

Address, delivered by Dr. L.C. Lane, Professor of Surgery, at the commencement exercises of the Medical College of the Pacific, November 2d, 1876.

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ADDRESS,

DELIVERED BY

DR. L. C. LANE,

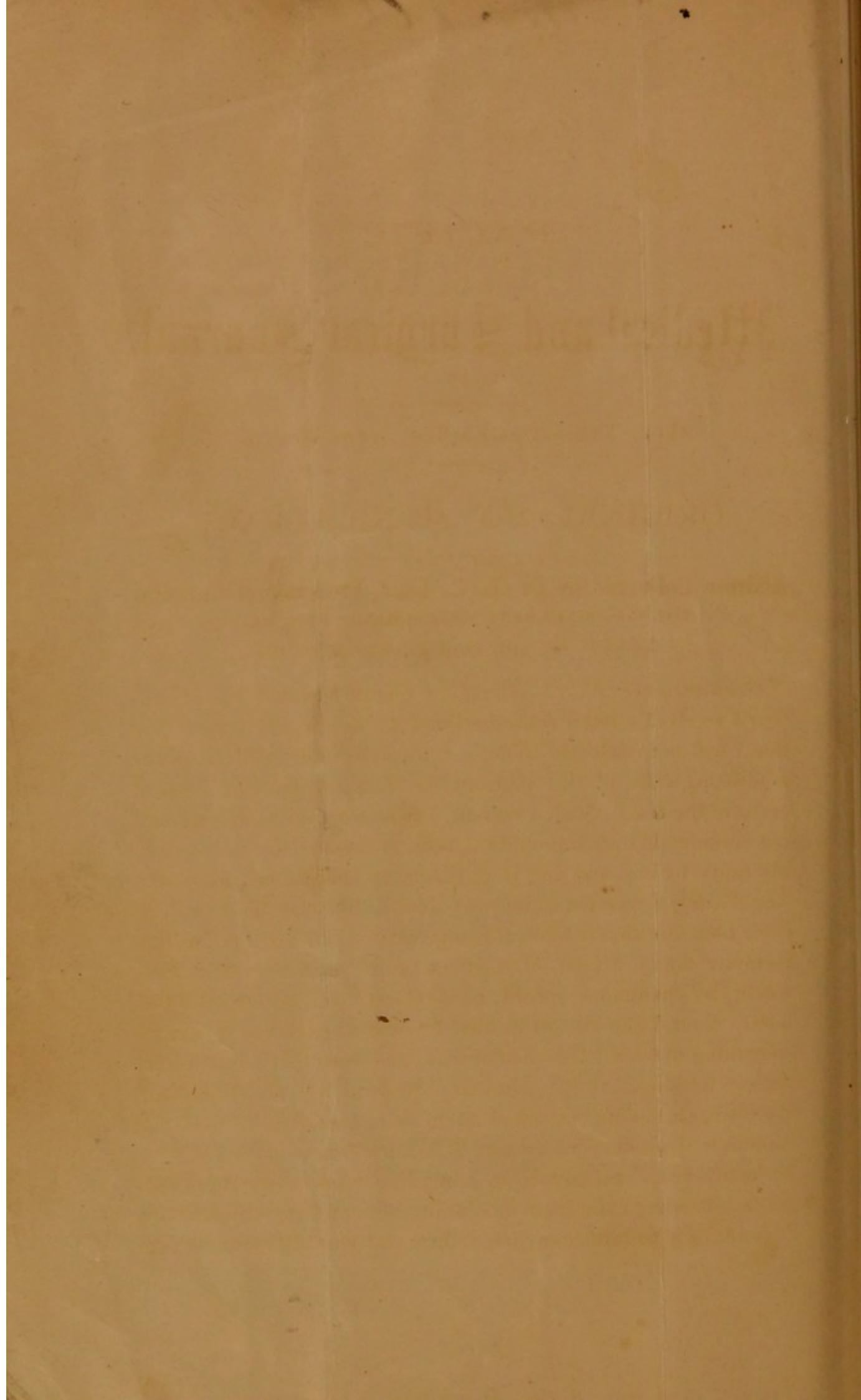
PROFESSOR OF SURGERY,

*At the Commencement Exercises of the Medical
College of the Pacific,*

November 2d, 1876.



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ORIGINAL COMMUNICATIONS.

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Address Delivered by Dr. L. C. Lane, Professor of Surgery,
AT THE COMMENCEMENT EXERCISES OF THE MEDICAL
COLLEGE OF THE PACIFIC, NOV. 2, 1876.
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Gentlemen Graduates—About the first of March of the present year I received a letter from the Dean of our Faculty announcing that I had been selected to deliver the valedictory address to the graduating class of this year, and he wished to know if I would perform the task. Such a request, I may here note, was presuming considerably upon the future, both as regards you and myself. My reply to him was *yes*, if railroads, steamship, oceans, rivers, would safely return me to our own dear California; dear I call it, since I am sure that if biblical commentators had had the precious memories which I have of a fifteen years' residence in it, they would, by unanimous accord, have placed the garden of Eden here. Your Dean also wrote that I ~~could~~^{should} be expected to narrate something of what I had seen abroad, and thus, that I might give some "freshness" to the occasion. Now, as you see, I am here, the elements having consented to my safe transport hither; and moreover, I see that his acumen as Health Officer gathered from so many years' experience in compiling reports *mortuary*, has given him some expertness in kenning the *vital*, thereby enabling him not only to foresee my safe return, and you will excuse me for

hinting at it, seemingly to have acquired thereby a yet deeper insight into the undeveloped future, since he did not presume too much in calculating upon a graduating class.

It is a very common thing on the occasion of a marriage that the newly-wedded party make what is called a bridal tour. This custom, though I remember once to have seen it sharply criticised in a medical journal, is so much in vogue that I propose on this occasion, which is to commemorate your marriage to the great Profession of Medicine, to accompany you on a short bridal tour abroad; though in doing so I must say on starting, that if we see much of Europe in so brief a space, we can only do it by running and reading at the same time; and that, too, with the volubility of a Westminster Abbey guide, whose tongue does its task with the speed of a Thibetian prayer—^{—mill}~~well~~, crowding into one's head, in a few minutes, a compend of English history from Alfred the Great until William the Third. Yet I hope that in my capacity as guide, I may be more successful than he, for after his work is done, so rapidly have his ideas traversed your head, that like the transit of an electric current, they have not left a vestige behind.

Let us, then, shutting our eyes to the wealth of art, industry and material development which crowd upon the traveler's vision the moment he enters Europe, direct our attention to medical matters and things cognate thereto. Thus narrowed, our field becomes reduced to mnemonic capacity; and besides, I am sure that you must be most interested in learning something of the great family of which, in future, you are to be the kinsmen.

We commence our journey by landing in Ireland; we begin here very appropriately, since it is from here that America has received many of her noblest sons. From Queenstown, our landing place, we hasten up to Dublin, where Porter, Churchill, the venerable Stokes, Corrigan, Butcher, Colles and others reside, and will greet us with an open, genuine and unstudied warm-heartedness, which we must make the most of; for I regret to have to add, that we shall not find its equal again while abroad. I do not mean to say that we shall meet no more true friends on our journey; but from my experience, hospitality, as a rule, is like some of the springs in our mountains, which in mid-winter freeze over and in mid-

summer dry up, while in an Irish gentleman's heart it is a perennial fountain, and like his wit, ever gushing forth, warm, deep and unfailing. From the quick and expert Porter we learn the happy results which he has obtained in the treatment of aneurism by moderate compression indirectly applied, by means of a simple and inexpensive apparatus which he himself has invented. The aged Stokes salutes us most cordially, and though partially paralyzed, so that our sympathy is awakened as we see his tottering step and trembling hand, yet we soon perceive that there is no halt in the tread of his intellect, nor in the vibration of his heart, which is brimful of love for America. As an evidence of the former, and as a compendious formula of a life's experience, he tells us "the present generation are making a great mistake in their endless subdivision of disease, insomuch that the student is greatly puzzled to decide to which he must address his remedies;" and an equal proof of his affection for our country is his parting message to us: "Bear from us kind words to your countrymen, for they have ever been kind to us, and have always been just to us."

Churchill and Colles will receive us with equal cordiality. The latter is exclusively a physician, though his name is inseparably attached to one of the troublesome fractures of the forearm, from the fact that his father was the first to accurately describe the injury and to suggest an appropriate treatment. From Churchill, the noted obstetrician, you will learn a lesson of patience which I hope you may not be called upon to endure, when he tells you how many years he had to wait before he attained a successful practice.

From the land of the quick, impulsive and ready-witted Celt, we will pass over to the home of Brown, who, for a generation, by the force of his genius, led the medical world captive with his specious theory of irritation—of Cullen, whose comprehensive mental power seized in its grasp the entire domain of internal medicine and reduced to brief axioms, easy to be remembered, the tangled and shapeless mass of facts which his predecessors had been storing up in the common magazines—of Simpson, who, if he was not the founder of obstetrical surgery, at least made

some of the most valuable additions to this branch of medicine, and whose brilliant success as a practitioner attracted so many strangers to Edinburgh^b for treatment, that his death was acknowledged to be an important financial loss to his native city; for the practical Scotchman does not forget to weigh even the fruits of genius in the scales of finance, as shown not alone in the instance here cited, but in another which I heard of more than once, viz: that the value of all real estate in the north of Scotland had risen forty per cent. through the influence exercised by the writings of Sir Walter Scott. Besides what Simpson did in obstetrical surgery, he won for himself immortality in the applications of chloroform.

As we come from Ireland to Scotland, we first enter Glasgow, the great northern emporium that is rapidly becoming the rival of Liverpool. On our arrival our ears are filled with the clamor of a thousand hammers which are moulding into shape the ironclads of all nations, destined not only to bear "those mortal engines, whose rude throats immortal Jove's loud clamor counterfeit"—messengers of death between nations in combat—but also those intended to carry the civilizing cargoes of peaceful commerce. ~~Now~~ In a modest laboratory, within hearing of this din of hammers, we might have seen a few years ago a modest man quietly studying and working out a surgical problem, which, when solved, was destined to carry blessings farther, wider, and ^{of a} ~~in~~ nature far more precious, than any cargo which yon iron-clads will ever bear abroad; blessings not limited like an Ossianic fountain, that "brings joys to the withered vales from its own moss-covered rock," nor even as the Nile, whose fertilizing influence is confined to a single continent, but blessings that are to be co-extensive with humanity. And should humanity be so recreant as to forget its origin, yet, like the Nile, though its source be unknown, still the noble stream never forgets to dispense health, joy and riches to the people through whose midst it flows. The modest man of whom I speak was Joseph Lister, and his study was the antiseptic problem. The proposal of such a problem was sufficient to render any man famous; but Lister not only proposed it, but to a great extent he has solved it, so that now the surgeon has it in his

power to perform the majority of surgical operations without any of the risks of inflammation, which formerly hung like the sword of Damocles over every grave surgical procedure. Much remains to be done to perfect the method of Lister, yet, in its present state, its excellencies are so great, that it has been introduced into the majority of the great hospitals of Europe. Scotland was not long forgetful of her distinguished son. She soon gave him a chair in her leading University; and for a wife, Scotland's greatest surgeon, Professor Syme, gave him his daughter.

In the Royal Infirmary of Edinburgh we must not fail to visit Prof. ^{An} ~~Her~~mandale, who, though a most unpretending man, is one of the most clever operators whom we shall see abroad. This is especially so as respects resections of the joints. These operations performed in the Lister spray are attended by a minimum of mortality that is astounding when we compare it with the deaths from the old modes of procedure.

It should be remarked, that though Lister has been the subject of applause from all the surgical world, except a small section just south of the Tweed, yet in the chaplet which encircles his brow, the flower modesty has not been crowded out by the laurel; for on our visit to him we shall find him a quiet, retiring man, and free to communicate with us, and even to give us the recent improvements which he has made in his antiseptic formulæ.

From Scotland I will next conduct you to London. This great metropolis of English commerce and centre of Anglo-Saxon culture, though eminently, I might say, intensely English in character, is still in many respects cosmopolitan in population; for though the Briton essays in every way to maintain his hitherto isolated situation, yet the commercial ties which he has with every civilized nation are making great inroads upon his insulated state; and, at the same time, the gold laden vaults of Threadneedle street, with their glitter, have caught the eyes of, and are inviting the visit of, the merchants of all nations. Hence in traversing the streets, the polyglot sounds which continually greet our ears, remind us forcibly of our own metropolis of the Pacific. On inquiring in regard to medical institutions, we learn that instead of one or two great schools, London has eleven medi-

cal Colleges, the eleventh and youngest being the Female Medical College, established two years ago. Besides these metropolitan institutions, there are a few Provincial medical colleges, viz., one at Liverpool, one at Manchester, one at Leeds, and one at Birmingham. Yet none of these has the power of granting diplomas; this power being invested in two boards, resident in London, and known respectively as the "Royal College of Physicians" and the "Royal College of Surgeons." The former confers the title of M. D.; the Royal College of Surgeons confers merely the title of Member or Fellow. It is claimed that this isolation of the power that confers degrees from that which teaches, is a great improvement over the system which now obtains in America. This would be so, were the two really isolated; but unfortunately, such separation does not exist there; and, I may remark here, that it does not exist anywhere in Europe. In London, both of the corporate bodies which confer degrees, are composed mainly of men who are professors in the medical schools. Such is the case in France, and such is the case in Germany; so that in these respects, I regret to say we do not differ materially from the Old World; for it would be a great improvement if teaching and examining were in part, at least, committed to different persons.

If I be permitted to continue this digression a moment longer, I ^{would} ~~will~~ remark that there is one respect in which we are much behind the European institutions, and that is, in not requiring a thorough preliminary examination of every student before he commences the study of medicine. The objection offered by the partisan of the present plan is, that thus many a genius whose early advantages have been few, would be debarred from entering the medical ranks; to which I would reply, that the facilities for acquiring a moderate knowledge of the lingual and physical sciences, are so numerous and easy of access in our country, that there is no excuse for him who does not avail himself of them. And furthermore, as to the loss from genius being debarred at the threshold, it is a matter which in most cases need not be much mourned over. Plodding, or better named hard work, is more demanded in medicine than the waywardness and brilliant sallies of so-called genius. Molière could conceive a Tartuffe, Goethe

a Faust, Dante a Divine Comedy, and Shakspeare a Hamlet, the greatest of tragedies, yet none of them possessed the patience to master the infinity of details, which would have enabled them as physicians to successfully treat a typhoid fever, or as surgeons, to heal an indolent ulcer. During my visit, I have seen and heard the leading medical men in Europe, and with all due deference to them, I must say, that if all the geniuses were withdrawn from their ranks, it would fall far short of decimating their number. A tiresome journey on foot carried the Listers and Liebreichs to the eminence which they have reached; eagles' wings never bore them there.

In ending this brief allusion to medical education, I ~~will~~ express the hope that the American Medical Association will soon take some steps which will lead to our schools adopting a uniform system of preliminary study and examination, for all who engage in the study of Medicine.

But let us return to the English Medical Schools, which we strayed away from a few moments ago. Of the eleven metropolitan medical schools, but two have large classes, the University Medical College and King's College. Guy's Hospital School and St. Bartholomew's have tolerably large classes. The remaining schools have small classes, some, in fact, not having as large an attendance as we have in our San Francisco schools.

University College may be considered rather the offspring of King's College; and as might be expected the two are sharp rivals, and differ in many respects. Old King's School in which is found the great surgeon Fergusson, also Wood, Smith, Beale, and others, is eminently conservative. She prefers three per cent. consols, and to "sleep well o' nights," rather than to disturb the world with innovation. Her ruling head, Canon Barry, thinks Buckle's History of Civilization an unsafe book for young men. The University School, on the contrary, is more Cassius-like, "lean and hungry," in ^{which} ~~in~~ the radical, reformatory and innovating element finds a congenial home. She opens her arms to students of every nationality, color and faith.

The general demeanor of the English medical classes, whether in the presence or absence of their professors, I will not hold up

to you as a model. Though one sees a number of hard-working students, yet besides these, there are many wild, extravagant, noisy and reckless blades, whose chief ambition is in fun and frolic. And this, too, in the pupils of staid old King's, where, despite all the drilling in the thirty-nine articles, two years ago, at the opening of the course, Fergusson's address was interrupted with such remarks as this: "Dry up, old fellow;" "Sir William, you had better stop now, and go out and take a drink;" and to such a pitch of riotous turbulence did they reach, that finally the lecturer closed his manuscript, and told them that if he could not have better order, he would close the meeting. This succeeded in partially quieting them, so that he concluded his address. It should, however, be remarked that Sir William Fergusson is far more at home in the use of his hands, than in the use of his tongue. Since, while as an operator, he has, for one of his age, no superior in the surgical world, he has, perhaps, no inferior as a speaker. As you are carried away with his tall form, commanding presence, intelligent face beaming with good nature, and the grace with which he uses the scalpel, your admiration is mingled with real sympathy as you witness his ineffectual efforts to explain what he is doing. But, notwithstanding this, as soon as you see the man you will love him, and you will love him still more when I tell you that in a long life of surgical practice, he has not been guilty of one unprofessional act. Search his career of half a century, and one fails to find it sullied by one spot of malignity towards, or jealousy of, a professional brother. I am sure that the remembrance of a life so spent brings more joy to his heart, than the recollection of the splendid trophies which his surgical genius has won; and beautiful as a wreath of heather from his own Scottish hills, will it long encircle his memory when the work of his life shall close. Though probably none of you will ever reach the summit of professional eminence which has been attained by Sir William Fergusson, yet in the untarnished integrity which has distinguished his life, you are able to become his rivals. Will some future biographer make the same record of your finished career as you have just heard of him?

[For insertion in the Annotations]

A Portrait of the late Sir W. Fergusson Bart.
The following portrait, not in oils, of the late Sir W.
Fergusson Bart, was drawn by Dr C. L. Sane
Professor of Surgery, in his address at the opening of
the winter Session of the Medical College of the Pacific,
San Francisco, on November 2 1876.

In each of the London schools we find one or more distinguished men. In making our visit, besides those mentioned, the following deserve especial mention. In St. Mary's, Walton and Lane; in St. George's, Holmes, Hewitt, Lee and Carter; in St. Thomas', Jones, Murchison and Liebreich; in Charing Cross, Barwell and Hancock; in Middlesex, Watson and Greenhow; in the University, Erichsen, Heath, Reynolds and Sir Wm. Thompson; in St. Bartholomew's, Paget and Holden; in Guy's, Bryant, Cooper, Foster and Birkett; in London Hospital, Hutchinson; in Westminster, Holt. Besides these, others might well be mentioned, as the list given is far from exhausting the famous names of the medical profession in London. For example, Spencer Wells, who, by his successful results in eight hundred cases of ovariectomy, has restored this operation to surgery, from which it had hitherto been excluded. And particularly should we not fail to visit the Royal Orthopedic Hospital, and St. Peter's Hospital for Stone, since we shall be kindly received at each place, and especially so at St. Peter's, where Mr. Teevan and Mr. Coulson, the operating surgeons, extend such hospitalities to American visitors as might almost lead them to think they were in Dublin again. Besides these courtesies, the visitor is sure to carry away with him a number of interesting ideas, from the varied practice which he there witnesses. Yet the list given must suffice, as soon as two other great names are mentioned.

In the southwest quarter of London, not far from Hyde Park, we find grounds on an extensive scale, covered with large and in some cases elegant buildings, which are dedicated to the reception and conservation of a number of the rarest and most valuable treasures of English science and art. This is known as the South Kensington Museum, which we must visit, as we find there many things of the greatest interest to the scholar and the lover of art and industry. To the latter nothing can be more curious and attractive than the first rude models of the early essays of Watt in the construction of the steam engine, and of George Stevenson in that of the railroad. These quaint and awkward contrivances are kept as sacred treasures, and rightly too, since they are the stepping-stones on which England has marched to the front of na-

tions through culture, commerce and industrial progress. Alongside of this building of old models is one which interests us greatly also. This is the Gallery of National Portraits, where we find almost every distinguished personage who has furnished material for the imposing fabric of English literature, or who, by his actions, has shed lustre on English annals. But in the pile of buildings which cover the grounds of Kensington, there is one which, to the student of natural science and of medicine, is more cherished than any which I have enumerated. This is a tall building, with Pompeian and Etruscan adornment, and built firmly, as if to endure forever. In the upper story of this, we find a rare museum of natural history, and the unpretending lecture room and physiological laboratory of him who is England's greatest scholar in natural history, viz: Thomas H. Huxley. To reach him, we must climb eleven flights of granite stairways, which, fortunately for those of feeble limb and short breath, are neither steep nor long, yet, as he says, are enough so to prevent all from visiting him who have no business there. We ^{shall} ~~will~~ find him a plain, simple and unostentatious man; in every word, movement and act presenting that modesty and want of display which always indicate and reveal the scholar. If we stop and hear one of his lectures, the qualities mentioned shine forth even more manifestly. Once having heard him, no one asks for further evidence of the universality of his knowledge in his department. From having attended his six months' course of lectures, I was happy to find, for once, a man who is not over estimated. He knows more of organic, animated nature than any one living; he has but to open the "book and volume of his brain" to find a true picture of any living animal; and its homologies or analogies with any other species or genus, he is as familiar with as a linguist is with the conjugation of verbs. If at the close of a lecture he be asked a question concerning some animal, as is often the case, even though the point be far removed from that which he has been considering, his answer is as clear and ready as if he had just studied the matter—and not verbally alone, but with his chalk in his hand, he follows it through the winding mazes and varying phases of its evolution, with an ease, rapidity and artistic truthfulness, until

one almost forgets the extemporized creation before him, in his admiration of this great interpreter of the laws of nature. And this admiration is kept continually aglow, as one follows him in his search for the hidden links of the chain of being which lie buried in the geological and pre-historic ages.

I must not take you away from London without introducing you to one other noted personage in our profession; since in reading his works I am sure that you have already learned to admire, if not to love, the man. This is Sir Thomas Watson, Baronet. Nature conferred knighthood upon Sir Thomas a long time before Queen Victoria did. Years have much bowed down his person, yet he still looks the great and kind-hearted gentleman. At the evening meetings of the Royal Institution, at which were delivered lectures by Tyndall, Huxley, Gladstone, and other celebrated British scholars, Dr. Watson was a regular attendant. On his earnest, straightforward and honest face one could catch traces of that practical and pointed good sense which lends such a charm to the pages of that capital work which every student of medicine should read, entitled: "Lectures on the Practice of Physic." A long life of noble and upright purposes has left its impress on his brow. In unmistakable lines patience, energy, and the love of the right are written there. Such a face in an old man presents more genuine loveliness, even though the fingers of time have blotted out its primitive lineaments of beauty, than the most matchless picture which has ever been conceived and executed by the fancy and pencil of a Tiziano or Murillo.

My notice of the medical celebrities of London has been almost an uninterrupted eulogy. The note must change when we touch upon the hospital buildings. Though erected with the purpose of lasting forever, yet in their construction and internal arrangement they are far behind similar institutions in America. Sprung from a period that antedated modern hygiene, one often finds them lamentably deficient in the facilities for ventilation. Air, now regarded as a thing almost divine, in fact, the major and minor premises and conclusions of modern medical reasoning, seems to have been deemed by the former generation as something diabolical, an evil spirit which must be hedged and barred out in

every possible manner. In all the old cities of Europe, this doctrine has left monuments of its former hold on the medical mind, in the miserably lighted and still worse ventilated wards of all the old hospitals. And in reference to the selection of a site for their erection, the policy would often seem to have obtained that land that was too low, or too much of a marsh for any other purpose, was quite good enough for a hospital. As examples of this may be cited the London Hospital for Cancer, and the Consumption Hospital at Brompton, London. So, also, King's College Hospital is situated in a part of the city most illy fitted for the purpose. With such hospitals around him, it was no wonder that Professor Erichsen found so much to praise in reference to American hospitals. Besides their guidance by the enlightened ideas of modern sanitary science, the Americans have, by nature, a large share of talent in adapting whatever they make or construct to its ulterior purpose.

After this hasty visit we must bid England farewell, and next turn our steps towards France.

The wildest storm in its work of devastation usually does something which man, in his philosophic pride, reckons a blessing. This finds its popular expression in the oft-repeated proverb, it is an ill wind that blows no one any good; and this may be applied to the French Revolution of 1793. For while the Angel of Death was writing this chapter of French history in characters of blood, the humane genius of science was laying the foundation of one of the most thorough systems of University education which the world has ever seen. While the guillotine was baptizing the Place de la Concorde with the blood of Lavoisier, Roland, and the noble Girondists, in the National Assembly near by was being organized the great Medical School which has rendered Paris, ever since, famous as a centre of medical education. It was in this dark and eventful period, when France overturned her altars, lengthened her week into ten days, altered the names of her months, and adopted a new era dating from the so-called birth of French liberty, that the present school was born, and in a few years became so eminent that it has, ever since, attracted students from every quarter of the globe. For one sees there young men

from Russia, Greece, Egypt, Spain, Brazil and Chile; in fact, from every cultivated nation.

To this school, which has produced a Bichat, a Louis, a Laennec, a Cruveilhier, and a Velpeau, I beg leave to now introduce you; and since we have spent so much time with our kindred north of the Channel, we shall be able to make but a brief stay among the gay, sprightly and polite Frenchmen. Let us first go to a lecture at the School of Medicine. We find the large room crowded with attentive listeners; for though there are other medical schools in France, the Parisian institution remains ever the great luminary to which nearly all French students are attracted. We have scarcely listened a minute when the thought arises in our minds, what a difference there is between an English and a French professor. Our speaker here surprises us with his matchless elocution, his ready command of language, his power of illustration, his grace of manner; in fact, we find that we are in the presence of an accomplished orator, a personage whom we failed to find in Scotland or England. Whether the Frenchman got his mercurial or movable character from Mercury, or his jovial disposition from Jupiter, or whether his insular neighbor got his opposite and somewhat saturnine character from the planet with rings, we have not time to investigate. Yet the fact strikes us most forcibly that never were neighbors more the antitheses of each other; and in this circumstance we find an explanation of their mutual hates and wars during the last thousand years.

Over the speaker is placed a splendid painting on which the famous Ambrose Paré is represented in probably the most important act in which any surgeon ever figured, viz., the application of a ligature to the bleeding vessels of an amputated limb. You will recall that up to Paré's time bleeding was staunched by plunging the stump into hot pitch, or applying a red-hot iron to the cut vessels. In this painting, on a battle-field, a soldier has had his leg cut off, and the attending surgeon is in the act of applying the burning iron, when Paré, who is standing by, reaches out a few silk threads to be used as a ligature. The careworn and haggard face of the wretched soldier as he cautiously scans what is being done, and the noble serenity of countenance

of the old surgeon as he performs the act which in all future is to relieve amputation of half its horror, makes a picture which commands the admiration of every one who visits this lecture room. And just above the speaker's head is a bust of Ambrose Paré, and which, I may be excused for saying, has some resemblance to the senior member of our Faculty; but whether the latter would have written the pious sentence that is escaping from old Paré's lips, viz., "I dressed the wound, but God healed it," I do not know, though I think it probable that he would, when I remember how ready he is to apply the lash to young men, and anon to old ones, who leap out of the traces of temperance, or let down the bars and stray out of the field of good morals.

After this lecture closes, let us stroll for a few minutes about the famous fabric which for so many years has been consecrated to the study of Medicine. As we look at its front, a few bas-reliefs strike our attention, but soon our eyes rest on a remarkable bronze statue which stands in the open air of the court. It is remarkable on account of the intellectual expression of the face, as well as for an awkwardly formed body, which supports the noble head. When we enter the building and ascend the stairs to the library and anatomical museum, there we meet the same figure again, in plaster, and beside it the figure of a child, the body of which he is gently touching, while he appears absorbed in intense thought as he looks at the child. At his feet one sees a book half-opened, in which we catch a view of the words, "La Vie et la Mort,"—that is, *Life and Death*. The statue is of Bichat, of whom France is as proud as we are of Franklin, or England of Newton; and to show its appreciation of his talent and what he had done for science, the French Government ordered that his statue should have a prominent place among the group which adorns the front face of the Pantheon. This group represents the goddess of honor distributing awards to the most famous men of France. Bichat died at the early age of thirty-one, an age at which few men have really commenced their work; yet in his brief life he accomplished that which has made a new epoch in Medicine. As the historian of civilization has put the matter, it was Cuvier who introduced accurate study of the organs of the

animal body; but it was the wonderful merit of Bichat that he carried ~~over~~ science one stage farther, viz., he was the first to accurately study the tissues which compose the organs, and to study them in their normal and abnormal conditions. There remained but one more stage to be passed, in order that medical research should reach its final goal. To the pioneer of the latter stage, we will make a visit presently, after we have said a word or two more in regard to French Medical Institutions.

To the great disadvantage and loss of time to the student, the hospitals of Paris, like those of London, are scattered over a large area; so that to go from the most northern to the most southern one, we must traverse a route of some three miles, and a like distance to pass from the most eastern to the most western. They are all worthy of a visit, as each has a medical or surgical attendant who has reached his place through a gauntlet of *concours*, in which he has outstripped some score or more of talented rivals. In this contest for place the candidate is examined as to his qualifications as a scholar, as a teacher and as an elocutionist. Hence we find among French medical teachers more fine speakers than elsewhere in the world.

In our circuit among the hospitals, I shall direct your attention to the excellent judgment that has been used, as a rule, in their construction. They are so arranged as to afford free inlet and outlet of air, and the whole building is quadrangular, or so disposed in rectangular sections, that a free space of open ground is left within, which is laid off in small lawns, and intersected with rows of lindens and maples, and adorned with borders of bright flowering plants. In warm weather these well shaded grounds are thronged with groups of convalescent patients; some of the feebler ones being carried there on their beds. Such a transition from the never-varying monotony of the walls of his ward to the enlivening beauties of nature, excites a most happy influence upon the patient laboring under a chronic ailment. Such an intimate contact with the inspiring views of nature enables the waning physical forces to rally as did the contact of the wrestler of old with the strength-giving earth.

The most interesting of all the Parisian hospitals for our visit

is that of Hotel Dieu; old enough to have witnessed that most curious of dramas which centuries ago was enacted in the Garden of Cluny near by, when Julian the Apostate was forced by the Roman legions to either accept the imperial purple or death at their hands; and not unlike the most of men, he chose the former. Grand old fabric, worthy of its name, God's sojourning place! parent of French hospitals, and the birth-place of the French medical schools, since it was here that students were first gathered together in Northern Europe, and where, surrounded by a cordon of police, they first listened to anatomical lectures. Here Guy de Chauliac, whom history records to have divided his time about equally between medical research and professional wrangles, delivered the first systematic lectures upon surgery; and the auditory which we now visit has resounded with the voices of Bichat, Desault, Dupuytren and Trousseau. But venerable Hotel-Dieu which has been the scene of so much that is remarkable, is now playing its final act. Time and sanitary science have decided that it shall exist no longer. But phoenix-like, it is rising anew in one of the most magnificent buildings which has ever been consecrated to hospital purposes; a structure in which convenience, hygiene and beauty, such as can only be born of French taste, are all united.

As our visit everywhere must be brief, partaking of the character of panoramic transition, I shall next conduct you to Berlin, the great centre of Teutonic power, and the seat, to my mind, of the greatest of German medical schools. As it is my purpose only to point out some of the leading features and prominent excellences of the great medical centres which we are visiting, I will after noticing the hospitals, introduce you in Berlin to but one or two distinguished personages.

The hospitals associated with, and used for the purposes of teaching, by the medical school of Berlin are two: the Charité and the Klinikum. The Charité contains medical and surgical wards; the Klinikum is devoted wholly to surgical treatment, and when compared with other famous European hospitals, it may safely be assigned the first place as a model where one finds a total disregard of all that falls under the head of sanitary and hy-

gienic. Had the Imperial ruler of Germany, or rather his Chancellor, devoted a fraction of the French indemnity to the erection of a new surgical hospital, he would have left a monument that would survive the military fortification on which most of that ransom has been spent; and besides, in so doing, he would have pleased and done honor to his much-loved surgeon Langenbeck, who is heartily ashamed of the present structure. But Berlin, though possessing the most learned body of men in the world, has failed to make use of the most common and universally known principles of sanitary science. Sewers which elsewhere are bridged over, are there open canals or ditches, whence foul effluvia continually mingle with the air.

Langenbeck, the surgeon at the Klinikum, though advanced in life, is one of the most expert operators now living; and you will not be surprised at this when you learn that for many years he has repeated on the cadaver, at least twice annually, all the principal operations in surgery. Besides, when we hear a few of his clinical lectures, we shall be convinced that he has more unwritten surgery in his memory, the mature fruit of years of diligent work and observation, than any surgeon whom we shall see in our travels. I once was present at a national fete, when, in the old Castle of Frederic the Great, there were assembled the leading titled and order-bearing personages of the German Empire. The Emperor and his family, those high in command in the Army and Navy, the Order of Superior Merit, Eagle-bearing Knights, black and red, were gathered there. In casting my eye over the moving sea of gold and colors, I observed the slender, nervous and graceful form of Langenbeck. He was literally covered with orders, the gifts of his sovereign, with whom he is a great favorite, his last order having been conferred for a difficult operation on the Emperor's daughter. And though, seemingly, one of the most cheerful of that titled company, I could not but suspect that anon a shadow of sadness stole upon his heart, as that military display awakened the memory of a brave son, who, as an officer in the late Franco-Prussian war, fell pierced with a dozen bullets on the battle field.

Alongside of Langenbeck was place for another great man of Prussia. But the place was unoccupied by him, though his sove-

reign had conferred an order upon him which entitled him to be present. It would not have been consistent with the life and character of Rudolf Virchow to be there, since he is too intimately associated with the party opposed to the Government. Besides, his time is so precious that he cannot give a moment of it to any work which will not advance science or the rights of humanity.

In order to see Virchow, we must go to the Charité, the hospital above named. Casting our eyes about this great pile of buildings, we find less to complain of in a sanitary point of view, than we met with at the Klinikum. Its well-shaded grounds remind us of what we saw at Paris, or what we might see at Vienna, had we time to visit that city. Among the many buildings comprised in the Charité, I wish to direct your eyes to one of imposing appearance and ample proportions, bearing the unique name on its front, *Pathologisches' Institut*. This is the great workshop of Virchow. Here is his collection of crania which have furnished him some keys for the solution of the anthropological problem. Here is his immense collection of pathological growths and general morbid anatomy which has guided him in the classification of tumors, and especially in the preparation of that remarkable work which has made a new epoch in medicine, viz: Cellular Pathology. Bichat, as we have seen, traced disease to the tissues; it has been reserved for Virchow to trace it a step farther, viz: to the cell. This work, which he has performed in part and pointed out the way in which it is to be done, has carried the science of medicine a long way towards that completeness of knowledge which is its ultimate aim.

Of all the men now living I can cite no one who exhibits so many phases of mental character united in one person as he. For example, he possesses most wonderful powers of analysis, as shown in his unfolding the complexities of disease, until he has found the minute cellular aberrations which have caused it. Witness the amyloid change which he was the first to detect, or at least, to correctly interpret. Witness his discriminating sagacity in discovering the multifarious offices subserved by the connective-tissue cell, which, till Virchow's day, was regarded as somewhat like Paley's explanation of the spleen—something introduced into the

animal organism as a kind of expletive, to fill up vacancies which had been left in the formation of the body. Virchow claims that instead of being mere packing material, the connective-tissue cells are important instruments to which are due the healing of wounds, and many other physiological and pathological processes. Many other examples might be adduced as illustrative of his powers of analysis, but the instances cited are sufficient. His powers of synthesis, or of regrouping together the sundered facts of disease, are shown in his wonderful work upon tumors, which, before his time, may be denominated a territory unreclaimed from chaos, but which, by his generalizing powers, has been reduced to a domain of such order and simplicity, that the cardinal principles of it may be mastered by the student in a few hours' study. As another instance of his synthetic faculty may be cited the matchless formula of Heterochronia, Heterotopia and Heteronomia, which is really an epitome of all books written upon general pathology, a kind of logarithmic key that enables the pathologist to take a short route to the solution of his pathological problem. Or, if I am allowed another mathematical illustration, this formula is like the binomial theorem of Newton, as it enables the pathologist to combine the multifarious phenomena of the morbid tissues into easily legible forms.

Besides this work, which, as we know, can only be done by the quiet, retired and thoughtful scholar, we find him daily acting another part, requiring character and habits of mind quite the opposite, viz: as an active debater and leader of the Democratic party in the National Assembly of Prussia. Here, as the champion of human rights and the firm opponent of the Bismarckian policy of military aggrandizement, I have often known his voice to be heard a half hour after he had delivered a two hours' lecture in the Pathologisches Institut.

I think it is much to be regretted that Virchow devotes so much time to political matters. Though it may serve as a recreation to his many-sided mind, yet it has probably deprived our profession of many additional discoveries which he might have made, had his undivided attention been devoted to original research in medicine. The vast store of facts which experience and observation have laid up in his memory, give him a range of vision over the field of our science farther than that enjoyed by any living person. Standing upon such an Alpine summit, he would be able to plan out and lay open routes of exploration into the domain of the unknown, which, without such a master, must long remain undiscovered. I do not wish here to imply that medical men should

take no part in matters of legislation. On the contrary, I think it highly necessary that medical men who have talents suited therefor should take part in the councils of Government. There is no subject which more closely concerns the welfare of society than public hygiene, and all legislation which has this for its object is in danger of taking very absurd routes, unless shaped and guided by those who have been educated in medicine. The three great nations which we have visited are beginning to open their eyes to sanitary matters, and especially so England, in whose legislative halls subjects pertaining to State medicine are among frequent matters of discussion. The need of intelligent representatives of medicine was fully illustrated there recently, in the unwise laws that were attempted to be enacted with the view of restricting, I might almost say of suppressing, vivisection. As an example of the lamentable ignorance of one of the leading commoners, he urged as a reason for suppressing vivisection, that there is nothing more to be learned by it, since medicine has already reached its ultimate term of development. How little did that Honorable Member know that, during the time which our race has existed, empiricism, in groping blindly across the long and dark lapse of ages, has stumbled on but a minimum fraction of the truths which must ultimately be encompassed in the domain of medicine, and that the untraversed ocean of the unknown is only to be explored in the bark of vivisection, in which some future Columbus is to cross and discover the new world of ample light and knowledge. To combat such error as that before mentioned, there is a need of medical men in our legislative councils; and, if I would not have a Virchow there, it is because he can illy be spared as a laborer in that field which he has already enriched with so many discoveries.

When, however, we see Virchow, we almost fear that the best work of his life is done, since it is only too plainly visible that over-work has consumed the most of his energies. Years and the self-imposed tasks of a relentless will have impaired the working powers of the great master. Ashes are beginning to form on the once vivid coals of his enthusiasm, and one almost fears that the "sides" of his mind have become insensible to the "spur" of ambition.

In Virchow's personal appearance one discovers many striking and characteristic features, but the one which stands prominent beyond all the others may be expressed in one single sentence, viz: *Stand up boys, and don't give an inch.*

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If I be permitted to conclude my address with a brief deductive summation drawn from the characters of some of the personages whom we have seen in our tour, allow me to point out as eminently worthy of imitation, the plain and practical good sense of Sir Thomas Watson, the unblemished professional career of Sir William Fergusson, and the never-resting industry of Virchow.