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## LECTURES ON AMPUTATION AND ON THE NATURE, PROGRESS, AND TERMINATIONS OF THE INJURIES FOR WHICH IT IS REQUIRED.

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(Being part of a Series of Lectures on Operative  
Surgery, delivered at Sydenham College School  
of Medicine.)

### LECTURE I.

*Introductory remarks. Present state of opinions on amputation—on the different periods—on the relative value of primary and secondary amputations—uncertain and erroneous character of the premises on which some of the most important conclusions affecting amputation are founded. Importance of the questions involved—difficulty of obtaining data required to decide them—necessary conditions—how far these have existed in reference to the facts embodied in these lectures—detail of circumstances affecting them.*

THREE years ago I submitted to the profession, in a very curtailed form, some views on the questions involved in the subject of amputation, and the injuries for which its performance is required.\* The opinions, given, were drawn from the experience of many years active service, during which large hospitals were under my sole direction and control, and sick and wounded in large numbers constantly under my observation. The principal facts and views contained in that work, found a place at considerable length in the pages of THE LANCET; and they have since been very frequently referred to and quoted in various publications, periodical and others, as meriting some attention. In the very able "Retrospective Address in Surgery, delivered in July, 1839, before the Meeting of the Provincial Medical Association at Liverpool, by J. P. James, Esq., Surgeon to the Devon and

Exeter Hospital," I find my opinions and statements are referred to in a flattering manner; and I understand they have also found a place in the Retrospective Address of Mr. Dodd, of Chichester, delivered this year at Southampton.

Even had I not entertained the intention, when I first published my little work, of giving more at length and in detail the conclusions—then only very briefly stated—with all the facts upon which they are based, I should have found sufficient inducement, in the favourable notice the profession still bestows upon my past labours, to do so now.

The concluding lines, however, of that work pledged me to undertake, at some future day, the task I have now completed. It has required much time and labour, by analysis and classification of cases in numerous series, to demonstrate to others the correctness of many views, at variance occasionally with those most generally received, but which I, nevertheless, felt firmly convinced were both true and important.

It was necessary to arrange each series of cases so as to show distinctly their bearing not only upon my own views and conclusions, but upon the opinions and principles of practice advocated by those who have taken a prominent part in the attempts of the profession to establish the principles that should guide us, on correct and unalterable bases. In reference to injuries and diseased actions which require and warrant amputation—the period best fitted for the operation, the supervening actions which endanger or destroy life under the great variety of circumstances arising from degrees and kinds of injury—different modes and periods of operation—differences of temperament, age, climate—of external and collateral circumstances—these are all required to be kept in view as objects worthy of investigation, and requiring to be tested and proved.

It would be out of place in a series of lectures devoted to investigations and objects of a strictly practical nature, to trace back the history of amputation, or to show what the opinions of surgeons were on the subject under consideration, a century ago. My duty is to bring before the profession the opinions of the present day—taught and acted upon as

\* Notes on the Medical History and Statistics of the British Legion in Spain. Churchill, 1838.

established principles of practice—to inquire how far they are founded upon correct premises—with what errors they are chargeable—whether these extend to the *conclusions* on which modern practice is founded. Finally, to trace the ultimate consequences of these conclusions upon the various classes of amputations, and severe injuries or diseases affecting the health and safety of the limb in the first instance, and subsequently the life of the patient.

It may appear to some, on glancing at the title of these lectures, that to write on the subject of amputation—on the relative value of primary and secondary operations, &c., is “*precher a la conversion* ;” that the questions have been long and definitively settled, the injuries for which amputation should be employed fully determined, &c.; that, in a word, any farther facts, opinions, or arguments on these and all other points connected with amputation are superfluous, and the labour a work of supererogation.

I say this may appear to others, for I went to the field myself, fully relying upon the “settled questions,” determined to have no secondary amputations if I could avoid it, and no delay in operating on cases where I could not entertain a well-founded hope of saving a useful limb. With such strong prepossessions and firm belief in what I had been taught in the schools, I entered upon my responsible duties. It was not long before many results first surprised and then startled me, creating very serious doubts in my mind. Primary operations, followed by death, which, according to my guides, should have lived: secondary amputations giving cases of recovery under the most disheartening circumstances. I felt it absolutely necessary to penetrate the cause of these seeming contradictions, which unsettled all my previously-formed convictions. In labouring to dissipate them by careful observation where opportunities were abundant, at the bedside, and subsequently by reflection, searching either to confirm the truth and correctness of the premises and conclusions on which I had previously acted, or prove them to be erroneous, I satisfied my own mind at last. It may be useful to anticipate similar doubts in the minds of those who may have to decide the questions *practically*, as I had, for the lives and limbs of their fellow-creatures; the doubts and the grounds for them; the series of facts, and the reasoning which wrought in me conviction, I propose to bring forward in these lectures; convinced that by facts most carefully sifted and by reasoning, should the questions incident to the subject of amputation be decided; and not by rapid generalisations, loose analogies, and unhesitating assertions or opinions. In the progress of my inquiries, the first satisfactory conclusions obtained, though tardy, were of a nature to lead rapidly to many others; viz. 1. Many of the leading conclusions on which authors

had framed the rule of practice were drawn from false premises, and proved occasionally to be as erroneous as the data. 2. That even where the conclusions were correct, they were often so by mistake, if I may be allowed the expression; that is, they were illogical, and in reality inconsistent with the premises on which they were supposed to be founded. 3. That the advocates of each set of opinions frequently contradicted themselves, and even others. These statements will be reproduced in detail, and amply borne out, by individual facts as by general results, in the course of these lectures.

The various questions connected with amputation, so long agitated, so warmly discussed for more than half a century, are yet to settle definitively, and the present observations are offered as contributions towards the effecting so desirable an object. Although Sir George Ballinghall, in his last edition (in 1838) of a valuable work on Military Surgery, seems to consider all the more important questions finally determined, yet he passes in review many points on which he cites opposite opinions, and others where he specifies a want of sufficient evidence. Thus, p. 368, “I know of no comparative estimate of the results of amputations performed by the circular incision and by the double flap, which will enable us to decide their respective merits by the test of experience.” This is the latest writer on the subject.

The general tendency of very recent writers, such as Gendron, Hayward, Norris, and others, who have given opinions and the results of their experience to the profession, is in direct opposition to the doctrines taught by the majority of surgeons in the French and English armies, at the close of the great continental wars in 1815. Even at that period, Guthrie, Hennen, and Thompson, who gave the results, and may be considered in some sense as the medical historians of the British army-practice; Mr. Hutchinson and Sir Stephen Hammick, in a similar sense, of the navy; and Barons Larrey and Percy, of the French army, together with several authors of more fugitive productions in both countries, differed essentially; although the general purport of their labours presented something of unanimity in reference to the advantage of the primary period for amputation; yet they widely diverge from each other, sometimes as to premises, and at others in conclusions. The whole of these writers succeeding Vaure, Le Conte, and John Hunter, who had maintained opposite doctrines.

The tendency of most of the writers for the last few years, as I have stated, drawing their facts chiefly from civil hospitals, is again to support the views, to a certain extent at least, of John Hunter, and others of his period.

This glance, I think, may suffice to show, that neither the one set of doctrines nor the other have yet been based upon irrefragable

evidence; and, indeed, in reference to many points, we have the opinion of the writers that there was a want of data. Dr. Thomson, who may be considered, in his observations on some 6000 wounded, resulting from the battle of Waterloo, to give the last results of British military practice, although by *opinion* he confirms the same general tendencies, records a fact subversive of our confidence in the only numerical results on which the opinion was founded. He says, p. 226, "The results of the amputations performed in Belgium might, on the whole, be said to be successful, though it certainly was not equally so with that which is stated by M. Larrey and Mr. Guthrie to have been obtained in some other countries; and what is curious, this comparative want of success was more remarkable in the results of primary than of the secondary amputations."

Again, p. 241, "It may be doubted whether the practice of immediate amputation would be proper or necessary in all these cases, could the wounded be conveyed directly into convenient hospitals, in which they might remain during the period necessary for their recovery; for we have no data by which it is possible for us to judge very accurately what proportion of them would recover without amputation; how many would require amputation at a late period, and of those in which recovery should take place; in what proportion the limbs would be useful, or remain useless and troublesome." In reference to fractures of the thigh, also, p. 249, "A series of observations, much more extensive than any we yet possess, will be required, in order to enable us to determine what is the usual proportion of those who recover from fractures of the thigh-bone in its different parts by mu-ket-bullets, and of those recovering who have suffered gun-shot fractures of the thigh bone."

But independent of these admissions of the want of correct and accurately-classified data, by the chief writers of the year 1815, who, coming after Hunter, Percy, and Lombard, directed their whole efforts to refute the doctrines taught by the latter. The inconsistencies and contradictions evident in the premises and conclusions of the various writers of that period, who undertook to prove their predecessors entirely wrong, are in themselves sufficient to render it clear that, although they each may ultimately come to nearly somewhat similar conclusions, yet there are contradictions which must go far to neutralise or nullify the otherwise convincing unanimity of decision.

One great error runs through the discussion maintained by the advocates for delayed amputation on the one hand, and the later writers who reprobated such practice on the other; and as they are both sufficiently obvious, implicit faith could not be placed on the opinions of either party by any impartial observer.

While Vaure, Le Conte, Hunter, &c., insisted upon the fatal consequences of a second shock to the system by amputation immediately after an injury, exaggerating, or too widely generalising the effects immediate and remote, they partially forgot the inevitable evil consequences, of a limb irremediably injured, remaining attached to the body, and provoking the most fatal actions, inflammatory and sympathetic. The other party who succeeded them, Larrey, Guthrie, Huchinson, &c., erred not less by denying or overlooking the fact, that there is a second shock occasioned by amputation, and that it does and must increase the immediate chances of death, and substitute one train of accidents for another. Thus De la Martiniere says, "L'amputation faite a propos ne peut pas être regardée comme une entreprise ténébreuse qui ajouterait de nouvelles sources d'accidens a ceux qui tourmentent les blessés puisque on ne fait que substituer une plaie aussi simple qu'il est facile de la procurer." Not a word of any shock or danger attending the amputation! Again, Mr. Guthrie, following in the same track, says, "Instead, then, of inflicting an additional injury on the original one, and increasing the general symptoms of irritation in those persons with extensively lacerated and complicated wounds, they were completely relieved, became calm, tranquil in mind and body," &c.

Whether amputation quickly following a wound increase the general symptoms of irritation, or not, may be a question; probably, in the worst kind of cases, it may not increase them; for the injury itself would produce the worst; and, moreover, the very shock itself will often act by exhaustion as a sedative. But, even in these cases, if it do not increase them, certainly very often it does not prevent the development of an irritative fever, and symptoms, and effects, apparently depending on the double shock to the nervous system, which are fatal. It cannot seriously be disputed, that amputation is an additional injury and a shock, not inferior, in many instances, to the original one inflicted by the injury; and that it is impossible to "substituer une plaie aussi simple," without causing a violent and dangerous shock.

Mr. Guthrie himself, in another page, says, "I allow amputation to be a violence superadded to the injury—a violence that occasionally destroys the patient. But it as frequently does so after secondary as primary." It is equally capable of demonstration, that there is a train of dangerous symptoms attributable to the shocks of this operation—where no other injury or shock had been received—however easily and simply the clean incised wound may be substituted for a lacerated limb. How is it possible to rely upon the conclusions of partisans, so eagerly bent on proving opposite

principles, that they each overlook most essential and important features, or overlook at one moment what they bring forward at another.

But they are not even consistent, for De la Martiniere, alluding to the prevalent cause of ill success in primary amputations, seeks to explain it in part by means subversive of his previous opinion—he says it is to be attributed, “*a la peu abondance des forces des blessés, aux dispositions inflammatoires, a l’irritation du genre nerveux;*” and he proceeds to add, that in effect we do observe them when amputation is performed at a much later period, when the system has been reduced, &c., the patient is *less liable to these perilous accidents*—that is, when a single shock is only suffered instead of a double one. If we turn, however, to Larrey on the same side, he gives, as the result of his latest experience, viz., of the wounded of July, 1830; and as confirming all his former opinions, the statement, that “secondary amputations have generally been followed by violent *orages.*” Both cannot be correct, for they are diametrically opposed to each other.

Boucher, again, the refuter of the opinions of M. Vaure, speaking of M. Vaure’s success in ten different amputations, says, it only proves that the state of weakness which is not the result of deterioration of the solids and vitiation of the fluids, as it frequently is in such cases, *is more favourable to amputation* than a state of greater vigour—the very point M. Vaure maintained.

Mr. Guthrie, in speaking of the same subject, argues that the reaction of the constitution, producing high inflammatory fever, can be more readily suppressed, and with more safety to health, than an irritable constitution; he contradicts Boucher, and at the same time seems to forget altogether the fact about stated inferences as a matter of course, that in any actions supervening on secondary amputation we have to struggle against an “irritability of constitution.” But there lies the question—are all cases reduced by discharge, irritable? Certainly not; and here is a proof of contradiction between two advocates of the same general conclusions, and of logical deduction, from what I must believe to be erroneous premises. Instances such as these are most frequent throughout the writings on this subject. Mr. Guthrie concludes by saying, “that as the military surgeons of Mr. Hunter’s time supported one side of the question, and the military surgeons of 1815 supported the opposite, one party must certainly be in error.” This seems very undeniable; but, nevertheless, the truism is more apparent than real. It seems to me, and I trust to be able to prove, that the conclusions of both parties are frequently based upon false premises; while at other times very opposite conclusions are drawn from

the same data; that enlightened by some experience, and with a mind duly prepared, no one can proceed to analyse the opinions supported by the two parties, without perceiving that erroneous data, arguments, and conclusions, abound in both; that sometimes the two parties nearly agree, though from apparently dissimilar premises, while they as widely differ in other instances from the consideration of similar facts; that each party abounds in contradictions and inconsistencies of the individuals with each other, agreeing, even occasionally, with few opinions sustained by their adversaries. Thus, to take the works and data furnished by all sides, it would be impossible to form anew a natural division, according to the opinions, into two opposing classes of authors. In some instances, the nominal advocates for delayed amputation will be found supporting opinions, and bringing forward facts, which, duly estimated, are strong evidences in favour of primary, and *vice versa*. Where so much of truth and error seems to abound with contradictions and inconsistencies, it cannot be matter of surprise that, notwithstanding the results of the last continental war have been held by superficial inquirers to have settled the question between the advocates of opposite opinions in relation to amputation, the question should still be perpetually recurring in practice; these very inconsistencies, errors, and contradictions, becoming evident at the bed-side, and destroying all confidence in the most stoutly maintained opinions of either side.

If we required any proof of this feeling, as a general result of practice, and the study of the facts and opinions of these writers on both sides, we shall find it in the general tenor of the majority of the contributions to our knowledge of the history and progress of amputations which have appeared within the last ten years in Germany, in France, in America, and in England. The tendency of all, with few exceptions, is to re-open the discussion, expressing doubts of the correctness of the prevailing opinions established by the writers of 1815, and showing a disposition to return rather to the convictions of the authors preceding those, viz. of John Hunter’s time, the purport of whose opinions were held to be diametrically opposed. This assumption, however, being only partially correct, for many of the points which have been most strenuously maintained by the former, were already conceded by the latter.

Enough, I think, has been shown to prove that the endeavour, on my part, to analyse the sources of this confusion in premises and conclusions, and by the aid of a new series of observations in the field and in the hospital, to point out the inconsistencies and contradictions, eliminate errors, and draw from correct premises the legitimate conclusions that should form our guides in practice,

is not a work of supererogation. In any set of principles, whenever an inconsistency or a contradiction appears, its tendency must be to unsettle the conviction on which we had previously relied. Unless the conclusions affecting the questions of amputation are placed on proper bases, they will always be liable to change and subversion, even though they may be essentially correct; any errors, founded either in the premises or deductions, must necessarily tend to unsettle opinions on this momentous subject, and give rise to a vacillating, uncertain, and erroneous practice.

Many of the data which writers had indicated, as wanting to enable them to form an accurate judgment on some points of practical importance, I hope to be enabled to supply. The comparative results of amputations (at the three different periods, first defined by Boucher) in *civil* hospitals, for injuries resulting from the accidents of civil life; and these, again, compared with the results of amputation for chronic diseases, have never been, so far as I know, more than guessed at. This is a desideratum, I trust, also, to accomplish, to a certain extent at least.

No question of greater importance ever comes before the surgeon, and, in a military practice, none more frequently, than that of the propriety of attempting to save a lacerated and fractured limb; or the necessity, on the other hand, of at once removing it.

It is not a mere question of limb, but of human life and suffering. To attempt to save a limb when useful cure is hopeless, in a large proportion of cases, ends in the death of the patient, after weeks, or months, and occasionally years, of fruitless pain and misery. To amputate, where by more judicious surgery an useful member might be saved, is to inflict a grievous and unnecessary loss upon the patient, besides subjecting him to the perils of an amputation.

More need scarcely be said, to show how interesting is the field of surgery,—how important the results, and especially how valuable are accurately-recorded facts on which we can rely, to form a judgment of the nature, progress, and gravity of the supervening actions, on amputation performed at different periods,—for different kinds and degrees of injury or disease; and these, again, under different external and collateral circumstances.

That such data have long formed a desideratum, and the want of them been often experienced, the very cursory glance already made through the records of military surgery, have shown.

Nor can it be matter of surprise, that even the late continental wars should not have enabled the respective medical staff to furnish these data. Something more than zeal and talent on the part of the medical staffs,—than many battles and their proportionate number

of cases,—nay, something more even than commodious and well-regulated hospitals, is required to render the collection and accurate arrangement of such facts, in a complete form, possible. It is necessary that when the wounded are received, they should remain till the result of the cases is established, under the direction and observation of the same medical officer. It is not less necessary that the zeal and number of the medical staff, at the chief officer's disposal, should be adequate to the daily record of detailed notes in every case presenting features of interest, as regards the individual, or as forming one, however uninteresting in itself, of a class. At the same time, the number under treatment at one time, should not be so great as to prevent the superior medical officer comparing and superintending notes and cases; thus becoming responsible for the correctness of the former, and able to speak of all with the weight and the conviction of personal observation.

It may be said, and indeed it was urged by one of my critics, in 1838, when I pointed out the importance of these conditions, that such a combination of favourable circumstances for study and observation could never be obtained. I have it at heart, to prove that I contemplated no impossibility. That such opportunities must be rare, I am ready to admit; and most rare, when the war is carried on by the largest armies, and over the greatest extent of country; for under these circumstances, the constant change of wounded from one station to another, the fearful influx of numbers at particular periods, all contribute to render the attempt to record facts, in complete series, impossible.

Such opportunities, in truth, can only occur when an army is in lines, defending them for a considerable period against repeated attacks, and the hospitals in permanent stations near at hand, or in a beleaguered city. In seven years' active service in the field, there is only one period extending through any length of time, where I was placed in a position to collect, with the necessary accuracy and completeness of detail, *whole classes and consecutive series of cases*, although I had previously been nearly a year in a besieged city. In Oporto, however, some of the conditions were wanting, and thus, to a certain extent, defeated my efforts. The facts of interest collected in the hospitals under my charge, at that time, are indeed numerous; yet, with the exception of one or two of the more important classes, of which amputation is one, I am not sufficiently assured of their including all the cases to venture to make use of them otherwise than in an isolated form.

If a series be given, and there be one omission, the result is incorrect. With this truth before me, I have taken care, in the statistical returns constructed for these lectures, to confine the number of fractures, involving

and not involving articulations, which were submitted to treatment and not amputated, to those which occurred at San Sebastian, in the years 1836-7. The whole of such cases are thus included, which resulted from all the actions fought within a given period in the vicinity of the lines formed to cover that fortress.

These cases were all received into the Hospital of San Telmo, of 600 beds, treated under my own personal direction the whole period, with a numerous, efficient, and zealous medical staff, to carry out my views. Most of the actions were fought within a league of the hospital, the greatest distance three leagues, and the wounded were generally received within a few hours after they had been injured and there retained. The hospital was vast, well ventilated, and admirably situated, supplied with good diet, medicines, and all essential requisites for treatment.

In reference to the amputations, however, these, forming a class of their own, extend over many additional periods, wherever I could feel assured that my records comprehended the whole number of any given series. Thus, the statistical returns to which I shall direct attention in these papers, which give some of the results of my own practice, include 107 amputations; a number, it may be urged, too small to determine any important question conclusively in the minds of the profession. It may be so; but having watched not the progress of that number only, but more than 200 in addition, and obtained convictions which I find are confirmed by the results of these series, each complete, I cannot but think views so supported may be worthy of attention. The amputations comprised in the tables include all arising from the British wounded in

- Nine attacks and sorties at Oporto;
- One action in Estramadura;
- Nine in the North of Spain.

And there is one circumstance attending these cases which adds to their value,—all the wounded of each series were under the same general conditions of distance from the hospital, mode of transport, under the same general principles of treatment, and for the most part under the same roof; the majority natives of these islands, and ranging about the same age—from 20 to 30 years of age, artisans and peasants—all, therefore, are analogous in many essential features.

	No of Cases.	No. of Amput.
1. Gunshot fractures, not implicating joints.....	} 167	60
2. Ditto, involving the articulations.....		
3. Cases of spontaneous disease leading to amputation.....	} 8	8
	272	117
The total number of cases, therefore, is		

272, the amputations amounting to 117, upon which are founded the various conclusions. The two first classes are exclusively the casualties of military life. In order to complete the task I proposed for myself, I have formed two tables; one of all the amputations occurring in the Massachusetts Hospital from its formation, in 1822 to the end of 39, a period of 17 years. The second contains all the cases performed in the hospital of Pennsylvania, from Jan. 1831 to Jan. 1840. I have further separated these classes into injuries and diseases. The materials of these tables are furnished by the "North American Journal" for August, 1838, and May, 1840; the first by Dr. Hayward, one of the surgeons of the Massachusetts Hospital; the second by Dr. Norris, also one of the surgeons of the Pennsylvania Hospital. Dr. Norris gives us 79 cases; Dr. Hayward, 67. The returns of Dr. Norris and Dr. Hayward leave no doubt in my mind of their completeness as to numbers and accuracy. I speak of the results which they show, therefore, with the same confidence, so far as their details extend, as I do of those which I myself have recorded:—

- 109 Amputations for gunshot injuries; and
- 145 Civil injuries of civil life, or chronic diseases;
- — — — —
- 254 Gives a fair number on which to draw conclusions.

Of the general results furnished by Mr. Phillips, in the "Medical Gazette," they may contain complete series, but as there is no evidence that they are not imperfect in this sense, collected in fragments from many sources, I do not feel warranted in taking any of the numbers as good and sufficient evidence in deciding questions where the omission of an unit, or a single case in any series, will invalidate the total result and the legitimate conclusion. The same reasoning holds good with the large return of the British Peninsular army during the last six months of 1813, setting aside the absence of very essential details. I think it more than doubtful how far one may depend upon the *whole* that occurred over the whole breadth of Spain were included, or what modification any omissions might have occasioned.

The circumstance to which I have alluded, viz., the exceeding rareness of the opportunity of collecting such information as I have classified in a continuous and complete form, must add to the value, if the facts be shown to be accurate. And with respect to these, I may add that I have been more anxious to furnish data worthy of confidence on which others might reason, and from which they may draw their conclusions, than to enforce the views and opinions I shall state as the result of my own mind.

The time which has elapsed since I first announced the intention I now carry into effect, is in itself a proof how serious I have considered the nature of my task, and that

I shall not intrude on the profession any hastily-formed conclusions, but facts carefully analysed and opinions maturely weighed.

I have already stated the object I have in view, viz., to determine, by a consideration of all the facts connected with the subject, the true principles of practice, MILITARY and CIVIL; in all complicated injuries of the extremities, and especially in reference to amputation, the periods and modes of performance. To fix these principles on a solid basis of facts and legitimate deductions, that they may be less open to doubt, and less liable to be subverted, than those existing, because freed from their contradictions and inconsistencies; finally, to render those principles applicable to the question of amputation for chronic disease, showing their bearing upon the latter class of cases by comparative results.

## GENERAL MEETING

OF THE

## BRITISH MEDICAL ASSOCIATION.

THE general meeting of the association was held at Exeter Hall, on Thursday evening, the 8th instant. The attendance was so numerous that many gentlemen were unable to gain admittance.

Dr. WEBSTER, on taking the chair, said,—It gives me very great pleasure again to meet the members of this association, especially so numerous a company as I now see before me. By an accidental circumstance we are placed in the very spot where, four years ago, this association received its final impress, and from whence its objects were made known to the profession and the public, and its laws promulgated. At that time, though our cause was strong, many of its friends stood aloof; we had much opposition with which to contend; a part—certainly an insignificant part—of the medical press was ordered by its task-masters to write against us, and many gloomy predictions were uttered that the association could not long exist. Many prior attempts had been made to unite the profession, but they had all failed. Upon that occasion none of the corporators came forward to defend themselves, though they knew of our meeting, nor to oppose any of the propositions that were made. One gentleman, a learned professor from a liberal institution, came down with the view, as he afterwards said, of joining us; but he was so frightened by the picture which it was then necessary to draw of the corporations, that he left the room, and has never since come back. (Laughter.) Gentlemen, our meeting here at all to-night is a proof of our success and of our utility; but to meet in such numbers is a signal triumph, and clearly marks the

interest taken in our proceedings; and if we contrast the state of the profession now with what it was four years ago, I think we have great cause to congratulate ourselves upon what has been accomplished. We have been the means of rousing it to a sense of its duties, of its own interests, and of those of the public. (Applause.) We have now arrived at an important crisis, and having aroused the profession from the apathy into which it had sunk, let us turn to salutary and good purposes its present display of zeal and energy, and in doing so we shall require much firmness, caution, and judgment. I have often felt the want of power, adequately to plead the cause of the profession. I wish you had a president endowed with the eloquence of Demosthenes, the fervour of Pitt or of Chatham, or the spirit-stirring language of a Burke or a Fox. I feel that I have none of these qualities; but I rejoice that I need them not: for, after all, ours is the cause of reason, of justice, of truth, and of the public good. I, therefore, require none of the adventitious aids of rhetoric. Gentlemen, it is well, now and then, to revert to first principles, and I would refer to the spirit in which the association commenced, and the principal objects which it was then stated to embrace. They were—1, To promote union and cordiality among all professional brethren, by cultivating kind, friendly feelings and honourable conduct towards each other; 2, To obtain an uniform national system of representative medical government; 3, To press for the adoption of higher and uniform tests of preliminary and medical education; 4, To insist upon an equal enjoyment of professional rights and privileges, and an equal protection from the laws; 5, To oppose and remove all professional grievances, and all abuses in medical affairs; 6, To form a benevolent fund for distressed professional brethren, and their widows and orphans; 7, To protect its members from all illegal or unjust prosecutions, and to afford them advice and legal assistance when deemed necessary; 8, To oppose all dishonourable or unprofessional conduct; to promote the welfare and prosperity of its own body in particular, and to uphold the dignity, respectability, and usefulness of the whole medical profession. The question will naturally be asked, Have these objects been attained? With regard to many of them an affirmative answer can be given. A degree of unity now exists which never prevailed before in the profession, many similar associations having been formed in various parts of the three kingdoms. The benevolent fund has been favourably progressing, which I rejoice to know, though I would much rather this should be a matter of right than of charity. (Cheers.) The profession are, I believe, now fully aware of the position in which they stand; but an

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**LECTURES, Course of, on AMPUTATION, and on the NATURE, PROGRESS, and TERMINATION of the INJURIES for which it is required, by RUTHERFORD ALCOCK, Esq. :—**

- Lecture 1.*—Introductory remarks; present state of opinions on amputation; on the different periods; on the relative value of primary and secondary amputations; uncertain and erroneous character of the premises on which some of the most important conclusions affecting amputation are founded; importance of the questions involved; difficulty of obtaining data required to decide them; necessary conditions; how far these have existed in reference to the facts embodied in these lectures; detail of circumstances affecting them, 105—110.  
*Lecture 2.*—An inquiry into the value and proper use of statistics applied to surgery and medicine; the nature of their evidence; dangerous character of errors; mechanical tendencies of the present age; its effects on medicine, good and evil; importance of including dynamic sources of disease and death, in questions of mortality in amputations; chief objects of inquiry, 217—219.  
*Lecture 3.*—Chief objects to be kept in view; different forces, physical and dynamic, influencing the development of disease during treatment of injuries, or after amputation; explanatory remarks and definitions bearing upon the forms of statistical returns adopted, their scope and object; five statistical tables of amputations, and of severe injuries, treated without operation, including

amputations performed in civil hospitals for disease, and for the usual accidents of civil life, comprising 403 cases, 393—398.

*Lecture 4.*—Observations in detail on the nature, progress, and frequency of diseased actions, supervening on complicated injuries, which either destroy life by their development, or render amputation necessary as the sole means of safety; analysis of causes of death in cases not amputated, 457—461.

*Lecture 5.*—Observations (continued) on the nature, progress, and frequency of diseased actions, supervening on complicated injuries, and destroying life by their development; on the influence of site and degree of injury; on the influence of the external and collateral circumstances under which the treatment is conducted, 601—604.

*Lecture 6.*—Second set of physical causes; influence of external and collateral circumstances on supervening actions: 1st, as to their character and degree; and, 2ndly, as to their number; observations on some of the chief forms of disease supervening during the treatment of complicated injuries of the extremities; on secondary diseases of remote parts; on morbid actions producing fatal results without apparent lesion of structure, 714—717.

*Lecture 7.*—Further conclusions from the statistical tables of the preceding lectures, in reference to causes of death in cases treated; inquiry into the diseased actions supervening on complicated injuries of the extremities during treatment, and rendering amputation necessary, 777—781.

**ON INJURY to the FETAL HEAD, produced by DEFORMITY of the BRIM of the PELVIS, by WILLIAM BLOXAN, Esq. :—**

*Lecture.*—Modes of measuring the pelvis; sources of fallacy in the admeasurement of the pelvis; medico-legal bearings of the case, 149.

**ON the ORGANS of REPRODUCTION in the ANIMAL KINGDOM, by Professor OWEN :**

*Lecture 14.*—Development of the reproductive organs; reproductive organs in fishes; organs of reproduction in the shark; reproductive organs of the ophidian reptiles; reproductive organs in the saurian reptiles; reproductive organs in the chelonian reptiles; organs of reproduction in birds; reproductive organs of birds of flight; reproductive organs in aquatic birds; male organs of mammiferous animals; male organs of monotremata; the sexual spur of the ornithorynchus; sexual organs of marsupiate; comparative structure of the testis; anastomosis of the tubuli seminiferi, 23—25.

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LECTURES, COURSE OF, ON AMPUTATION AND ON THE NATURE, PROGRESS, AND TERMINATION OF THE INJURIES FOR WHICH IT IS REQUIRED, BY RUTHERFORD ALCOCK, Esq. :—

*Lecture 8.*—Comparison of diseased actions supervening on complicated injuries of the extremities during treatment, and rendering amputation expedient or imperative, with those defined in previous lectures as causing death; differences and resemblances between the causes of amputation in fractures simply, and in fractures involving joints; cause of amputation; influence of site upon the supervening actions which render amputation necessary during treatment, 1—6.

*Lecture 9.*—Influence of dynamic and moral causes upon the results of serious injuries; the types of fever engendered by various causes; physical circumstances giving rise to untoward results in the treatment of serious injuries; medical cases occurring in military service; mortality in fractures treated without amputation; mortality in cases of amputation; general causes of death; influence of seasons upon the termination of serious injuries, 65—70.

*Lecture 10.*—Causes of death in primary, intermediary, and secondary amputations, in the months of March and April; abstract of general results in twenty-one fatal cases of amputations; facts presented by the inquiry; conclusions deducible from the facts, 113—116.

*Lecture 11.*—Mortality after primary amputations; influence of favourable and unfavourable external circumstances upon the results; comparative mortality of primary, intermediary, and secondary amputations average mortality in 664 primary and 654 secondary ope-

rations for gunshot wounds; comparison between the results of amputation in military and in civil hospitals; different classes of injuries in military and civil hospitals; result of amputations for chronic disease; deductions from the preceding views, 209—217.

*Lecture 12.*—On the 'diseased actions supervening on primary amputation; erroneous premises on which certain conclusions in reference to primary and secondary amputations are based; analysis of causes of death in twenty-nine primary amputations; observations on the types of supervening febrile affections, 289—293.

*Lecture 13.*—Analysis of causes of death in fifty-seven primary amputations; analysis of causes of death in intermediary and secondary periods; fatality of amputations in relation to situation; in relation to the nature of the injury; secondary amputations, injuries to joints; irritability in secondary amputations; death resulting from the shock of the injury; disorganisation, mortification, secondary hæmorrhages; secondary abscesses and diseases of the viscera; conclusions from the facts established, 385—391.

*Lecture 14.*—Observations on irritative fever and its connection with diseased stumps, phlebitis, and secondary abscesses or purulent deposits in distant parts of the body; cases illustrative of the cause and progress of these diseased actions; compound fracture of tibia and fibula; amputation; death; gunshot fracture of femur; amputation; death; fractured femur through knee-joint; amputation; death; gunshot fracture of femur; amputation; purulent deposits; shattered humerus from gunshot; amputation; purulent deposits; compound fracture of femur; amputation; secondary hæmorrhage; necrosis; shattered tibia into knee-joint; amputation; death; gunshot fracture of tibia through the knee-joint; amputation; phlebitis; death; elbow-joint shattered; amputation; purulent deposit in shoulder-joint; death; fractured humerus into elbow-joint; amputation; phlebitis; death; partial fracture of the tibia into the knee-joint; death; shattered knee-joint; gangrene; death; partial fracture of tibia into the knee; irritative fever; death, 497—504.

*Lecture 15.*—Observations on the bilio-remittent type of fever supervening on capital operations; its nature, causes, and relation to phlebitis, secondary affections of viscera, purulent depôts, &c.; fatal case of phlebitis, with pus in the

femoral vein, and some degree of arteritis; fatal case of phlebitis unattended by secondary affections of the viscera or fever; fatal case of phlebitis after amputation of the arm, no organic disease, 529—532.

*Lecture 16.*—Observations on the effects of a shock to the system from severe injuries and operations; death without the development of febrile action; death from tetanus; death from hectic fever; observations on gangrene and sloughing; observations on hospital gangrene; observations on secondary hæmorrhage; case of amputation for traumatic gangrene of the foot; secondary hæmorrhage as a cause of death after amputation; observations on periosteal disease in connection with severe injuries; exfoliation of bone, 609—616.

*Lecture 17.*—On the influence of different modes of amputating, especially by flap and by circular incision; on the mortality of amputations performed at different periods; relative mortality in reference to site; relative mortality in reference to external circumstances; relative liability of flap and circular amputations in secondary hæmorrhage; relative liability to exfoliation; relative liability to conicity; union by the first intention, and relative periods of healing of flap and circular amputations; table of amputations performed by circular incision; table of amputations performed by the flap operation, 641—648.

*Lecture 18.*—Observations on the relative value of union by the first intention and by consecutive process; flap operation; immediate union attempted; constitutional disturbance; amputations without pre-existing disease or injury of the limb; effects of flap and circular operations; effects of immediate union of the stump upon the progress and issue of the case; deductions and conclusions; observations on the first dressing and putting-up of stumps, and on the after-treatment, general and local, 705—711.

*Lecture 19.*—Relative period of healing in the stumps formed by the flap operation and by circular incision; on the relative frequency of phlebitis and purulent deposits in the flap and circular operations; conclusions founded on the comparison; on the influence of short-cut ligatures and torsion of the arteries; observations on the objects to be kept in view in the putting-up of stumps, and the means best adapted to attain them; on the delayed dressing of stumps, 737—741.

*Lecture 20.*—(Part I.)—Object of the present series of lectures; manner of attainment of this object; necessity for care and discrimination in the employment of the materials; elements for judgment upon the questions involved in amputation; objects of amputation classed and defined; results of those forms of chronic disease upon the system for which amputation is adopted; results of injuries in civil life requiring amputation; results of injuries in military life treated without amputation; modifications in results by various conditions, moral and physical; causes or diseased actions which lead to amputation, compared with the causes of death; causes of variation in the relative proportion of amputations required, and of deaths occurring while cases are under treatment, 801—819.

*Lecture 20.*—(Part II.)—Summary of the results of amputation; pure effects of amputation; effects of amputation performed on a limb free from disease, and on a person in health; effects of amputation in cases of chronic disease; effects of amputation performed for the injuries of civil life, compared with the results of amputation for gunshot injuries; mortality of amputations in civil hospitals; mortality of amputations in military hospitals; question of primary and secondary amputation in reference to the injuries of civil and military life, decided by results; conclusions on the relative advantages of primary and secondary amputation for injuries of civil and of military life; influence of modifying circumstances on the results of amputation performed for gunshot injuries; mortality in primary amputations; nature of diseased actions causing mortality; conclusions in reference to amputation performed in intermediary and secondary periods; mortality and nature of diseased actions; comparative results in reference to leading causes of mortality; intermediary amputations; influence of modes of operation, dressing, and after-treatment, 819—858.

ON THE ANATOMY, PHYSIOLOGY, AND DISEASES OF THE EAR. By GEORGE PILCHER, Esq.

*Lecture 4.*—Organs of hearing in insects; antennæ of insects; on the ear of the mollusca; ear of the cuttlefish; ear of the lobster; of the semicircular canals; gradations in the development of the semicircular canals; of the semicircular canals in fishes; ear of cyclostomous fishes; ear in cartilaginous fishes; the semicircular canals of the squalus; the ear of the sturgeon; otoliths from the ears of fishes, 145—149.