to Wounds; the fourth, to Ulcers; the title of the fifth book was: "De Morbo Gallico et Doloribus Junctuarum;" the sixth book was devoted to Fractures and Dislocations; the seventh book, "De Natura Simplicium," that is to say, "A Consideration of Materials Used in the Making of Plasters, Ointments, Liniments and Embrocations"; the eighth book is the Antidotary, devoted to recipes for ointments, lotions, oils, pills and other confections necessary to the art of chirurgie; the ninth book was fermed "The Book of Additions," or in modern parlance, "Appendix," in which many observations as to regimen, exercise, diet, questions of bleeding, purging, the diseases of mariners, and sundry other affections of a medical character were touched upon, such as pain of the head, pain of the reins, insomnia, weakness of the stomach, vomiting, various fevers, too much fatness and grossness of the body, and many other things.

The printed book, as it came from the hands of Stephen De Loreno and Hercules of Bologna, in 1514, was a beautiful and sumptuous volume. A copy of this

*Editio Princeps* in perfect preservation and in its original binding is one of the treasures of my own library. Even at this date, four hundred years after its printing, the clearness of the text and the whiteness of the paper as one turns its rustling leaves are sources of pleasure to the bibliophile. It is foliated, not paged; the black-letter print is clear and distinct, and the text—in two parallel columns on each page—calls to mind the mediæval manuscripts which those early printed books so closely copied in their style. The original binding is still good; the embossed-leather-covered boards are still intact and make a beautiful setting worthy of the typographical gem, quite appropriate for the favorite of a pope. The original clasps are alone wanting to make the volume as complete as it was when it left the shop of its printer.

We can readily appreciate the eagerness with which the learned world looked for the appearance of the promised book on surgery from one who occupied a position so eminent as that of surgeon to the Supreme Pontiff at Rome. No great personality dominated the surgical field in any of the chief centres of learning at that time. In Paris, the surgeons of the College of Saint Côme were wearing long robes, delivering lectures based upon Guy de Chauliac and his predecessors, keeping their number as small as possible, and maintaining their position as surgical aristocrats to whom manual labor was degrading, abandoning procedures involving surgical handicraft to barbers and inciseurs (cutters); surgery, with them, was practically limited to the prescription of topical applications and internal remedies. In Germany, in the city of Strasburg only had any marked tendency to the development of real surgery manifested itself, as shown by the work of Jerome of Brunswick and Hans of Gersdorff, and throughout most of the cities of that

country what surgery there was was abandoned to the barbers, who occupied the lowest possible position in the social scale. English surgery was but little further advanced than was the German; most of the surgery, such as it was, was done by barbers and empirics, and a statute of Henry VIII, of 1530, classed together bakers, brewers, surgeons and scriveners in certain regulations for protecting the practitioners of those handicrafts. John of Arderne had written, about 1375, his account of the treatment and cure of fistula in ano, from which time until Thomas Vickary, the surgeon of Henry VIII, no name worthy of note appears in the annals of English surgery.

It was into such a field as this that the much-heralded complete treatise upon surgery by the surgeon to the great Julius II was ushered. The vogue which it received was extraordinary; within less than thirty years it went through twenty-one editions.[1] It was printed in folio, in quarto, in octavo; it was translated into Italian, French, Spanish, Portuguese, German and English; an abridg-

[1] The following editions are given by Gurlt:—I: "PRACTICA IN ARTE CHIRURGICA COPIOSA NUPER EDITA A JOANNE DE VIGO," Rom. 1514, fol.; Lugd. 1516, 4, 1516, 8, 1518, 4, 1519, 8, 1528, 4, 1532, 8, 1543, 8, 1561, 8; French translations, Lyon, 1525, 4, 1537, 8; Paris, 1530, fol., 1537, 8; Italian translations, numerous, e.g., 1540, Venet. 1556, 1560, 1581, 1588, 1639, 1677, 4; Spanish, Valencia, 1557, fol., Saragossa, 1581, fol., Perpignan, 1627, fol.; Portuguese, Lisbon, 1613, fol.; German, Nuremburg, 1677, 4; English, 1543, 1570, fol., 1580, 4, 1743, fol. (1550).

PRACTICA IN ARTE CHIRURGIA COMPENDIOSA: Papoae, 1518, 4; Venet. 1520, fol.; Florent., 1525, 8; etc., etc.

Both works were many times bound up together with the writings of his pupil, Mariano Sancto, e.g.:

OPERA DOMINI JO. DE VIGO IN CHIRURHIA EXCELLENTISSIMI. Additur CHIRURGIA MARIANI SANCTI BAROLITANI JOANNIS DE VIGO DISCIPULI. Lugdun, 1525, 1530, 1538, 1540, 1542; 8.

ment was prepared which likewise was republished many times and in many tongues. Practically during the whole of the sixteenth century it was the authority in surgery throughout Europe, and it may be accepted as the complete and final exposition of the surgery practiced and elaborated under the influence of mediæval scholasticism.

It is marked by multiple citations of earlier authors.[2] Occasionally there is introduced a personal experience of the author when he states that by such and such methods

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The Library of the Surgeon-General's office contains the following editions:—

DE VIGO: PRACTICA IN ARTE CHIRURGICA COPIOSA, Rome, 1514, fol.; Lugduni, 1516, 4to; Venet. 1520, fol.; Lugduni, 1521, 4to.

PRACTICA COMPENDIOSA IN CHIRURGIA COMPILAVIT, Venet. 1520, fol. Bound with CHYRURGIA MARIANI SANCTI BAROLETANI, Joan. De Vigo discipuli, Lugduni, 1525, 12mo, 1530, 12mo, 1538, 12mo, 1582, 8vo.

*FRENCH:* De Vigo en Francoys, Lyon, 1525, 4to; Paris, 1542, 8vo; Lyon, 1610, 12mo.

*ENGLISH:* Traheron's Translation, London, 1543, fol., 1550, fol., 1571, fol.; together with work of Gale, London, 1586, 8vo.

*ITALIAN:* With Mariano, Venetia, 1549, 4to; Venet., 1558, 4to; Venet. 1560, 4to; with Dalla Croce, Venet. 1576, 4to.

*DUTCH:* Dordrecht, 1614, fol.

*SPANISH:* Madrid, 1717, fol.

In 1872, Fournier, of Paris, reprinted with notes and comments, De Vigo's chapter on "Le Mal Francais," prefacing it with a serio-humorous and satirical "lettre d'outre tombe," purporting to have been written by De Vigo, protesting against the work of the ancients being ignored by the moderns.

[2] The following is a list of the authorities quoted by De Vigo:—II: Hippocrates, Celsus, Galen, Antyllus, Paul of Ægina, Johannitius, Rhazes, Avicenna, Mesuë, Ali Abbas, Abulkasim, Roger, Wilhelm von Saliceto, Bruno von Longoburgo, Hugo von Lucca, Theodoric, Gentile von Foligno, Lanfranc, Guilielmo de Varignana, Dino di Garbo, Franciscus de Piedmonte, Arnold de Villanova, Bertapaglia, Henri de Mondeville, Guy de Chauliac, Peter d'Argelata, Antonio Guanierio, Arcacus, and also Aristotle, Cicero, Ovid and Suetonius.

he had effected a cure on some prominent man. Examination of his book fully justifies the criticism of Gurlt that suggestions for operative interference in surgical conditions are rare, and are limited to ordinary incisions for abscesses, for extirpation of tumors, for the amputation of gangrenous limbs and for trephining. Operations for lithotomy and for hernia are neglected by him. Internal medication, blood-letting, purgation, the employment of compresses, salves and plasters, form the great mass of his surgical resources.

De Vigo's directions as to the arrest of hemorrhage are not without interest, especially in view of the enthusiasm with which Paré, in the next generation, announced his discovery of the possibility of replacing the actual cautery by the ligature in controlling bleeding after amputations. Strangely enough De Vigo makes no specific reference to amputations in his treatise, and what he has to say about "the fluxe of bloude and of the cure therof" occurs as a part of his directions as to the care of wounds in general (Book III, Chap. II). Practically it is but a repetition of the direction of Celsus given thirteen hundred years before. *Celsus'* simple directions were these:

"1. Fill the wound with dry lint and over it place a damp sponge pressed down with the hand.

"2. If this does not stop the blood, moisten the lint with vinegar.

"3. If these do not prevail against the hemorrhage, the vessels which discharge the blood are to be seized and tied in two places about the wounded part and cut through.

"4. When circumstances do not allow of this manner, they may be cauterized with a hot iron." (Grieve's Translation, Book V, Chap. VI.)

*De Vigo* in approaching the subject of hemorrhage

first describes a styptic powder, an elaborate and complicated mixture, which he advises the surgeon to have ready. The formula for this was as follows:—

STYPTIC POWDER

℞ Flour of Beans and Lentyles and of Mylleduste, *ana* ʒiii
of Sanguinis Draconia, of Frankincense, *ana* ʒiiss
of Myrrhe, of Aloes, *ana* ʒii
of terra Sygyllata, of bole Armenye, of gypsum, *ana* ʒiss
of Hares' hear cutte in as smal pieces as may be, ʒvi
of a cobwebbe cut in pieces, ʒiv
of spong of the sea, somewhat dried at the feyre or burnt and brayed, ʒiiiss
of coralles, of all the saunders, *ana* ʒiss
of the juice of the herbe called lingua passerina or knot grasse, of the juice of conferye, *ana* ʒv
of dragantum, brayed, ʒiii
the whites of two new layed eggs, note that to the sayde whites of egges it is sufficient to putte of the fore rehearsed powder, ℥i
of burnt cotton, ʒx

To secure hemostasis, he directs the surgeon to "mingle the sayde powder wyth the whyte of an egge, and putte thereof wythin and wythoute the wounde. After this ye shall fyll the wounde wythe Lynyes and stowpes or towe dypped in water and vynegar, then lette the wounde be bounde wyth a convenient manner of byndynge, and boulsters, whyche thynge is requisite in thys case.

"Furthermore it is a singular remedye to laye the sayde powder so prepared upon the mouthe of the veyne, with the toppe of the finger holding it a good space uppon the veyne, and pressinge it downe lyttle by lyttle so that the patient be not pained therewith, and incontinentlye afterwarde lette it be bounde as we have shewed before."

After this, he remarks: "*Sometimes also it is necessarye to tye the veyne, and chyeflye the arterye,* for when it is tyed the place is soon incarned. The manner to tye

it is as followeth:—You must putte a nedle under the veyne wyth a cered threde and drawe it together softlye, or else ye shall bynde the veyne above and tye the mouthe wyth a threde.

"Item, in thys case, it is a presente remedye to applye an actuall cauterye upon the place, if it be possible wythout touchynge the synnowes."

While no notable discovery, no marked improvement in surgical methods distinguish his work, with two new and important subjects, however, does his treatise become specially linked; for the first time in surgical literature now appears in the book of De Vigo systematic reference to the treatment of gunshot wounds and to the symptoms and treatment of syphilis.

The third chapter of the third book, DE VULNERIBUS, is devoted to the new class of wounds, and, characteristically enough, the subject is approached in an apologetic manner: "Albeit," he says, in the words of Traheron's translation (1550), "the Auncient and later doctours have written nothyng of wounds caused by gunnes and other instruments of fyre, nevertheless we have consydered that it is profitable to declare such remedies as we have proved to be good in this case. And first, we saye by the auctoritie of Galen, that he is indede a physycyon or chyrurgyen whych can handle thynges which hath not been handled before; and can also ryghtly use such thynges as ben taught by ancient doctours."

With this prelude he launches at once into the subject, thus:— "Wherefore we affyrme that those wounds are compound of three kyndes. Fyrste, it is called a brused wounde because of ye roundness of the stone. Secondly, it is called a brent wounde because of ye fyre. Thyrdly, it is called a venymous wounde by reason of the poudre. And forasmuche as these kyndes be contrary and dyvers,

they cause a wounde to be hard of curatyon. For brusing and burnyng nede moysture and venemenes nede the desyccatyon or drying.

" To come to the true cure, we say by the auctorytye of Galen that when two or more diseases ben joyned together, ye intentyon of ye chyrurgyen must be to hele ye more dangerous, not utterly forsakyng also the other. But seying the most dangerous thynge herein is venim caused by the poudre, the principal intentyon shall be to cure the same.

* * * * * *

" There is no better remedy than to use in the sayde wounde an actual cauterie whych may touch all the partes of the wounde, or to applye unguentum egiptiacum after the descryptyon of Avicenna. Also in the stede thereof a man may use a cauteryzation of oyle of elders boyloynge hote, for cauteryzation kepeth a wounde from putrefying, whych might come through the bruse of the stone. After the sayd cauteryzation ye chirurgyen shal procede with thynges mollifycatyve, laying about the woundes a defensyve wrytten in the chapter of the cure of fleshye woundes.

" Also ye must after cauteryzation put in ye botom of ye wounde melted butter, hote, with a syryng, untyll the escare be removed and the ded flesh be sondred from the good, and yf the sayd wounde be in a very synnowy place, after cauteryzation ye shal put into ye same water of barley sodden with earthworms and a lytle holyhocke and red sugre with the foresayde butter and without it.

* * * * * *

" Furthermore if the stone be within the membre, ye must wysely behold the place and remove it, making incision with a rasour or some other convenyent instrument

takyng hede that ye touch not the synnowes, and afterward ye shal heale ye place accordyng to ye doctrine declard before. We have sene some who have caryed the stone a great whyle, whych thought themselves to be heled, and also the chyrurgyens had closed up the wounde; but many have dyed thereby. For the membre wherein the stone is, cometh to putrefactyon and to an aposteme called estiomenos.

"Lykewyse we have sene some by the help of chyrurgyens to obteyne perfyte curatyon after that they had caryed the stone a great whyle."

An interesting note on the position of De Vigo as the authority in surgery in that age is given by the allusion to him by Paré, the great surgeon of France, in the immediately succeeding generation, in his discourse on "Wounds Made by Gunshot" (see Johnson's Translation into English, 1678, p. 272). He is speaking of his experiences in 1536, when with the forces of Francis in the expedition to relieve Turin he says:—

"In this conflict there were many wounded on both sides with all sorts of weapons, but chiefly with bullets. I will tell the truth, I was not very expert at that time in matters of Chirurgery; neither was I used to dres wounds made by Gunshot. Now I had read in JOHN DE VIGO, that wounds made by Gunshot were venenate or poisoned, and that by reason of the Gunpowder; wherefore for their cure, it was expedient to burn or cauterize them with oyl of Elders scalding hot, with a little Treacle mixed therewith. But, for that I gave no great credit neither to the Author, nor remedy, because I knew that causticks could not be poured into wounds, without excessive pain; I, before I would run a hazard, determined to see whether the Chirurgeons, who went with me in the Army, used any other manner of dressing to these

wounds. I observed and saw that all of them used that method of dressing which *Vigo* prescribes; and that they filled, as full as they could, the wounds made by Gunshot with Tents and Pledgets dipped in this scalding Oyl, at the first dressing, which encouraged me to do the like to those who came to be dressed of me. It chanced on a time, that by reason of the multitude that were hurt, I wanted this Oil. Now because there were some few left to be dressed, I was forced, that I might seem to want nothing, and that I might not leave them undrest, to apply a digestive made of the yolk of an egg, Oyl of Roses, and Turpentine. I could not sleep all that night, for I was troubled in mind, and the dressing of the precedent day (which I judged unfit) troubled my thoughts; and I feared that the next day I should find them dead, or at the point of death by the poison of the wounds, whom I had not dressed with the scalding Oyl. Therefore I rose early in the morning, I visited my Patients, and beyond expectation, I found such as I had dressed with a digestive only, free from vehemency of pain, to have had good rest, and that their wounds were not inflamed nor tumefied; but on the contrary, the others that were burnt with the scalding Oyl were feaverish, tormented with much pain, and the parts about their wounds were swoln. When I had many times tried this in divers others, I thought thus much, that neither I nor any other should ever cauterize any wounded with Gunshot."

Vigo's observations upon the new disease, "*De Morbo Gallico*," which formed his fifth book, are so truthful, so accurate, so naïve and fresh, that they alone would suffice to perpetuate the memory of the author and to cause him to be remembered among the great surgeons of the past. They were republished by Fournier in Paris in 1872, with characteristic comments by that

syphilographer. If we turn to this chapter of the Chirurgia, we find that the author had no doubt as to just when and where the disease first appeared.

In the quaint language of Traheron's translation, he says:—

In the yeare of our Lorde, 1494, in the monethe of Decẽber, when Charles the Frenche kynge toke hys iorney into y^e^ partes of Italy to recover y^e^ kingdome of Naples, there appereth a certayne dysease through out all Italy of an unknowen nature, whych sondrye nations hath called by sondry names. The Frenche men call it the dysease of Naples, bycause the souldyours brought it from thence into France. The Neapolitanes call it the Frenche dysease, for it appereth fyrste when they came to Naples, and so other languages call it by other names, whereupon we nede not greately to passe, but rather what the nature and cure thereof is. Thys dysease is contagyous, chyefly if it chaũce through copulatyon of a man wyth an unclene woman, for the begynnynge thereof was in the secret members of men and women, with lytle pushes of blewe colour, other whyles of blacke, sometyme of whytyshe, wyth a certayn hardnes aboyte the same, whych pustules could not be healed by medycine applyed wythin or wythout, but that they wold embrace the hole bodye, wyth ulceration of the generall partes, euer returnyng agayne after they were healed, chiefly in the ioyntes, in the armes, vnder the knees, & in the foreheade, and welnye spredde through all the body, & yet at thys tyme they begyn euẽ so, but it is not so contagious as it was at the begynnyng. Furthermore a moneth after the sayd pustules, the patyent was vexed wyth great payne in the heade, the shulders, the armes, the legges, after whych payne, that is to saye after a yeare & more, certayne hard thyngs lyke bones were engendred in the patyent, wyth exceeding paine in y^e^ nyght tyme, whych ceased in the daye tyme. For

the swagynge whereof, the chyrurgyẽs admynystered anodine medicines that apease gryefe, and prevalyed nothynge, but the end of the payne was euer corruption of the bone, as it chaũceth in the wyndines of y^e^ backbone, & for y^e^ most part the mẽbers remayned croked and drawen together, through the sayd paynes.

After a yeare & a halfe, there appered in thys shamefull & abominable dysease, certain knobbes of grosse and flegmatyk matter, rooted after the maner of a whyte chessenut, lyke a chorde or a synowe halfe rottẽ, whyche were ryped of nature w^t^out helpe of medicine. Wherfore, after theyr brekyng or openynge of thẽ, all kyndes of vlcers were sene in thẽ, accordynge to y^e^ dyuersitye of bodyes for in one bodye it is not credible. For in sondry bodyes, sondry accidentes, are wont to be engendred w^t^ thys dysease. And I dare say, that al the dyseases that come of a cause antecedẽt, wherof the chyrurgyens haue made mencyon, may be numbred in thys shameful dysease accordynge to the diuersitie of bodyes. And first to speake of apostemes we haue sene in thys detestable sycknes, all kynde of hote, cholerike, and sanguine apostemes. And also we haue sene great quãtitie of colde flegmatyk and melãcholike apostemes, & in matters cõpoũde if the bloode be ioyned wyth fleame, and the bloode hauynge dominion, y^e^ apostеme is called flegmon vndemiades, and so of the cõiunction of other, as we haue declared in the boke of apostemes in genreall.

Furthermore we haue sene in the sayd dysease al kyndes of quyttures, accordynge to y^e^ diuersities of the iiii. euyll humours. We haue sene deade fleshe drowynge in great aboundaunce, and also greate multitude of glandules, scrophules, apostemes called talpie et topinatrie, wyth corruption of y^e^ bone, in the heade. And moreouer we haue sene al sortes of y^e^ apostemes called formice, & carbuncles, and cancrenes, to haue ben ioyned wyth the sayd dysease, and al sortes of vlcers, wrytten

by al the doctours, haue bene sene in thys dysease. And if y^e^ vlcers of the sayd dysease be diligently consydred, they haue participacyon w^t^ corrosyue, and putrefactiue vlcers, with creping vlcers, cancreouse, & cancrenouse, virulent, maligne, paynfull, apostemed, holowe, & ystulous vlcers, wyth corruption of y^e^ bone, & shelly, with harde lyppes briefly, the sayd vlcers haue an euel proprietie vnknowen to vs, through the malignitie whereof they are harde to be healed and returne shortly agayne. Lykewyse, in thys dysease all kyndes of paynes may be nũbred as the goute in the handes and fete, and of the knees, and sciatica. Item al sortes of euell scabbes, are founde in thys dysease, that is the deade euel, assaphta, and as it were a leprye, salte fleame, in the handes and in fete, skalles, ryngwormes, tetters, &c. Itẽ we haue healed sondrye dyseases of y^e^ eyes, cõmynge of the pockes, chieflye the dysease called ophthalmia, but it shulde be to longe a thynge, of reken vp al the accidentes, that come to thys dysease. Howebeit, we wyl adde this one thynge that they that are touched therwyth, are subjecte to a slowe feuer, and consumynge, whyche hath brought the patiẽt somtyme to death. The cause of thys dysease, is alwaye primitiue, as by hauynge knowledge of fylthy, vncleane, and pocky women for thyd dysease through hys venymnes and the venymnes of y^e^ pustules, whych chaunce in the priuate partes, is spredde aboute the hole bodye from y^e^ head to the fete, & corrupteth ye bloud of al the bodye, and produceth pustules, scabbes, and croustye skalles.

Proceeding to the subject of the treatment of the disease in its earlier stages, he says that resolutive medicines and such as assuage pain profit little or nothing in this disease; yea, the pains are rather increased more and more, wherefore there was never no such disease known. A little further on he says:—

**And as to saye the truthe the medycynes lately invented are better in thys dysease than the medycynes of olde wrytters, as for example of payne. Anodyne remedyes whych do swage payne and resolve, profyte nothynge in thys dysease, and I affirme the same of anodyne oyntments, oyles, bathes, fumigations, cerotes and playsters. Howebeit it hath chaunced that I haue healed paynes, pustules, vlceratyons and scabbes wythin a weeke, anoyntynge the arms from the elbows and the legges from the knee wyth a symple unction fortyfyed wyth a lytle quycksylver.**

He follows with many directions as to diet, bleeding, leeching, purges, baths, and the use of digestive and mundificative topical applications, recipes for which he gives, and finally closes the chapter with the exclamation:

**And yf the sayd medycynes profite not, nether the payne is cesed, but newe vlcers returne often, then y^e^ shall procede wyth other oyntments and cerotes wherein quycksylver entreth, of whyche we wyl speak hereafter.**

In the treatment of the more advanced lesions of the disease mercurial inunctions are his chief reliance.

He says:—

**We haue ofteh proved that the payne hath cesed and the vlcers haue ben perfytlye mundified by the only applycatyon of the forsayd (mercurial) unction and cerote uppon the armes and uppon the legges.**

The formula for his ointment is as follows:—

℞ **Swynes grese, melted, lb. i**
**Oyle of Camomil and of Dill, āā ℥ i**
**Liquid Storax ℥ x**
**Oyle of Mastik and of Laurel, āā ℥ i**
**Roots of Enula Campana, somewhat brused, ℥ iiii**
**Roots of Walwort, āā**
**Squina, of Stica, āā a lytle**
**Euphorbium, brayed, ℥ ss**
**Odoriferrous Wine, lb. i**

Let them seth al together tyll ye wyne be consumed, then strayne them, and add to the straynyng

of Litharge of Golde, ℥ vii
of Frankensense and of mastike, āā ℥ vi
of Rasyne of the pyne tree, ℥ iss
of clere terebentyne, ℥ i
of quycksylver quenched with spitle, ℥ iiii

Melt the oyles and incorporate them al together wyth ℥iss of waxe and make a liniment.

Another unguent, which he calls a cerote and recommends as being of "more noble" operation than the preceding, and more delectable to the patients, is made as follows:—

℞ of the oyles of Camomile, Spyke and Lyllies, āā ℥ i
of oyle of Saffran, ℥ i
of Swynes Grese, lb. i
of Calves' Suet, lb. i
of Euphorbium, ℥ v
of Frankensense, ℥ x
of oyle of Laurell, ℥ iss
the fatte of a viper, ℥ iiss
of quick frogges, in number vi,
of washed wormes wyth wyne, ℥ iiiss
of the juice of the rotes of Walworte and Enula Campana, āā ℥ ii
of Equinantum, of Sticados, Mugwort, āā mi
of Odoryferous Wyne, lb. ii

Let them sethe al together tyll the wyne be consumed, then strayne them and put to the straynyng

of Litharge of Gold, lb. i
of clere Terebentyne, ℥ ii

Make a cerote wyth suffycyente whyte waxe, after ye maner of a sparadrap, addynge in the end of the decoction Liquid Storax. Then take the cerote from the fire and stirre it tyll it be lukewarm and afterward put thereto

of Quycksylver, quenched with spitle, ℥ iiii

and stirre it about well tyll the quycksylver be incorporate.

Elaborate recipes are given for mouthwashes, and for cicatrizing lotions, for laxatives and purgatives. By these various remedies, he says, "we have healed many," but he continues:—

**Also y^e^ shal observe that when thys dysease is confyrmed, it is very seldome healed but wyth a cure pallyatyve. And as concernyng his confyrmatyon it hathe no determyned tyme, but by signes, for in some bodyes it is confyrmed in VI monethes, whych seldome chaunceth, in some wythin a yeare, in some wythin a yere and an halfe. And we call this dysease confyrmed when in processe of tyme these accidentes are founde therein, namelye, swellynges, hardnesse, pryckyng, virulent and corrosyve vlcerations, wyth corruption of the bones, payne of the joyntes and forehead, &c. These are the accidentes and convincing signes that the dysease has become comfyrmed.**

**And so, by the grace of god, whose name be blessed, the doctryne of the present chapter is completed.**

A most notable feature of his book is the frequent introduction of pious ejaculations which characterize it; each book, and many of the individual chapters of the book, are closed by such ascriptions of praise to the Deity as the one just given. Thus the end of the first book is in these words:—

*"Finit liber primus de Anatomia ad laudem omnipotentis dei."*

And, opening at random, we find the conclusion of the tenth chapter of the second book, De Apostematibus, is as follows:—

*"Et sic deo dante completa est doctrina presentis capituli: cujus nomen sit benedictun."*

Turning over to the conclusion of the third book, On Wounds, we find the following:—

*"Finit liber tertius chirurgie de vulneribus a capite usque ad pedes. Ad laudem dei omnipotentis ejusque gloriose genitricis virginis Marie: quorum nomina in secula seculorum sint benedicta."* ("Here ends the third book, the surgery of wounds from the head to the feet, to the praise of Almighty God and of his Virgin Mother, the glorious Mary, whose names be blessed for ever and ever."

This spirit of piety seems to have greatly impressed his English translator, from whom I have already quoted to such length. Traheron, in his dedication of his book "to the earnest favorer of all good and godly learning, Master Richard Gracie," after many pious observations and a high appreciation of the character of John De Vigo and of the value of his book, concludes as follows:

**Albeit that both you desire and I delyte more to travalye in the holye wryttynges, yet I fear not but that this book beyng so necessary for the commune weale shal be unto you ryght pleasaunt, for after the knowledge of our salvation whych holye and onely resteth in godde's anoynted kinge, we may conveniently procure, not the lustes and pleasures, but the requisite helth of our bodies, that we may be more able to servé our turns and to labour in the Lorde's vyniarde. Yea, and I can not telle whether anye man hath receyved the true knowledge and spirite of Christ, that pitieth not the great sicknesses and diseases wherein we are wrapped on every syde. For this cause I have thought it not unprofitable (let some busy speakers rather than doers babble what they liste) to bestowe some labour and tyme in translatyng this booke whyche contaynethe so many goodly remedies for the diseases that communelye and justelye happen unto us. Whyche thynge, if it shall please your ryghte goodlye judgement, and suche as you**

**be, the barkynges of other shal lytle trouble me. But nowe I will hynder you no longer frome the readynge of John Vigo his worckes.**

This from Traheron, whom we have to thank for putting at the disposal of the English reader, in his own tongue, the book of Vigo. One rises from an examination of its pages with a better appreciation of the status of Surgery in the generation immediately preceding that of Paré, and full of interest in the character of the most amiable and attractive author.