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ADDRESS IN SURGERY.

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THE SURGEON OF OLD IN WAR.

I am indeed greatly honored by having to deliver to you to-day an Address in Surgery. Fortunately for me the title is a wide one, and I shall take advantage of that fact to diverge from the strict consideration of surgical disease, and shall offer you instead a brief sketch of some of the most notable work done of old by a body of members of our profession who have never received their due reward—those, namely, who have devoted their lives to the succor of the sick and the wounded in war.

Military Surgeons in the Roman Army.

Twelve months ago my friend, Dr. Barnes, of Carlisle, ex-President of this Association, made me acquainted with a remarkable paper by the late Sir James Simpson, entitled "Was the Roman Army provided with Medical Officers?"—a paper exhibiting such profound learning, so charmingly written, and so little known, that I need not make any apology for acquainting you with some of its chief points of interest.

The most careful investigations have failed to make out from their writings whether the Romans regularly appointed physicians and surgeons to their armies or not, although nearly every other question relating to their military organization has been treated of, sometimes very fully. Curiously enough, what little information we possess on the subject comes mainly from mortuary or from votive tablets. Borcovicus, in Northumberland—now called Housesteads

—was one of the principal stations on the line of Hadrian's wall. Here, about seventy years ago, was found a monumental tablet, now in the Newcastle Museum. On it is the following inscription.

D M	D(IIS) M(ANIBUS)
ANICIO	ANICIO
INGENUO	INGENUO
MEDICO	MEDICO
ORD COH	ORD(INARIO) COH(ORTIS)
I TUNGR	PRIMAE TUNGR(ORUM)
VIX. AN XXV	VIX(IT) AN(NOS) XXV

The First Tungrian Cohort is known to have been present at the battle of the Mons Grampius, and to have served at Castlecary, at Cramond near Edinburgh, in Cumberland, and at Housesteads. The tablet is highly ornamented, and antiquarians hold that a rabbit and round bucklers carved in the upper part, which are emblems of Spain, show that the young military doctor was probably a native of that country. From various works treating of Roman inscriptions Simpson was enabled to find that four more tablets, in which surgeons of cohorts are mentioned, existed. They were found at Rome. One of them is a votive tablet, the inscription upon which intimates that it was dedicated by Sextus Titius Alexander to Æsculapius and to the safety of his fellow-soldiers. It was cut in the year of the consulship of F. Flavius Sabinus, which is known to have been A.D. 83. As the Roman legion consisted of ten cohorts, it is interesting to know that there were not only medical officers attached to each cohort, but also one attached to the legion—a sort of surgeon-colonel, as we should call him nowadays. Three tablets have been discovered in which the *medicus legionis* is mentioned. One found at Verona was a tablet raised by Scribonia Faustina to her dearest husband J. Caelius Arrianus, medical officer to the Second Italian Legion, who died at the age of 49 years and 7 months. Furthermore, Simpson routed out of Mommsen's Latin inscriptions of Naples a tablet, now in the Dresden collection, which was found in the Elysian fields near Baiâe, close to the Portus Julius, which was the station of a division of the Imperial fleet. The inscription tells that M. Satrius Longinus, *medicus duplicatorius* to the Trireme Cupid, and the heirs of those freed by Julia Veneria erected the tablet to the manes of that deserving lady. The term *duplicatorius* means that by reason of long or meritorious service he was entitled to double pay and rewards. These little gleanings from Simpson's paper show what an interesting one it is, and one is astonished at the labor that must have been expended in digging up the information contained in it.

Ambroise Paré.

Hundreds of years went past before there came upon the scene any military surgeon of note, but when he did appear he was a man of transcendent merit—the illustrious Ambroise Paré. From 1517 to 1590, for seventy-three years, he lived a long and incessantly active life, the contemporary of Vesalius, the immediate predecessor of Harvey. We have only time to glance at the soldier-surgeon side of Paré's life. For over thirty years he followed the wars under four kings of France—Henry the Second, Francis the Second Charles the Ninth, and Henry the Third, with intervals of a few years at home in Paris. Perpignan, Metz, Verdun, Rheims, Hesdin (where he was taken prisoner and had to write to his wife for his ransom), St. Quintin, La Fère, Amiens, the taking of Rouen, Dreux, Moncontour—these are but some of the bloody battles and sieges at which he was present. Through them all his humanity, his love of his profession, his independent character, and his jovial, frank disposition carried him safe, and made for the son of the poor country joiner warm friends among the greatest and noblest warriors of France. Even that miserable monster, Charles the Ninth, loved the Huguenot surgeon; and when the awful day of St. Bartholomew came, Paré was spared to tend his wretched master through the brief term of agonized and remorseful life that was given him. The description in Dumas's novel, the *Two Dianas*, of the wound of the famous warrior, Duke of Guise, where the lance entered above the right eye and came out between the nucha and the left ear, breaking short off, and how Paré lugged it out, with the chance that when it did come, one terrible gush of blood would finish his illustrious patient's life and his own career at the same moment—the picture of all this is real history.

Amid all the splendid work, both anatomical and surgical, which Paré did, the application of the principle of the ligature to bleeding arteries is of course that with which his name will be for ever associated. In this day of grace it is impossible for us to imagine the horrors that awaited a wretched man so soon as his limb was cut off and the process of stopping the bleeding began. Think of the raw and exquisitely sensitive stump exposed to the red hot cautery or plunged into boiling pitch! For this frightful treatment Paré substituted the ligature, which in our own day, employed in the form of an aseptic animal material which the tissues quietly absorb, has practically reached the pitch of perfection. In his time, too, there was a fixed belief that the danger from gunshot wounds arose from the poison of the gunpowder conveyed on the bullet. To destroy this poison the treatment was to pour into the wound boiling oil in which elder-wood bark had been stewed. On one

occasion, not having this infernal concoction at hand, Paré used a cold mixture of yolk of egg, oil of roses, and turpentine to his wounded soldiers. He passed a sleepless night from dread that this would injure those to whom it had been applied, and his delight next day was proportionately great when he found that they had had but little pain, while their wounds were free from inflammation and swelling. This was his panacea for wounds ever afterwards. There are of course persons who wish to make out that he was not original in the matter of the ligature. He himself says this about it: "Taught me as I interpret it by the suggestion of some good Angel, for I neither learnt it of my masters nor of any other man. And thus I wish all chirurgions to doe. For it is not in our Art as it is in civill affaires, that prescription, law, or authority should prevail over right reason." But these cavillers have doubtless never heard of an ancient proverb which says that there is nothing new under the sun. In spite of them the world will ever believe in a glorious trio—Paré, the Frenchman, who invented the ligature; Morton, the American, who discovered anæsthetics; and Lister, the Englishman, who introduced antiseptics. In the fullness of years, possessed of affluence, and surrounded by friends, died Paré, the whilom poor barber-chirurgeon, now a Councillor of State and Surgeon-in-Chief to the King. One final touch will perhaps reveal a sentiment that permeated and guided his every labor. On one occasion, after the successful treatment of a wounded officer, he made this wise and reverent remark, afterwards adopted as his motto: "*Je le pansay; Dieu le guarist*"—I treated him; God cured him.

Robert Clowes.

Coming to England, a surgeon who saw no little fighting was Robert Clowes, who was born somewhere about 1540 and died in 1604. He served in France in the army commanded by the Earl of Surrey, and was afterwards for several years in the navy. He then began practice in London, and was made surgeon to St. Bartholomew's and Christ's Hospitals. But, after being about fourteen years in civil practice, he was despatched by Queen Elizabeth's orders into the Low Countries to attend upon the Earl of Leicester, Commander of Her Majesty's forces. He was at Zutphen when Sir Philip Sydney was killed. His last piece of service was a glorious one, he being with our fleet that defeated the Spanish Armada. It is told of him that he always kept beside him his military surgical chest with the bear and ragged staff of his old chief Leicester on the lid. He finally settled down once more in London, where he was very successful in practice, and was made surgeon to the Queen. He wrote several works in English, of which the most important is entitled: *A profitable and necessarie Booke of Observ-*

ations for all those that are burned with the flame of gunpowder, &c., and also for curing of wounds made with musket and caliver shot, and other weapons of war commonly used at this day both by sea and land. A good half of this treatise is occupied with a record of surgical cases of note which he had treated, and this renders the work very entertaining, inasmuch as we get an accurate and positive knowledge of everything that was done for a wounded man in those days, while there are numerous little side touches very characteristic of life at the time it was written. He tells us, for instance, of "The cure of one Master Andrew Fones, a merchant of London, which, being in a ship at the sea was set upon by the Flushingers, in which fight he was very dangerously wounded with a gunshot." There is "The Cure of one Henry Rhodes, one of the waiters at the Custom House, he being upon the river of Thames a skirmishing with his peece, and by reason the peece had certain flaws in it, did breake into many peeces, and made a great wound upon his chin, and carried away a good part of the manduble and the teeth withall; moreover it did rend his hand greatly: all which I cured without maime or deformitie." There is "An observation for the cure of the master of a Hoy that had both his legs fractured and broken into many peeces with an iron bullet, shot out of a great basse or harquebusse of crocke at the sea by a Pyrat or sea rover." These few titles will give you an idea of Clowes's clinical cases. The importance which attaches to them, and the reason why they constitute a distinct advance in the science of surgery is that the author gives his actual experiences, and tells us what he did to his patients, whereas at that period the tendency was to write endless commentaries on ancient writers, to whose every dictum the blindest and most unreasoning respect was paid.

Peter Lowe.

Contemporary with Clowes was a most interesting character—Maister Peter Lowe—who was born in Scotland about 1550, and lived some sixty or sixty-five years, reaching well into the seventeenth century. Like many of his countrymen, he went to France when very young, where he lived for some, say, ten, some twenty years. Then he returned to Glasgow, where he lived and died a citizen of much renown, having obtained in 1599 from King James the Sixth a charter for the Faculty of Physicians and Surgeons of Glasgow, which he thus founded. A few years ago Dr. Finlayson published a most charming account of Maister Peter.

His most important work is termed *A Discourse of the whole art of chirurgery, compiled by Peter Lowe, Scottishman, Doctor in the Faculty of Chirurgerie at Paris, and ordinary Chyrurgion to the French King and Navarre.* The first edition dated from 1597,

and is one of the earliest, if not the very earliest, work embracing the whole art of surgery published in English. It is clear that Lowe must have seen a good deal of military service abroad, being "Chirurgion Major to the Spanish regiments two years at Paris, and since that time following the king of France my maister in the warrs." In his day, as we have seen, the surgical world was still greatly exercised about gunshot wounds and burning by gunpowder, as it was believed that they were injuries of quite a peculiar and very poisonous character. Lowe, however, treats of them with great good sense. Thus; "*Of Wounds done by Gunshot.*—These wounds come indifferently to all parts of our body whereof there are divers opinions; some think that there is a venenosity in the powder, and burning in the bullet, which is false, for the things whereof the powder is ordinarily made, as Brimstone, Saltpeter, coales of divers sorts of trees, Water, Wine and Aquavitæ, have no venenosity in them; likewise there is no burning in the bullet, for if the bullet of lead being shot a great way, should burne, through heat would be melted itself. I have cured divers within these thirty yeares of divers nations which have followed the warres in Fraunce and other cuntries, in the which I have found no more difficulty than in any other contused wounds." Here, again, we have a most important advance made by a military surgeon, for only those who are acquainted with the medical literature of Lowe's time can understand the ridiculous views then held about gunshot wounds, and the dreadful consequences to the patients which followed from them.

We have seen that Paré lived between 1517 and 1590, and that Peter Lowe was in France between 1570 and 1580; consequently, he probably learnt all about the ligature for the arrest of hæmorrhage. When treating of amputations he describes the whole process of the operation up to the removal of the limb. Then he says: "One of the Assisters shall put the extreamities of his fingers on the great vains and arteries to stay them from bleeding till the Chyrurgion either knit or cauterise them one after another. Where there is putrefaction we stay the flux of blood by Cauters actuals, and where there is no putrefaction, malignitie nor humour venomous we use the legator." He narrates the case of a certain valiant Captain Boyle, of the Spanish troops, whom he, in the capacity of Chyrurgion-Major to the regiment, was summoned to treat for an "aneurisme on the right side of his cragge." Lowe ordered it to be let alone, "but the captain sent for an ignorant Barbor who did open the swelling with a Launcet, which being done, the spirit and bloud came forth with such violence that the Captain died in fewe howers after." Having duly castigated the Ignorants who do such things, Lowe observes that his treatment for such cases is first to draw

blood in both arms, and then to apply on the tumor "Rec, Pulveris subtilissimi boli arminici, sanguis draconis, myrtilorum, lapidis calaminaris in aceto extincti, absinthii ad unc. cum cerato refrigerantis Galeni quantum sufficit, fiat unguentum." Curious to note how, even in men of distinct ability like Lowe, a complete ignorance of pathology dragged them into the perpetration of the silliest empiricism.

WOODALL'S "VIATICUM."

In 1628 appeared the first work in England specially devoted to military and naval surgery. Some eleven years later a second edition appeared, and this is its title:—*Viaticum, being the Pathway to the Surgeon's Chest, containing chirurgical instructions for the younger sort of surgeons imployed in the service of his Majestie or for the Common-Wealth upon any occasion whatsoever intended for the better curing of wounds made by Gunshot*, by John Woodall. A perusal of the *Viaticum* shows that Woodall was a very practical surgeon and an eminently religious man, and the way in which he mixes up pills and piety is sometimes very diverting. After some excellent general advice to the surgeon's mate, including a warning against "being given and dedicated to the Pot and Tobacco-pipe in an unreasonable measure,"—he enumerates the instruments for the Surgeon's Chest, including among others Catlings, Rasours, Trapans, Trafine, Lavatories, Cauterising Irons, Storks bills, Ravens bills, Crowes bills, Terebellum, Probes or flamules, Glister Sirings and (what would have utterly damned his book in the present day) "one bundle of small German instruments." Then comes a list of medicines under the heading Unguentum, Aqua, Sol, Oleum, Chemicall Oyles, Syrups, Conserva, Electuariæ, and so on, winding up with a list of the Simples, and of the Herbs and Roots most fit to be carried. A long and careful description of the uses of the instruments and drugs follows, and then come chapters on wounds, apostumes, fractures, dislocations, amputation, scurvy, the plague, gangrene, and other topics. He observes that the cauterising irons had gone somewhat out of fashion, and he did not use them much himself "because of the feare they put the Patient into and for speech of people who are ready to scandalise an Artist upon each light occasion." In amputation, moreover, they are "now wholly forborne for reasons aforesaid, and for that a more pleasant course is known better for the patient and the Artist by making a ligature upon the veine, wound or artery, which is the binding of each end thereof, being first caught and holden with some fit instrument, and tied with a sure and strong thread."

Woodall advances the cure of wounds a distinct step, once more putting us under an obligation to the soldier-surgeon. This

he does by sharply attacking all through his works the inordinate and meddlesome use of strong caustics. He says that he had seen men lamed by the needless use of caustic medicines, even in slight wounds to which if an old wife had only applied her one salve for all sores, no such thing had happened. "They will not see a wound incarne and red and good flesh to grow, but straight they slander it of pride, and call it proud flesh; like their owne; and then must at the fairest Precipitate or Vitriale burnt goe to work, yea though the Patient be lame for it, or at the least the griefe put back again."

Richard Wiseman.

I wish I had time to give you a proper account of the adventurous life of Richard Wiseman, who has been termed the Father of English Surgery, and that not without reason. Born in 1620, dying in 1676, he lived in the time of Charles the First, of the Commonwealth, and of Charles the Second. He was a naval surgeon to begin with, serving in the early part of his life in the Dutch navy. Being, however, a devoted Royalist he served with the armies of Charles the First, and after his death went into exile with his son in France. He was present at the battle of Worcester, where he was taken prisoner, and afterwards confined in Lambeth House for awhile. During the Commonwealth he was naturally under a cloud, and even went on for three years to serve in the Spanish navy. At the restoration the King did not forget his old surgeon, who had done and suffered so much in his service, but appointed him his surgeon-in-ordinary, and afterwards serjeant-surgeon. The first edition of his work, printed in 1672, is quite a small book, and is entitled *A Treatise of Wounds*, but it afterwards expanded into a very large volume.

Nothing reveals a man like his own words, and so in trying to give you an idea of these old worthies I have let them tell their own stories. Wiseman believed in the need for giving stimulants to a man who was in the habit of taking them, if that man was in a dire strait. After describing the parlous case of a certain patient, it seems that the "man swooned and complained that he could not live without wine. I complied with his desire; he drank again as he pleased, his sickness went off, his wound digested, and he cured. This I have often seen in some of our Dunkirkers at sea, who drank extraordinarily, and were full of drink in our sea fights. I could scarce ever cure them without allowing them wine, and thereby their spirits were kept up, and I had the liberty to bleed them as I thought fit." From this it is clear that the old saying about Dutch courage has a distinct origin in fact. But if the unhappy Batavians were liable to be bled at once by the lance of the enemy and the

lancet of the surgeon, one can hardly wonder at their taking something to keep their spirits up.

When speaking of gunshot wounds, he insists upon the bullet being searched for and extracted at once. "The part is at first dressing, with what diligence you can, to be cleared of all such Foreign Bodies as have made violent Intrusion into it, while the patient is warm with the heat of Battel, and the wounds fresh and very little altered by either Air or Accidents, so that less pain must necessarily follow upon the extraction. In the *Armada Naval de Dunquerque*, where we Chirurgeons were oft employed in this Service, we after every fight went together visiting one another's wounded men. Amongst us it was thought a great shame if any of this work of Extraction was there to be done. It hath been the cause of the death of many a brave Souldier, and every Battel produces instances of it, to the discredit of our profession." This is good surgery and straight talk. I think it must have been a fine spectacle to have seen these rough old surgeons, with their limited knowledge and their miserable means of treatment, walking round to see each other's patients and learning how best to mend their mistakes.

He has a chapter entirely devoted to a great case of a fracture made by a splinter. The patient had his arm badly smashed above the elbow, and ought to have had it amputated; but a sudden cry of fire stopped this. "I hastily clapt a dressing upon his wound and rouled it up, leaving his arm in his other hand to support it, and endeavored to get up out of the hold as the others did, I verily believing I should never dress him or any of them more. But our men bravely quitted themselves of the Fire-ship by cutting the Sprizil Tackle off with their Hatchets (which they wore during fight sticking in their Shashes); we were freed of the fire, and by our hoisting up the top sails got free of our Enemy. Now, I was at a loss what to do with this man, who lay not far off complaining of his arm. I would have cut off his arm presently with a Razor (the Bone being shattered there needed no Saw); but this man would not suffer me to dress his arm; he cryed 'it was already drest.' The Fight over, we got into the next Port; I caused presently the Mariner's Bed to be set up (which was four pieces of wood nailed together and corded, and a Bear's skin laid upon it); this was fastened between two Guns to the Carriages." Wiseman then set hard to work to save this unfortunate mariner's arm; but "when it came to my turn to be visited by my brother Chirurgeons of our Squadron, they did not dislike the wound nor my way of dressing (for we, being used to see one another's Patients, had all much one way of dressing); but they laughed at the excuse I made for not cutting off his arm, and doubted I should yet be forced to do it.

But at the end of two months there was in this Patient a strong callus, filling up the void place of the lost Bone at least two inches, with little or no shortening of the arm." Well done, Wiseman!

Baron Larrey.

Up till the time of the French Revolution it is clear that military surgeons were not men of much importance, and probably had very little influence, if any, in the conduct of campaigns. But in the latter part of last century war was made on a scale which was never known before, and was made also with a rapidity and a precision quite unprecedented. Moreover, the science and art of surgery had been rescued from quackery, and surgeons in actual practice were able to be of great and real service to the wounded. As a result of the vast masses of men that were hurled against each other, the number of wounded after a big battle amounted to thousands, and civilization had so far advanced that it was imperative that immediate help should be given to them. So that about this time the military surgeon really became an important officer in warfare, and began to have his rank and pay well defined, and his merits (up to a certain point) recognized.

In 1776, near the Pyrenees, was born Jean Dominique Larrey, the Chirurgien-en-Chef de la Grande Armée, the friend and body surgeon of Napoleon, the greatest military surgeon that ever lived. He studied at the medical school of Toulouse, and in 1792 joined the headquarters of the Republican Army of the Rhine under Custine. Now, the ambulances of these days were obliged to remain about a league from the army, and the wounded were only picked up after the fighting was done. General Custine was a man who moved his troops very rapidly which made matters worse for the wounded. This greatly affected Larrey, who set to work and devised a new ambulance hung on springs, and combining great strength with lightness. Such carriages were termed *ambulances volantes.* They could keep up with the advanced guard of the army with the speed of flying artillery, and they carried off the wounded almost as they fell. Larrey had early perceived the enormous advantage a wounded man got by having his fracture set or his bleeding stopped as rapidly as possible, and by then getting a roof over his head before night set in. General Beauharnais, in a despatch to the Convention, made special mention of "Surgeon-Major Larrey and his comrades with flying ambulances, whose indefatigable care in the healing of the wounded has diminished those afflicting results to humanity which have generally been inseparable from days of victory, and has essentially served the cause of humanity itself in preserving the brave defenders of our country." The staff of a flying ambulance was about 340 in number. For each

division there were four heavy carriages and twelve light ones. Some had two and others four wheels, and they were furnished with mattresses. In Napoleon's Italian campaigns they came greatly to the fore, and the great man displayed a lively interest in them reviewing them and causing them to manœuvre before him just as if they were on a battle field. After one of these inspections he said to Larrey: "Your work is one of the most happy conceptions of our age. It will suffice for your reputation."

When Napoleon undertook his Egyptian campaign, Larrey proceeded to Toulon to organize the medical staff. So readily did professional men respond to the call made by him that he soon was able to reckon on 800 well qualified surgeons, of whom many had served in the army of Italy, and these were in addition to the medical officers actually attached to regiments. This I think, shows the value that the king of commanders set upon the health of his troops, and the trouble and expense which he was prepared to face in order to maintain it—a great contrast to the miserable way of dealing with this subject, which has too long been the fashion with our military rulers. Not long after the landing at Alexandria a certain General Figuières was severely wounded. By able treatment he recovered, and in gratitude for the preservation of his life he asked Napoleon to accept a valuable Damascus sword. "Yes," said the latter, "I accept it in order to make a present of it to the Surgeon-in-Chief by whose exertions your life has been spared." Upon the sword was engraved the words Aboukir and Larrey, and the surgeon had it till the fatal day of Waterloo, when the Prussians robbed him of it. Some months after the occupation of Egypt a terrible revolt took place in Cairo by fanatical Turks. Utterly regardless of anything except how to get at Frenchmen to murder them, they attacked the hospital, which was crowded with sick and wounded soldiers, but the doctors valiantly defended their patients, and two staff-surgeons, Roussel and Monjin, were killed, while Larrey nearly shared the same fate.

At one period there was a total dearth of meat, and Larrey had nothing wherewith to make even a drop of bouillon for his patients. He ordered camels' meat to be used for this purpose, and, when that fell short, he used up the horses. Years afterwards, in the second campaign against Austria, the Imperial Guard and several other corps were crowded together in the island of Lobau in the midst of the Danube, which Napoleon was endeavoring to cross. The days were roasting, and the nights icy cold, and provisions became so scarce that Larrey's patients were in danger of starvation. Without more ado he impounded certain officers' horses, and had them slaughtered and employed as food. As there was a lack of kettles,

he employed the cuirasses of those who had been killed, and made his horse flesh soup and stews in them. Certain generals made bitter complaint to the Emperor of Larrey's proceedings, who summoned the Surgeon-in-Chief, and in the presence of his staff demanded an explanation with a severe expression of countenance. "What," he said, "have you on your own responsibility disposed of the horses of the officers in order to give soup to your wounded?" "Yes," answered Larrey. He added no more, but soon afterwards he heard of his promotion to the rank of Baron of the Empire.

One of the most appalling retreats, next to that from Moscow, was Napoleon's retreat from the invincible walls of St. Jean d'Arc through Jaffa. There is no doubt that at that place a considerable number of patients sick of the plague were quietly put out of their misery by opium. Alison says 60; Sir Robert Wilson says 580. The retreat had to go on, the Turks were only an hour's march behind, and nothing but a cruel death awaited these unfortunates, so that whether this were a justifiable deed or not may well give ground for argument. But, as Alison says: "History must record with admiration the answer of the French chief of the medical staff when the proposal was made by Napoleon to him: 'My vocation is to prolong life, and not to extinguish it.'"

In those days means of transport were so inferior, and the necessity for removing hopelessly damaged limbs as soon as possible after the injury so imperative, that amputations were performed on the field of battle, while it was still raging, and amid showers of bullets. During the battle produced by the landing of the English in Aboukir Bay, General Silly had his knee crushed by a bullet. Larrey saw that unless the leg were promptly amputated the case would prove fatal, and, the General giving his consent, the operation was performed in the space of three minutes under the enemy's fire. Just then the English cavalry came upon them. "I had scarcely time," said Larrey, "to place the wounded officer on my shoulders and to carry him rapidly away towards our army, which was in full retreat. I spied a series of ditches, some of them hedged with caper bushes, across which I passed, while the enemy, owing to the ground being so cut up, had to go by a more circuitous route. Thus I had the happiness to reach the rearguard of our army before this corps of dragoons. At length I arrived at Alexandria with this honorably wounded officer, where I completed his cure." We must all agree that these were a pair of heroes.

As may be imagined, the awful retreat from Moscow called into play all Larrey's resources, and many an interesting story could be told of his efforts. Think of the awful battle of the Borodino, where under Larrey's own direction 200 amputations were performed

where there were neither couches nor blankets nor covering of any kind, and where the food consisted of horseflesh, cabbage stalks, and a few potatoes; think of cold, so intense that the instruments requisite for the operations too often tumbled from the powerless hands of the French surgeons. Think of the savage Cossacks, hovering about all the while, and waiting their chance to kill the surgeon and the wounded man equally with the combatant. Then came the passage of the Beresina. Take an incident of it. Among the wounded was General Zayonchek, who was over 60 years of age. His knee was crushed, and without amputation the saving of his life was impossible. It was performed under the enemy's fire, and amid thick falling snow. There was no shelter except a cloak, which two officers held over him while the operation was being performed; but the surgeons did their work with such coolness and dexterity that the old general survived, and died fourteen years afterwards Viceroy of Poland. Larrey succeeded in getting over the Beresina with the Imperial Guard, but discovered that the requisites for the sick and wounded had been left on the other side. At once he recrossed the river, only to find himself in the midst of a furious struggling crowd. He was on the point of being crushed to death when providentially the soldiers recognized him. No sooner did they do so than they carried him across the river in their arms, with the cry, "Let us save him who saved us!" and forgot their own safety in their desire to preserve the man whose tender kindness they had so often experienced.

Following his adored master through victory and defeat, Larrey at last stood at night on the field of Waterloo alone, except for some medical officers and the wounded who lay groaning around them. Down upon them came a squadron of Prussian lancers. Expecting no quarter, he fired his pistols at them and galloped away. They shot his horse, and sabred him as he lay on the ground. Leaving him apparently dead they went off. But he recovered his senses, and tried to crawl by cross roads into France. Again he was seized by another detachment of Prussian cavalry. They robbed him promptly of all he possessed, and took him before a superior officer, who ordered him to be shot. What a reward from a soldier to one whose life had been passed in succoring soldiers! About a quarter of an hour before the sentence was to be carried out, a surgeon major recognized Larrey. He had attended with deep interest a course of lectures which Larrey had delivered in Berlin six years previously. The prisoner was brought before Bulow, and finally presented to Blücher, whose son in the Austrian campaign had been badly wounded and captured by the French, and who owed his life to Larrey's exertions.

Larrey's honorable and glorious life terminated in 1842. Napoleon, when he made his will at St. Helena, wrote in it: "I bequeath to the Surgeon-in-Chief of the French army, Larrey, 100,000 francs. He is the most virtuous man I have ever known." From Napoleon's lips the words of free, spontaneous, ungrudging praise such as this rarely fell.

Pestilence more Deadly than the Sword.

In the middle of last century, while surgery had distinctly improved, the gross neglect of the Government and the pig-headed obstinacy of the generals was such that our unfortunate soldiers and sailors were hardly any better off than they were in the days of Paré. It has been maintained that Smollett, in the appalling picture of naval life as witnessed in the miserable expedition to Carthagena which he drew in *Roderick Random*, and which is known to have been the record of his own experience as a surgeon's mate, grossly exaggerated the evils thereof. I do not believe this. Look at the awful and unsuccessful expedition to Porto Bello in 1726, when nearly the whole of the crews of the ships were destroyed by fever three times over; where 2 admirals, 10 captains, 50 lieutenants, and about 3,000 to 4,000 inferior officers and men perished without striking a blow. Look at the taking of Havannah in 1762. The Earl of Albemarle took with him in the fleet 11,000 soldiers. Between June and the middle of October, when Cuba was ours, we had lost 560 men by wounds, and 4,708 by sickness. At the end of the Seven Years' War, a statement was drawn up in the *Annual Register* for 1763, from which it appeared that in all the naval battles of that war there were but 1,512 sailors and marines killed, while 133,738 had died of disease or were "missing." Look even at the end of last century, and consider the wretched and disgraceful Walcheren campaign. Never did our poor soldiers fight with more gallantry than in that campaign, only to perish beside Dutch ditches and canals from fever and ague and dysentery.

Military Courage.

As we have just seen, Baron Larrey's whole life shows that, while absolutely devoted to the work of his profession, he displayed a cool courage on the field of battle not less heroic than the more dazzling deeds of his fellow combatant officers. Not less does it mark the military surgeon of the present day. Have you ever heard of Surgeon Thomson who, during the Crimean war, when the army marched off after the battle of the Alma, volunteered, with his servant, John McGrath, to remain behind on the open field with 500

terribly wounded Russians, and passed two awful days and nights —these two Englishmen alone—among foreign foes, some dead, some dying, and none able to raise a hand to help themselves? Have you ever heard of Assistant-Surgeon Wolesley, of the 20th Regiment, who, at the battle of Inkerman, had quietly established his field hospital in that awful place, the Sandbag Battery? When the 150 men, who were all that remained of its defenders, were forced to desert it, about 100 of them fell back in one direction, and in that they found, at 30 paces from them, a Russian battalion blocking their path. There was not a combatant officer left, so the assistant surgeon took command. He had not even a sword with him, but, laying hold of a firelock with a fixed bayonet on it, he spoke a few words to the men within range of his voice, and told them that what they now had to fight for was not victory but life. Then he gave them the word of command: "Fix bayonets, charge, and keep up the hill." The soldiers answered him with a burst of hurrahs, sprang forward to the charge, and the next instant were tearing through the thickest of the Russians. One half of these reached the other side alive. Have you ever heard of Surgeon Landon who was shot through the spine while attending to the wounded on Majuba Hill? His legs were paralyzed, but he caused himself to be propped up, and continued his merciful work till his strength ebbed away. When unable for more he quietly said: "I am dying; do what you can for the wounded." Have you ever heard of Surgeon-Captain Whitchurch, who gained the Victoria Cross at the beleaguering of Chritral for the most determined courage in endeavoring to save the life of Major Baird? Yes, you have, for last year at Carlisle you gave him the gold medal of the Association, the highest honor which our Association can give to its members. There died the other day a certain Surgeon-General Reade, C.B., V.C. During the siege of Delhi, while attending to the wounded at the end of one of the streets of the city, a party of rebels advanced from the direction of the bank, and having established themselves in the houses in the street commenced firing from the roofs. The wounded were thus in very great danger, and would have fallen into the hands of the enemy had not Surgeon Reade drawn his sword, and calling upon a few soldiers who were near to follow, succeeded under a very heavy fire in dislodging the rebels from their position. Surgeon Reade's party consisted of about ten in all, of whom two were killed and five or six wounded. Ladies and gentlemen, Surgeon Reade was a Canadian, and the son of a colonel of the Canadian Militia. Of the 118 wearers of the Victoria Cross, 14 are surgeons, nearly 12 per cent. of the whole number. They stand in the proportion of 9½ per cent. of all the

officers of the army, so at all events they have contributed not less than their fair share of the deeds of valor which alone can win that glorious distinction.

The Army Medical Service To-day.

Ladies and Gentlemen,—I have diverged from the beaten track common to the givers of addresses such as this, to tell you what splendid men have been the military and naval surgeons of old, who not merely did their duty nobly and courageously as such, but who have in their day enormously contributed to the advance of the art of surgery. I have done it with a purpose; with the hope of attracting more strongly than ever the sympathy and help of this great Association to their military brethren in a critical juncture of their history. To day Her Majesty's Government cannot induce candidates to come forward for the medical service of the Queen's army. And why? Because it has persistently treated the Army Medical Department meanly and shabbily. To-day the Government of India can secure the services of the pick of our newly-fledged doctors for its army. And why? Because it has always treated the Indian Medical Service liberally and generously. I am not going to enter into the reasons for this; I desire merely to emphasize one point namely, that money is not at the bottom of this difficulty. The soldier surgeons of to-day are the same men now that they were in the days of William Clowes, who winds up his book, as I shall my address, with these verses:

> When valiant Mars, with brave and warlike band,
> In foughten field with sword and shield doth stand,
> May there be mist a surgeon that is good,
> To salve your wounds and eke to stay your bloud.
>
> To cure you sure he will have watchful eie,
> And with such wights he means to live and die,
> So that againe you must augment his store,
> And having this he will request no more.

AN ADDRESS ON THE WORK OF PASTEUR AND THE MODERN CONCEPTION OF MEDICINE.

DELIVERED BEFORE THE BRITISH MEDICAL ASSOCIATION AT LAVAL UNIVERSITY, MONTREAL,

By PROFESSOR CHARLES RICHET,

Delegate of the French Government and of the Faculty of Medicine of Paris to the Sixty-Fifth Annual Meeting of the British Medical Association.

MR. PRESIDENT, LADIES AND GENTLEMEN:

It is not without emotion that I rise to address this learned assembly. I know indeed that I am addressing men who are not my fellow citizens, but among them are some, *enfants de notre vieille nation gauloise*, who have the same mother tongue as we, they speak from childhood our beloved French language, they are thus a little more than my fellow citizens, for they are my compatriots, and I feel myself animated by a truly fraternal affection for them, as to my English colleagues they have given evidence of so much goodwill and of a courtesy so delicate that I need make no great effort to assure them of my gratitude. In one word, although a stranger I seem to be among friends.

I am somewhat troubled also because I am addressing medical men and am speaking before a medical congress. Now, although I belong in some small degree to the great medical family, since my father has conferred honor upon the profession of medicine by his labors and by his works, and although I have the great honor to be the delegate of the Faculty of Medicine of Paris, yet I am not a medical man, and a physiologist displays some temerity in venturing to speak before you on medical matters.

THE RECONCILIATION OF MEDICINE AND SCIENCE.

Still I have an excuse. It is this, that I desire to attempt to bring about a complete reconciliation between medicine and science. It may seem that this is a commonplace, and that any such attempt would be unnecessary. But it is not so, gentlemen. We might find perhaps, somewhere, not, I am sure, in this assembly, medical men ready unhesitatingly to assert that there is discord between medicine and science, and that all those sciences which are called ancillary, physics, chemistry, physiology, are *impedimenta* with which the clinician has nothing to do. Yes, there are to be found in the world medical men, among them even men of high attainments, who are ready still to say: "What have I got to do with your experi-

"mental science. Observation of the sick and clinical study are worth "more than all your clever experiments, and it is not from laboratories "that the means of curing disease can come." Such an opinion appears to me to be erroneous, and I would with all the energy which I possess help to upset it. I hold that it is by experimental science alone that medicine has made and can make progress. It will suffice to describe the work of Pasteur, my illustrious master, in order to give you a convincing demonstration of this.

I shall not be contradicted when I say that the value of this work is greater than all that the history of medicine has given us since the commencement of our era. Through his labors everything has been renewed, regenerated, and, thanks to him, medicine has made more progress in twenty years than had been made previously in twenty centuries.

The Life-Work of Pasteur.

Louis Pasteur was born at Dôle in the Jura in 1821, and at the beginning of his career gave himself up to the study of chemistry. He became deeply interested in a difficult and important problem —molecular dissymmetry. Here was a question in pure chemistry which would seem to take us very far from medical questions, but it was to lead Pasteur directly to the study of fermentations. If a solution of tartaric acid (in the form of tartrate) be left untouched, a change occurs after some time in the chemical constitution of the liquid, which before Pasteur's time had been overlooked. The original solution has no action on polarized light, but after fermentation this same solution has become capable of deflecting polarized light. Pasteur explained this phenomenon by showing that the original tartaric acid is a mixture of an acid deviating light to the right with an acid deviating it to the left, and that a process of partial decomposition takes place; one of the acids is destroyed and the other is not altered so that the action upon polarized light, previously masked by the mixture of the two acids, becomes evident. Here we have a fundamental experiment. It is told how when the young Pasteur desired to show it to Biot, that great physicist, who had discovered the phenomena of polarization, the old *savant* grasped the trembling hand of the young man and, before beginning the optical examination of the crystals submitted to him by Pasteur, said to him with tears in his eyes, "*Mon cher enfant*, I have loved science so much that in face of the beautiful experiment which you relate to me I cannot prevent myself from being deeply moved."

The explanation given of this phenomenon at that time was that the tartaric acid was decomposed by fermentation. Men were

then content to use this magic word, which appeared to explain everything, but which in reality told nothing at all. Neither Lavoisier, nor Liebig, nor Frémy had been able to discover its meaning, and were reduced to the theory of half organized matter —a childish conception worthy of Paracelsus.

One of Pasteur's experiments, perhaps the most beautiful which he ever made, demonstrated the nature of this mysterious phenomenon. If a sugary solution of carbonate of lime is left to itself, after a certain time it begins to effervesce, carbonic acid is evolved and lactic acid is formed, which decomposes the carbonate of lime to form lactate of lime. This lactic acid is formed at the expense of the sugar, which disappears little by little. But what is the cause of this transformation of sugar into lactic acid? Well, Pasteur showed that the efficient cause of this chemical action was a thin layer of organic matter; that this layer of organic matter consisted of extremely small moving organisms which increased in number as the fermentation went on. Their growth it is, then, which produces the phenomenon of the transformation of sugar of milk into lactic acid. If, for example, we take a sugary solution in which all pre-existing germs have been destroyed by heat, no lactic fermentation will take place. But if we introduce into this sterile liquid a small quantity of this layer of organic matter, such as can be obtained from any liquid in which normal lactic fermentation is taking place, we shall see the lactic acid again form rapidly in the new solution.

Let us dwell a little on this admirable experiment. Nowadays it seems to us so extremely simple that we can scarcely perceive its importance. It seems to us now, in 1897, that from all time we must have known that an organic solution when heated was sterile, and that a germ would suffice to render it capable of fermentation. But this is a mere delusion. No, a thousand times no! This great fact of the generation of germs was absolutely unknown before Pasteur, and the method of sterilizing liquids, and of their inoculation with spores, was revealed to us by Pasteur. It is the nature of great discoveries that they become popularized in a short time, and thus very quickly become elementary. A first year's medical student knows perfectly that which neither Lavoisier, nor Liebig, nor Frémy, nor any one before Pasteur had been able to perceive. We are always tempted to be ungrateful to great creators, for their creations pass rapidly into the domain of common knowledge. They become so simple that they cease to surprise us. We do not think of being grateful, and we forget the efforts which genius has had to make to wrest the truth from jealous nature. Gentlemen, let us not be ungrateful, let us remember that the recog-

nition of the real cause of all fermentation (the development and germination of organized elements) dates from 1857 and from the celebrated memoir of Pasteur upon lactic fermentation. A new world was then opened to science.

Nevertheless this memoir of Pasteur's, containing one of the fundamental discoveries of the century, was not welcomed as it ought to have been. At first its importance was not understood, and afterwards absurd contradictions were opposed to it. A whole series of beautiful and decisive experiments were necessary to prove that there was no such thing as spontaneous generation, and that sterile liquids remained sterile indefinitely so long as no germs were introduced into them. Pasteur devoted six years (1857-1863) to the proof of the fundamental fact that "organic liquids do not alter until a living germ is introduced into them, and living germs exist everywhere."

The Microbic Theory of Disease.

A great step yet remained to be taken. This was to determine the evolution of these germs, not merely *in vitro* but in the living organism. We to whom the idea of parasitism and microbic infection is now so familiar can scarcely conceive that it has not always been thus.

The microbic theory has become so ordinary, so popular, that we are tempted to believe that the part played by microbes was understood even in the times of Hippocrates; but I assure you that in truth this was not the case, and for long enough after Hippocrates the power of microbes was not known.

Pasteur, to whom, and to Sédillot and Littré, we owe the word microbe, was the first also to explain to us in his essay on the silkworm disease, published in 1867, the part they played in the production of disease. He proved that the bright corpuscles found in the bodies of diseased silkworms are living germs—a distinct living species, a parasite which can multiply and reproduce itself and disseminate the contagion.

It was therefore with painful astonishment that I heard Prof. Marshall Hall recently say that the discovery of the part played by micro-organisms in disease was due to Koch, and dated from 1876. Now, ten years before this, Pasteur had published his experiments on *pébrine* and *flacherie*. Davaine had shown the part played by bacteria in anthrax infection, and the idea of infection and of contagion by microbes in the higher animals as well as in the lower had become a common place, not indeed in the medical world, but in all laboratories.

Thus, by successive steps, did the work of Pasteur develop in

all its greatness and logic. In the first place in order to elucidate a chemical problem he studied tartaric fermentation, then he was led to study lactic fermentation, and he showed that they were biological phenomena. He then pursued the analysis of this phenomena with all its consequences, and was led to the conception that disease was due to the development of a parasite.

The normal living being follows out its course of growth without the development of any organic parasite in its tissues or in its humors. But if these humors or tissues happen to be inoculated with an organism capable of developing, then this small living thing multiplies, in the higher organism infected and the whole body becomes as it were a culture fluid, in which the pathogenic microbe propagates itself, a centre of infection which scatters the disease by sowing the noxious germs wherever it goes. Thus arose the new conception, profoundly new not only for medicine, but for hygiene—*Disease is Parasitism.* From thenceforth we understood the meaning of the words "infection" and "contagion," previously mysterious.

It is true that Pasteur did not discover all the microbes of all contagious diseases, but this is of small moment since he was the first to discover that infection was a phenomenon of microbial parasitism. All those who after him have proved points of detail, however important or fundamental they may be, have but followed the path traced by the master. Whether they will or not, they are all the pupils of Pasteur, as those who follow the study of chemistry are pupils of Lavoisier.

The greatest of Pasteur's disciples, Robert Koch, although with some ingratitude he refuses to recognize his master, has only perfected certain points in *technique*, and applied his ingenuity and his perspicacity to the solution of questions which in spite of their practical importance are still secondary. He has not, in fact, been able to do anything new except upon points of detail, all that is essential comes from Pasteur himself.

Need I say that this idea of the microbe, of the parasite, has become the basis of medicine. If we take up treatises on pathology written before this prodigious revolution, we shall be astonished by the insignificance and the nothingness of these very ancient books. Yet they are not really very old, they are dated 1875 or 1880; but as one reads them it seems as though several centuries must have intervened between these venerable writings and modern books. I know an excellent article on tuberculosis written in 1878 before the microbe of tuberculosis had been discovered. Well, this article belongs to another age, it belongs no longer to medicine, but to the history of medicine, for it swarms with mistakes and incredible errors with regard to pathological anatomy, etiology, prophylaxis, treatment,—in fact, from every point of view.

In ten years medicine has been entirely overturned and remade. It is being re-made every day. Every day brings some new discovery in matters of detail, but the great principle is always there, and, it must always be attributed to the one initiator.

This is not all. Another new and great discovery was to be made by Pasteur himself, and to constitute the supreme development, the culminating point as it were of his life's work. This is the principle of vaccination. By a series of researches, admirable for their precision, Pasteur proved that the pathogenic microbe could be attenuated,—that is to say, rendered incapable of causing death. But though this microbe does not cause death yet it can produce the disease. A disease sometimes so attenuated as to be almost imperceptible. Now the living being which has suffered from this attenuated disease is protected against its more serious forms, and, borrowing the word consecrated by the immortal discovery of Jenner, Pasteur said that we have here *vaccination*.

Fermentation, infection, contagion, vaccination; here in four words we have the work of Pasteur. What more need I say? Do not these four words possess, in their simplicity, unequalled eloquence?

Can anyone longer maintain that the progress of medicine is not due to experimental science? Does not all this knowledge of microbes and of the part which they play in disease imply, immediately and necessarily, immense progress in therapeutics?

Antiseptic Surgery.

To take but one example, I will cite the application of microbial theories to surgery.

There was a time when erysipelas, purulent infection and hospital gangrene decimated those upon whom operations had been performed, when puerperal infection claimed a terrible number of victims. It seems to us now-a-days that the medical profession before 1868 were blindfolded, and that their blindness was almost criminal. These are now no more than historic memories. A sad history, doubtless, but one which we must look at coolly in order to understand what science can do for medicine. Left to their own resources, practitioners of medicine during long centuries could do nothing against erysipelas, against purulent infection, against puerperal infection, but, basing itself upon science, surgery has been able to triumph over these odious diseases and to relegate them to the past.

Let me here introduce a reminiscence. When, on the occasion of his jubilee, a great celebration was prepared for Pasteur in the Sorbonne, in the presence of the leading men of science of the

world, there was a moment when all hearts were softened—the moment when the great surgeon who was the first to perceive how to apply to the practice of his art the theory of pathogenic parasites, when Lord Lister drew near to Pasteur and gave him a fraternal embrace. These two great benefactors of humanity, united in their common work, afforded a spectacle never to be forgotten, a striking reconciliation of medicine with science.

But the apogee of the glory of Pasteur was the discovery of the new treatment of hydrophobia. No one of his scientific conquests was more popular, and from France and from the whole world there arose a long cry of admiration. Perhaps in the eyes of biologists this discovery possesses less importance than his labors with reference to the fermentations and to vaccination, but for the public this was the chief part of Pasteur's work. And men of science also were forced to admire the scientific courage of Pasteur, who, putting aside the precise methods which he had taught and discovered, knew how to devise new methods to meet the exigencies of the circumstances, and how to put them victoriously into practice.

Thus was finished the work of Pasteur. He was spared to take part in the triumph of his ideas, and to be a witness of his own glory. If, like so many creators, he had sometimes in his earlier days known conflicts and hatreds and petty quarrels and foolish objections, nevertheless he had not to deplore the ingratitude of mankind. He died full of honors, surrounded by admiration, respect and love. For him posterity had already commenced when he died.

The Union of Medicine and Science.

And now let us turn back to consider the indisputable union of medicine and of science. This, in fact, is what ought to strike us in the work of Pasteur. It is not only in general biology and in the progress of our knowledge that his work is great, it is still more in its immediate practical applications. The great biologists of our century, Lavoisier, Claude Bernard, Darwin, have without doubt left behind them work which by reason of its conquest of new truths is not inferior to the work of Pasteur; but these new truths do not lead to any such immediate application as antisepsis, the treatment of hydrophobia, anthrax-vaccination, or the prophylaxis of infectious diseases. Pasteur was not only a man of science, he was also a philanthropist, and there is scarcely one who can be compared with him as a benefactor of suffering humanity except Jenner, who found out how to preserve thousands and thousands of human beings from the most hideous of all diseases.

Further, Pasteur brought back medicine into the true way of science. Even after Magendie, Müller, Schwann and Claude

Bernard, it might still have been asked whether all these experiments establishing so many important truths had really been of any advantage for the relief of the sick. To discover, as did Schwann, that living beings are an aggregate of cells; to prve, as did Claude Bernard, that the liver forms sugar; to establish, as did Darwin, that living species can be transformed by the influence of long-accumulated variations in the environments—these are admirable pieces of work, but work in pure science which had not any immediate therapeutic results. Strictly speaking then it was possible to maintain that clinical medicine did not derive any benefit from such investigations. I do not for a moment believe that this opinion had a shadow of a foundation, but before the time of Pasteur it was not so absurd as it has become since Pasteur. Since Pasteur no man can, without incurring the charge of monstrous inaptitude, refuse the rights of citizenship in medicine to experiment, and to biology.

And, to speak the truth, men of science and biologists, as though their ardor had been redoubled by the renovation of medical ideas, have during these last ten years made discoveries which have introduced into medical science new elements which clinical observation alone had been absolutely incapable of discovering. I will cite a few examples—the action of the thyroid gland, the Roentgen rays, pancreatic diabetes, and serum-therapeutics.

Serum-Therapeutics.

Physiologists had shown long ago that the ablation of the thyroid gland led to serious results. Schiff had proved this as long ago as 1857, but the explanation of the phenomenon did not become clear until Claude Bernard, but especially Brown-Sequard, had demonstrated the existence of internal secretions of glands pouring into the blood their products which probably neutralize certain toxic substances. This very naturally led Pascal and Gley to inject into animals from whom the thyroid gland had been removed, the juice of the thyroid, and this prolonged their lives. The therapeutic conclusion to be drawn was obvious, namely, to treat the unfortunate subjects of cretinism or of diseases of the thyroid gland by the injection of extracts of the thyroid body. You know that the result has been most happy.

This new treatment was a true experiment, and as is the case with so many experiments the actual result has been a little different to that which was expected. The ingestion of thyroidin is not only a means of curing goitre and cretinism, but is also a treatment, sometimes remarkably efficacious, for obesity.

The Roentgen Rays.

The discovery of the Roentgen rays excited general enthusiasm, and as a matter of fact it is one of the greatest conquests of contemporary physics. Most assuredly medicine had nothing to do with it. The research was made, and the success was obtained in a physical laboratory. Now you are not unaware that these Roentgen rays have been called to play a part, if not in the treatment, at least in the diagnosis of diseases—a part the importance of which goes on increasing from day to day. Physicists have discovered the principle, it is for medical men to follow up its application.

Pancreatic Diabetes.

The existence of pancreatic diabetes was suspected vaguely by a clinical physician, Lancereaux, but the means which clinical medicine and pathological anatomy placed at his disposal did not give him the power to solve the problem. In spite of his perspicacity he could do no more than note a certain correspondence between diabetes and lesions of the pancreas. How could more have been learnt if we had not the resource of experiment? Two physiologists, Mering and Minkowski, have had the good fortune to show that ablation of the pancreas determines glycosuria, to show that there is a pancreatic diabetes, and they have studied its various conditions with great ability.

Serum Therapeutics.

I come now to serum therapeutics, a direct consequence of the labors of Pasteur. This is a mode of treatment born of the experimental method alone. Here again science has done for the art of medicine that which clinical observation left to its own resources could never have accomplished.

Permit me now to show how serum therapeutics is derived directly from physiology and experiment, and pardon me if I am forced to speak of my own work; I shall do so I hope without any vanity. I know very well that we always owe to our predecessors and to our rivals much more than our pride admits, and that the experiments and the ideas which succeed are not always those which have been conceived most methodically.

About 1887 M. Cheauveau had shown that French sheep could contract anthrax, and that they are very easily infected by the bacillus anthracis, the microbe of anthrax, if small quantities of the bacillus be injected under the skin. But Algerian sheep seem to be safe from the disease. In vain is the bacillus anthracis injected into them; they do not contract anthrax. They are refractory to

this disease and possess a remarkable immunity to it. Having reflected on this strange fact, I framed the hypothesis that the cause of the immunity of the Algerian sheep, which are absolutely similar from the anatomical and zoological point of view to French sheep, depended upon chemical substances contained in the blood, and that in consequence we might hope to confer immunity on French sheep by transfusing them with the blood of the Algerian sheep. It is, however, difficult to make experiments on sheep. Therefore, with my friend Hericourt, who has been throughout these researches my tireless fellow-worker, I took animals of two different species, the common victims of physiologists—rabbits and dogs.

Just at that time we had been studying a microbe nearly related to the staphylococcus albus, the staphylococcus pyosepticus which in rabbits produces enormous subcutaneous swellings when injected under the skin, and causes death in 24 or 36 hours. The dog on the other hand seems to be almost refractory to inoculation with this microbe. We therefore attempted to transfuse the blood of the normal dog into rabbits by intravenous injection, but this operation did not succeed, for the transfusion of dog's blood into the veins of the rabbit even in a dose of only ten grammes rapidly causes death.

It then occurred to us to resort to peritoneal transfusion in place of intravenous transfusion. In this way we were able to introduce into the organisms of the rabbit 50 or 60 grammes of dog's blood, and had the good fortune to see the experiment succeed completely. Rabbits transfused with the blood of the normal dog survived the inoculation of the microbe for four or five days, and rabbits transfused with the blood of a dog vaccinated against the microbe did not die, and were in fact hardly ill at all.

This experiment, which was made on November 5th, 1888, is as it seems to me the very basis of serum therapeutics. It in fact proves that the blood of animals refractory to a disease contains chemical bodies which counteract the effects of the specific pathogenic microbe of the disease. We understood its importance from the first, and having established the general pathological principle we resolved to apply it to a disease of man.

For several days, then, Hericourt and I debated the question whether we should experiment with one or other of the three diseases —anthrax, diphtheria, or tuberculosis. Unfortunately we decided for tuberculosis. Its microbe is easily cultivated and, as you know, it produces greater ravages among men and animals than any other disease. We set to work at once, but, as you will understand, time was required before we could obtain definite results. Still, in a year's time we were able to show that the injection of dog's blood

into rabbits retarded enormously the development of tuberculosis. It was, nevertheless, necessary to pass from experimental physiology to human therapeutics. Taking advantage of an observation of Bouchard's, to the effect that the serum of refractory animals is as active as the whole blood, we were able to inject the serum in tuberculous diseases. The first sero-therapeutic injection was made by us on December 6th, 1889.

At first we had for a space great hope. Yes, in truth, for several weeks we believed that we had discovered the heroic treatment of tuberculosis. For several weeks the various patients that we had under treatment found that their strength was renewed, that their appetite returned, that their weight increased, and that cough and expectoration disappeared almost completely. But, alas! it was no more than a transient improvement. A month or a month and a half later the pitiless disease resumed its course, and the sero-therapeutic treatment turned out to be inefficacious. Happily, while by the most diverse plans we were in vain searching for a method of treating tuberculosis by serum, a German experimenter, Behring, after studying the effects of the serum of refractory animals upon diphtheria, showed (in 1892) that this serum is wonderfully efficacious in the treatment of the disease. He applied the serum method of treatment not only to diphtheria, but also to tetanus, and, at first in animals and afterwards in man, he obtained results which were really marvellous. Gentlemen, you know the rest, and I need not tell you that this sero-therapeutic method, improved and popularized by Roux in 1894, is now a treatment without compare. The statistics on this head are absolutely conclusive. The mortality of diphtheria, which was 45 per cent., has fallen to 15 per cent. That means for the city of Paris alone an annual saving of about 1,000 human lives; for the whole of France, nearly 10,000 lives. We may take the same proportion for Italy, Germany, England, the United States, Canada and Russia, and may estimate the number of infants which serum-therapeutics snatch from death at about 50,000.

In other diseases the results of serum-therapeutics have been much more open to criticism, and it would be necessary, in order to arrive at a satisfactory conclusion, to discuss them in detail. I cannot attempt to do this here, for it would be an abuse of your patience. I will content myself by venturing the opinion that serum-therapeutics has not said its last word. The organism is endowed with a marvellous power of resisting the poisons secreted by microbes. It sets to work in its turn to secrete counter-poisons which neutralize the poisons secreted by the microbe. The anti-toxins of the organism combat the toxins of the parasite, and in the future the art of serum-therapeutics will be to seek in these resisting organisms the anti-toxins fabricated by their cells.

Thus on whatever side we turn we find that medicine has always been guided by experimental science. By experiment and by science it is compelled to march forward. This was true in the time of Harvey, for that immortal physiologist had to meet the opposition of physicians. This was true also in the time of Lavoisier, when by a few decisive experiments he proved the chemical nature of the phenomena of life. But how much more true is it at the present time since Claude Bernard and above all Pasteur have by experiment laid open a whole world, and have warranted us in conceiving the widest hopes for the future of medicine?

The parts of the man of science and of the physician are very different. The physician ought to be conservative, applying methodically the teaching and the precepts which he has received. He has no right to experiment upon his patients, or to permit human life or human suffering to be risked on fantastic theories. But the man of science ought to be a revolutionist. He ought not to be content with the doctrines which he has been taught. The opinion of the master ought to be but a light weight upon his mind. He ought to seek on every hand for facts which are new and even improbable. Darwin says somewhere that he had made the experiments of a fool, and often it is right to attempt that which appears contradictory to all the most received and classical opinions. Without this spirit of adventure, without this scientific daring which opens up new horizons there is no progress.

The task of the explorer or of the pioneer is not that of the physician. He ought to be careful to keep himself abreast of all scientific progress in order that his patients may have the benefit of it, but he cannot advance the progress of science, save within restricted limits. Having no right to experiment, he is almost powerless to solve the difficult problems which arise.

It is the duty of the chemists, the physicists, and above all the physiologists, to guide medicine into the new ways. They have not to take the heavy responsibility of a human life upon their shoulders, and nothing ought to check their audacity. You, gentlemen, have not the right thus to be audacious, you need prudence and moderation; and, convinced as I am of the power of experimental science, I still think that the applications which the chemists and the physiologists suggest to you should only be accepted with considerable caution. It costs us nothing, after a few experiments which have succeeded fairly well, to say to the physician, "Try that on your patients." You know very well that our responsibility is *nil*, and that the ancient axiom *primo no nocere*, an axiom which ought to be your strict rule of conduct, does not in any way apply to us. You see, therefore, that it would be unjust to make it a

matter of reproach to physicians and surgeons that they have not made great scientific discoveries. This is not their mission. It is theirs to relieve human suffering and to seek among new scientific truths that one which is most proper to relieve or to cure the sick.

Nor can I understand how anyone should have wished to create an antagonism between medicine and science. To suppose that they are in contradiction is to show that we understand nothing about either the one or the other. It is not reasonable to assert that the one is superior or inferior to the other; they are different in their means and in their ends. They are mutually complementary, and both are equally necessary.

If I were ill, most assuredly I would not seek the assistance of a chemist, or of a physiologist, and medicine is not to be learned from the books of Claude Bernard or of Pasteur. Clinical instruction is necessary, such as long observation of patients alone can furnish. Prophylaxis, diagnosis, prognosis, therapeutics, are not to be learned in scientific books. Something else is necessary—observation, long, patient observation, the old Hippocratic observation, without which there can be no good physician. Young students must be guided in the examination of patients by experienced practitioners, and no one, I presume, would be guilty of the folly of proposing to replace the clinical ward by the laboratory.

But without laboratories the clinical department must remain incapable of scientific advance, and this condition of stasis is assuredly undesirable. For in spite of all the progress which has been made, much yet remains to be done. Are not tuberculosis and cancer, for example, the disgrace of medicine? I appeal to all medical men here present. Is there any one of you, gentlemen, who in the presence of such paintful modes of death does not feel himself humiliated to the bottom of his soul by his powerlessness?

Well, this feeling of our present powerlessness against disease ought to stimulate us to work. The work to be done is enormous, and we must none of us grow weary of our task. We physiologists must seek new facts, we must seek and seek again, seek always without being afraid of the boldest hypotheses, and without putting any limit to our audacity, without troubling our heads as to the practical consequences which may flow from our discoveries, having only truth, divine truth, for our object. As for you, gentlemen, it is your duty to follow with the warmest interest both the general effect and the detailed results of biological discoveries, in order to attempt to find some practical application for them. From this unceasing collaboration progress will be born. But it is necessary that men of science and physicians should both be animated with these two governing sentiments—faith in science and love of man.

Selected Article.

A FEW OBSERVATIONS OF SOME EASTERN EUROPEAN TOWNS AND HOSPITALS.

By CASEY A. WOOD, M. D., Chicago.

The disputed question as to the whereabouts of the largest hospital in the world will be decided in a year or so when the great *Ospedale Romana* is completed. This enormous establishment was begun in 1893, and has already cost many millions of *lire*. It will inclose within its limits, in north-eastern Rome, all the various public hospitals, dispensaries, laboratories and clinics now scattered over the Imperial city. Instead of numerous isolated institutions, most of them housed in old, insanitary and dingy quarters, there will be but one collection of clean, well built, well drained, well ventilated, well lighted pavilions, replete with all the appliances, and provided with all the improvements that distinguish the modern hospital. On the other hand, the present father of hospitals, the great Allgemeines Krankenhaus, at Vienna, grows more and more out-at-the-elbows, down-at-the-heels and baggy-at-the-knees. Nobody has better reason than the writer to appreciate how much the whole profession owes those ancient buildings in the Josephstadt, but surely the time has come for a change, not only in the nursing methods that have so long prevailed there, but in the old microbe-laden walls themselves—a thought suggested by contemplation of the recent hospital erections that almost every small town in Europe and America seems to be making in response to the demand for absolute cleanliness on the part of everything and everybody who enters hospital doors.

When the city hospital in Rome is ready for occupation it will afford ample facilities for study, and, if a liberal policy be pursued toward foreigners, the Italian capital will make a most attractive and profitable center for medical study, and may divert to itself some of that large stream of students that for so many years has been steadily flowing towards Vienna. The work done by Italians in all departments of medicine and surgery deserves to be better known than it is. Moreover, the language, spoken, written and printed, is much more easily learned by Americans than is German, especially when the student has been assisted by a previous acquaintance with more or less French or Latin. In the province

of ophthalmology and otology, with which the writer is most conversant, it may be said with truth that not to know enough Italian for translation purposes is to miss almost as much as not to be able to read French. Certain it is that the medical schools of Pavia, Turin, Rome, Naples and Palermo all have well informed ophthalmologists and otologists attached to them whose activities are of a kind by no means inferior to the best effort of the professors in German, American and French universities.

Although we found Athens in a state of general war depression, the hospital service seemed good in all its appointments. There is an ophthalmic hospital of considerable size for a city of 200,000, that is to say, its dispensary department is largely attended, and it has twenty-four beds for indoor patients. Professor Anagnostakis, who had for years held the foremost place in Greek ophthalmology, having just died, I was indebted to the courtesy of Dr. Georgios Gazepy for my news. Although the limestone dust of Athens covers everything including the bodies of its visitors, it does not appear to set up any particular affection of eyes, throat or lungs. The rather severe winter and the elevated site of the town probably serve to neutralize the harm done by the breathing of a summer air impregnated with lime and dust. So far as I could learn, Athens presents no peculiar eye or ear disease. There are very few cases even of trachoma, although intercourse with Asia Minor and Egypt is frequent and easy. Gazepy illustrated some of the difficulties the oculist who practices in the East has to contend with, by showing me his test cards and types, arranged for ten languages, all of which he is at times called upon to use, viz., Greek, Turkish, Arabian, Servian, Roumanian, Bulgarian, Armenian, French, Italian and Russian.

So far as we could learn, the unfortunate Greek army operating on the Thessalian frontier during the Turko-Greek war was entirely without surgical equipment. A spasmodic attempt to establish a first aid line was, after a time, made with the assistance of some English nurses that accompanied the troops as far as Volo, but even this was entirely inadequate, especially as the temporary hospitals had to be abandoned to the enemy shortly after their establishment. The polite Turk sent a message to these brave women, who had been instrumental in carrying out the project, that they entirely approved of the arrangements and found their quarters of great service! About the only consolation the Greeks seem to have derived from the recent contest is the fact, corroborated by our subsequent experience of the military hospitals in Constantinople, that their guns of the old Chassepot type had done more execution, both in killing and wounding, than the modern rifles of the Ottoman troops.

A most curious custom prevalent among Greeks of all ages and both sexes (but especially among the men) has a remote medical interest. One of its virtues is that it enables even prisoners condemned to solitary confinement, as most prisoners are in Greece, owing to public sentiment that opposes their competing with non-convict labor, to relieve the tedium of prison hours. Instead of twirling his thumbs, or chewing the ends of his moustache, as the nervous American is wont to do, to while away an idle moment, the Greek deliberately provides for such a contingency by carrying about a string of beads that, by the way, have nothing to do with any religious observance whatever. These he draws from his pocket, wherever he may happen to be, and monotonously counts them one by one, or simpiy pushes them along singly, or two at a time, from one end of the string to the other. Surely this is an improvement on gum chewing, rocking-chair exercise or toying with some article of use or adornment as an occupation for nervous individuals, and is particularly recommended as an addition to the pharmacopeia of the neurologist.

As soon as we reached Smyrna evidences of smallpox, from which vaccinated Athens is fairly free, began to appear in the pitted faces of all the numerous races that throng the busy streets of that quaint old town. There seems to be no rooted objection to vaccination on the part of either Mahommedans or infidels; only, nobody seems to interest himself in the matter. and there is no such thing as a compulsory law. Remembering Mary Wortley Montague's experience of inoculation, one would expect prophylactic measures to be widely practiced among a people that are proverbially frugal, abstemious and personally clean. I looked in vain for signs of that ophthalmia which one sees everywhere in Egypt; the people seem to be almost as free of eye affections as the Greeks.

Constantinople is fairly well supplied with both indoor and outdoor hospital service, while the enormous military hospital at Scutari, first established by Florence Nightingale, is, according to Dr. Nicholas Senn, who inspected it during our visit as the guest of the Turkish government, an admirably conducted institution. I was entertained by Dr. Edwin Van Millingen, oculist and aurist to the Sultan, and son of that Dr. Van Millingen who was the friend and medical attendant of Lord Byron during his career in Greece. Van Millingen *père* was with Lord Byron when he died and made the post mortem on his body. The son has recently arrived from a visit to Smyrna and Cairo, and in the latter place made a special study of trachoma. It is a generally accepted axiom among ophthalmologists that certain races, as well as the inhabitants of certain localities without regard to race,

are practically immune to this formidable disease, and among these are counted mountaineers and negroes. Another affection said to be rarely or never seen in the negro is convergent strabismus, and this rule certainly holds good for the American continent. Dr. Van Millingen's experience in Egypt has disproved its universal application, as he found trachoma very prevalent among the pure native and immigrant negroes of Egypt. Although it is very infrequent, he has seen, indeed had a case under observation in Constantinople at the time, well-marked instances of convergent squint among pure north African negroes. As a result of several months' examination of the various races in Egypt he found trachoma in the following proportions: Among the native (1,000 of each race examined) Mohammedans, 86 per cent.; Copts, 85 per cent.; Jews, 92 per cent.; blacks, 60 per cent. Among the foreign population, of which 200 of each were examined, the proportion was: English soldiers, 0; Syrians, Jews, Hindoos, Armenians, Turks, 24 per cent; negroes who have lived in the delta from four to thirty years, 50 per cent.; negroes born in Egypt, 70 per cent. Not only is the disease thus prevalent in such awful proportions, but it is more acute and more destructive than with us. Pannus is comparatively rare, but corneal ulcers are more common than in European countries. He denies that the Soudanese negro is more prone to contract granular ophthalmia than his cousin of the west coast, because he has a mixture of Semitic blood in his veins, since the Soudan has only recently had intercourse with Arabia.

The principal military surgeon-oculist is Dr. V. Behjet who is also the professor in the University. He has to deal in common with other gunshot wounds inflicted during the war, with a number of interesting cases of injury to the orbit, some of them involving the ocular structures. His station was the Yildiz Hospital attached to that imposing array of barracks that surround and protect the palace of the Sultan.

I was much interested in the question of the prevalence of tobacco amblyopia, considering the large amount of the weed consumed in Turkey. Van Millingen informs me that he has never seen a case in a nargileh smoker during his twenty-six years of practice. All the cases of tobacco blindness occur in cigarette, cigar and ordinary pipe smokers. He thinks that the water-pipe undoubtedly prevents the disease and that in the case of cigarette smoking the nicotin is largely absorbed by the lips. As might be expected also, alcohol poisoning (amblyopia included) and trichinosis are practically unknown among a population that really obey the commands of the Koran in the matter of wine and pork. In a country where blindness in both eyes is common from the

formation of large scars over the whole cornea, Van Millingen tried the experiment of trephining a piece of opaque cornea when all other experiments had failed. He then placed over the globe a protective glass shell. The opening in the cornea often persisted for weeks and even months, and when the parts are kept aseptic the patient is able to see (in some instances to read) for quite a long period. When the wound finally cicatrizes the patient is not in any worse state than before the operation and has enjoyed some months of vision, during which time he may have transacted business or have accomplished something that with his blind eyes he could never have succeeded in doing. At any rate, the patient will be able to refer to the period of temporary vision as a pleasant experience when it was better to have seen the happy things of earth for a season then not to have seen at all.

The medical institutions of Moscow are admirably planned and equal in efficiency to those of the other large continental cities. Its public sanitation is,however, not as well looked after as in Berlin or Paris. The drinking water supply is defective and the sewerage system is very incomplete. Water for table use must be carted in casks from distant springs, and the antiquated cesspool, with all its discomforts and dangers, still remains. The mortality rate is, notwithstanding these drawbacks, not high (29.5 per 1,000 of 1,000,000 population), although in 1896 there were nearly 6,000 cases of continued fevers of all kinds, 164 cases of smallpox, 2,380 of diphtheria, 3,500 of intermittent and recurrent fevers and 1,000 cases of chickenpox. The pure Russian is a sturdy and healthy-looking individual, somewhat given to drunkenness and other bad habits, but probably preserved from excessive alcohol and tobacco indulgence by having access to tea as a stimulant. The almost entire absence of smoking among the lower classes is strangely contrasted with the persistent use of cigarettes and cigars by the upper ten thousand. The latter smoke all the time, even between courses at meal time, while the peasant and his city equivalent never smoke, out of the doors at least. The *samovar*, or hot water kettle, for tea making, is everywhere, and it is astonishing to note the quantities of boiling hot tea drunk by all classes at all times of the day. We noticed a large number of persons going about in all the cities with their heads tied up in bandages, hankerchiefs, etc. It was as if there had been a recent epidemic of mumps. We found the trouble to be often middle ear suppuration, complicated with sore throat, decayed teeth, etc. It was explained that the Russians drink their tea so hot that actual burns of the pharynx and oral mucous membrane frequently occur. This sets up,

by infection mainly, acute inflammatory processes in the walls and contents of the naso-oral cavities that often lead to serious consequences.

The majority of the hospitals, clinics, dispensaries and laboratories of medical and surgical Moscow are clustered together in a district called *Dievitchie Pole*, much as they are in Vienna, but with differences greatly in favor of the former city. The buildings are well separated, surrounded by plentiful breathing space and provided with an abundance of light and air. Here it is that most of the clinical and didactic teaching of the medical department of the Imperial Moscow University is given. The material for this purpose is practically endless, and there seems no reason why the average Russian doctor should not receive an education quite equal to that furnished by the other continental schools. For example, in obstetrics there were, in 1896, nearly seven thousand accouchements in the eight public stations of the city, all of them accessible to students. The fact that out of the 31,000 births in Moscow that year, more than nine thousand were illegitimate throws some light on the advantages of this town as a center of obstetric study. A similar story could be told of general and special surgery in all their various branches. The bacteriologic institute, for instance, has a fine collection of animals, and during 1896 delivered to various public and private institutions more than twenty thousand bottles of serum anti-diphtheria, streptococcus infection, tetanus, recurrent fever, etc. I have been informed that the dental clinic attached to the University Dental School (where five sessions of six months each are required for graduation) was attended by nearly ten thousand patients in 1896. Although the methods employed are still somewhat antiquated, it is housed in a building whose appointments far surpass anything of the kind we have in America. It has, among other conveniences, two laboratories, a library and a large museum filled with all sorts of anatomic, microscopic and chemic preparations.

There are many hospitals and dispensaries not attached to the University, some of them of considerable size and importance. Ophthalmology is well represented among these. The Moscow Ophthalmic Hospital has 100 beds, with 722 indoor patients during 1896, and in it 1,750 major operations were done. Twelve thousand patients attended the outdoor department. Connected with this extensive charity is a blind asylum with beds for twenty-five inmates. An account of most of the other hospitals and medical conveniences of the city would be merely a tedious repetition of descriptions applicable to any other large European town, but there are at least two institutions peculiar to this part of Russia, and of considerable interest.

The first is the great Foundling Hospital, instituted by Catherine II. in 1764. Twenty large halls accommodate 980 beds for nursing infants. In summer most of these are transferred to the gardens of the Hospital in which are erected twelve *marquées* with 730 beds. This institution received: 1. Illegitimate infants deprived of their mothers. 2. Abandoned infants. 3. Illegitimate children whose mothers are unable to care for them at home. 4. Legitimate children to be cared for until they are a year old, when the illness of the mother or the poverty of the father prevents their receiving proper care. The average stay of the children in the hospital is thirty- seven days. For about a month each child has a special nurse and for ten days more one nurse looks after two children. When there is a dearth of nurses the mothers of the illegitimate children are requested to act in that capacity, when she is paid about $4 a month (fair wages in Russia) for the service. In case of a refusal the child is not admitted. The average daily attendance in 1896 was 1,005 children and 675 nurses. In an annex are buildings with 150 beds, usually full, where children and sick nurses are treated. All the children are vaccinated as soon as possible at a station where vaccine is also prepared and distributed gratuitously to all who apply. From the Foundling the children, regarded as wards of the State, are sent to certain districts in the country. Hundreds of villages receive their yearly quota, all of whom remain under the care of inspectors and physicians appointed by the State until they are able to take care of themselves. In spite of all sanitary and other precautions the death rate is enormous. Of about eleven thousand children cared for in 1896, 4,028 died, 5,175 being sent to the country. In the beginning of 1897 there were living in the districts above described nearly twenty-nine thousand small foundlings under the care of the hospital authorities. The income of the institution for 1895 was about $600,000.

There are several stations for the sale and preparation of koumyss (or kumys) in and about Moscow (the Maretzky establishment at Sokolniki, for instance), but if we are to believe most authorities, the simon-pure article must be made near and drunk in combination with exercise on the *steppes* of the Volga. Samara, about a day's journey from Moscow, has two of the most noted and oldest of these Russian sanitaria, gotten up pretty much in the same style as similar resorts elsewhere. They are naturally surrounded by pine forests and artificially by lawns, gardens and pleasant walks. The management has also provided them with various kinds of outdoor amusements. One of the best is called the *Datcha Annaeva*. The season is May and June, and the visitor is generally expected to take baths, outdoor

exercise and to drink unlimited kumys. The Tartar mares feed on the rich plume grass and wild strawberry of the steppes, which give the milk of this region certain peculiarities. It is particularly rich in sugar, somewhat defective in fat and contains a portion of albumin resembling that of the human animal. It does not bear transportation, and is readily affected by any departure from certain rules governing the collection and fermentation processes. The mares are carefully tended, never overworked, and milked five or six times daily. Each milking yields about three-fourths of a liter of thin bluish-white milk, of a sweetish taste and peculiar odor. The milk is received in well-boiled wooden pails. The fermentation is brought about by adding, in a churn, fermented to fresh milk in the proportion of five pints of fresh to one of fermented milk. The whole is then churned for an hour and set aside in a temperature of 25 degrees R. The whole quantity begins to ferment in a couple of hours, when it is again churned and again set aside for several hours until it begins to exhale a distinctly alcoholic odor. Fresh milk is again added and the fermentation is stopped at the proper point by cooling. It is now bottled in soda water or champagne bottles and kept at 10 degrees R. The strength, chemic composition and therapeutic action of kumys vary greatly according to the method of preparation; it may be strongly alcoholic and decidedly intoxicant or it may be as faintly spirituous as the mildest Weiss Bier. Probably the outdoor air, regular exercise, pleasant surrounding and careful dieting of the kumys cures have as much to do with the improvement of patients as the drink itself, and this is the reason, no doubt, that the city stations are not as satisfactory places for treatment as the wild steppes themselves. Moreover, unless tested by an expert "taster," too little or too much fermentation of the kumys may occur, and even the best mare's milk be spoiled in the preparation. "Cream Kumys," made of cow's milk, is entirely unlike the original, as it necessarily contains ingredients entirely unlike the mare's milk product and cannot, therefore, be therapeutically compared with it. The kumys cure is regarded in Russia as a specific in all cases of chronic pulmonary diseases, anemia, chronic digestive derangements, most kidney diseases, scurvy and "general debility." The allowance for each patient is from six to sixteen bottles daily.—*Journal of the American Medical Association,* October 2nd, 1897.

Medical Society Proceedings.

COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF QUEBEC.

Report of Meeting, 29th September, 1897.

PROVINCIAL MEDICAL BOARD, QUEBEC.

The semi-annual meeting of the Governors of the College of Physicians and Surgeons of the Province of Quebec took place on the 29th of September, 1897, in the hall of the Faculty of Medicine, Laval University.

The President, Dr. L. J. A. Simard, took the chair at 10 a. m.

Members Present :—Drs. L. J. A. Simard, F. J. Austin and the Hon. Dr. David Marcil, vice-presidents ; Dr. Léonidas LaRue, treasurer ; Dr. J. M. Beausoleil, registrar ; Drs. A. Vallée, W. A. Verge, C. S. Parke, A. A. Walters, C. E. Lemieux, R. Fiset, P. E. Grandbois, C. Rinfret, J. Godbout, P. M. Guay, C. E. Vaillancourt, J. M. McKay, E. E. Laurent, N. Fafard, T. G. Roddick, S. A. Lacombe, P. Laberge, P. Cartier, Régis Latraverse, H. Cholette, P. J. L. Bissonnette, J. E. Fournier, Séraphin Gauthier, J. O. Camirand, L. C. Bachand, L. P. Normand, L. A. Plante, F. W. Campbell, J. B. McConnell.

The minutes of the last meeting were read and confirmed.

The Report of the Preliminary Examinations was read and confirmed, and, according to this report, Messrs. Lorenzo Montreuil and Robert Shearer have passed in Literature and Science.

James M. Duncan, jun.. Edward P. J. Masson, Alcide Fortin, J. H. Alexander, Francis R. Jones, Edward McAleer and Louis Belle-Isle have passed in Literature.

Messrs. L. J. Ouimet and Archibald H. Newman passed in Science.

Dr. Belleau, secretary, read the Report of the Committee on Credentials.

The following graduates have taken their degrees : J. H. Laidley, Alfred Simard, Louis Eugène Admire Parrot, F. Horace Pelletier, Jean Marie Arthur Rousseau, Armand Marcotte, Joseph Pageau, Achille Joseph Boisvert, Joseph Emile Albert Poliquin, Joseph Télesphore Gauvreau, Télesphore Dubord, Samuel W. Hewetson, Camille Elzéar Deguire, Henri Lafleur, Eleas Groulx, Paul Trudel, Olivier Tourigny, L. P. de Granpré, Joseph Louis Henri Pagé, F. X. Massicotte, J. A. Poirier, J. A. E. Ethier, Polydore Albert Dansereau, Oswald Létourneau, David Alexander Shires, James Barkley, Hugh Lennon, Archibald L. Foster, B. Bordeleau, Mademoiselle Regina Landeau, F. X. Duplessis, Jean Baptiste Arthur Quintal, Romuald Picard, Pierre Vandandaigue, Wilfrid Lamy.

Wilfrid F. D. Gadbois will be obliged to pass the professional examination.

Edward A. Mulligan,

Joseph Dequoy will have to pass the examination in final subjects. Mr. Dequoy is equal with Messrs. L. J. A. Migneault and Thomas Lovitt.

The above-mentioned graduates having taken their degrees, have, upon taking the oath, been accorded provincial license to practice.

The following gentlemen have been admitted to the study of Medicine and Surgery: Messrs. Joseph Garon, Narcisse Doucet, Joseph Horace John Kane, Joseph Eugene Beaudet, Pierre Edouard Grenier, Rodolphe Auguste Sirois, Robert Mayrand, Rodolphe Pepin, J. L. A. Melançon, Louis M. Dechene, J. A. St. Pierre, U. Paquin, J. M. A. Valois, L. V. Chapdelaine, L. Legault, D. Jacques, J. A. Belanger, A. Ste. Marie, Joseph Pagé, A. Trepanier, W. Paquin, S. Morin, H. Borden, J. H. Simpson, D. A. Shires, J. Barkley, H. B. Wyman, J. A. L. Laplante, E. Penner, A. Guertin.

Dr. Beausoleil read the following report of the Library Committee:

LIBRARY COMMITTEE.

Mr. President and Members of the Medical Bureau:

GENTLEMEN:—Your committee has the honor to report:

1st. That the volumes, the purchase of which you authorized, have been laid upon the shelves of the library of the College of Physicians and Surgeons of this province, after having been suitably bound.

2nd. They have to acknowledge, with thanks, the receipt, through the kindness of Dr. I. N. Desroches, of five volumes of *The Medical Science Annual*, by Sajous, of the year 1890, and also of *Report of the State Board of Health*, Michigan, 1889, 1890, 1891, Pennsylvania, 1889-90.

3rd. That a large number of doctors from the province as well as from the city have visited and consulted our library.

4th. That to meet the wants of the medico-chirurgical practice, general as well as special, your Committee begs you to authorize them to procure some works bearing on the following subjects:

Duval, Brault, Letulle: Normal Histology, Pathology.
Hayem, Lyon, Robin: Practice of Medicine and Therapeutics.
Wurtz, Kelden, Thoinot: Bacteriology.
Lestut or Poirier: Anatomy.
Gettuchten: Nervous System.
Dieulafoy: Internal Pathology.
Ribermont, Dessaigne: Obstetrics.
Tillaux: Anatomy and Clinical Surgery.
Fuchs, Panas, Foucher: Ophthalmology.
Bronardel, Vibert: Legal Medicine.
Fournier: Syphilis, Syphilis and Marriage.
Pinard: Puerperal Infection.
Doleris: Gynecological Practice.
Bordier:
Gnardea: History of Medicine (Medicine across the Centuries).

5th. Your Committee begs you also to authorize the President to take and have bound and catalogued the Thesis of Paris, 1896-97, which your Committee has just received.

6th. Having received by kind donation thirty-five volumes of *The Annual of the Medical Sciences*, being from its foundation to 1895, your Committee ask to be authorized to continue the subscription to this important review, the most important in every respect, since the suspension of the publication of *L'Index Medicus*, and also to choose from among the great medical reviews one or two series, and subscribe to them in order that physicians may be able to find all the information that they desire to procure.

Your Committee is more than ever convinced that it is doing a work of public usefulness in putting at the disposal of the medical profession the works destined to help in the accomplishment of their duty, works which it would otherwise be difficult to procure.

L. J. A. SIMARD, M.D., Presdt.
HON. D. MARCIL, M.D.
E. E. LAURENT, M.D
A. T. BROSSEAU, M.D.
J. M. BEAUSOLEIL, M.D.

This report was confirmed.

COMMITTEE ON RECIPROCITY.

Mr. President and Members of the Board:

GENTLEMEN :—Your Committee has the honour to report:

1st. That the official delegates of the following provinces, Prince Edward's Island, Nova Scotia, New Brunswick, Manitoba, British Columbia, have signed for the adoption of uniform registration of licence to practice.

2nd. That such registration shall be based on the resolution of the conference of 1896, which you confirmed in September of the same year.

3rd. That, before putting the seal to this inter-provincial compact, it would be expedient to give an account of the organization to the various Faculties of Medicine of the sister provinces.

That the President shall have authority to name two delegates, one representing the medical teachers and one representing the profession generally of this province, who shall be charged to complete such a mission, and to sign, if it takes place, a formula of inter-provincial licence of practice.

4th. That it shall be the duty of these delegates to take the necessary steps with the Honorable Minister of Public Instruction and with the Medical Bureau of Ontario towards securing throughout the possessions of British North America a uniform preliminary examination for admission to the study of medical teaching and of control of the medical examinations.

Your Committee believes that the adoption of these resolutions will elevate the general standard of medical teaching favorable to the students of our University, in assuring a wider field of operation and giving to the general public a medical service worthy of its confidence.

Hon. D. MARCIL, President.
C. S. PARKE, M.D.
H. CHOLETTE, M.D.
J. M. BEAUSOLEIL, M.D.

This report was confirmed.

The President gave the following report of the Committee of Legislation.

COMMITTEE OF LEGISLATION.

The Committee of Legislation met on the 4th and 5th of August, 1897, at the School of Medicine of Laval University, in Quebec. There were present: Dr. L. J. A. Simard, President; Hon. Dr. D. Marcil, M. C. J., Vice-President; Drs. Rinfret, M.P., Bissonnette, M.P.P., Beausoleil, Gauthier, Parke, and Belleau, Secretary.

The Committee has the honor to report as follows, and to recommend :—

1st. The nomination of a Council of Medical Discipline, composed of four governors, elected by the Bureau, and of the President who shall be *ex-officio* President of this Council.

2nd. The duties of the Council shall be to hear any complaints which may be brought against any members of the College, to make any enquiries it may judge necessary, and to give its decision in conformity with the code of etiquette adopted by the College of Physicians and Surgeons on the 25th September, 1878.

Of pronouncing, according to the gravity of cases—1st. censure. 2nd. The deprivation of all office and the right of voting for a discretionary term not exceeding six years. 3rd. The deprivation for a given time of the right to practice the profession of medicine. 4th. The Council of discipline shall have the right to condemn one or other of the parties to defray expenses, or to divide it between them. 5th. It may appeal to the Medical Bureau for decision.

On the motion of Dr. Rinfret, seconded by Dr. Vallée, it is so resolved : That the first part of this report of the Committee concerning the nomination of a Council of Discipline be confirmed.

MEDICAL TARIFF.

The following tariff has been discussed item by item, and has been confirmed as follows :

Visits between 8 a.m. and 9 p.m. not exceeding one mile...	$ 1 00
Visits between 9 p.m. to 8 a.m. not exceeding one mile.....	2 00
Every additional mile (in day time).....	0 50
" " " (at night).....	1 00
Detention from 8 a.m. to 8 p.m.....	10 00
" for entire night.....	12 00
Office consultation at the prescription office (by day).....	1 00
" " " " " (at night)	2 00
Consultation, (by day) with a confrère	5 00
" (by night) " "	10 00
" (by correspondence) "	5 00
Ordinary certificate of heath after examination.....	5 00
Certificate with report of illness and death.....	5 00
External post mortem.....	5 00
Post mortem with autopsy.....	15 00
Ordinary confinement.....	5 00
Confinement with version.....	10 00
" " forceps.....	10 00
" complicated with prolonged retention of placenta—extraction of placenta.....	10 00

Miscarriage	5 00
Confinement (twins)	10 00
Catheterizing (ordinary case)	3 00
" (subsequent)	1 00
Vaccination	1 00
Venesection	1 00
Extraction of teeth	0 50
Hypodermic injection	1 00
Use of stomach pump	5 00
Application of cupping-glass, leeches	1 00
Thermocautery	5 00
Anæsthetic	5 00
Fracture of femur	25 00
Fracture of lower leg or arm	2 00
Reducing dislocated hip	30 00 to 50 00
" lower leg or arm	25 00
Fracture of rib	5 00
Fracture of patella	20 00
Dislocation of jaw	5 00
Other fractures and dislocations	5 00 to 20 00
Amputation of thigh	40 00
" leg or arm	30 00
Disarticulation of hip	100 00
Reduction of strangulated hernia	10 00
Strangulated hernia operation	50 00
Radical cure of hernia	50 00
Tracheotomy	25 00
Removal of uterus	25 00 to 50 00
Operation on glottis	5 00
Amputation of fingers or toes	5 00
Ordinary Insurance examination	5 00
Beneficiary insurance	3 00
Analysis of urine	1 00
Microscopic examination of urine	5 00
Microscopic examination of sputum, blood, and pathological specimens	5 00

For all other operations the fee shall be based on the preceding scale, according to their importance and gravity.

MEDICINES.

Medicinal draughts	50c to $2
Powders, pills, etc., according to number	25c to $1
Lotions, liniments, etc., according to quantity	50c to $2

And other medicines of which the price is according to amount, based on the above scale.

Proposed by Dr. Rinfret, seconded by Dr. Gauthier, and resolved: That the tariff with amendments shall be confirmed and presented to the Lieutenant-Governor in Council.

3rd. The President continued to read the following articles of the said report on "Practice of Medecine."

The Committee recommend the following modifications on the subject of "Practice of Medicine," viz.: In place of the three first paragraphs of article 3998, 1st, all persons will be considered as

illegally practicing medicine whose names are not to be found in the Medical Register of the Province of Quebec, and who administer drugs, and perform any surgical or obstetrical operations whatever, whether performed at their own domiciles or elsewhere, either alone or in company with other physicians or surgeons—all such persons shall be liable to a fine of fifty dollars for first conviction, and an additional fifty dollars for every subsequent conviction.

All persons who illegally announce, either through the medium of the press, by circulars, printed or written, by card or sign-board, purporting to be qualified to practice medicine, are liable to the same penalty for every offence.

2nd. Your Committee recommends the following modification in the method of recovering the penalties: The prosecution shall be taken not only before the circuit court of the county or district in which the offence has been committed, but also before a judge of the peace of the same district or county.

All persons found guilty under this act, and who give notice that they shall appeal the decision of the court, must give sufficient securities for the defraying the penalty and expenses, as well as costs of appeal.

3rd. Your Committee recommends the withdrawal from the Medical Register the following part of article 3987: "Nothing in the present article, etc., etc."

And on the motion of Dr. Rinfret, seconded by Dr. Gauthier, these three articles are confirmed.

Proposed by Dr. Beausoleil, seconded by Dr. Cholette, and resolved: That the secretaries of the Medical Bureau notify the Faculties of Medicine of this province in regard to the new amendments and rules, confirmed by this Bureau in July, 1896.

Proposed by Dr. Beausoleil, seconded by Dr. Guay, and resolved: That the Committee of Legislation be authorized to take the necessary steps towards the adoption by the Legislature of the amendments approved by this Bureau.

Proposed by Dr. S. Gauthier, supported by Dr. A. T. Brosseau: That the Committee of Legislation composed of the following gentlemen: L. J. A. Simard, Hon. D. Marcil, Hon. J. J. Ross, A. G. Belleau, L. J. P. Bissonnette, G. A. Lacombe, S. Gauthier and Parke, be authorized to take the necessary steps towards demanding of the Legislature the abrogation of the law according to Bachelors of Arts, Science and Literature certain privileges concerning the admission to the study of medicine.—Confirmed.

Dr. Gauthier gave at the same time notice of the motion that he would ask at the next meeting of the Medical Bureau of the College of Physicians and Surgeons Province of Quebec that the articles 1st and 3rd of the VI. Chap. and article 1st of the VII. Chap., pages 84 and 86 of the Statutes, Rules and Regulations of the College of Physicians and Surgeons of Province of Quebec, be amended in the sense of the preceding motion, with the view of restoring to said College all the rights that were conferred by Article 3978, page 14 of the Statutes, Rules and Regulations of the College of Physicians and Surgeons of Province of Quebec.

Dr. A. T. Brosseau gave notice of motion that at the next assembly of College of Physicians and Surgeons he will propose

that there be in future only one annual meeting of the governors of the Medical Board in place of two meetings as at present.—Confirmed.

Proposed by Dr. A. T. Brosseau, seconded by Dr. G. A Lacombe, that this Board authorize the Committee on Legislation to demand of the Government the addition of two members to the representatives of the City of Montreal.—Confirmed.

The Secretary, Dr. Belleau, read the notice of the following motion made by Dr. Marcil at the last meeting:—"I give notice of motion that I shall propose at the next meeting of the Bureau that, seeing the position imposes serious work, it is not reasonable that the President should give his services gratis.

Consequently, that a salary of four hundred dollars annually, beginning from the next year, be granted him.

This motion was unanimously confirmed.

Proposed by Dr. Beausoleil, seconded by Dr. Guay, and resolved: That Dr. Normand be put on the Committee of Legislation in place of the Honorable Dr. J. J. Ross, who is ill.

The Committee on professional examinations reports that Mr. L. J. A. Migneault has passed successfully the examination, and that Messrs. Gadbois and Dequoy have failed.

Moved by Dr. J. B. McConnell and seconded by Dr. Gauthier:—

"That in view of the extent to which the members of the medical profession are defrauded of proper remuneration for professional services, owing to the acceptance by many of the positions of medical officers to various benefit societies, lodges and other positions where remuneration is arranged for by contract;

"It be considered beneath the dignity of our profession to accept and hold such positions; and in order that all professional services shall be awarded remuneration not less than the tariff adopted by the board—

"It is hereby enacted that members of the College of Physicians and Surgeons of the Province of Quebec shall be prohibited from accepting and retaining the position of lodge doctor or medical officer to any lodge or society where a stipulated amount is paid annually or otherwise for professional services amounting to less than the mimimum tariff adopted by this Board, or from attendance upon families, groups of families or other associations at contract prices, which name a stated amount for a certain term, usually an annual fee, and that no physician shall be permitted to retain membership in this College or practice in this Province who accepts such positions."

Proposed by Dr. Bissonnette, seconded by Dr. Camirand, and resolved:—That the Provincial Medical Board learn with pleasure of the nomination of Dr. Beausoleil to the presidency of the Canadian Medical Association, which has thus recognized his merits.

On motion of Dr. Beausoleil, seconded by Dr. Guay, it was resolved:—That the thanks of the College are tendered to the authorities of Laval University for the use of this hall.

An adjournment was proposed by Dr. Camirand, seconded by Dr. McKay, and the session closed at 1 p.m.

NOTES ON THE ANNUAL MUSEUM OF THE BRITISH MEDICAL ASSOCIATION.

Among the many and interesting exhibits, probably the widest and best known exhibit shown was No. 19 of the Apollinaris Co., Limited, 4 Stratford Place, Oxford street, London W. They showed "*Apenta Water*"—a natural aperient water from springs near Buda Pest. This water contains sulph. magnes. sulph. sod. in large proportions; it also contains Lithium salts. The particular benefits rightly claimed for this water is that it stimulates the gastro-intestinal canal without causing irritation. It is recommended for obesity, chronic constipation, portal obstruction, hæmorrhoids. "*Apollinaris*" water impregnated only with its own gas is probably better known all over the civilized world than any other mineral water, and is used as a table water in clubs and wherever a good, pure and refreshing water is desired from one end of the world to the other. *Friedrichshall aperient natural mineral water* was another well-known water exhibited by the Company. This water is rich in alkaline chlorides, as well as magnes. sulph., and is known as an habitual aperient suitable for continuous use, having tonic, alterative and diuretic action. Dr. Fordyce Barker strongly recommends this water for continuous use when needed.

EXHIBIT NO. 2.—Bovril, Limited, Food Specialists, Hospital Purveyors and Government Contractors, London, England, and Montreal, Canada. This display was of more than ordinary interest, as both medical and lay men can appreciate concentrated foods. This display did great credit to the Company, as it shows what can be done by brains supplemented by capital, and *en passant* it may be said one of the largest companies if not the largest in the world of its kind. Its Canadian branch is at 27 St. Peter street, Montreal. Among its exhibits we noticed Bovril, a concentrated beef extract. Invalid Bovril, in which the seasoning is left out; Bovril beef jelly, which is really a beef juice; Bovril lozenges, special emergency foods, which have been prepared to give the greatest amount of nourishment while occupying the smallest space, and have been supplied to the Arctic Expeditions of late—Nansen's, Jackson, Harmsworth and others; Kudos cocoa, a concentrated cocoa, besides many other elegant and useful preparations. We are sure there is a great future before them in this country, and no doubt many a miner will carry them with him to Klondyke in the spring.

EXHIBITS NO. 16 and 17.—John Wyeth & Bro., represented in Montreal by the Davis-Lawrence Co., Ltd. This was a most tasty and full exhibit of drugs made by a firm which

needs no recommendation, for all its goods are known on this continent wherever drugs are used as being standards for both strength and elegant pharmaceutical preparations. The trouble and expense involved in the display will no doubt be reimbursed in the long run to the firm, as it could have no better advertisement.

EXHIBIT NO. 18—Leeming, Miles & Co. made a very excellent display of surgical and medical necessities as agents for Seabury and Johnson, New York. In this country it would be an advertisement in itself, as every student in surgery, not to speak of every practitioner, is familiar with them. Also agents for Marchand's peroxide of hydrogen, Henri Nestlé's food, the Bovinine Co., etc., etc. This display would need to have been seen to be appreciated at its full value.

EXHIBIT NO. 40.—Radnor Water, from the Radnor Mineral Springs, Radnor Forges, Que. Messrs. Drummond, McCall & Co., Canada Life Building, Montreal. This is probably one of the best, if not the best of its kind, of mineral waters. It contains in large quantities the important sulphates, chlorides and bicarbonates, and is the only mineral water containing bromide of sodium. It is of the greatest value in stomachic and intestinal disorders. It is a delicious table water, and has been well named the empress of table waters. It is rapidly making its way into the front rank of table waters, and is likely from its inherent qualities to hold its place easily.

EXHIBIT NO. 28.—Lyman Sons & Co., Wholesale Druggists, Surgical Supplies and Hospital Glassware, 380 St. Paul street, Montreal. This display was very complete, and contained more than many an ordinary druggist has in his store. We might well be proud of the Messrs. Lyman Sons & Co. in Montreal, as they are known as thoroughly reliable and up to date in every line from Halifax to Vancouver. They deserve great credit for their most admirable display.

EXHIBIT NO. 5.—Sharp & Dohme, represented in Montreal by H. Dart & Co., 641 Craig street, made a fine display of extracts, and particularly of pills, soluble hypodermic tablets and compressed tablets of all kinds. A good display of digestive ferments were shown as well as ergotole, especially made by this firm for use instead of ergot or ergotin, being without disagreeable effect either by mouth or hypodermically.

EXHIBIT NOS. 25 AND 61.—Gilmour Bros. & Co., Montreal. This firm displays the goods of the well-known firm of Johnson & Johnson, Upjohn Pill Co., and Dr. Bengue's ethyl chloride, etc. The arrangement of the display was

most excellent, and many most valuable drugs (many of them very recent) and appliances were shown.

EXHIBIT NO. 26.—H. K. Wampole & Co., Canadian branch, Toronto. The many drugs and specialties produced by this firm are well known, such as the tasteless Cod Liver Oil, Cascara Bark, etc., etc. Any preparation coming from this firm may be depended on.

EXHIBIT NO. 41.—Duncan, Flockhart & Co. Agent in Canada, R. L. Gibson, 88 Wellington street, Toronto. This firm is as well known among civilized nations as is the British flag, and to carry the simile further it would be hard to say which has done most for suffering humanity ; certainly their chloroform is the standard for the world, and they make besides many most elegant pills and preparations.

EXHIBIT NO. 6.—J. H. Chapman, 2294 St. Catherine street, importer of instruments. Mr. Chapman had a very large and most interesting display of modern instruments of all kinds, and a large number of the visitors seemed never to tire examining and asking questions. No doubt many received new ideas for their future work, and were well repaid for their curiosity.

EXHIBIT No. 32.—Charles Gurd & Co., 39 to 45 Jurors street, Montreal. A very tasty display of well made and pure aerated beverages and medicated waters.

EXHIBIT NO. 33.—John D. Duncan, 125 Mountain street, Montreal, showed the Walker-Gordon modified milk for children.

EXHIBIT NO. 34.—Kerry, Watson & Co., Montreal. This firm made an excellent display of drugs for which they are so well and favorably known in Canada. Their display was quite as creditable to them as might be expected from a firm of their standing.

EXHIBIT NOS. 12 AND 63.—Paterson & Foster, 21 Phillips square, Montreal. This exhibit was most interesting and extensive. The firm are agents for the Sanitary Construct Co., New York, and showed the new Formaldehyde Generators, all sorts of dental necessities, the J. Ellwood, Lee Co. Surgical Sundries and the Reichert Microscopes, besides hosts of most interesting, valuable and delicate instruments, many of which will be found in every well-appointed physcian's office.

Time and space fail us to go into all the exhibits, for they were legion in number, and for variety of ground covered, for excellence of preparation, and, in many cases showing decided advance in the scientific aspect, the exhibition will be remembered as one of the best the British Medical Association has ever had.

H. L. R.

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Editorial.

THE BOARD OF GOVERNORS OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF QUEBEC.

We give in this number an account of the proceedings of the last semi-annual meeting of this body at Quebec. It is, as most of our readers are aware, the representative legislative board of the medical profession of this Province, and elected by the members of the latter body tri-annually.

It is empowered to regulate all matters pertaining to the interests of the profession in regard to the study of Medicine, examinations, qualifications for the license, and other matters concerning the general conduct of the members of the College. Hence, its enactments, regulations and the work accomplished at its sessions are of extreme interest to all within this Province and even beyond.

The attempt again to invalidate the B.A. degree as an equivalent for the matriculation examination is one that should receive the full attention of the Universities in the Province. The requirements for this degree are certainly higher than what is demanded in the entrance examination, which has to be passed by all entering upon the study of Medicine here, and we can see no reason why applicants with this degree should not be accepted without further

examination. It would be but a small concession and some encouragement to those who desire the full training in literature, classics, mathematics and science, which such a course affords. If there should be any looseness in connection with any of the degree-granting bodies, let there be a better supervision of these institutions and their work rather than a depreciation of the B.A. degree. It would be desirable that all seeking to enter the study of Medicine should have the preliminary education which the curriculum of the B.A. Course presumes him to possess. There will doubtless be an energetic effort on the part of the Universities of McGill, Laval and Bishop's to prevent the maturing of the attack on the B.A. Degree by the Provincial Medical Board.

The adoption of a tariff of fees is one of the items of business of the last meeting which is open to much criticism. Several attempts have been made to establish a standard of fees. The last one was so manifestly absurd in some particulars that it was disallowed by the Lieut.-Governor. The present list makes no distinction between the country and cities as the last one did, nor does the official report state it to be a minimum tariff as it was understood to be at the meeting. A schedule which takes no account of the distinction between the conditions of city and rural practice nor the patient's ability to pay must lead to greater difficulties and be a greater encouragement to litigation in regard to fees than if none existed. One of the objects aimed at was that it would prevent country practitioners and others from cutting fees in order to gain an advantage over their *confrères*. If the schedule is to be offered as a minimum tariff, some modifications will have to be made before it becomes law, as some of the items are rather high and would be sufficiently so to rank as maximum, such as five dollars for using the stomach tube, a method of treatment now so common in the treatment of affections of the stomach; consultation with a *confrère*, five dollars; microscopical examination of urine, blood or sputum, five dollars; general anæsthesia, five dollars. We cannot understand why the chemical analysis of urine should be one dollar only while its microscopical examination is five.

We think the former requires as much time and skill as the latter. In putting the fee for *accouchement* at five dollars, it is not stated whether subsequent attendance is included. Unless this tariff is made a minimum one with no limit upwards so that superior skill may be properly remunerated and the affluent may be called on to contribute more in accordance with their ability to do so, it would be better to dispense with it altogether, and even with a minimum tariff there will be a disposition for many who have no claim to be considered entitled to reductions in their professional accounts to endeavor to be placed in that category.

THE LODGE DOCTOR.

The resolution which was adopted unanimously by the Provincial Medical Board at its last meeting in regard to lodge and society physicians, prohibiting members of the College from accepting such positions, is one of the greatest importance, and should receive at once the careful consideration of every member of the profession in the province. The warfare on these lines is not confined to this province or country, but is almost universal. Attempts have been made recently in Britain, the United States and Canada to abridge and restrict the injury resulting to the profession generally from this widespread and spreading practice. In some districts the medical men have united and agreed to refuse all such appointments only to find that others may be imported to fill their places, indicating the existence of an inferior brand of physician devoid of professional honor and a proper interest in the general welfare of the profession as a whole. A number of resolutions exist in the records of the College aiming at restrictions of this medical abuse and the amelioration of some of the somewhat humiliating situations to which the holders of such appointments are frequently subject. But it was evident to all that only radical measures would be of any avail if the system is to be wiped out; and while we endorse the action taken, on more mature consideration it probably would be preferable that infractors of the law should be first reprimanded by the council of discipline, and, this failing, a fine to be imposed, and the cancellation of the license be reserved as a final possibility. That great advantages accrue to the members of these

various societies is evident from the hue and cry which has resulted since the publishing of the resolution in the press. The benefit obtained is of course cheap medical attendance, but the alleged reason for the existence of these appointments and the objections made to their possible disappearance is that the members are poor and cannot pay ordinary fees. It may be stated that the majority of Lodge members are not proper subjects for medical charity, but the rule is rather that the members are the thrifty, comfortably circumstanced portion of the community, and quite able to give proper remuneration for the professional services they require. In fact, one writer in the lay press, to show the importance of these societies in the community, stated that "the benefit societies are composed of leading clergymen, lawyers, doctors, judges, merchants, bankers, brokers, mechanics, manufacturers (and finally) laborers." It is admitted by several other writers to the press that many of these organizations would cease to exist if they could not get cheap medical services. It is thus clear that a large portion of the community, and quite a respectable class, are receiving professional services at nominal rates, usually a dollar a year, and in some Lodges this includes medicines as well.

It will be admitted by all that those composing the class of citizens mentioned by the above Lodge Doctor advocate are such as should be expected to give reasonable remuneration to their medical adviser, and that there should be some other method of meeting the alleged wants of the poor than by associating them with the above array of notables who participate equally in the benefits. We have every sympathy with the work that is done by the numerous benefit organizations which exist, and consider that the opportunities they give for social commingling of members, the learning and practice of the rules of debate, the development of the fraternal spirit, the advantages in travelling from home of having friends wherever the order exists, the sick benefit and other funds, as well as the services of a physician when ill are of great advantage: they all belong to the list of the amenities of modern society and tend to develop a higher civilization; but if the lodges, instead of supplying a physician; would supply the means for procuring a physician, and allow the member to choose his own medical attendant, the co-operative idea would

be more consistently carried out. But no, the member will pay for every commodity he needs and for every service he requires at rulingrates, but when illness appears, then cut rates are expected from the individual whose duty it is to undo the grasp of disease or obstruct the approach of the destroying angel. Now, instead of the physician being called upon in these events to be the sole disseminator of benevolence, why should not the judges, merchants, bankers, etc., do the work for their sick brethren by contributing towards adequate payment for the services required? or, if each member contributed annually towards a physician's fund, would it not be a more just and satisfactory arrangement?

But the most objectionable feature of Lodge practice is not insufficient remuneration—it means a loss of independence of action; the physician must be governed by the stated Lodge rules, and members are frequently more than exacting in the services they demand. He is called out at unreasonable hours, and bothered with trifling and imaginary ailments. Imaginary neglect or malicious complaints are submitted to open lodge, and time must be spent in explaining to the Committee of Enquiry. The unseemly situation of several physicians applying and canvassing for the appointment is boasted of by some of the Lodge Doctor advocates. This means factions in the Lodge and a section unfriendly towards the successful candidate, and often bitter feelings and a loss of previous respect among the latter; this being especially the case in small towns and villages.

It is frequently stated that, if the position were not of some advantage, there would not be so many applicants; but it is not contended that there are not some favorable features in connection with lodge practice, such as being for the young practitioner a wholesale gain to his *clientèle*.

However, the fact that such a large proportion of the community are enrolled in these institutions, and the proportion constantly increasing and including frequently children and women's departments, and the fact that if one does not take the appointment others will, will account for so many physicians of some years of practice retaining them and for others being so willing to accept them. Advocating, however, the abolition of the Lodge Doctor in

his capacity as physician to its members by appointment does not prohibit him from being the examining physician, nor does it prevent physicians from joining these organizations; indeed, it is probable that a larger number would be more likely to do so. It was stated to the writer quite recently that the Independent Order of Oddfellows B.U. of the United States, the largest and most influential organization there, have only examining physicians, and includes a great many physicians among its members.

It cannot be said that the movement emanates from any desire on the part of the profession to lessen the amount of their charitable work among the poor; the latter class are not in the Lodges as a rule. The members of the medical profession, probably more than those of any other calling, are never found wanting when poverty and sickness lay claim to their services, and this they can always be depended upon to be for those deserving or otherwise whom they constantly come across in private practice, or as members of the staffs of the various hospitals and numerous charitable institutions. But what must be opposed is the feature of this wholesale organization which results in compelling medical services insufficiently recompensed, and associated with constant occurrences which are humiliating and detract from the true dignity which the character of our work demands in its performance.

In regard to the position of affairs in this province, the Provincial Board has for several years passed resolutions with a view of minimizing the objectionable features of this character of practice, but, realizing that only radical measures would be of much use, have put matters in such a shape that, if the practitioners of the province will with one accord indorse their action, a riddance will be obtained of this well-recognized abuse. We trust that immediate action will be taken by the various medical organizations of the province, so that those who will place the regulation before the Lieut.-Governor for his sanction, may be able to meet the combined opposition which is threatened with a confidence based on the knowledge, that the Provincial Board has the unanimous support of the profession who appointed them, in their efforts to maintain the honor and welfare of its members.

Pamphlets Received.

Presidential Address on Overcrowding in the Medical Profession and its Remedy. By William Mitchell Banks, F.R.C.S., Surgeon to the Liverpool Royal Infirmary; Emeritus Professor of Anatomy, University College, Liverpool, etc. Reprinted from the *Liverpool Medico-Chirurgical Journal.*

The Gentle Doctor. Physic and Letters. Two addresses. By the same author.

1865 and 1895—Student and Teacher. By the same author. Being an Address delivered before the Yorkshire College Medical Society on October 17th, 1895, Leeds. Printed by J. Laycock & Sons, 2 Cross Bank St., Trinity Street.

On the Treatment of Fractured Shafts of Bone in Children; Simple, Complicated and Compound. By Thos. H. Manley, M.D., Professor of Surgery, New York Clinical School of Medicine, New York. Read in the Section on Diseases of Children at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga. Reprinted from the *Journal of the American Medical Association.*

Contribution to Traumatic Abdominal Surgery. 1. Report of a Case of Contusion and Subsequent Gangrene of a Portion of the Ilium, complicated by Laceration of a Horseshoe Kidney. 2. Report of a case of Gangrenous Strangulated Hernia. By the same author.

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For October has an article by Dr. J. A. Dickey on "Suggested Analgesia in Childbirth." Among the other contents are "Fallacies of the creed called Christian Science," by Edward B. Warman; and "Demon Possession in China"—a criticism of some statements in a book by Rev. John L. Nevins, for 40 years missionary in the Middle Kingdom. Dr. W. Lee Howard questions the credibility of both possession and cure. Reports of the Chicago School of Psycnology, the Illinois College of Psychology and the Kingston School of Suggestive Therapeutics by Drs. C. O. Sahler, Herbert A Parkyn, Dr. A. H. Burr and others; Editorial Notes and Enquiry Department complete this number. The Hypnotic Magazine is a monthly record of the practice of suggestive therapeutics, and is edited by Drs. Sydney Flower (LL.D.) and Wm. Henry Bischoff (M.D.). It is published by the Psychic Publishing Company, Chicago.

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J. F. LAMBERT, M.D.

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