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DR. JAMES FINLAYSON.

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and the development of antiseptic surgery.

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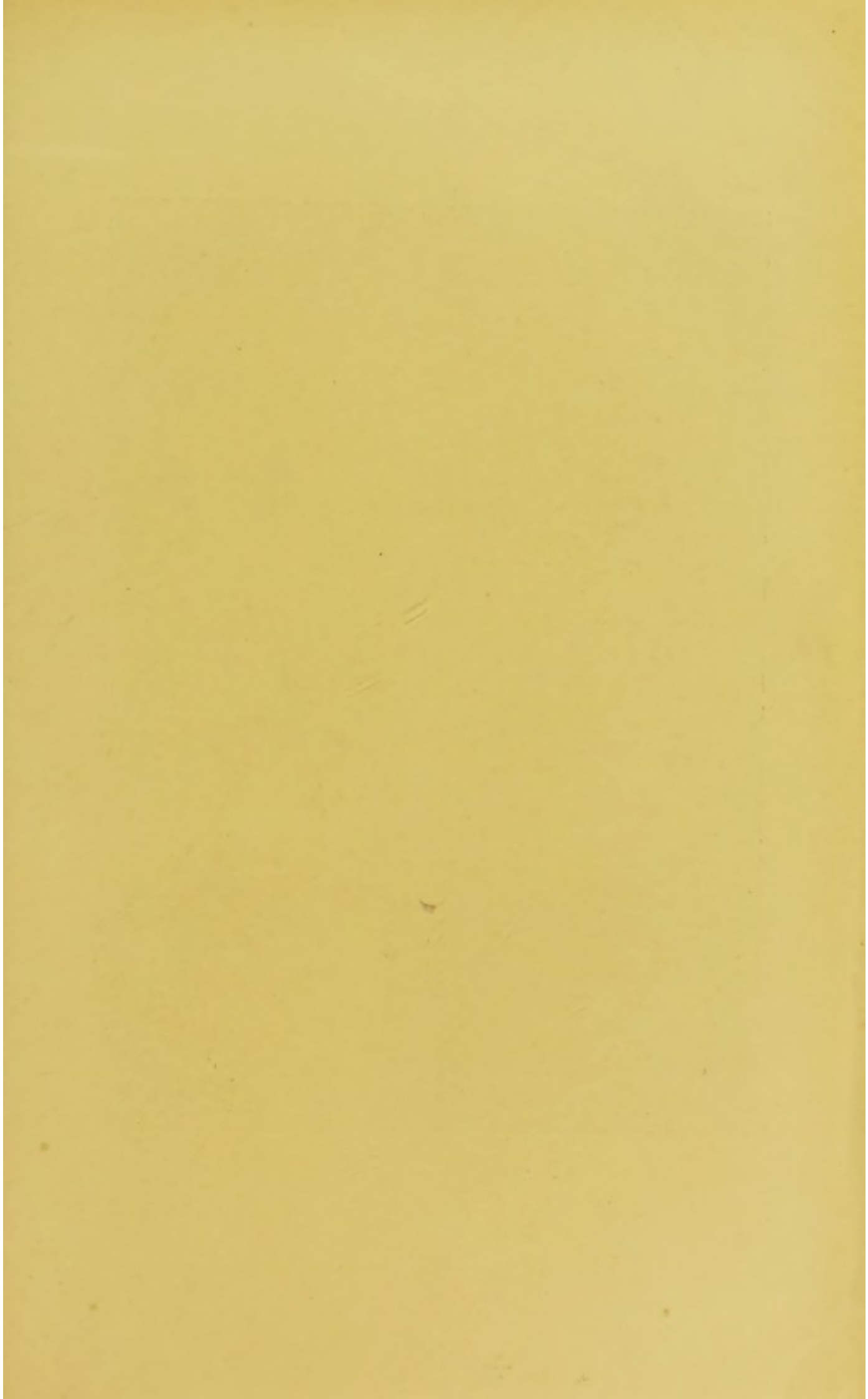
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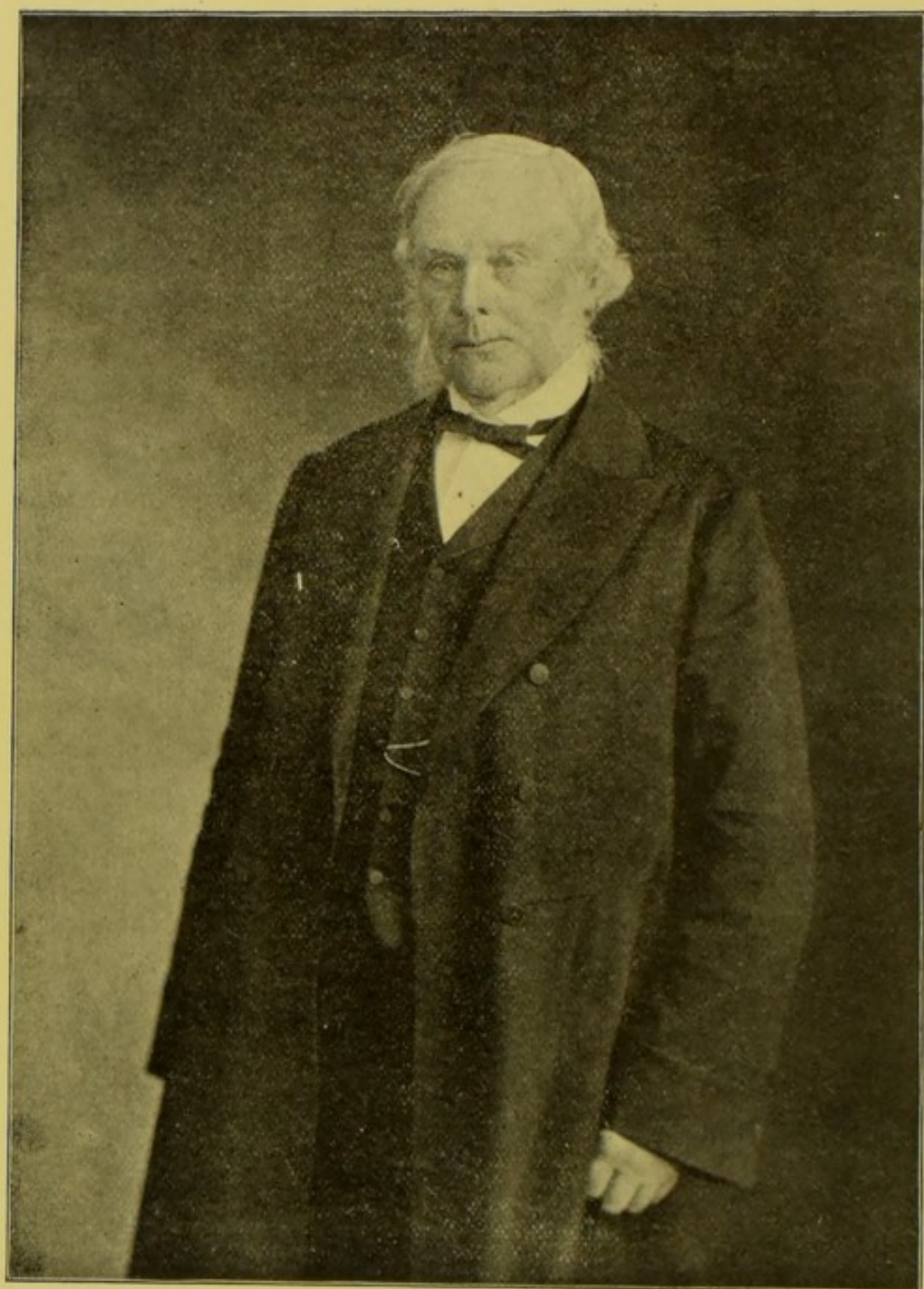


Tirage à part de JANUS.

1900







LORD LISTER *) AND THE DEVELOPMENT OF ANTISEPTIC SURGERY.

By JAMES FINLAYSON, M.D., LL.D, *Glasgow.*

Joseph Lister was born on 5th April, 1827, at Upton, Essex, near London. Like some other distinguished men in the medical profession in England he came of a Quaker family. His father, Joseph Jackson Lister (1786—1869), was a notable man. A wine merchant in the city, he devoted much time to the study of optics, and about 1824, when 38 years old, he began to improve the achromatic microscope. He was subsequently elected a Fellow of the Royal Society of London. An interesting account of his life, of his "law of the aplanatic foci", and of his work in improving microscopic lenses is given by Lord Lister himself in an article in the "Dictionary of National Biography". Lord Lister's mother was Isabella, daughter of Anthony Harris of Maryport, Cumberland, also of the Society of Friends. She was married in 1818 and died in 1864 — five years before her husband.

Lord Lister was educated at a Quaker school at ~~Twickenham~~ *Tott*, and subsequently at University College, London, where he graduated as Bachelor of Arts in 1847. From his earliest days he had lived in an atmosphere of scientific research, particularly in the direction

*) Quoique heureusement ce célèbre savant n'appartienne pas encore à l'histoire, sa vie et son influence sur le développement de la chirurgie entrent déjà dans le domaine de notre Journal. Or, avec Lister commence une nouvelle période dans l'histoire de la chirurgie.

Nous nous sommes crus autorisés à donner cette biographie parce que dans notre prochain numéro nous en donnons une d'Ambroise Paré, célèbre Français dont la vie a été écrite par un savant anglais bien connu, le Dr. Stephen Paget. Paré qui comme Lister appartient à toute l'humanité a été comme lui le fondateur d'une nouvelle ère. Grâce à la bienveillance de MM. G. P. Putnam & Sons, éditeurs du livre du Dr. Paget, nous pourrions ajouter un portrait de Paré et quelques illustrations intéressantes concernant sa vie et son temps.

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of microscopic investigation, and this, no doubt, influenced not only the early phases but the whole course of his scientific work. Other members of the family are well-known biologists.

At University College, and its Hospital, Lister studied under Graham, to whom he was ever deeply grateful, as he felt that his investigations in antiseptic methods could scarcely have been carried out by him without the instruction he received from the great chemist; under Prof. Sharpey, who powerfully influenced him in the direction of physiological studies; and Wharton Jones, distinguished as a physiologist of rare insight, even more than as an ophthalmic surgeon, who directed him to the study of the physiology and pathology of the circulation; while under Walshe and Erichsen, he had the advantage of studying, not merely in their classes but afterwards, as resident assistant, in their hospital wards. If to these are added Lindley, Ellis, Jenner and Parkes we see that his teachers included many of the most celebrated men of the time. Lister graduated as Bachelor of Medicine of London University in 1852, and as already stated, served thereafter as resident assistant in University College Hospital. In 1852 he was also admitted as a Fellow of the Royal College of Surgeons of England.

Thus equipped, with university and hospital instruction of the best kind, he visited Edinburgh, during an autumn holiday in Scotland, taking with him an introduction from Prof. Sharpey to Prof. Syme, then in the height of his fame as a great practical surgeon of remarkable shrewdness and boldness, and as a teacher of clinical surgery by methods peculiarly his own. Arrested by so much which seemed to him new and important, Lister obtained permission to prolong his visit. This resulted in his remaining in Edinburgh, at first as a supernumerary dresser in the Infirmary, and then as a house-surgeon under Mr. Syme (1854). He formed a still closer relationship with the Professor in 1856, by marrying his daughter, Agnes, who proved a devoted wife and a helper in all his work till her death, in Italy, in 1893. There were no children of the marriage.

While resident as assistant in the Edinburgh Royal Infirmary, Lister aimed at extending the influence of Prof. Syme's teaching by reporting for the *Lancet*, (Jany. 1855), a long series of "Lectures on Clinical Surgery during the winter session of 1854-55, by James Syme Esq.". In preparing his notes for publication he had the willing help of some of the dressers and the approval of Prof. Syme who himself revised them. Before he met Prof. Syme in Edinburgh, Lister had meditated beginning practice as an ophthalmic surgeon,

and he continued, for many years, to take a special interest in this branch of surgery which he had cultivated, in London, under the guidance of Wharton Jones; but the new impetus he received directed his thoughts and ambitions to the wider field of general surgery. Soon after ceasing to be Prof. Syme's house-surgeon he was appointed Assistant Surgeon to the Edinburgh Royal Infirmary (1856), and he began to teach in that city as a private lecturer on Surgery recognised by the University. He continued to do so till his appointment to the Chair of Surgery in the University of Glasgow in 1860.

At first, as we can readily understand, his own personal work had been concerned chiefly with microscopical research. Thus, we have papers "On the contractile tissue of the iris" (1853); "On the muscular tissue of the skin" (1853); on the "Minute structure of involuntary muscular fibre" (1857): and in conjunction with Sir William Turner he wrote on the "Structure of nerve fibres" (1859). We have also contributions to the Royal Society of London largely based on microscopic work, viz., "The parts of the nervous system which regulate the contraction of arteries" (1857); "The cutaneous pigmentary system of the frog" (1857); and "On the early stages of inflammation" (1857); these three papers, from the *Philosophical Transactions*, were issued in a group under the title of "Contributions to Physiology and Pathology", London, 1859. A paper on the "Function of the visceral nerves" appeared in the *Proceedings of the Royal Society of London* in 1858, of which Society he was elected a Fellow in 1860.

Soon after his appointment to Glasgow he was selected by the Royal Society as Croonian Lecturer, and he delivered his lecture on June 11th. 1863, — "On the Coagulation of the blood", (London 1863). Shortly before this, his two articles in the first edition of "Holmes' System of Surgery" (1862) had appeared, on "Anaesthetics" and "Amputation". A little later, he published a description of a new method of excising the wrist (*Lancet* 1865.) If we add that he invented a tourniquet for the compression of the abdominal aorta, we have in the above list, although it is not exhaustive, all the principal items of his work before the development of his Antiseptic System which was destined to revolutionize all departments of Medicine, Surgery and Midwifery — "On a new method of treating compound fractures, abscess etc., with observations on the conditions of supuration". (*Lancet*, March 16th 1867.)

The titles of the papers just quoted show that Lister was much interested in the microscopic structures regulating the circulation

and nutrition of parts, whether in health or inflammatory disease; notwithstanding all the subsequent work in this direction, these researches, along with his experiments on the coagulation of the blood, have, even now, something more than a historical value: but with his teaching in Glasgow University a new era arose. Deeply interested in the determining causes of inflammation he expounded his theoretical or doctrinal views to his class in a series of systematic and closely reasoned lectures still vividly remembered by his old students. Writing in 1867, he refers to this period as follows:—

“It is now six years since I first publicly taught in the University of Glasgow that the occurrence of suppuration in a wound under ordinary circumstances, and its continuance on a healthy granulating sore treated by water dressing, are determined simply by the influence of decomposing organic matter. The subject has since received a large share of my attention, resulting in the system of treatment which I have been engaged for the last three years in elaborating”. (*Lancet*, Nov. 30th, 1867.)

This takes us back to a date anterior to the general acceptance of Pasteur's doctrines of putrefaction based on his memorable experiments, and to a time when the influence of the oxygen of the air was still generally credited with causing the changes which led to decomposition: the exclusion of air was regarded as the saving influence which led to favourable results in the healing of simple fractures, while the entrance of it was regarded as the cause of decomposition, which Lister had, for years, believed to be so important in wounds and sores; he was much impressed by Pasteur's researches and by the authoritative report of a commission appointed to verify his statements. The great French chemist's experiments showed, among other things, that if organic putrescible fluids were properly boiled in flasks so as thoroughly to fill them, and any connecting tubes, with steam, and if they were allowed to cool slowly, air might then enter the flask without any decomposition occurring, provided these open tubes were sinuous or furnished with numerous angles so as to entangle any solid particles in their passage from the atmosphere. It was found to be solid particles and not the oxygen of the air which caused decomposition. Pasteur, likewise, showed that the activity of the particles detained in the open tubes was not lost, as violent shaking of the flask and tubes (after sealing them up) caused rapid decomposition, while the influence of heat on the air made it innocuous; he inferred, therefore, that living germs introduced from without were the active agents of putrefaction. In chemical labora-

tory experiments heat was available in destroying the germs, and even mechanical entanglement might suffice to arrest their passage and so secure freedom from decomposition. In his class-room, in January 1866, Lister showed the flasks and tubes with which he had verified Pasteur's statements, and the value of such experiments and facts he felt to be enormous. As he then said to his students, "the importance of all this is very great in surgery if we can manage to prevent decomposition, suppuration etc. in open wounds." (For the Report of the Commission which reported convincingly on the value of Pasteur's experimental proofs see *Comptes rendus des séances de l'Académie des Sciences*, Tome 60, pp. 384—397, Paris, 1865, especially pages 389 and 396. See also Tome 61, Paris, 1865, pp. 1091—93). Lister's mature opinion on this subject may be given in his own words in an extract from a short address delivered by him at Pasteur's Jubilee on Decr. 27th. 1892:—

"Vos recherches sur les fermentations ont jeté un rayon puissant qui a illuminé les ténèbres funestes de la chirurgie et a changé le traitement des plaies d'une affaire d'empirisme incertain et trop souvent désastreux dans un art scientifique sûrement bienfaisant. Grace à vous la chirurgie a subi une révolution complète qui l'a dépouillée de ses terreurs et a élargi, presque sans limites, son pouvoir efficace". (*Jubilé de M. Pasteur*. Paris, 1893. p. 16.)

Pasteur's methods of sterilising by boiling, or of destroying the germs in the air by passing it over heated plates were not available in the practice of surgery. The complete entanglement of solid particles by mechanical means seemed equally impossible in ordinary surgical treatment. Lister was driven, therefore, to think of some chemical agents which might destroy the vitality of the germs in the atmosphere without seriously injuring the parts to which they were applied. He had been impressed with the success which followed the Chloride of Zinc applications advocated by Mr. Campbell De Morgan, and he continued to use this powerful antiseptic, in a limited number of cases, so long as he practised surgery. He experimented also with the Sulphites recommended by Polli of Milan, applying them externally as a dressing and prescribing them for internal use as a germicide; but ultimately, his attention was directed to Carbolic Acid. The use of this agent has often, very erroneously, been regarded as the essential part of Lister's system. He made no claim to its introduction into surgery; indeed, it had been used by not a few, both in France and England, long before Lister employed it. The present writer went, in 1867, from Lister's wards

and classes to Manchester, where Carbolic Acid was largely manufactured, and he heard from Dr. James Whitehead and Mr. Thomas Turner there that they had both used it, extensively, for years; but it required no special ability to see that the use made of it by them and by Lister could not be compared for a moment. Lister's use of it was based on a well thought-out doctrine, theirs on the favourable results which, no doubt, sometimes attended its employment as a local application, used, though it was, in a hap-hazard and at times reckless fashion.

In the *Lancet* of 2nd. Nov. 1867, there appeared an elaborate article on "Carbolic Acid and its Compounds in Surgery" by Sir James Y. Simpson; it bristled with quotations and references, special attention being called to Lemaire's book — "Acide Phénique" — the second edition of which had appeared in 1865, the first being in 1863. It was broadly hinted that Lister's new treatment had been borrowed, without acknowledgment, from such sources. In the *Lancet* of 5th Oct. 1867 Lister had already disclaimed any pretension to priority in the "surgical use of carbolic acid", and he further stated that he had not even seen Lemaire's book at that date. Indeed, in his first paper, he had explained how his attention was directed to Carbolic Acid as an agent suitable for the purpose he was aiming at in surgery; it may be given in his own words:—

"In the course of the year 1864 I was much struck with an "account of the remarkable effects produced by Carbolic Acid upon "the sewage of the town of Carlisle, the admixture of a very small "proportion not only preventing all odour from the lands irrigated "with the refuse material, but, as it was stated, destroying the "entozoa which usually infest cattle fed upon such pastures". (*Lancet*, March 16th, 1867, p. 326.)

The use of strong solutions of Carbolic Acid was found to cause irritation and to stimulate discharges, necessitating the free use of drainage-tubes, and toxic effects were sometimes noticed: these inconveniences led to endless experiments in the laboratory, in search of various agents to dilute it and yet preserve its beneficial action. In time, also, many other antiseptic agents were tried — corrosive sublimate, the cyanides, and boric acid amongst others, — sometimes applied by means of gauze which furnished an absorbent dressing as well. It is not necessary here to trace all such modifications. One phase of his treatment, viz., the use of Carbolic spray, may demand a word. By this method, he thought, at first, that by operating and dressing under the spray of a Carbolic Acid solution of

definite strength all the germs in the atmosphere in the vicinity of the wound could be destroyed or rendered inactive, and that by using the agent in this way less irritation from Carbolic Acid on the exposed surfaces could be secured. His idea at that time was that the surgeon must aim at acting on *all* the atmospheric germs near the wound. By and by he discovered, and had the candour publicly to admit, that this view was wrong. He said, "As regards the "spray, I feel ashamed that I should have ever recommended it for "the purpose of destroying the microbes of the air". (*Verhandlungen des X. Internationalen medicinischen Congresses. Berlin, August, 1890. Berlin, 1891. Bd. I. S. 28.*) On the one hand, he found that this momentary contact of the particles of the spray was inefficient for the purpose for which it had been introduced, and on the other hand, he found that such complete destruction of these microbes as he had aimed at originally, was not really necessary, and that the human organism had power to deal with many forms of these germs even if they entered. He believed, however, that in its time the spray, by supplying a form of antiseptic irrigation, had served a useful purpose. The really important channels by which the microbes of decomposition and other pathogenic organisms gained access to the wounds were found to be the hands, sponges, or instruments of the surgeon, introduced into them, while the skin of the patient, in proximity thereto, was found to be even a more important source of danger than was originally thought. To these, more and more attention was directed, leaving any stray germs entering from the air to be dealt with by the blood as described by Metschnikoff.

Amidst the multiplicity of antiseptic agents used, and the variety of the forms or dilutions in which they were employed — whether with water, oil, putty, plaster or gauze — amidst the many different methods of dressing wounds advocated, modified, abandoned, or reintroduced from time to time —

"Per varios casus, per tot discrimina rerum",

Lister's aim, continuously pursued, has been to reduce his methods to the blandest and the simplest consistent with safety, and by preventing the entry of the germs of decomposition and of pathogenic organisms, to assimilate external wounds to the safe conditions of a simple fracture, and so to realise his early dream.

From the very beginning of his ~~new~~ method, Lister drew a sharp distinction in his teaching between the words "Aseptic" and "Anti-

septic". It is obvious, however, that scarcely any Aseptic methods can be followed in surgery without the use of Antiseptic agencies in some form, whether of a physical kind as heat, or of a chemical kind as alcohol, turpentine, carbolic acid, corrosive sublimate, iodoform etc. etc. "Aseptic surgery" without some of these agencies for the skin of the patient, or the hands, sponges, instruments and dressings of the surgeon, may be regarded at present as an impossibility. The distinction between Aseptic and Antiseptic Surgery magnified by many of late, is merely a question of how the antiseptic agencies are applied.¹⁾ Curiously enough some surgeons who separate themselves from his practice and pride themselves on their ASEPTIC surgical methods use more ANTISEPTICS than Lister himself. Over-elaboration in procedures aiming at absolutely aseptic conditions (of which they can seldom be quite sure) found no favour with Lister, whose boast it had been to make Antiseptic Surgery possible in all kinds of practice and to make it equally available for the rich and the poor, — as he himself once said in a speech on the subject,

"Aeque pauperibus prodest, locupletibus aeque".

The elaborate procedures insisted on by some, under the name of Aseptic surgery and the notion apt to be thus fostered that special surgical theatres of spotless purity and special operating robes on all their assistants were essential to success, called forth an energetic protest against the inevitable limitations to his beneficent discovery, in everyday life and practice which were thus implied. As Lister's first teaching on the subject was given to Glasgow students, so his latest protest against some of these extreme developments was also delivered to the Glasgow students in the Medico-Chirurgical Society of their University, but unfortunately it was never published. (See an abstract in *Glasgow Medical Journal*, June 1894, pp. 434—439.)

Another great surgical innovation of Lister's while professor in Glasgow University was the introduction of a new method in the ligature of vessels, — "Observations on the ligature of arteries on the antiseptic system", London 1869. In this paper the use of catgut for this purpose is described. Before practising this new method in his wards he very properly experimented on the vessels of a horse and a calf, and with such success that he felt justified in using it in the human subject.

¹⁾ Essentially the same opinion on this point is expressed by Prof. Tillmanns (*Nature*, May, 1896), and by M. Lucas-Championnière (*Leçon d'ouverture* etc., Hôtel-Dieu, Paris, 1899.)

A third point made clear by him in Glasgow was the demonstration of the favourable influence of his method on the general salubrity of hospital wards. ("On the effects of the antiseptic system of treatment upon the salubrity of a surgical hospital". Edin. 1870.)

In addition to the very important practical matters just referred to, we must allude to other of Lister's investigations which relate more to the theoretical aspects of the subject. In particular, he was a pioneer in the bacteriological investigation of disease and of processes allied thereto;— "Natural History of Bacteria and the germ theory of ~~C~~apermentative changes", (*Quart. Journal Micros. Science*, London, 1873); "Contribution to germ theory of putrefaction". (*Trans. Royal Soc. Edin.* 1875); "Lactic Fermentation and its bearings on Pathology" (*Trans. Pathological Society of London*, 1878); "Relation of micro-organisms to disease", (*Quart. Journal Micros. Science*, 1881). He also returned to his early studies in an oration "On the coagulation of the blood in its practical aspects", delivered to the Medical Society of London on 4th May, 1891, and reported in the *Lancet*, 1891, Vol. I, pp. 1081—84. In concluding this rapid sketch of Lister's work in Antiseptic Surgery, it may be well to refer to three of his latest and most weighty statements:—"The Present position of antiseptic surgery", (*Verhandlungen des X. Internationalen medicinischen Congresses. Berlin 4.—9. August, 1890.* Berlin, 1891. Bd. I. S. 28). "Principles of Antiseptic Surgery", (*Virchow's Festschrift, Internationale Beiträge*, Bd. III, Berlin, 1891); and his Presidential Address at the Meeting of the British Association in Liverpool, in 1896, (see *Brit. Med. Journal*, 1896 Vol. 2.) His address on receiving a presentation portrait from his pupils likewise gave some interesting reminiscences which, however, were not published. (See a notice in *Brit. Med. Journal*, 1895, Vol. 2.)

Passing now to Lister's career after leaving Glasgow University in 1869, we find him succeeding his father-in-law, Prof. Syme, in the Chair of Clinical Surgery in the University of Edinburgh, and he held this position from 1869 to 1877. The great size and reputation of the Edinburgh medical school carried his doctrines, by the dispersion of his pupils, all over the world; but many leading surgeons in London and on the continents of Europe and America had even then never seen the remarkable results of his new method. In 1877 an opening was made for him in King's College, London and he agreed to go there as Professor of Clinical Surgery; he taught in the hospital there from 1877 till 1893. This move was, in a sense, a great loss to him as regards his personal influence

as a teacher, a change from the largest medical school in Britain to one of the smallest, with a corresponding diminution of private work, at least for a time. In the metropolis, however, his methods and results were brought under the notice of London surgeons in a way which could not be ignored, and in this great centre, surgeons from all parts of the world could more easily see for themselves the revolution which had been wrought. From this time, the hostile critics of his methods and teaching, who had at first been active enough, were gradually and effectively silenced.

Lister's teaching and work were characterised by the somewhat rare combination of the theoretical or deductive method with splendid powers of observation and experiment, coupled with indomitable perseverance in varying his procedure according to the results obtained, so as to overcome all technical difficulties. It was, perhaps, the prominence which he gave to the theoretical aspects of his Antiseptic System which repelled many of the great English surgeons, with their traditional practical instincts. On the other hand, this very feature seemed to attract the attention of German surgeons, because it was philosophical as well as practically useful, and undoubtedly their advocacy reacted on and notably influenced opinion in England. For similar reasons, his lucid exposition of a consistent system found favour with many French authorities, and it is worthy of notice that the only collected edition of his papers on Antiseptic Surgery appeared in that language (1882). No doubt, Lister's theoretical views and his deductions from them carried into practice, misled him somewhat, at times, chiefly from the imperfect bacteriological knowledge of the day on which they rested; but even with such drawbacks, they had a wonderfully vivifying influence on his work and teaching, comparable with similar influences in the case of John Hunter's labours in physiology and pathology in their bearing on surgery.

As a lecturer, Lister spoke *extempore*, slowly and deliberately, thinking out his argument as he went along. By this deliberate speaking he managed, practically, to overcome a slight occasional stammer which, in his early days, had been more troublesome. His language was always clear and graceful, but almost never rhetorical. To his students and those who came into close contact with him in his work, he gave the impression of absolute truthfulness and trustworthiness in stating his observations and experiments: although obviously deeply impressed with the importance of his own researches and work, his statements and remarks regarding them were always

characterised by the modesty of true genius. As regards the treatment of his hospital patients, his pupils learned from him the methods of kindly gentleness as well as the art of scientific surgery.

When he attained the age of 66, in 1893, he retired from active duty at King's College Hospital, while still fit for surgical work, and he continued a certain amount of private practice for a short time. At no period of his life, not even in Edinburgh, while at his busiest, was he ever overwhelmed with private practice to the extent that many other surgeons have been, both there and in London. With his withdrawal from hospital work, he found time for numerous duties of a scientific or of a public character, which his eminent position forced upon him, and from his place in the House of Lords, he took part in the debate there on the Vaccination Act of 1898.

The honours which followed his course have been conspicuous, and, in one respect, unprecedented in Britain. He is the first member of the medical profession who has been raised to the peerage; he was created a Baron in 1897, having been previously made a Baronet in 1883. It may be also stated that his is the second peerage in Britain conferred for scientific distinction, the only other being in the case of his old Glasgow colleague, Sir William Thomson, now Lord Kelvin. He was appointed, while in Edinburgh, Surgeon to the Queen in Scotland, and is now Surgeon-Extraordinary to Her Majesty in England. The Royal Society of London elected him President in 1896, a post he still holds (1899); and the British Association for the promotion of Science also made him president in 1896.

In 1898 the City of Edinburgh, which had so influenced his whole life, presented him with the freedom of the City, an unusual honour for a medical man. At Pasteur's Jubilee, 27th Dec. 1892, he had the honour of representing Medicine and Surgery at this great celebration, when he gave a short address in the French language, and received himself a notable ovation.

Honorary degrees have been showered on him by British and Continental Universities:—LL.D. Edin., 1878; LL.D. Glasgow, 1879; M.D. Dublin, 1879; LL.D. Cambridge, 1880; D.C.L. Oxford, 1880; D.Sc. Victoria University, 1898; LL.D. University of Toronto, 1897; LL.D. Montreal, 1897. Würzburg, Bologna and Buda-Pesth also gave him the honorary title of M.D. In addition, he was elected a Fellow of the University of London, and also of University College, London. He is an Honorary Fellow of the Royal College of Surgeons of Ireland, and the Faculty of Physicians and Surgeons of Glasgow, although he was on their roll as an ordinary Fellow, recognised his distinction by enrolling him as an Honorary Fellow in 1898.

He has received the following medals:—Mac Dougall Brisbane Medal, Royal Society of Edinburgh, 1875; Cothenius Medal, Imperial Leopold Academy of Natural Science, 1877;

Royal Medal of the Royal Society of London, 1880; Albert Medal of the Society of Arts, presented by the Prince of Wales, 1895; the Medal of the Royal College of Surgeons of England, 1897; the Medal of the Royal Institute of Public Health, 1899. He also received the Cameron Prize of the University of Edinburgh in 1890 and the Gunning or Liston Prize of the Royal College of Surgeons, Edinburgh, in 1897. He is likewise Knight Commander of the 1st Class Order of the Danebrog; Kt. Prussian Order „pour le mérite”; Laureate of the French Academy of Sciences 1881: Associate member of the Institute of France, Associate member of the Académie de Médecine, Paris, and honorary member of the German Surgical Society and of various other societies in London, Edinburgh, Calcutta, Paris, Munich, Leipzig, Vienna, Buda-Pesth, Dresden, Turin, Amsterdam, St. Petersburg, Constantinople, Finland &c.; also of the Imperial Academy of Sciences, Vienna, and of the American Academy of Arts and Sciences. This list indicates the cosmopolitan character of the reputation which he had slowly built up.

Of portraits, the one here given (pg. 1) is from a photograph taken in 1897. In 1895, his former pupils and colleagues presented him with his portrait in oil, painted by Mr. J. H. Lorimer A.R.S.A., which is now in his possession, and a replica of the same hangs in the University of Glasgow, while prints were sent out to the subscribers. In the Hall of the Royal College of Surgeons in London, there is an oil painting, subscribed for by Fellows and members of the College, executed by Mr. W. W. Ouless R.A. in 1897. A portrait was also painted for the Surgical Society of Berlin and hangs in the Langenbeck House there. A lithographic portrait, executed while he was Professor in Edinburgh, was published by D. H. Menzies of Glasgow. A portrait also appears in a biographical sketch of Lister in *Nature*, May, 1896. A Photographic Portrait of Lord Lister, surrounded by his house-surgeons and dressers, who entertained him to dinner in London in 1897, may also be mentioned. (It is from this portrait that the one here given is reproduced.) In the new hospital at Rome a statue of Lister forms one of the external artistic decorations, although the surgical robe in which he appears is due to the imagination of the artist.

References, in addition to those quoted above.

Whittaker's "Titled Persons", London, 1899. — "The Medical Directory", London 1899 and former years. — "Men and Women of the Time", London, 1895. — "Dictionary of National Biography", London, 1893, under JOSEPH JACKSON LISTER. — "Catalogue of Scientific Papers compiled by the Royal Society", and Two Supplements, London, 1870, 79, 94. — "Index-Catalogue of the Washington Medical Library", under LISTER. — Borginon, "Chirurgie antiseptique", Bruxelles, 1882: this contains translations into French of Lister's papers on antiseptic surgery, up till the date of publication, with references to their original sources, the first being in *Lancet*, 16th March, 1867. — "Nature", May, 1896, contains a good sketch of his life, with a portrait, and also an appreciation of his surgical work by Prof. H. Tillmanns. — A. Duncan, "Memorials of the Faculty of Physicians and Surgeons", Glasgow, 1896, p. 194 makes a short reference to the first demonstration of his methods (outside of his wards and class-room) in 1868. — The note-books of the writer, while in Lister's class in Glasgow, have also been used, for dates &c. in refreshing his personal recollections.