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PRESIDENTIAL ADDRESS,

Read at the Annual Meeting of the British Laryngological Association, 8th December, 1893,

By JOHN MACINTYRE, Glasgow.

Gentlemen,—My first duty is to return my sincere thanks to you for the honour conferred upon me by electing me President of this Association. Its work has prospered in the past, as might have been expected from those who have preceded me in this position, and I naturally feel the responsibility of being called upon to do what they have done. All I can promise is to do what lies in my power to advance the interests of the Association during my term of office.

I feel you will agree in saying that the gentleman who has just preceded me deserves our warmest thanks for the very able manner in which he discharged the duties of his office. Neither time, nor distance, nor work, was allowed to interfere with whatever he was called upon to perform. It is only fair to say that the prosperity which attended us during the past year is in no small measure due to the abilities and enthusiasm displayed by Dr. Sandford.

It was my privilege to attend the meetings called to discuss the advisability of founding an association for the study of laryngology in this country, and, as one of the original members, I might safely say that we are more than ever convinced of the wisdom of so doing. I am sure each has been benefited, but, setting aside the personal aspect of the

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question, the Association has done something to promote the study and advancement of this special branch of medicine. The result might have been anticipated, for, while it may be stated with truth that at no previous time have greater advances been made in general surgery and medicine than during the past twenty years, it may also be said that this is specially true of the study of diseases of the upper respiratory tract. Indeed, in no branch of science is it more difficult to grasp the advances at present being made. A glance at our text-books will show how difficult it is for any author to convey an idea of the enormous literature at our command; new methods of observation and treatment are being constantly recorded, and many pathological and etiological features are being constantly brought to light. It would indeed have been a matter for regret if individual workers should have been deprived of the encouragement, criticism, and aid in research, which can only be obtained by being brought in contact with each other in such an Association as this. Moreover, a glance at the reports of the good work being done in similar associations in many of the European states, and on the American continent, would convince anyone of the wisdom of founding a laryngological association in our own country. It is not my intention, however, to allude to any question of a polemical nature; by our work, and that alone, we shall be known; by it we must, and desire to be judged, not only by the laity, but by our professional brethren. Hence it becomes my privilege to offer a hearty word of congratulation and good wishes to all engaged in such work, whether in this or any other association at home or abroad. We have benefited to a very large extent by their work; we trust they may, to some extent, by ours. And what is true of our history in the past is equally so of last year. Whether looked upon from the literary or demonstrative points of view, the meetings held in 1892-3 will compare favourably with those of former years. Our discussions have been of great interest; the criticisms honest and sincere; we have had many excellent papers, and the clinical work and demonstrations have shown that the field of research has not been neglected. We are stronger in numbers; our enthusiasm is greater; and the results ought to be sufficiently encouraging to stimulate us to even greater efforts in the future. These results have not been obtained without great care and interest on the part of the Council, and our best thanks are due to those gentlemen who have done such good work. A large share of this has fallen to our secretary, Mr. Wyatt Wingrave, and it is only right that we should acknowledge our indebtedness to him for the able and conscientious way in which he has performed his duties.

Our best thanks are also due to the gentlemen who contributed so much to the work of last year by reading papers, and giving clinical and other demonstrations.

The annual meeting affords an opportunity of reviewing something in addition to the history of our Association, and this is probably the object of the usual presidential address. In such a branch of science as ours there are many subjects at present little understood, and a reference to what has been done in one or other of these, with suggestions for what may

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be expected in the future, offers a suitable reason for the choice of a subject. I have chosen as the subject of this address a consideration of a branch which has not yet been fully investigated, but to which we have already paid some attention, viz., "The Etiology of the Diseases of the Nose and Throat," and that with special reference to the influence it has had, and in the future may have, upon the classification and treatment of affections in these regions.

During the past two or three years I have given some demonstrations upon this subject, and I should be sorry to show any tendency to exaggerate a study which has proved of great interest to myself, or to minimize other branches of our work. On the contrary, I would emphasize the fact that it is the duty of each Fellow to bring before the Association any new fact in any field which his experience has taught him. Some prefer to devote a portion of their time to the improvement of instruments; others, to the evidence of disease as studied at the bedside; many, to therapeutic advances. Each and all of these have their value in a science which is as yet incomplete, but special reference ought to be paid to therapeutics, because we must never forget that it is our first and highest duty to relieve the sufferings of those who are entrusted to our care. While it may, therefore, be useful for future advances that etiological and pathological subjects should receive our best attention, nevertheless we are daily called upon to treat our patients with the means at our disposal, and in the light of our present knowledge. What the study of etiology may be for us we know not; much is expected of it—all will not be realized—but that its influence has been great no one doubts, and that it is likely to prove more so in the future I trust to be able to demonstrate. Some time ago, when discussing this question with an able exponent of our special work, he said it was difficult to do much in this direction without including a good deal of general pathology and etiology. This may be true, but why should we not bring the facts of general pathology and etiology to bear upon our work in as far as they are required to throw light upon it? Some have gone to the other extreme and attempted to set up a special pathology, and they have naturally failed to establish it. But the history of clinical medicine has shown that the laryngoscope has not only helped those engaged in our special branch, but it has thrown much light upon the study of general medicine and surgery. It is just possible that the study of etiology in special regions may, in the future, aid those engaged in the general study of medicine, and probably also in that of research, which is for the most part carried on in the laboratory.

No sooner have we engaged upon this study than we are beset with difficulties, and the first is to attempt to give some clear indication of what is meant. It might be done in the following way: Given a patient suffering from deviation of the normal structure and function, our object is to attempt to discover what changes have occurred to produce that series of objective or subjective phenomena, which when grouped together constitute what we know as disease, malaise, or want of ease. The boundary line between the physiological and the pathological is by no means well

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defined; the pathological would, indeed, often appear to be but an exaggeration of the normal conditions of life. If the changes brought about are sufficient to be recogniz ed by physical diagnosis, they are made known to us, or our patient, or both, by a series of signs. The patient is made conscious of these by a series of subjective phenomena, but the objective phenomena may be of such a minute nature as to be beyond observation, and so constitute what is known as a functional disorder.

PAST AND PRESENT STUDY OF ETIOLOGY.

The presence of disease infers the existence of a cause or causes; that these have been brought in contact with the patient; that the tissues were incapable of resisting the invasion of the new force or forces. Again, we have in most cases to assume a deficiency in resistance of the tissues after the introduction of the causes; that certain conditions were present favourable to the existence of the new force—in other words, that more than a cause was at work; and our difficulties increase still further when we attempt to discover the exact influence exercised by each factor. Indeed, until recently it was quite impossible to obtain anything like definite knowledge of many of the most active causes of disease. I refer more particularly to bacteriological causes, which have attracted so much attention of late. Lastly, to explain the results we must discover how the causes acted so as to produce the disease. A study of etiology, therefore, involves a great deal more than at first sight appears. Some probably place too much weight upon one set of causes; for example, etiology did not begin, nor will it end, with the study of bacteriology, because, as I have said, the cause as a rule proves upon investigation not to be simple but complex. We need not only a special influence to produce a disease, but a whole series of conditions which modify or influence the true cause in the production of it. That is not all, because once the disease has been set up in the body it may become the cause of secondary pathological conditions, these again of tertiary, and so on. For example, an old cicatrix will produce dilatation of the pharynx above it; catarrh leads to stenosis; tubercle and malignant disease to perichrondritis and caries; one of the exanthemata may set up inflammation of the membrane of the nostrils, that may be followed by hypertrophy, the hypertrophy by stenosis, the stenosis by irritation of the naso-pharynx, and this by mischief in the ear, or it may even be infective disease of the brain and cord.

CONSIDERATION OF THE CAUSES.

A reference to our classical text-books overwhelms one with the multitude of causes assumed to be at work in the production of disease in the nose and throat, and a careful analysis will show how difficult it is to grasp the influence exercised by each. Allow me to illustrate the difficulties by a few examples. In the production of catarrh, age, sex and occupation are commonly quoted as factors, but occupation often infers age and sex. Again, a particular occupation may induce a certain disease, but the same malady will not affect other persons so engaged, and others not following that occupation may suffer from it. Disease is

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often traced to air, water, and food, but frequently these are merely vehicles for the transmission of the cause, although in certain instances disease may arise from intrinsic defects in one or all of these. Again, we have change of temperature—say, cold; but cold often means, not absolute cold, but the association of other conditions, such as damp air, with movement in the atmosphere. Such terms as "poisoning" and "weak constitutions" are too indefinite to grasp; hereditary and congenital causes are constantly being quoted and often convey as little meaning. These latter, however, do not offer the greatest difficulty, because, if we could trace the production of disease in individuals, an explanation of its transmission would, in all probability, be comparatively easy. In the past, few diseases could be traced, and, with the exception of foreign bodies, injuries, absence of necessary elements in food, or the administration of deleterious material, the exact causes of the vast majority were wholly unknown, unless we include such general terms as gout, rheumatism, fevers, etc. Without doubt, the greatest aid to the study of etiology has been obtained from bacteriological researches. Moreover, this study promises to throw a great deal of light upon many of the factors quoted above, and whose influence could not previously be understood. For example, the study of the life-history of these organisms has revealed much about the conditions necessary for their existence; all require pabulum and a certain temperature; some require light, some heat, others air; and nearly all are influenced by the presence of other substances, which may be of an inorganic or organic nature. Thus antiseptics, on the one hand, will arrest development, if in sufficient strength and properly applied; on the other hand, the presence of certain substances facilitates their growth. The introduction of the tetanus bacillus in some animals does little harm until an organism such as the bacillus proteus be injected with it. Further, apparently harmless organisms, introduced with other apparently harmless organisms, will produce disease. The study, therefore, of the life-history of these organisms will, in all probability, throw light upon the exact influence produced by such agents as atmosphere, moisture, season, and to what extent such articles as food, water, and air are responsible for the production of disease. With a view of facilitating this study in our special department, I have added (see page 13) a fuller list than in any of my previous demonstrations, and I have, for the same object, brought a series of microscopic drawings and photographs before you. For example, we now know a great deal about the causes which are mainly at work in the production of inflammation, suppuration, erysipelas, lupus, tubercle, leprosy, diphtheria, and typhoid. Much has been done, more is required, because no one working in our special department can forget how many affections of the upper respiratory tract are due to constitutional affections, such as gout, rheumatism, and fevers, particularly the exanthemata, and, I need hardly add, malignant disease.

MEANS OF BRINGING IN CONTACT.

In a certain number of cases the causes already exist within the individual—they may be hereditary or acquired. For example, micro-

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organisms often lie latent in diseased teeth, in depressions in the tonsils, or the accessory sinuses, and only require conditions necessary for their development to produce disease. It has been stated that the buccal secretion is antiseptic in nature, but a careful examination of the contents will show how difficult it is to establish this proposition, for in health, even, we find many pathogenic organisms. In the accompanying figure will be seen a variety of organisms found in an apparently healthy mouth. Some of these, after cultivation and injection, produced suppuration in animals. In other instances, however, the causes are brought from without, and it is necessary to trace the channels by which they come. For the most part they are due to contact with others infected, or to such agents as air, water, food, and clothing.



THE OVERCOMING OF THE RESISTANCE OF THE TISSUES.

In some instances this is easily enough explained, for injuries, administration of drugs, pressure upon nerves, absence of necessary elements in food, generally produce results which are clearly enough to be traced to their causes. That micro-organisms may pass from the superficial to the deeper layers of the coverings cannot be doubted; this can be seen from the next drawings given. In the first the mycelial spores will be seen passing through the epithelial structures of the mucous membrane of the nose weakened by the invasion of sarcomatous disease; and in the second drawing the spores will be seen developing within the tissues. That great protection exists in the nose and throat one cannot doubt. We have the air as it passes through the nostrils sifted to an extent by the vibrissæ; the structures within the cavities slope downwards and backwards, so that the secretions readily pass into the alimentary tract, aided by the action of the cilia; there is abundant secretion secreted from the epithelial cells, each one of which may be looked upon as a gland capable of taking matters on the one hand from blood-vessels, and, on the other, passing it on to the surface of the membrane. Moreover, the lymphoid and connective tissues of the mucous membranes offer still further resistance; the vascular supply is great, and the rich nerve supply governing the blood-vessels and turbinated bodies is not surpassed in any other mucous surface. Con-





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sequently, obstruction or deviation from the normal anatomical conditions of the passages, weakness in the individual cells, or the nervous and vascular arrangements, and that in local or constitutional affections, must lessen the protection. Abrasions are most dangerous of all, especially if recent, and these often occur at the points of weakest resistance, say in the middle line of the lower lip, angles of the mouth, margin of the epiglottis, and the region of the fauces—in other words, where, from the study of development, we know parts originally distinct and separate have become united. Again, the tissues after the invasion of the causes have further power of resistance. We need not commit ourselves to Metschnikoff's theories, ingenious and excellent as they appear to be. That the corpuscles of the blood and cells of the tissues have the power of counteracting organic mischief within the tissues no one can doubt who has studied the processes by which nature casts out that which is deleterious, or seals it up in cysts or by connective tissue cicatrization. All these, again, mean healthy nervous vascular, and, I would add, particularly lymphatic structures for the following reasons. When chemistry has helped us still further in understanding the products of micro-organic life, it will not unlikely be found that they are by no means stable compounds; that the tissues have the power of reducing them to simpler may be safely inferred, otherwise it is difficult to explain how recovery takes place in acute and chronic infectious diseases. These products are carried by the blood and lymphatic system to the various organs of secretion and excretion, but it is not unnatural to assume that they may to a certain extent be split up into simpler compounds or elements within the system. If we think how little is required to raise the temperature by injections of tuberculin—a product of bacillary growth—we are almost forced to such a conclusion, otherwise it is difficult to see how life could be preserved so long in chronic tuberculosis.

HOW THE CAUSES ACT.

Beyond mechanical effects, comparatively little was known until very recently of the manner in which these causes acted. Doubtless many of the organic forms act by mechanical irritation, but they are most injurious in all probability from the products they produce. To learn that bacteria could produce nitrogenous waste products or poisons was the first step in advance. Panum is quoted by Brieger, our greatest authority, as being the first to isolate putrid poisons or ptomaines. Many others have since been discovered, but the works of Koch, Loeffler, Roux, Yersin, Hanken and Fraenkel are all specially interesting to us, inasmuch as they deal with the products of organisms associated with the production of specific disease. We cannot, however, overestimate the facts brought out by Loeffler, Roux and Yersin by demonstrating that typical symptoms, say of diphtheritic paralysis or death, can be produced by the introduction of these toxic agents without the introduction of the organisms which produced them.

CLASSIFICATION OF DISEASE.

The present classification of disease in our text-books is by no means satisfactory, and Mr. Lennox Browne, in an able paper read in this

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Association, called attention some years ago to this fact. Many difficulties exist in classifying disease owing to the imperfect state of our knowledge, and all attempts have to a large extent failed, whether based upon anatomical, physiological, or pathological grounds. If we attempt to classify them according to the region in which they are situated, it means repetition, and hence we have such numerous terms for catarrh, as rhinitis, naso-pharyngitis, pharyngitis, and laryngitis. We have, further, to write special chapters upon the nervous, muscular, and other systems. In consequence of the confusion a large portion of the chapters in our text-books have headings which indicate symptoms merely, such as catarrh, rhinitis, tonsillitis, abscess, epistaxis, etc. A glance, however, at special works—say, that by Dr. Whistler on syphilis—or at the chapters in any of the text-books upon tuberculosis or malignant disease, show how most of these disappear when we start with a distinct or specific cause. It is then an easy matter to trace the steps of the disease in definite order and sequence. When we know more about etiology it is not unlikely the classification of disease will be made upon this basis, and the clinical evidences described under the headings of most of the chapters in our text-books will simply appear as the evidence or symptoms, or sequelæ.

THE EFFECT OF THE STUDY OF ETIOLOGY UPON TREATMENT.

The study of etiology promises to be particularly valuable in the way of treatment. It has emphasized all that has hitherto been written upon the question of hygiene, and the prevention of disease has been made easier by accurate diagnosis. At the last meeting of the British Medical Association at Newcastle, I pointed out the necessity for laboratories in connection with each sanitary centre where practitioners might have the benefit of a diagnosis in the earliest stages of disease, such as diphtheria. It is not to be expected that every practitioner can have the necessary apparatus for diagnosis in doubtful cases. Although the principle of inoculation remained for long one empirical fact, the experiments of Pasteur, and the researches of Koch, Hanken and others would promise something more in the prophylactic treatment of disease. Whether the inoculation of the products of micro-organisms is destined to be of great use in the prevention of specific affections remains yet to be seen. Metschnikoff's experiments would seem to throw a considerable amount of light upon what has hitherto been a great mystery, viz., by what means the tissues are protected from a second attack in constitutional fevers; and Pasteur, Koch, Liebreich and Klebs have tried to modify the virulence of the poison even after the person has been infected by the injection of certain products evolved in the life-history of particular organisms. Doubtless, although much was expected, little has been done in this direction as yet. All these, however, indicate how much is being done by our sanitary officers and experimenters in the prevention of disease.

The theory of the parasitic cause of disease naturally suggested attempts to administer agents which would destroy these active virulent causes. While it is easy to find antiseptic agents to destroy these organisms before entering into the tissues, as demonstrated in the

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brilliant results of antiseptic surgery, their destruction within the host is a different matter. Destruction of the parasite, as a rule, involves destruction to the individual cells of the host. In diseases of the upper respiratory tract, therefore, we have to classify all infective diseases which come in two great groups: firstly, those in which we can directly apply antiseptics, say on the surface of the membranes, or within the accessory sinuses; and secondly, those in which the causes have passed into the tissues and are beyond all hope of local treatment. In some cases, of course, both conditions may be present, and the surgeon may find it convenient to remove a local disease where a constitutional is present. In the consideration of the treatment of the first class there are still numerous fields for research open to us. For example, the best antiseptics to use in this connection. Three factors at least have to be taken into consideration in the application of a germicide: firstly, its antiseptic power; secondly, the rapidity of its action; and thirdly, how long this action continues.

It will be found that certain organisms are more readily attacked by a particular germicide than others, and consequently we have to search for the best antiseptic for the production of a particular germ. In practice, however, we must seek for some general antiseptic, because, as I have shown, more than one organism may be at work, as can be seen from the drawings here produced; these are from a case of diphtheria, and the first two drawings show a large number of round cell organisms, which were found to be capable of producing suppuration after cultivation and injection, and in all probability complicated the local conditions in the throat. The other drawing shows that we have to deal with bacillary forms as well. In all such experiments it must be remembered that the results obtained by antiseptics outside the body are quite different from those got when applied to the same organisms within the tissues.







Both from the experimental and clinical points of view there can be no doubt that bichloride of mercury, even in dilution to the extent of one in five thousand, is the most active in power, rapidity, and duration of time. Carbolic acid, from its many good qualities, may be classed next, and particularly on account of the fact that it is less poisonous to the patient where we have a danger of absorption. Boracic acid is not only safe, but also a very efficient antiseptic, especially where there is

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danger of absorption. Listerine acts with great rapidity; and thymol even in the dilution of one to fifteen hundred may also be depended upon as an efficient germicide. The action of the antiseptic varies according to its method of administration, and so we may require to select it in the fluid or dry states. In affections of the upper respiratory tract, therefore, when we are attacking this locally we may be called upon to apply a germicide for many reasons:—firstly, during or after operation to render the parts aseptic if possible; secondly, where the parts have become septic to cleanse after free drainage; but there is a third object to which I would give special attention, viz., where we wish to attack a local focus of inoculation, say, in the false membranes of diphtheria. Many agents may be used for this purpose, such as those mentioned above, and also the strong acids, but a great difficulty arises inasmuch as the crypts or cavities do not allow efficient action of the germicide. For some years past I have been in the habit, after explanation to the patient, of excising the tonsils in acute affections with the view of getting the agents properly applied. While I select the example of the tonsils, the same principle applies to the other parts of the upper respiratory tract, and it likewise applies to acute diseases of an infective nature, whether diphtheritic or otherwise. I have not always been able to carry out this plan, because of objections on the part of patients and medical attendants; but where the operation has been performed, and *where efficient nursing has been at my disposal* to see that the raw surfaces were carefully and frequently attended to, I have seen nothing to deter me from making still further experiments in this direction. Some here may not believe in these being local affections, but some local manifestations of a constitutional state. In any case the principle has this merit, that the agents can be efficiently applied, and I do not see how this can be done where crypts exist in the tonsil, and into which our therapeutic agents cannot be carried. So far as our clinical observations have gone the membrane has been easily controlled upon the cut surface; there has been no elevation of temperature which one would expect if reinfection took place upon the cut surfaces, nor have there been any contra-indications from the study of the pulse, or the amount of albumen in the urine.

One of the residents in the Glasgow Belvidere Hospital, Dr. Watson, has been making observations upon this line of treatment in diphtheria at my suggestion. No place can be better calculated for the carrying out of such an experiment than the wards of a fever hospital. I have brought with me a preliminary note of the results, and, while his only amount to eleven cases, everything I have stated above has been confirmed, and only two patients out of the eleven have died, and in one of these tracheotomy had been performed. Excision of the tonsils has been recommended in the treatment of acute affections of the throat by Browne and others. If this be recommended, great attention must afterwards be paid to the proper application of suitable antiseptics.

In the second class of disease, unfortunately, our treatment has not yet been very successful, and this remark specially applies to chronic

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cases, such as phthisis laryngea. It is hopeless in some cases to expect much good from the scraping out and medication of an inter-arytenoid membrane, and this is easily enough explained by the affection of other organs of the body at the same time. I have given six drawings in a case of phthisis laryngea where the inter-arytenoid membrane was scraped without any beneficial result, and this requires no explanation, because such a widespread affection could not be affected by local treatment. I should be sorry to leave the impression of anything discouraging to the enthusiastic work of Professors Herying and Krause. I have, like others, had good results from local curetting of the parts, just as surgeons have had excellent results from the destruction of disease in the tarsus and carpus in cases where other organs of the body were affected. We must not, however, be discouraged by the fact that constitutional agents have not yet been discovered to combat these affections, because, after all, it is precisely in this that we have the best recent results in surgery. For example, the most serious complications to life have been combated in the brilliant results obtained in the treatment of acute infective diseases of the brain and spinal cord, and we rejoice to learn from time to time of the splendid records of Macewen, Horsley, Lane, and others, in this department. In the same way no one can estimate the amount of deafness which has been obviated by the early removal of hypertrophied and lymphoid structures in the post-nasal adenoid growths, tonsils, etc.; or the alleviation of catarrhal conditions of the respiratory passage, due to old-standing mischief in the accessory cavities, such as the maxillary, frontal, and sphenoidal sinuses.

While we may consider the present to be a surgical era in treatment, etiology has more than ever shown the necessity for careful therapeutic investigations, whether in local or constitutional effects. The three great principles taught from a study of etiology in the treatment of affections in this as in any other part of the body, are, firstly, to remove the cause—this includes all our surgical work; secondly, if we cannot do this, to aid nature in so doing; and, thirdly, to palliate in either of these two conditions. That advances have already been made is seen in the clinics in the various hospitals in this and other countries. Everywhere scepticism exists about the efficacy of old and empirical treatment. Thanks to the efforts of many workers in the study of nasal affections, the application of pigments in pharyngitis sicca has become rare, and this is just as it should be, because our classification into astringents, alteratives, stimulants, and so forth was made when our knowledge of etiology and pathology was very imperfect.

Satisfactory as our results have been, we must never forget that the great majority of workers are at present dealing with the sequelæ of disease. This could not be better shown than by the study of the history of the cases in the recent great work of Professor Macewen on infective diseases of the brain and spinal cord, where we have frequent evidence of old-standing disease in the ear or throat. The same thing prevails in our every-day practice with catarrhs—even the majority of our acute inflammations are exaggerations of slumbering sub-acute or chronic conditions, probably the result of disease as far back as

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childhood. However brilliant such results may be, treatment of the remote pathological conditions should not satisfy us, and hence the removal of tonsils without post-nasal adenoids, or this again without the hypertrophies which produce them, must tend to recurrence and perpetuation in a considerable number of cases. In the nasal and buccal cavities, where so much can be hidden in crypts, depressions, and accessory sinuses, we cannot be too careful in our search for pathological lesions; but more than this, our experience teaches us that a large proportion of the mischief with which we have to deal could be prevented by careful nursing and treatment of those suffering from constitutional affections of childhood or adult life. Whether we are in future to have the benefit of constitutional agents capable of destroying these specific organisms or not, no one can say. The history of surgery in the past reveals the only means of treatment open to us at present. It must, however, be evident, with the sanitary officer on the one hand, improvements of early diagnosis, followed by prompt and thorough treatment on the other, that many sequelæ of the most disastrous nature will certainly be obviated in future. The solution to the difficulty unmistakably lies in the study of etiology, and it is for that reason I have chosen this subject for consideration to-day.

In every department we see energetic workers; anatomy, microscopic and macroscopic, is being pursued with an interest and attention never excelled in the history of the past. Physiology has done much for us of late, as we can see from the works of Aschenbrandt, Fick, Block and Macdonald. Experimental physiology has also come to our aid in controlling the observations at the bedside. Although we may have a difficulty in reconciling different opinions, and without committing ourselves to any special view, we record with extreme satisfaction that our knowledge of nervous affections has been greatly enhanced by the works of Krause, Masini, Horsley and Semon. Excellent work on all hands has been done in the fields of pathology and clinical research, and these must be still further enriched by observation, although the study of medicine could never have rested on a satisfactory basis had we had nothing but clinical observation to record. One of the greatest (if not the greatest) triumphs of physical science was the prediction of the existence of a certain planet by the disturbances caused in the movements of other celestial bodies, and its discovery tested the accuracy of previous observations. So in the study of clinical medicine, by the disturbances in the functions we can often infer the existence and, to an extent, the nature of a cause. The greater in number and more accurate these observations are, the surer are we to discover the cause, but after its discovery the facts relating to cause and effect will be explained and harmonized only in as far as they have been accurately recorded.

And now, gentlemen, one thing only remains for me to do, after thanking you for your patient hearing, and that is to take advantage of the rules to request that a meeting should be held during this year outside of London. I have, therefore, much pleasure in inviting the Fellows to meet in Glasgow during this year, and I can at least assure them of a hearty welcome.

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LIST

OF THE PRINCIPAL

MICRO-ORGANISMS FOUND IN THE NOSE AND THROAT.

The following micro-organisms were demonstrated by means of photographs and microscopic drawings. They have all been found in the upper respiratory tract, and include the majority of the known organisms of interest there. The pathogenic are of first interest to us, but parasitic and saprophytic forms are included, because a knowledge of them is necessary for purposes of identification. Moreover, the exact pathogenic qualities of these are not yet known, and the life products of all, when given in large enough quantities and under favourable conditions, may be capable of producing disease.

A.—PARASITIC OR SAPROPHYTIC FORMS.

Mouth Bacteria—non-cultivable.

Scraping from tooth, showing round, spiral, rod shapes.
Spirillum sputigenum—almost pure cultivation from human mouth.
Spirochætæ dentium, from human mouth.
Leptothrix buccalis—various forms.
„ innominata—Miller's classification.
Bacillus buccalis maximus „ „
„ „ „ „ „ (high power).
Iodococcus vaginatus „ „

Mouth Bacteria—cultivable.

Bacillary forms, various (health), showing spore formation.
Cocci forms, various—cultivations on agar and gelatine.
Ascoccus buccalis—*Miller.*

Fermentation Bacteria—zymogenic.

Bacillus acid lactici.

Colour-producing—chromogenic.

Cultures of organisms producing red-coloured matter in tubes.
„ „ „ green „ „ „
„ „ „ yellow „ „ „

Not classified above.

Micrococcus prodigiosus.
Sarcinæ ventriculæ.
Bacterium termo?
Bacillus subtilis.

Fungi.

Spores from upper air passages (aspergillus).
Aspergillus glaucus.
Penicillium glaucum.
Mucor mucedo.
Mucor racemosus.

B.—PATHOGENIC FORMS IN UPPER AIR PASSAGES.

Cultivable for most part.

From sputum—Bacillus crassus sputigenum.—*Kreibohm.*
Micrococcus tetragenus.—*Koch, Gaffky.*

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Inflammation —Micrococci in tracheal membrane.
Suppuration —Staphylococcus pyogenes aureus.—*Ogston.*
„ „ albus.
„ „ citreus.
Streptococcus pyogenes.—*Ogston.*
Varieties mic. pyo. tenuis, etc.—*Rosenbach.*
Bacillus pyocyaneus.—*Gerrard.*
„ pyogenes fœtidus.—*Passet.*
Gonorrhœa —Micrococci gonorrhœæ.—*Neisser.*
Erysipelas —Streptococcus erysipelatosus.—*Fehleisen.*
Pharyngo-Mycosis—Bacillus fasciculatus, round and other forms.
Tubercle —Bacillus tuberculosis in sputum.—*Koch.*
„ „ tissues of larynx.
„ „ lungs.
„ „ liver.
Bacilli of decomposition in sputum.
Micrococcus tetragenus „
Leprosy —Bacillus in tissues.—*Hansen.*
Syphilis —Bacillus.—*Lustgarten.*
Rhinoscleroma—Bacillus.—*Frisch.*
„ in capsules.
Actinomycosis—Actinomyces in tongue.
Diphtheria —Bacillus (false membrane).—*Klebs-Loeffler.*
Bacilli cultivations.
Micrococci in false membranes.
„ and bacilli, impure cultivations.
Pneumoniæ —Pneumo-bacillus (pneumococcus).—*Friedlander.*
„ in pus.—*Friedlander.*
„ „ —*Fraenkel.*
„ in lungs.—*Fraenkel.*
Typhoid —Bacillus.—*Eberth-Gaffky.*
Malignant Disease—Psorosperms.

C.—Entrance of Micro-Organisms to Tissues.

1. Mycelial spores passing through epithelium in living tissues.
2. Development within the tissues.

The investigator may also meet the following by contamination, etc.: Achorion schonleinii, tricophyton tonsurans, microsporon furfur, etc. Biondi's[1] list includes bacillus salivarius septicus, coccus salivarius septicus, micrococcus tetragenus, streptococcus septo-pyæmicus, staphylococcus salivarius pyogenes. Kriebohm[2] mentions two non-cultivable forms found in mouth. These have not been included in the above list as many of them are difficult to identify, and may appear under other names by different observers.

[1] "Breslauer Aertzliche Zeitsch.," Sept., 1889, No. 18. [2] Flugge, p. 319.

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