AN ADDRESS

ON

UNVEILING THE STATUE OF HARVEY, AND ITS PRESENTATION TO THE TOWN OF FOLKESTONE,

Saturday, August 6th, 1881.

By RICHARD OWEN, M.D., C.B., F.R.S.

GENTLEMEN OF THE COMMITTEE OF THE HARVEY TERCENTENARY MEMORIAL, AND MR. MAYOR,—In now standing in your presence, permit me first to give expression to the grateful sense of the honour conferred upon me by the invitation with which I have been favoured to perform the duty of unveiling the statue of William Harvey, and of presenting, on the part of the subscribers to the memorial fund, to the Mayor and Corporation of Folkestone—the elected representatives of this ancient borough—such lasting memorial in honour of the immortal discoverer of the circulation of the blood.

In the present phase of certain public manifestations of feeling toward labours resulting in, and essential to, that discovery, it is of importance to find, as the list of donations to this memorial testifies, that, besides the names of the eminent practitioners of medicine and surgery of our day, and of the teachers and advancers of the science of physiology, various learned and scientific bodies and intellectual individuals, of all classes, have combined and concurred in testifying that the methods and results of Harvey's discovery have not only laid the foundation of all progress in physiology, but have been the basis of modern scientific medicine and surgery, and, consequently, the source of countless blessings to suffering humanity. Judging by own feelings, no testimony or expression appreciative of labours contributing to the advancement of science and to human welfare, would be more grateful to myself than such as might be vouchsafed in connection with my native town.

If we may be permitted to believe that the shade of Harvey is cognisant of the reception accorded to his great discovery, and its appreciation by posterity, none can be, with greater satisfaction, so spiritually discerned than the statue now unveiled, to perpetuate his memory, in the place of his birth.

Harvey's grounds for such consideration from successors in his divine profession, from cultivators of physiological science, and from his town-folk, as well as his claims to the endless gratitude of the human race, have been so fully and so frequently set forth by greater masters in medical and physiological science than myself, that my duties on this occasion are reduced to easy dimensions; and any attempt of mine to follow in the steps of Harveian orators must reflect more credit on myself, in relation to the honour of being selected to address you on this memorable occasion, than it can add aught to the appreciation of the labours of the subject of this noble work of British art.

One extrinsic benefit I cannot but think must flow from its presence here, and its contemplation by the ingenuous youth of Folkestone. The elementary education which William Harvey received at the Grammar School of this ancient borough was such as many of the sons of your town-folk start with—especially those who may aspire to life-work in the medical profession. To them I would crave leave to remark that, at the present day, there is no need, as in 1597, to migrate to foreign universities for instruction in the special sciences of anatomy and physiology; and in whatever metropolitan hospital and medical school a young Folkestonian may be matriculated, he can have no better example to follow than that of his townsman Harvey, who listened in his youth to the demonstrations of Fabricius at Padua, and pondered upon the structures displayed in an Italian anatomical theatre.

Labour then, my young friends who may now listen to me; strive diligently to digest all that may be taught; endeavour to comprehend the meaning of what you see, and subject the explanations which your instructors may offer, to independent reflection and judgment; above all, cultivate the manual arts of unravelling organic structures in the dead subject, and in perfecting your skill in exposing, in the lower living animals, the parts which must be seen or experimented on to yield the needed knowledge of their actions and functions. For, bearing in mind that Harvey, in his day had earned, and justly earned, the renown of the greatest vivisectionist,* why should there not arise another

native of Folkestone to gain immortality by conferring inestimable benefits on his fellow-man through physiological discoveries, made by like methods of interrogating Nature, and by equal devotion of manual skill, directed by keen insight and sound judgment.

It is true there are phenomena patent to the eye without need of either dissection or vivisection, suggestive of possible work in the vital machine, and stimulating the application of such manual dexterity in proof of their signification.

Contemplate the course of superficial or subcutaneous veins. If you press the blood, as I now do, at the back of my hand downwards, or, as we say, "distad", towards the fingers, you empty such venous tract a certain way, and the blood does not follow the pressing digit; the vein remains empty, at least for a short time. On removing the pressure it is instantly filled from the finger upwards, or proximad. You may repeat this easy experiment a hundred times, and at any hour of the twenty-four, and the course of the refilling blood is ever the same—from the fingers to the wrist. It is due to the presence of valves in the veins. Harvey gives diagrams illustrative of these experiments, from which he inferred the use of the valves which his master had discovered. Consecutive ponderings compelled him to the steps for ascertaining the mode of action of the several parts of the heart's mechanism, and of the correlated channels of the blood.

One naturally wonders that Fabricius was not led on to procedures essential to an anticipation of his pupil's great discovery; and such sentiment is only abated by experience of the narcotic effect on the mind of a generally and reverently received dogma.

Even Cesalpino, to whom his countrymen have endeavoured to transfer the glory earned by Harvey, could not extricate himself from the accepted doctrine that "the heart and its vessels served to distribute to the body its vital spirits and native heat, rather than such blood as is found in the veins. Therefore, he concluded that Fabricius's valves could not act absolutely as such".*

There is a difference between arterial and venous blood, and our knowledge of its nature and cause rests upon the experiments and discoveries of fellow-labourers in another science—that of chemistry.

Division of labour is an important condition of the advance of knowledge in every field of the phenomena of nature. Most discoveries in physiology, like that of Harvey's, have been suggested or started by previous gains in anatomy.

The lower animals which supplied Galen with so great a proportion of his subjects did, some of them, exhibit what his notions of the work of the heart and its conduits required, viz., intercommunicating channels between the right and left ventricles. Sylvius announced, and Vesalius demonstrated, about the same time (1537), the absence of such intercommunications. The septum or party-wall between the two ventricles they found, in man, to be complete. But the inference to which free cogitation might have led these great anthropotomists, was hidden from them by the pre-conception of the to-and-fro course of the vital and heat-giving currents.

Vesalius knew, as an anatomist, that one great vessel carried the contents of the right ventricle to the lungs; and that another great vessel brought the pulmonary blood back to the left ventricle by the medium of its auricle: the one was his "Vena arterialis", the other his "Arteria venalis". He knew also the valvular structures connected with each. A pupil of Vesalius, or junior fellow-student of anatomy, named Michael Servetus, drew from these structures the right conclusions as to the functions of those great valve-endowed vessels; in a way and degree closely analogous to the deductions as to the office of the valves of the veins, drawn by the English pupil of the discoverer of those parts.

"There is a transit of the blood", writes Servetus, "from the right to the left side of the heart by a lengthened and complex passage through the lungs."

In 1553, Servetus consigned and printed this discovery in his theological work entitled *Christianismi Restitutio*. Adopting the current and accepted ideas of the natures of the two kinds of blood—now termed "venous" and "arterial", he writes: "Their communication does not take place through the heart's septum, as is generally believed, but by another admirable contrivance, whereby from the right ventricle the subtle blood is agitated in a lengthened course through the lungs; wherein prepared, it becomes of a crimson colour, and, from the 'vena arterialis', is transferred into the 'arteria venalis'. Mingled with the inspired air in the 'arteria venalis', freed by expiration from the fuliginous matter, and become a suitable home of the vital spirit, it is attracted at length into the left ventricle of the heart by the diastole (dilatation) of the organ."

* "A Master of Vivisection." Tollin, "*Die Entdeckung*", etc., p. 340.

* "Non cogimur membranas vasorum educendum claudere in cordis, venarumque dilatatione."

This announcement of the "lesser circulation", unknown to physiology for more than a century after its record, became a lasting possession in human knowledge by Harvey's independent researches, in connection with that of the true nature and way of work of the whole cardio-vascular system—heart, veins, arteries of every part of the human frame—not merely the "circulation of the blood", but of its twofold circulation, and this not by a new or different interpretation of structure, but by visible demonstrations of function.

With respect to the *Christianismi Restitutio* of 1553, it cannot be shown that more than four or five copies of the book ever left the bales in which the whole impression was packed, and which Calvin contrived to get transferred from the printer, and caused to be burnt in the same fire with their author. One copy was taken out for the use of the inquisitor; another was sent, for their inspection, to the "Swiss Council"; a third was given by Calvin to his lawyer Colladon, by way of "brief", with the theological passages underscored on which Servetus was finally arraigned and condemned. Calvin did his utmost to prevent anyone, save himself and his accomplices in the murder, from knowing what Servetus had actually written. Harvey never saw a copy, or knew the physiological observations which the accomplished physician had consigned in his Theological Dissertation.

Not, indeed, until 1694, nearly a century and a half after the abominable cremation of the living author, was the existence of any copy of the work made known to the Republic of Letters, which is indebted for this knowledge to Sir Henry Wotton, in his *Reflections on Learning, Ancient and Modern* (1694). (See the admirable *Life of Servetus*, by Dr. Robert Willis.) The copy in question bears the name of Colladon. An early reprint is now in the British Museum, where I had the pleasure and privilege of showing it to the assembled continental physicians who did me the honour to accompany me, yesterday, through the halls and galleries of the building at Bloomsbury. No! Harvey started on his voyage of discovery with the anatomical observations of Vesalius on the "valves of the heart", and with those of Fabricius on the "valves of the veins".

But, "How worked, how moved the heart?" These were problems to be solved. It is not enough to be yourself convinced of a theory which you have been led to originate. To yield its due results, and confer its benefits on your fellow men, you must give them demonstrative—palpable and visible—proofs of your discovery. And, the more counter your discovery—no longer mere statement or hypothesis—runs to the then accepted views, the more incumbent becomes it, on the part of the discoverer, to demonstrate his proofs. And Harvey did not shrink from such obligation. He was a truly religious man; charitable and compassionate as such. He felt his deep responsibility for the gifts he had received from the Fountain of all Knowledge. He could not but be conscious of the rarity and value of such entrusted talent; he shrank from the sin of "hiding it under a bushel". Accordingly, he laid bare the heart in a living animal; he showed his hearers and watchers that the organ became erect, and gave the beat which we feel upon the chest; then, that it contracted, became notably shorter and narrower. Grasped by the hand, it was felt to be a firm body; the action was plainly that of a muscle, such as was required to expel a dense fluid, not mere "vital spirits", as was the then accepted doctrine. Furthermore, the relaxation of the heart was shown and seen to be the passive state of the organ, yielding and expanding to extraneous forces driving in the blood, not sucking in, as by a blacksmith's bellows—a hypothetical "vital spirit". Next, Harvey showed, in the heart of a living animal, that there were two distinct motions—one of the auricles, another of the ventricles—these succeeding each other rhythmically; and, when the point of the ventricle was cut off, blood, not "aërial spirit" was seen to spurt therefrom. Moreover, the blood, so experimentally expelled from the left ventricle, was visibly florid, or arterial, while that from the right ventricle was black, or venous. The great vein terminating in the left auricle was shown to carry thither "arterial blood"; those terminating in the right auricle were shown to deliver to it "venous blood". The simultaneously contracting auricles were seen to empty their respective kinds of blood into their respective ventricles; and these, next contracting, and simultaneously, were seen to expel their respective contents, by the pulmonary artery to the lungs, by the aorta to the entire body.

It was absolutely essential to the discovery, to the demonstration, and consequent reception and fruition, of the Harveian doctrine of the circulation, that the discoverer should have satisfied himself, by vivisection, of the facts; and that contemporary physiologists and physicians should be brought to witness those demonstrations. Of their absolute necessity, we have the proof in the surprise which the vivisectional results occasioned in the physiological world, and in the visible plain demonstrations they opposed to the controversial opponents, who strove to make themselves and others regard the ideas of the Harveian circula-

tion of the blood and of the heart's actions therein as absurdities and condemnable innovations on orthodox doctrine.

Such objections compelled the great discoverer to repeat, to vary, and to extend his experiments. "If a live snake", he writes, "be laid open, the heart will be seen pulsating for an hour or more, contracting and propelling its contents, becoming of a paler colour in the systole when it empties itself, of a deeper hue in the diastole when it is filled. . . . In this animal", Harvey proceeds to say, "the vena cava enters the heart at its lower part, and the aorta leaves it at the upper part. Now, if the vein be taken between the finger and thumb, or seized by the dissecting forceps a little way below the heart, and the incoming current of blood be thereby arrested, you will see the part which intervenes between the obstruction and the heart fall empty, and the heart itself become smaller and of a paler colour, and beat more slowly. But the impediment to the flow of blood being removed, instantly the colour, the size, and the motion of the heart are restored."

I must ask pardon for trespassing on your time, especially of my professional friends and fellow-labourers, with these to them well-known quotations. My excuse is, the "Report of the Annual Meeting of the Society for the Protection of Animals from Vivisection" published in the *Times* newspaper of June 28th, and in the *Daily News* of June 27th, of the present year. This document, issued in the names of estimable men, including some eminent in divinity and in law, threatens Parliamentary prohibition of experiments such as those which have given new powers to the surgeon, and to which Harvey refers in the introduction to his immortal work—*Non ex Libris, sed ex Dissectionibus*—by which term he meant or included the experiments which the Legislature is now asked to prohibit. In reply to such appeal to Parliament, I beg respectfully to remark that, to almost every objection to his conclusions, Harvey responded by some vivisectional demonstration, modified as to subject and method, in order to test such objection. Harvey was conscious that his discovery would give the physician the power to form a truer diagnosis of disease, and consequently a more efficient and successful treatment. That such was the influence of the new doctrine of the circulation on the current medical practice of the day, is shown by the opposition it met from all the older established metropolitan practitioners, whose excuses for non-acceptance took the form of misstatements to ignorant but influential patients, and had the result of injuriously affecting and diminishing the medical practice of Dr. Harvey himself.

How congenial to the feelings, the interests, the wishes of these older doctors of London would have been the alliance of noble lords, church dignitaries, and learned judges of that day, whose influence with the administrative powers might have availed to prohibit the physiologist from making any one of the experiments on which he relied for his own convictions, and those of his disciples, as to the real actions and functions of the heart, of the tracts traversed respectively by the venous and arterial currents, and not merely of the circulation, but of the twofold courses of the blood! Suppose an antivivisectional clamour to have then, as now, besieged the Legislature! Fortunately for Harvey and medical science, Lord Chancellor Bacon, a contemporary of the physiologist, had truer views of the methods of advancing knowledge than have been manifested by some of his successors on the bench of lower grade. Such clamour would have met with no encouragement, in 1628, from the author of the *Novum Organum*. And this leads me to trespass a little longer on your attention, and to refer to the next great advance in the knowledge of the actions and properties of the circulating system.

The discovery in question, which, as conferring a power to cure disease, I am disposed to regard as second only to Harvey's, was that made by John Hunter, in 1780, of the property of the arterial capillaries to enlarge under what he figuratively termed the "stimulus of necessity".

Suppose, for example, a cardinal, a bishop, a learned judge, or an earl of the last century, to have been afflicted with an aneurysm at the bend of the leg; groaning, with a tumour in the ham of the size of a child's head; such tumour pulsating, pressing on the surrounding tissues, the bones, gristles, and nerves; occasioning inflammation and absorption of those parts, accompanied by unintermitting agonising pain, only to be allayed by lethal doses of opium or other deadly narcotic, and threatening imminent dissolution by a bursting of the thinned and inflamed skin. Aneurysms are not extremely rare afflictions. Prior to Hunter's discovery, supplementing Harvey's, the ablest medical authorities could only have assured the noble, right reverend, and learned patients, that the ordinary surgical remedy, excision of the tumour, was, as a rule, fatal. True, about that date, an able surgeon of St. Bartholomew's Hospital, Mr. Pott, had suggested amputation of the thigh, which somewhat diminished the chances of a fatal result; and this was held to be a great advance in the treatment

of the aneurysm in question, and was, as a rule, submitted to. In what frame of mind would the wretched sufferer have listened to a statement that, through knowledge acquired by vivisectional experiment, his agony would be relieved, his limb preserved, his malady cured! Our modern so-called "humanitarians" know not what they do, or say, nor care they, as it seems, what benefits to suffering humanity they would obstruct or prevent. They are unconscious of the mistaken ground selected for unfurling their flag of a superior sensibility, are dumb in regard to the much more extensive and fitting fields for active interposition in favour of the lower creation, and in defence of poor animals from tortures inflicted on them by men who have no aims beyond their own gratification and what they miscall "sport?" To the slow sufferings of the wounded pheasant, escaping from the gunner and his dogs, dyeing with its trickling blood the verdure of the close covert in which its poor life ebbs painfully away—to this they seem indifferent. For the poor hare or rabbit which has had its jaw broken by an ill-aimed shot and escapes, they care not: they know nothing of the consequences of the healing of the wanton injury. The chisel-teeth have been violently and painfully put out of gear; their law of perpetual growth is no longer controlled by mutual apposition and attrition: the essential instruments for cropping food have been mutilated for man's pleasure, and slow death from starvation is the consequence. When a keeper comes by chance on the emaciated body of such dead and starved hare or rabbit, the curiosity of the tusk-like incisors is offered to an anatomical museum.

But even these inhumanities, inseparable from sport, are scarce comparable to the agonies of the prolonged chase, when fox or stag are ultimately torh by the howling four-footed fiends hounded on by biped masters.

Do our humanitarians hold "annual meetings for the protection of animals from"—tortures inflicted year by year, and by thousands of inflictors for sport only. No! Their sensibilities are solaced at the expense of the blessings to humanity due to a Harvey and a Hunter: they feel no shame in deceiving the public by such unfounded and libellous assertions as that, "the inhuman system of vivisection was not necessary for the purposes of science."—(Report of the annual meeting, etc., *Daily News*, June 27th.)

I must not trespass on your time by the manifold evidences known to my medical and physiological hearers as justifying the terms in which I have referred to the denunciation of such skilled experimenters as the immortal subject of this day's inauguration.

I must restrict myself to the relation thereto of Hunter's discovery of the property of the capillary blood-vessels to enlarge, under conditions which has made the cure of aneurysm in a great proportion of cases sure and painless. John Hunter was not thinking of such result when, pursuing the Baconian method for the advancement of physiological science, he applied it to the elucidation of the singular phenomena of the annual growth and shedding of the antlers of deer.

He had the permission of a gracious Sovereign to make his vivisections on those denizens of Richmond Park. When Harvey had demonstrated that the arteries carried blood, and in one definite direction, such an operation as Hunter proceeded to perform became conceivable in relation to his aim, and by his skilful hands practicable, without affecting the health or life of the animal. Whatever benefit to suffering humanity has been derived from Hunter's experiment, the vivisections of Harvey guiding thereto must come in for their share of the gratitude of humanity.

So guided, the course of Hunter's physiological reasoning led him to put a ligature round the artery supplying the growing antler. The pulsations of the vessels of the formative velvet* ceased, and soon the antler began to cool. The buck was released, and bounded away. About a week after this vivisection, Hunter revisited the park. The animal was caught, and to the experimenter's surprise the vessels of the antler were again pulsating, the velvet had recovered its warmth, the growth was proceeding as usual. Hunter, thereupon, ordered the buck to be killed (scores are hunted and slain annually for venison). He injected the arterial system, thinking he might have been mistaken in the vessel he had tied. No! The canal of the carotid was obliterated. But sundry, and ordinarily minute branches sent off below, or on the heart's side of the ligature, had enlarged, and had carried the blood to other capillaries communicating with the carotid above the ligature, and the enlargement of these previously inconspicuous vessels had restored the supply to the cold antler, and reintegrated the power of growth. "And what scientific result," might ask a member of the Victoria Street Society,

"could attend so detestable a practice?"—such "vivisectional pandering to curiosity?"† The result was a power of relieving an enormous amount of human suffering and untimely death.

At Hunter's Hospital—St. George's—cases of popliteal aneurysm were not uncommon. The sufferers were usually coachmen of the rich, subject to the pressure of the hard margin of the box-seat of the vessels of the ham.

Now, Hunter, turning over in his mind the phenomena he had observed and caused in vivisectioning the deer, thought thus: "Suppose, instead of amputating the man's limb, I were to cut down and tie the femoral artery. It might stop the flow of blood into the aneurysmal tumour long enough, at least, to allow the blood there to coagulate and form a natural plug; and, if the human capillaries should behave like the cervine's, the man's leg may become nourished independently of the popliteal channel." So Hunter said to his groaning patient, who had previously consented to the happily not performed amputation—and there was no anæsthetic then in use: "My good man, if you will let me make a small cut in your thigh, it is possible I may save your life and your limb." "God bless you, sir," said the sufferer; "do what you think best, so you put me soon out of this torment." Hunter explained to his assistant and the surrounding pupils the results which he hoped and believed would follow a repetition on his patient of the vivisectional experiment on the deer. No sooner was the strong current of blood checked by the ligature of the femoral artery than the tumour ceased to beat and began to diminish. The patient exclaimed, with joy, that the agony in the ham was gone. It is true, the leg, like the antler, began to part with its vital warmth. "Don't apply any artificial heat; simply swathe the foot and leg in flannels," were the vivisectionist's directions. In twenty-four hours, the natural warmth began to return; not so the pulsations of the tumour; this morbid mass went on decreasing. In a few weeks, the coachman walked out of the hospital on both legs, cured of his aneurysm. Surgery became possessed of a new and beneficent power, for which it now had sure physiological grounds. Subsequent mechanical improvements have led to obliteration of the aneurysmal artery by pressure; and the comparatively trifling operation which Hunter substituted for the rarely successful amputation recommended by Pott is now no longer resorted to.

Such are the results—and instances might be multiplied—of vivisectional experiment, yielding, besides the light thrown upon the physiological problem suggesting and requiring the experiment, unexpected guiding power to the truly humane men who devote themselves to the alleviation of the suffering of their fellow-creatures. And note that the "tender-hearted", who set no bounds to the abusive epithets by which they assail and endeavour to arrest such beneficent work, and howl down the inflictor of a slight wound on a single deer, have no remonstrances in favour of the hundreds of the dappled herds which undergo the terrors of the chase, the wounds of the stalker's bullet, and the cutting of the throat, to supply the appetite and please the palate of the gourmand. In view of the Society's Bill for the total Abolition of Vivisection, which was down for second reading in the House of Commons on July 13th,‡ I would remark: Suppose a Parliament of George II had listened to a forbear of the honourable baronet in charge of that Bill, advocating the total abolition of vivisection in the terms quoted below; and that the House, without going the extreme length recommended, had decreed that "no experiment on a living animal should be legal without express permission of the Secretary of State for the Home Department." John Hunter, at a period when he was known to society only as a rising young surgeon, amusing himself with making an anatomical museum, finds himself compelled to go to Downing Street to obtain the requisite licence to solve the physiological problem then monopolising his cogitations. We may suppose the following colloquy to ensue.

Home Minister: "What is the object, Mr. Hunter, of your proposed experiment on the living deer?"

Vivisection: "I want to know how their horns grow."

H. M.: "And what do you propose to do to gratify that desire?"

Viv.: "For one thing, I propose to cut down upon the carotid artery, and tie it."

H. M.: "And what good do you expect to get by inflicting on an unfortunate animal that degree of pain?"

Viv.: "I have nothing further in view, sir, than what I have stated."

* Report, in *Daily News*, *ut supra*; v. Such are the terms in which a dignitary of the "Church", whose history does not reveal sympathy for human torture and violent death in tortments, permitted himself to allude to an indispensable instrument of advance in the healing art.

† *Ib.*, *ib.*, Secretary of the "Society for the Protection", etc.

‡ Report, etc., *Times* for June 28th. The fuller Report, in *Daily News* of June 27th, gives the terms of the adopted motion: "That vivisection is a scientific blunder and a moral offence, and ought to be totally abolished."

* The name given by the "keepers" to the finely villous soft covering of the growing antler conveying and protecting the vessels supplying the material of growth. This ended, the "velvet" dries, shrivels, and is rubbed off by the fully "attired" buck.

H. M.: "And so you would pander to your curiosity in regard to the growth of its horns by subjecting a poor deer to your detestable operation. I can give no sanction to such inhuman vivisection, of which you are unable to foresee any scientific results in relation to your own professional purposes and practice."

The discomfited physiologist departs; and mankind continue to die of a tormenting malady, sometimes with, sometimes without, the added operation of amputation at the thigh.

Mr. Mayor and gentlemen, my time, as my fellow-labourers are pleased to recognise, is pretty well occupied, and in the present year more closely and pressingly than usual. It is only a worker who knows the value of time; and this has led me, in acceding to the request which has brought me before you, to ponder in what way and degree I might turn the occasion to most profit. To have made my discourse simply laudatory of its great subject; to have dilated on Harvey's experiments and observations in elucidation of the mysteries of generation, for example, resulting in an enunciation of a law now beginning to be accepted, that every living thing has come from the germ, which Harvey calls "egg" (*omne vivum ab ovo*), of an antecedent living thing,—such treatment would but have been an inferior reproduction of countless previous orations. Therefore it seemed to me to be not only germane to the memory of the great vivisectioner, but also a duty on whomsoever may strive to follow in his steps, especially with the threatened appeal to the Legislature to totally prohibit such experiments as those to which mankind are indebted for Harvey's and Hunter's great discoveries, to exemplify by such instances as the time permitted the way and degree in which vivisection imparts the power of diminishing and removing the sufferings of our fellow-men.

In conclusion, I beg, in the name of my fellow-labourers in the promotion of the sciences of healing who have availed themselves of the facilities of travelling from London to Folkestone afforded by the South-Eastern Railway Company, to express their grateful and respectful acknowledgments to the chairman and directors of that company for the special train so kindly and liberally provided for the occasion.

APPENDIX TO ADDRESS.

"*The Vivisection of Animals.*—The annual meeting of the Victoria Street Society for the Protection of Animals from Vivisection was held on Saturday afternoon, by invitation of Lord Coleridge and Miss Coleridge, at his Lordship's residence, No. 1, Sussex Square, Hyde Park, the attendance being numerous. Among those present were Lord Talbot de Malahide, Cardinal Manning, Lord Mount-Temple, Mr. Lewis Morris, General Colin Mackenzie, Mr. R. H. Hutton, Sir J. E. Eardley-Wilmot, M.P., Mr. R. Reid, M.P., and Miss Frances Power Cobbe. The Chair was taken by the Earl of Shaftesbury, who, in opening the proceedings, congratulated the audience that the society had made considerable progress in establishing in the minds and hearts of men a conviction that the *inhuman system* of vivisection was not necessary for the *purposes of science*.—Mr. Charles Adams, Secretary of the society, in presenting the annual report, spoke of the progress of the society, as shown in the fact that in the first six months of the present year three times as many petitions had been presented to Parliament as in any single year before. He also stated that the finances of the society were in a satisfactory condition, and, in alluding to the publication, under the auspices of the society, of the periodical called *The Zoophilist*, spoke of the great service it rendered in showing that *vivisection pandered to curiosity without doing anything for science*.—Cardinal Manning, in moving the adoption of the report, said he wished to renew his previous declaration that he would do his utmost towards putting an end to what he believed to be a *detestable practice, not attended with scientific results*. They had been hoodwinked by the legislation on that subject, and believing that it had produced no effect he maintained that what they should now contend for was the *total abolition of the practice of vivisection*. While the torments of animals were real, the benefits to humanity were altogether conjectural. In concluding, he observed that the Oxford Union Debating Society had passed an anti-vivisection resolution by a large majority.—Sir J. E. Eardley-Wilmot, M.P., who has charge of the Bill in the House of Commons on behalf of the society, stated that the object of it is the total abolition of the practice of vivisection in this country.—The report having been adopted, Dr. Gimson moved: 'That vivisection is a scientific blunder and a moral offence, and ought to be totally abolished.'—Dr. Berdoo seconded the resolution, which was adopted.—Lord Coleridge, who was warmly received, moved a resolution that the meeting cordially adopted Sir Eardley Wilmot's Bill for the total abolition of vivisection. His lordship deprecated the use of exaggerated language in speaking of opponents of the society, and expressed a hope that many eminent men among them would be converted

through the exercise of tolerance and patience. On the other hand he advised the friends of the society not to be influenced by the application to their views of such expressions as 'sentimental' and 'effeminate', and ridiculed the idea that a monopoly of manliness could be consistently claimed by those who defended cruelty to dumb animals.—The resolution having been seconded by General Grant on behalf of the Scottish Anti-vivisection Society, and supported by Professor Sheldon Amos, was adopted, and the proceedings terminated with votes of thanks to Lord Shaftesbury and Lord Coleridge."—*Daily News*, June 27th, 1881.

REPORTS AND ANALYSES

AND

DESCRIPTIONS OF NEW INVENTIONS

IN MEDICINE, SURGERY, DIETETICS, AND THE ALLIED SCIENCES.

GOYDER'S CLINICAL STENCIL-PLATES.

THESE plates are intended to be useful in recording the results of surgical injury, operation, and disease. They are two in number—male and female; and, by following out the edge of the plate with pencil, a corresponding outline is formed, useful in medical cases to record physical signs, position of tumours, etc. The plates are further perforated by figures, which, when traced out, record the outlines of the femur, humerus, tibia and fibula, clavicle, arm and forearm, leg and foot. By the reversion of the plate, the bone or limb of the opposite side of the body is shown. Lastly, if the corresponding ends of thigh and leg bones be placed in apposition, and united by a few strokes of the pencil, the anterior or posterior surface of the knee-joint, right or left, is depicted. It will be noted that the blocks are half-size. A set of diagrams, drawn by the plates, showing the necessary lines to be added, in order to render the drawings complete, is supplied to each purchaser.

The plates are neatly made by Messrs. Boady and Martin of Newcastle-upon-Tyne, and are well put up in a convenient case, which will also hold pencils and a small note-book. Price, five shillings, complete.

NEW MEDICAL SCHOOL IN CANADA.—The *Canada Lancet* states that a new Medical School has been recently organised in London, Ontario, under the auspices of the Western University. The following are the names of the members of the Faculty: Dr. Moore, senior, Dean and Professor of Surgery; Dr. Frazer, Medicine; Dr. Moore, junior, Midwifery; Dr. Eccles, Physiology; Dr. Jones, Jurisprudence; Dr. Stevenson, Diagnosis and Therapeutics; Dr. Waugh, Anatomy; Dr. Bucke, Nervous Diseases and Diseases of the Mind; Dr. Burgess, Botany; Dr. Moorhouse, Histology and Etiology; Dr. Fenwick, Sanitary Science; Dr. Niven, Clinical Surgery; Dr. Arnott, Clinical Medicine; Wm. Saunders, Materia Medica; John Bowman, Professor in the Arts Course, Chemistry.