bedside to gather facts and make observations. In this he was true to the inductive method: a collector of facts from which to induce general principles.

Puritanism in the seventeenth century produced its Cromwell, the embodiment of relentless energy and resistless brain force; its Milton, who showed to what heights of grandeur and majesty our own dear language can attain; and its Bunyan, who, all unlettered as he was, in the simplest and sweetest vernacular penned the finest allegory the world will ever read. To these great productions of Puritanism may we not with justice add the name of Thomas Sydenham, the great Puritan physician, who founded for all time and for all countries the art of clinical medicine.

CONCLUSION.

Neither time nor the scope of this oration permits us to pursue further the immediate and remote effects of Harvey's work. Enough, I trust, has been said to show the comparative dearth of scientific endeavour before the date of his work, and the stimulus scientific research received on account of its appearance. In common with all other results of genius, attempts have been made to claim for others the honour of priority in promulgating the central ideas contained in Harvey's book; but they avail nothing. Copernicus was not the originator of the heliocentric theory, and Darwin gave to William Charles Wells the credit of having enunciated first the theory of evolution. But their glory is not diminished by these admissions, for ideas without irresistible proof are often the common property of the human intellect.

I do not propose to detain you with a consideration of the work of Harvey concerning generation, for that subject was dealt with last year in a most able and exhaustive manner by Dr. Herbert Spencer, who brought to his oration the accumulated study and experience of an expert. But there remains Harvey's character as a man, and that is a subject upon which it is good for us to dwell. He lived in an age when men, on account of the state of political and religious feeling, were unusually prone to make enemies, but all that has come down to us regarding his character does infinite credit to the rectitude of his conduct in all the relations of private life. He seemed to be uninfluenced by the strife going on around him, and although attached to the Royalist cause by service and interest he was able to survey the shipwreck of that cause with fortitude and equanimity. His lofty mental stature rendered it impossible for him to stoop to vulgar polemical disputes, and whenever he was obliged to enter the lists in vindication of his scientific views it was always with dignity and forbearance. The real character of Harvey is admirably portrayed by Sir George Ent in his well-known account of his visit to him in his old age, when he found him forgetting the lacerations of the mind in the pure joy of searching and studying out the secrets of nature by experiment. Kings might lose their heads, and old orders might be subverted for a season, but Harvey's gaze was fixed upon the beacon of eternal truth. His devotion to this College was an outstanding feature of his life. As its most distinguished Fellow he had conferred upon it the highest honour, and in a practical manner he exhibited his deep regard by his benefactions. His solicitude for the welfare of this noble library found expression in the erection of a building, a gift of books, and a bequest of money. A few years after his death the whole of the library, with the exception of 140 volumes, was destroyed in the Great Fire, but that disaster proved to be our richest gain, for it produced the great bequest of the Marquess of Dorchester to which we owe the rarity and value of our library. No doubt the liberality of the marquess was in part actuated by the injunction of Harvey to emulate those who had benefited the College, and in our day the bequest of Dr. Lloyd Roberts, second only to that of Lord Dorchester, was surely due to the same spirit. This library, raised up and maintained by the spirit of Harvey, is the noblest monument we possess of that wide intellectual culture with which this College has always been prominently identified.

Harvey, then, in his life and work is the shining example to this College, and the injunctions he has laid upon us in his bequest in 1656 may be followed safely by all who desire its welfare. In these modern days, when we stand at the threshold of momentous changes, we may still look for guidance and inspiration from those injunctions, for they aptly express our duty as physicians, as men, and as Fellows of this ancient and honourable College.

An Address

ON

THE PAST, PRESENT, AND FUTURE OF MIDWIFERY.*

BY

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My first words in addressing you as Professor of Midwifery and Diseases of Women in the University of Edinburgh must be to express my appreciation of the great honour which has been conferred upon me by my election to the chair. That honour is the greater by reason of the fame of so many of its former occupants, among whom were the leaders of their day in this particular branch of medicine. In the past Edinburgh has always been in the very van of obstetrical and gynaecological advance. To maintain that position among the medical schools of the old and new worlds is no easy thing. My feeling of pride is, therefore, tempered by a very deep appreciation of the responsibility of my position, and by a realization of the nature of the task which lies before me.

I take up that task with a determination not to spare myself in its accomplishment and with a hope that if I fail it may at least be possible to say of me that I tried. To help me I have the inspiration and training which I received from my former chiefs in Edinburgh, the late Sir Alexander Simpson and Dr. A. H. Free and Barbour, to whom I owe so much. I have also the experience gained during the past ten years as professor of obstetrics and gynaecology in the University of Toronto. When I was called there, ten years ago, it was to take from Edinburgh to Canada the methods of teaching and training which had made the Edinburgh school famous throughout the world. While in Canada I never forgot that and the responsibility to my Alma Mater which it involved. And now, in returning to Edinburgh, I feel that I have that same responsibility to the University of Toronto and to Canada in bringing here all the best that I have learned in that large and progressive medical school and in that great and growing dominion.

In these days of rapid advance in all the medical sciences we are sometimes apt to forget what our predecessors did and how much we owe to them for our present-day position. It does good, therefore, every now and then, to look back a little and inform ourselves of their work, and of the difficulties they had to overcome. When we do so we are invariably surprised at the extent of their knowledge and their great foresight.

In this respect there is no more fascinating study than that of the history of the chair of midwifery in this university. I shall only touch upon a few of the more interesting facts, culled largely from the very full account compiled by the late Sir Alexander Simpson, as the result of exhaustive research into old records and manuscripts, and delivered as an inaugural address to his class in the year of the tercentenary of the university.

From these researches there appears to be no doubt that to Edinburgh belongs the distinction of having the first chair of midwifery. It was instituted on February 9th, 1726. At that time no medical school in Britain or on the Continent had such a professorship. Strasbourg instituted a professorship of midwifery in 1728, but apparently no appointment was made till some years later, while a century elapsed before Paris followed. The Edinburgh appointment was made by the town council, the patrons of the university. Their minute, as quoted by Simpson, is, in part, as follows:

"The Council having considered the petition of Mr. Joseph Gibson, surgeon of Edinburgh, with a declaration under the hands of four doctors of medicine, setting forth the usefulness and necessity of instituting a profession of midwifery, as also an extract of an act of the Incorporation of Chirurgeons, showing their approbation of the qualifications and capacity of Joseph Gibson, one of their number, for teaching the said art and science; they are fully convinced that it would be of great use and advantage to institute this profession, and being well satisfied with the ability and capacity of the said Joseph Gibson to discharge that office, they were of the opinion that the Council should nominate and appoint him to be Professor of Midwifery in this City and privileges, with power to him to profess and teach the said art, in as large an extent as it is taught in any city or place where this profession is already instituted; and that he should be vested with

*An inaugural address to the students of the Faculty of Medicine, University of Edinburgh.

the same privileges and immunities that are known to appertain to a Professor of Midwifery in any other well regulated city or place; but that it should be expressly provided that he should have no fee or salary from this city out of its patrimony or revenue, on account of his said profession. . . ."

The minute goes on to relate the dangers to which women were exposed as the result of the practice of untrained midwives and lays down regulations for licensing them. Apparently the chief duty of the new professor was to teach midwives, in whose hands practically all obstetric practice was. His title was "City professor" or "Town's professor," and he was not admitted as a member of the Medical Faculty of the university. His successor, Robert Smith, was appointed in 1739, and his commission constituted him a member of the *Senatus Academicus*, although he was not admitted as a member of the Medical Faculty.

Smith was succeeded in 1756 by Dr. Thomas Young, who must have done a great deal for the teaching and training of midwives, for his successor, Professor Hamilton, stated that as a result of his work there was "scarcely a parish of Scotland the midwife of which has not been regularly taught." Dr. Young was the first to give regular courses of instruction to medical students, and he was the first to have a ward set apart for their clinical instruction. Again quoting from Simpson:

"A ward in the attic story of the hospital" (the Royal Infirmary) "by permission of the managers, but at Dr. Young's expense, was fitted up for four lying-in women, or as many more as Dr. Young could accommodate, each exceeding the number of four paying sixpence per day to the house."

The work of these early professors must indeed have been a labour of love. The town council made it perfectly clear that they would receive no salary, and the Royal Infirmary granted Dr. Young the privilege of fitting up his ward at his own expense.

The chief facts of local and general interest in the career of Young's successor, Dr. Alexander Hamilton, are his admission to the Royal College of Physicians, which up to that time had not recognized those practising midwifery, and his establishment of the first maternity or lying-in hospital in 1791, under the patronage of the town council.

In 1800 he was succeeded by his son, Dr. James Hamilton, a man of great ability and a keen controversialist. His lectures became "so popular that there were few students who did not attend them" (Christison). In 1815 he applied to the Medical Faculty to have his lectures made compulsory.

"The Faculty declined his request, being guided by its three senior members, who had long been on no friendly footing with the applicant. Therefore, in 1824, he applied to the council to exercise their authority by passing an Act compelling the *Senatus* to add his class to the curriculum for graduation. By this procedure he played into the hands of the town council, whose object was to find a ground for raising an action of declarator of right to govern the university as of old" (Christison).

This action of Hamilton's was keenly resented by the *Senatus Academicus*, but in 1825, along with other changes in the medical curriculum, it added midwifery as a compulsory subject. The regulation was, however, not enforced till 1830.

Hamilton died in 1839, and was succeeded in 1840 by a young man of 29 years. The contest for the chair was keen, only a single vote dividing the successful candidate from his nearest rival. The man elected was James Young Simpson. Nothing that I can say can add anything new to the many appreciations which have been written of that man of genius. His name will live for ever as the discoverer of anaesthetic properties of chloroform and as the first to apply general anaesthesia for the relief of the pains of labour.

But Simpson did a great deal more than that for midwifery and for gynaecology. He was among the first to recognize the nature of child-bed fever, and two years before Lister gave to the world the principles of antiseptic surgery he wrote a paper pointing out the identity in the clinical course and autopsy findings of surgical and puerperal fever, and ascribed both to contagion carried by the hands or person of the operator. He was a keen clinical observer, and always found time to put his observations on record. He invented and perfected many obstetrical instruments, and by his use of the uterine sound and the sponge tent gave a great impetus to gynaecology. Academies and societies in every part of the civilized world bestowed on him their honorary titles, and he brought great renown to Edinburgh.

Throughout the thirty years he occupied the chair he was an enthusiastic and inspiring teacher; under him the status of midwifery in the curriculum was firmly established, and

students of this university went forth with a better training than could be obtained in any other medical school. That at once made itself apparent in medical practice in Scotland, for midwifery since then has occupied a more important place in general practice in this than in any other country. This is one of the results of all the hard-fought fights of our predecessors, and one which we must strive never to lose; there is a very real danger of its being lost, as we shall see later.

In 1870, on the death of Sir James Young Simpson, his nephew Alexander Russell Simpson was elected to the chair, which he occupied till 1905, when, after thirty-five years' service, he resigned, because, as he said in his valedictory address, "there is always risk that the ageing incumbent of a chair may become an incubus upon it. I could not bear to dree that weird." In his early years he had studied extensively on the Continent, and was always a good linguist. He travelled much, and knew personally all the best of the workers in his subject in Europe. In this way, and through his extensive writing, he kept the Edinburgh school of midwifery in the forefront. He was a skilled operator, and in the early days of abdominal gynaecological surgery did much pioneer work. His lectures were always up to date, as he was constantly adding to them from his personal experience and from his wide reading. His delivery was not impressive, but the material was of solid worth, and notes faithfully taken proved better and fuller than any textbook of the day. My own notes of these lectures are among my most valued possessions. He did much for the clinical teaching of midwifery, and inaugurated definite clinical instruction in gynaecology.

As a chief in the hospital he was exacting, but when the morning's work was over and his resident accompanied him to the gate of the infirmary he became the kindly adviser and friend, betraying that keen sense of humour which under other circumstances did not show itself. He received the honour of knighthood in 1906, a fitting recognition of his work for humanity. His untimely death in 1916 was mourned not only throughout Scotland but in distant lands where his Christian charity and sympathy had won for him a place in the hearts of many peoples.

On Simpson's resignation it was deemed advisable to divide the duties of the chair, and Sir J. Halliday Croom was appointed professor of midwifery and Dr. A. H. Freeland Barbour lecturer in gynaecology. This division was in conformity with what had been done in many other medical schools, especially on the continent of North America. It had been felt that gynaecology had made such rapid strides that it required the undivided energy of one man to teach it in the medical school and practise it in the hospital. In many places this separation resulted in a complete divorce of gynaecology from obstetrics, and the former came largely within the domain of the general surgeon. As a result, there were gynaecologists who had had no extensive experience of obstetrics and obstetricians who had never practised gynaecology. Much that was common to both was lost sight of. The gynaecologist was apt to exaggerate the surgical side of his subject, to lose sight of the etiological factor in many conditions, and he had necessarily no control of what we shall speak of later as preventive gynaecology. On the other hand, the obstetrician who was not also a gynaecologist was deprived of opportunities of perfecting himself in operative technique, and to-day surgical intervention is more and more resorted to in obstetrics as being in many instances the safest and most conservative line to adopt in the interests of mother and child. These considerations, among others, have caused the pendulum to swing back, and now opinion, if not unanimous, is overwhelmingly in favour of the linking up of the two subjects again. So in 1912 I was called to the University of Toronto to reunite the chairs of obstetrics and gynaecology, which had long been separated, and now in 1922 I return to Edinburgh to teach and practise both subjects.

In Edinburgh, although the chair has been divided during the past seventeen years, there has been no divorce between the two subjects such as had taken place in many other schools. Sir J. Halliday Croom is equally distinguished as obstetrician and gynaecologist; Dr. Barbour has done lasting work in obstetrics; and there was the closest co-operation between them in the teaching and training of the students.

It is difficult in their presence to say all that I should like to in appreciation of their services to the university and the Edinburgh school. Sir Halliday Croom, long before he was called to the chair, had made a wide reputation by his

writings. As a teacher in the extra-mural school he gained such popularity that for a generation medical students in Edinburgh did not consider their education complete unless they had attended his summer course. His enthusiasm for his subject was unbounded, and he presented it to his pupils in such a clear and dramatic way that they could not fail to be interested and impressed. This summer our university conferred upon him the honorary degree of Doctor of Laws in recognition of his worth. We all join in wishing him long years in which to enjoy his retirement.

Dr. Barbour's name has an abiding place in obstetrical literature by reason of his work on the anatomy of labour, a work accomplished while he was still a young man. Along with the late Dr. D. Berry Hart he published a textbook of gynaecology which was translated into many languages, went through many editions, and remains a classic. His contributions to periodical literature have been many, and all are distinguished by originality. The men he has trained occupy distinguished positions in the medical schools at home and on the other side of the Atlantic, and only those of us who have had the privilege of working under him know how much we owe directly to him.

The history of the chair of midwifery in Edinburgh is practically an epitome of the whole history of obstetrics during the past two hundred years. We see first of all the effort to train midwives in the appointment of the first professor in 1726; the gradual extension of that teaching and training to medical students by the provision of voluntary classes for them, and the setting apart of wards for their clinical instruction by Professor Young; the recognition of the status of the obstetrician by the election of Professor Alexander Hamilton as a Fellow of the Royal College of Physicians; the admission of Professor James Hamilton to the Medical Faculty of the university, and the institution of compulsory training and examination of students proceeding to a medical degree; the introduction of anaesthesia in midwifery practice by Sir James Simpson; the recognition by him of the nature of puerperal fever, the combating of which was begun by his successor, A. R. Simpson, as the result of the discoveries of Lister; the invention of obstetrical instruments and the perfecting of operative technique by Sir James Simpson and his successors. And all along obstetrics and gynaecology have benefited by discoveries and developments in other departments of medical science—in anatomy, in physiology, in pathology and bacteriology, and in physics. Thanks to the discoveries of Simpson and Lister, technique has been so perfected as to render the performance of even the most severe obstetrical operations almost devoid of risk to life, and the whole field of operative gynaecology has developed.

Yet there remains a high puerperal mortality, both maternal and foetal. Puerperal fever alone takes a toll of from one to three mothers per thousand births. While the mortality from this disease has been enormously reduced in our hospitals, a corresponding reduction has not been achieved in private practice. The conclusion must be that antiseptic and aseptic principles are not followed with the same careful attention in the patient's home as in the hospital. There can scarcely be any doubt that if the principles of antiseptic and aseptic surgery were applied as rigidly in private as in hospital obstetric practice the mortality from puerperal sepsis would practically disappear. A great responsibility attaches to us as teachers, and to you as students and future practitioners, in this matter.

There is still also a huge maternal mortality from haemorrhages, from the toxæmias of pregnancy, and from complications arising during labour. The numbers of stillbirths—in Edinburgh in 1921 the number was as high as 47.8 per 1,000 births—and of prematurely terminated pregnancies mean a great loss of human life. Women in large numbers still suffer from disabilities, causing great suffering and loss of efficiency, as the result of injuries received in the process of childbirth, and neglected at that time.

With all that has been left us by our predecessors we cannot but think that we ought to be doing better. And, given the proper facilities, there is no question but that we can do better.

It has long been recognized that most of the complications arising in pregnancy, in labour, and after labour are preventable. If they are detected early they can be easily cured. In the case of most of them it is only when they have progressed, unrecognized and untreated, that they are dangerous. The progress which midwifery has made in the last twenty years, and is destined to make in the next twenty, is along

the lines of preventive medicine. Preventive medicine as applied to obstetrics means ante-natal care during pregnancy, a minimum of interference during labour, the most rigid attention to asepsis, and the earliest possible carrying out of surgical interference when it is required.

Ante-natal care implies a thorough general examination of the patient as early in pregnancy as possible, and a special examination to make sure that she has the physical configuration necessary for a normal labour. It implies a careful watch on the patient at regular intervals throughout the pregnancy, and the immediate institution of appropriate treatment whenever the least departure from normal is detected.

Unfortunately it is difficult to get women to realize the importance of this careful watching, with the result that the doctor is often only called in when it is too late. The public has to be educated, and it is only through you that that education can be carried on, and you yourselves must first be taught.

We in Edinburgh must not lag behind in this work, for here in our medical school we have the man who foresaw all this present-day development many years ago. I refer to Dr. J. W. Ballantyne. Thirty years ago he was already greatly interested in and an authority on pathological conditions of the foetus. In 1901 he published a paper entitled "A plea for a pre-maternity hospital," and probably largely as a result of that paper a pre-maternity bed, known as the "Hamilton Bed," was endowed in the Royal Maternity Hospital. This was probably the first specific provision for ante-natal care of patients in any hospital. In 1915 Dr. Ballantyne established and has since conducted the ante-natal clinic attached to the hospital.

It is now universally recognized that a pre-maternity or ante-natal department is a most essential—I should say the most essential—part of a maternity hospital. In addition to the outdoor clinic there must be an adequate number of beds for women suffering from the various complications of pregnancy. A hospital which provides only for the women actually in labour, or already delivered, is falling far short of the best that it can do. In the obstetrical department of the Toronto General Hospital, of which I had charge, patients at all stages of pregnancy were admitted whenever their condition required it. Our ante-natal clinic was established there in 1913, and I have always felt that that was the most satisfactory part of my work.

The results of it were shown in the absolute prevention of eclampsia in the patients attending it, the early detection of pelvic deformities and their appropriate treatment, the early treatment, and in most cases cure, of the toxic vomiting of pregnancy, and in other ways too numerous to mention here. What we did in hospital we did also in private practice. We found no difficulty in getting our patients to come to see us early in pregnancy and at frequent intervals throughout. There is nothing that so lightens the burden of obstetric practice as this knowing of the patient beforehand, and there is nothing that is so comforting and reassuring to the patient, as she approaches her time of trial, as the assurance already given her that everything is proceeding perfectly normally.

The problem which faces us is to convince women generally of the necessity for ante-natal care. This, as I have said before, can only be done by the efforts and example of the whole body of medical practitioners. An isolated ante-natal clinic here and there will benefit the community which it serves, and public opinion will be educated to a certain extent, but it will not be until the consulting room of every practitioner is an ante-natal clinic for his district that the maximum of benefit will be obtained.

Along with ante-natal care must go post-natal care; in addition to ante-natal clinics we must have post-natal clinics. As the ante-natal clinic is the great means of prevention of obstetrical complications so the post-natal clinic is the means of prevention of many gynaecological conditions. Post-natal care is preventive gynaecology. No patient should leave a maternity hospital, or be discharged by us as a private patient, until we are satisfied that she has suffered no physical disability as the result of her labour. We can give no such guarantee at the end of ten days or two weeks—the usual duration of her stay in hospital. The ideal we must aim at—and we must always be aiming at ideals—is to get every patient to return for examination four weeks after childbirth. That examination should be made at the patient's home, in the doctor's consulting room, in the post-natal clinic of the maternity hospital, or in the child welfare centre, to every

one of which I should like to see an obstetrician attached for the purpose.

Here again it is a matter of educating the public. That it is worth while attempting is shown by the numbers of women who fill our gynaecological wards suffering from distressing conditions resulting from obstetrical injuries. Had they been recognized at the time they could easily have been rectified. Neglected as so many of them are, they necessitate severe and often hazardous operations.

These phases in the development of obstetrics come at a time when in this country a great part of midwifery practice is in danger of passing out of the hands of the medical profession into the hands of certified midwives, and it looks as if the great fight which our predecessors made to give to the women of Scotland the benefit of skilled attention from properly trained doctors were to be in vain. It must be remembered that England was much behind Scotland in this regard, and it almost looks as if we, as the result of legislation common to both countries passed in the last few years, were making a retrograde step. I grant that the training these midwives receive and the work which they do is good, but very often that training is received at the expense of that of the medical student, and the work of the midwives, especially in this all-important branch of ante-natal care, is limited by their having no general medical education.

If we in Britain are to keep abreast of what our cousins overseas are doing we must be prepared to give a much more thorough and intensive training in midwifery to our medical students. Such training cannot be given by making the attendance on a certain number of cases at the patient's home the chief feature. Clinical medicine and clinical surgery could never be taught in that way, and clinical obstetrics certainly cannot. Clinical medicine and clinical surgery cannot be taught by a few isolated clinics given at intervals throughout the session; neither can clinical obstetrics. What is necessary is intensive training. A certain part of the medical course must be set apart for clinical obstetrics and gynaecology, so that the student may concentrate upon them—live, as it were, in the atmosphere of them. During that time he ought to see all the work of the maternity hospital, the ante-natal clinic, the technique in the labour room, the care of the newly born child, the after-care of the mother, and the post-natal clinic.

I have already had experience of this system of intensive clinical training, which I inaugurated in Toronto eight years ago, and I can speak for its efficiency. The objection that the intensive system leads to too rapid presentation of the subject for its thorough assimilation is got over by a continuation of regular clinical lectures to the whole class, say once a week, throughout the last year of the medical course. That also was a feature of our teaching in Toronto.

With such a system it is possible to make the maximum use of all the clinical material available, which under other conditions is largely wasted so far as teaching is concerned. I hope that it may be possible, with the co-operation of my colleagues in my own and in the other clinical subjects, to inaugurate some such system here in the near future. It is simply a matter of arranging the time-table, for I know that they are in accord with me as regards the principle and had arrived at the same conclusions some time ago. The clinical material is here in Edinburgh if we can only use it, and I hope the time may not be far distant when it will be unnecessary for any of you to seek your clinical instruction in midwifery elsewhere.

The Royal Maternity Hospital and the university now work in the closest co-operation for the treatment of the patient and the training of the student. One of the urgent needs at the present time is the enlarging of that hospital and the adapting of it to modern requirements. Our hospital ought to be a place where the future practitioners of midwifery can see obstetrical work conducted in a manner as near the ideal as human effort can make it. It ought to be fitted up to provide all the things which I have mentioned—the ante-natal clinic, ante-natal beds, and with operating and labour rooms, where perfect aseptic midwifery can be carried out.

There is no more urgent need at the present time than funds for the carrying out of this extension and enlargement of the Royal Maternity Hospital of Edinburgh. Until we get it we cannot do all that we ought to for the training of our future practitioners. We cannot be anything but embarrassed when we have to show to our colleagues from distant lands, who visit this city and university so famous in the history of midwifery, a hospital which, though erected

to the memory of Sir James Young Simpson, is many years behind the times.

I can conceive of no more fitting memorial to the fallen, none which would do more to compensate for the enormous loss of Scottish life in the late war, than the erection and equipment of a modern maternity hospital in Edinburgh.

Some Observations

ON

THE BACTERIOLOGY AND VACCINE TREATMENT OF CHRONIC BRONCHITIS;

BASED ON 300 CASES, WITH SPECIAL REFERENCE TO ASSOCIATED NASAL INFECTIONS.

BY

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THE description "chronic bronchitis" does not convey quite accurately the condition which forms the subject of this paper, for the cases with which it deals fall into three groups which differ both in their severity and in their response to treatment.

1. Those who suffer from frequently recurring attacks of bronchitis but have an interval of several weeks' freedom between each attack.

2. Those who suffer from bronchitis throughout the cold months and are liable to acute exacerbations, but are comparatively free from cough or expectoration during the warmer months.

3. Those who are never free from bronchitis, but are worse during the winter, and are liable to acute exacerbations at any time.

All are liable at some stage to develop asthma as a complication of the bronchitis.

Nearly all such patients find our climate a great handicap, and they would benefit by residence in a warmer and drier land, but very few can afford such a change even during the winter months. It is no secret that ordinary medicinal treatment is disappointing, both to such patients and to their doctors; as time goes on the bronchitis gets worse, and eventually changes in the bronchial tubes, lungs, and heart render the patients incurable invalids.

In the hope of bringing relief to such sufferers I wish to point out a way in which treatment by autogenous vaccines can be made more successful than it has been hitherto. It has generally been taken for granted that in such cases the autogenous vaccine must be prepared from the sputum, and sometimes this can be done with great success. But the practitioner knows little of the technical difficulties which the bacteriologist encounters in attempting to secure pure cultures of the causal organisms in a particular case. It may be easy enough to see the germs but impossible to grow what is seen. The particular sample of sputum may not contain the germs responsible for the catarrh, or may contain one variety only out of several which are responsible. In the most favourable circumstances it is rarely possible to obtain primary cultures in sufficient purity and quantity to make a vaccine, yet most of us feel that there is a virtue in primary cultures that is lacking in the succeeding generations of subcultures.

Then there are the difficulties we make for ourselves. The bacteriologist may not see the patient for whom he is working, he may not even hear the result of the treatment by the vaccines which he has prepared, and so has little opportunity of learning that some of the catarrhal germs are of fundamental importance and others of no account. Better to refuse to make a vaccine than to prepare one from germs which have no pathogenicity.

The impression still seems to obtain that a pot of sputum sent through the post, perhaps twenty-four hours old by the time it reaches the bacteriologist, is suitable material from which to prepare a vaccine. Such a sample is quite suitable to examine for tubercle bacilli, but certainly not for making cultures from which to prepare a vaccine. Such a sample is dangerous because it is fallacious—some of its germs have increased in numbers, other varieties have died. From such a specimen one may prepare an excellent vaccine, but it is largely a matter of chance.

When we also consider the possibilities of error in bacteriological technique, in deciding which germs to include in the