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DELIVERED TO THE GRADUATES IN MEDICINE AT THE ANNUAL CONVOCATION OF THE MEDICAL FACULTY OF McGILL UNIVERSITY. APRIL 2ND, 1897.

BY

H. S. BIRKETT, M.D.,

Professor of Laryngology, McGill University: Laryngologist, Montreal General Hospital.

GENTLEMEN OF THE GRADUATING CLASS:

For the past four years it has been the duty of the Members of the Faculty to lecture to you within the College walls of the University, and in the theatres of the hospitals, but to-day such duties cease, and the relation of pupil and teacher no longer exists; we are *confrères* and to me has been delegated the privilege of congratulating you upon your preferment, and of welcoming you to the ranks of an honourable profession.

Your progress during the past four years has been our earnest care, and no effort has been spared to fit you for the responsibilities which, from this day forth, you are yourselves to assume. You have been brought to the goal of your first ambition, and it now remains for each of you to determine your future career.

There is much to be borne and much that is wearisome in the conditions of life upon which you are about to enter. The weight of the burden can be lightened by the view you may take of the work. Do not look to your profession as a mere source of pecuniary gain and personal preferment, for it offers you the highest opportunities for the advancement of your intellectual powers, the promotion of social good and the alleviation of physical woes of suffering mankind. By concentrating every faculty to the careful fulfilment of such work, the

dull prosaic side of life will be lightened by a consciousness of a noble duty effectually accomplished, which will throw around your ordinary duties a halo, and relieve the tedium of your solitary hours. Those men who have entered upon the study of medicine from love of it, make the best students and doctors,—the physician to be successful must think his profession the finest in the world.

Our profession is an arduous, yet fascinating one. Our responsibilities are great. "We are trusted as no other men are. By the force of circumstances, as well as by the relations of mutual confidence which grow up between the patient and his medical adviser, enormous power for good or evil lies within our hands, and on our discretion depends frequently the happiness and well-being of families." You are to become the trusted friend of the family, and whatever is entrusted to your care must be regarded as sacred; a breach of such trust will mark you as unworthy of the profession. Therefore do not make the ailments of any patient or their private affairs a topic wherewith to entertain others whilst making your daily rounds. There is no more objectionable individual than a gossiping doctor.

The question at the outset which undoubtedly has occurred to each of you is, "What am I going to do"? To some of you are open positions as house-surgeons in the hospitals, either in this city or elsewhere, and I would strongly urge the seeking of such positions. Once installed, you will find opportunities unexcelled of more properly fitting you for the great responsibilities of your calling. Here your mind will be trained to be observant, careful and exact in noting the details of cases under your direct charge.

The benefit of this cannot be overestimated, and it will stand you in good stead when out in general practice. Many a prominent physician and surgeon of the day owes his position to the proper use made of the opportunities afforded him in his capacity as house-physician and surgeon.

Others of you must be satisfied with the opportunities afforded of starting into general practice at once; unless under exceptional circumstances, it will be impossible for such to be fully occupied from the start. In this way the time at your disposal will at first be considerable, and you will form habits during this critical period which will leave their impress on your future life. Indolent and careless habits so easily grow upon one, that they have marred many a promising career, while habits of research and thoroughness, coupled with a love of the profession, are sure not only to lead to success but to greatly facilitate your future work. If you have few cases, let them

be carefully studied, and do not put away your text books with the parchment you have received to-day.

Some of you may anticipate a trip abroad to visit the various hospitals of Great Britain and the Continent. Just a word on this subject. You are as yet inexperienced, the advantages of such a trip cannot at present be fully appreciated, as you are not in a position to sift the chaff from the wheat. The result is a lot of valuable time wasted and money spent to no advantage.

After four or five years work in general practice, or after holding a hospital appointment as resident for a year or so, you are then in a position from the experience acquired to spend a couple of years very profitably abroad.

Unfortunately however there are cases amongst the graduating class of each year which necessitate some to cross the Atlantic and obtain further degrees to enable them to become registered practitioners of certain Provinces of the Dominion. This state of things is a deplorable one, and let us hope the day is not far distant when one license will give the profession the privilege of practising anywhere in Her Majesty's Dominions.

That any one should cross the Atlantic simply with the idea that having acquired further degrees he is therefore entitled to be more deserving of practice is a delusion; the laity looks to the personal ability of the practitioner and not to any additional degrees he may have secured.

A danger which confronts us in the present time is the ambition of the recent graduate in medicine to take up a speciality, and how often one is asked by the newly created M.D., "What speciality might I take up?"

Specialism is not a branch of medicine separated by a definite line of demarcation, independent of and quite distinct from the field of general practice, but should be regarded as supplementary to this. A field open to the general practitioner who, in his riper experience, will add to his store of knowledge by such further researches in the region of science as will enable him to deal in a skilful manner with diseases of certain organs which require specific treatment. The specialist is thus a co-worker with the general practitioner, not an antagonist striving for his own selfish aims, but working harmoniously to their mutual advantage. The recent graduate who imagines that all that is necessary to qualify as a specialist is to spend a few months abroad, or, as some do, a few weeks, attending the clinics of hospitals not far from home, makes as ad mistake. To these short-term specialists is attributable much of the harm done to specialism. They bring

discredit upon themselves and court the displeasure of the general practitioner. With no foundation of general practice, and a brazened knowledge of the speciality they profess to have studied, they launch out, and I can hardly find words forcible enough to denounce their miserable attempts at treatment in which they more often fail than succeed. Men of one idea, and that too often warped by interest, they ascribe to causes for which their speciality has the remedies, all the ills that human flesh is heir to. Then follow the usual results, diagnosis wrongly formed, treatment misdirected, damage irreparably done and the lives of many rendered miserable; but "When thoroughly grounded in the principles and practice of your profession, and having acquired experience from some years of practical work, it will then be time enough to turn particular attention to some one branch of it. I do not wish to discourage you, if your taste and talent so incline you, from acquiring knowledge and skill in one particular line, for the range of work has become so enlarged that it is impossible for one to perfect himself in all its various branches. So, if in time you find you possess a particular skill in some certain line of work, and your skill receives such acknowledgment from your fellows as to justify you in relinquishing general work for a specific line of action, then I consider you would be quite justified in confining yourself to that special work." (Dr. H. Kelly.)

Determined then to practice some special branch of medicine, let it be after considerable experience in general practice, and after at least two years abroad, studying hard and honestly in special hospitals. No one can acquire a solid foundation in any speciality in less time, for if the foundation be weak, the whole super-structure must necessarily be defective.

Enter your new field with a broad mind, determined to investigate and treat local trouble as generally dependent upon a manifestation of disorganisation of the whole system, and not as symptoms to be viewed and treated only through the means of the speculum, laryngoscope and ophthalmoscope. Then when fully and properly qualified, you will be esteemed by your brother specialists and win the confidence of the general practitioner.

As a practitioner either in the country or the city, let your moments of leisure be occupied in reading as much as possible the current medical literature, in attending meetings of the medical societies, and indulging in some form of profitable recreation. Contribute your share, however small in the advancement of medicine and surgery, by reporting your cases, either before the medical societies, or in reput-

able medical journals. Your work may be criticised, but do not let that discourage you, but rather incite you to better things.

Seek opportunities to visit your Alma Mater, and the various hospitals where you will, and to come in contact with men of experience in the professional world. The interchange of ideas will tend to broaden your mind and will keep you from falling into a hum-drum way of doing your work. Medicine is a progressive science, and to be successful practitioners, you must keep abreast of the times. To those of your *confrères* who are in good standing, be ever ready to extend the hand of good fellowship. Be considerate of their errors of diagnosis, and do not seek to make capital out of it to suit your own ends. When attending cases which present unusual symptoms, and which baffle your skill, do not hesitate to seek further advice, it will lessen your responsibility and will be of benefit to the patient. This will not in anyway depreciate your standing in his eyes, but will rather strengthen your position.

In all your actions be manly and straightforward.

> "To thine own self be true,
> "And it must follow as the night the day
> "Thou can'st not then be false to any man."

Let not those of you who are the first in the class think that your qualifications are greater than those who have been less fortunate, or that your gifts entitle you to greater success in after life than the rest. It is not always the most brilliant student who makes the most successful practitioner. The so-called "plodding" and slow student often has qualities hidden through the pressure of studies during his college course, which will shine only when opportunities present themselves, and often enable him to outstrip his more brilliant college friend. But whatever has been the success of each of you, let me caution you against making an improper use of such qualifications.

Do not think that with the closing of to-day's functions our interest in your welfare ceases; it goes forth with you as you leave this hall, and ever will continue through your career.

Do not let the knowledge you have acquired within the prescribed time of the college course lead you to imagine that you have exhausted the science of medicine. There is no greater stumbling block on the road to learning than self-satisfaction. Strive therefore to increase the store of knowledge you now have, by continuous study and practical work, and your labour will not be in vain.

You may congratulate yourselves upon graduating at this present period in the history of medicine and surgery, for no era has been marked by greater progress and advancement. Look into the field of

surgery, and see what brilliant results have been accomplished by the skilful surgeon, how through his efforts many obscure diseases of the hidden organs of the body have been made clear and operations successfully performed which have been the means of saving many lives, in cases, which only a few years ago, would have been regarded as hopeless.

Consider the physician of the present day and how infinitely superior are his methods of diagnosing and treating diseases than those formerly accepted. Think what opportunities have been afforded you by the more recent advances of medicine, such as the certainty of recognising tuberculosis in its incipient stage, of treating malaria more intelligently, and of having methods (so recently elaborated by one of your teachers) at your disposal, of diagnosing typhoid fever in its earliest stages. It is owing to the untiring work of the bacteriologist that we have placed in our hands such means of so successfully treating our cases.

What grander work of the last two years has been accomplished than that of the bacteriologist in giving to us a means wherewith to battle more effectually than ever against a disease so dreaded and so awful in its results as diphtheria. The introduction of antitoxin therefore makes another mark in the progress of medicine.

It is our privilege and yours to reap the benefit of and to carry on the grand work accomplished by the many faithful workers in the field of medicine and surgery, and to apply their results, now no longer on their trial, but proved and accepted, to the welfare of patients entrusted to our care. Be not contented to rest here upon the labour of others; strive by your own endeavours to further the advance of science, and in doing so pursue your researches, in that field for which by your inclinations and qualifications you are best suited.

In conclusion, Gentlemen, I would ask you to remember always the nobility of your profession and let your just appreciation of its high standard be demonstrated in the honesty and faithfulness of your work. Consider the benevolence of its aim, the elevating character of its studies, in the pursuit of which all the best faculties of our nature are called into action. Let it be your ambition to excel in it, fearlessly encountering the difficulties it presents. Strengthen yourselves both mentally and morally by the discipline it affords in patient and sustained labour, and press forward in your new career with all diligence, not with a vain-glorious spirit, aspiring to out-do your fellows, but rather with a desire to bring honour upon your profession.

Let your work be honest and it cannot escape reward. Knowledge is power. Therefore embrace every opportunity of enlarging your mind, not only to gratify your own literary or scientific tastes, but to benefit mankind.

Let me on behalf of your *confrères* and in the name of the University, wish you a happy and prosperous career, and may health wait on you in carrying out the duties with which you have this day been entrusted.

THE DOCTRINE OF THE INTERNAL SECRETORY ACTIVITY OF GLANDS IN RELATION TO THE PATHOLOGICAL ANATOMY OF SUNDRY MORBID CONDITIONS.[1]

(OF DIABETES, ADDISON'S AND GRAVES' DISEASES, MYXŒDEMA, CRETINISM AND ACROMEGALY.)

BY

J. GEORGE ADAMI, M.A., M.D.

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To remove an organ and study the effects of the operation is clearly an exercise in experimental pathology and only secondarily and indirectly a physiological investigation, while the greater the precision with which the course and symptoms of any morbid condition are studied, the more the study becomes a matter of science, a matter of pathology rather than of medicine. In other words, asked as a pathologist to enter into this discussion, I find that all other participants have trespassed into pathological territory. This is one of the penalties of sure advance in our common subject: the pathology of yesterday becomes the medicine of to-day, and I might add, the medicine of to-day yields place to the surgery of to-morrow. But this being the case, so as not to reiterate, I am impelled to make my contribution to this discussion a *resumé* of the results obtained in a branch of pathology which others are not likely to dwell upon. It is in many respects an unsatisfactory branch—a branch capable of testing rather than of originating any theory. I refer to morbid anatomy.

I propose, therefore, during the next few minutes, to lay before you what may be gleaned from the post-mortem room bearing upon this subject of internal secretion. But first it is necessary to call your attention to the very narrow limits of the information to be gained from a study of the gross and fine anatomy of diseased organs in this connection.

Morbid anatomy alone can tell us singularly little concerning alterations in function. The existence of lesions recognisable to the naked eye or under the microscope may support conclusions reached by other means. It can do little more. We know from experiment

[1] Being a contribution to the discussion upon "Internal Secretions," at the Triennial Medical Congress, Washington, May 5th, 1897.

that three-quarters of the liver, for example, may be removed from the healthy animal with no pronounced disturbance of the bodily functions, that whenever one-fifth or less of the pancreas is left in the dog it may be weeks before diabetes shows itself, that only when fifteen-sixteenths of the thyroid are removed may the dog succumb. In this enormous reserve of material and force may truly be said to lie the secret of the continued existence of living beings. Thus the mere fact that the greater part of an organ is found wanting by the anatomist, or replaced by tissue of another nature, is not in itself absolute evidence that what remains of the organ is functionless or incapable of meeting the needs of the organism. So long as any considerable number of what may be termed the specific cells of an organ are to be determined we must proceed very cautiously in our reasoning; only when the destruction is absolute or nearly so are we on sure ground. Contrariwise, if the cells of an organ appear very slightly altered, while we are accustomed to argue that there has been but little disturbance of function, it is questionable whether we are justified in this opinion. So also if an organ like the thyroid be markedly hypertrophied, that is not in itself proof positive that there is accompanying increased activity and increased internal secretion. In the thyroid, for instance, the boundary line between pure hypertrophy and overgrowth of adenomatous nature is peculiarly vague. It may very possibly be that a simple adenoma of a ductless gland continues to supply an internal secretion; it is difficult to imagine that gland structure of almost perfect type can be present in the body without affecting the body at large.[1] Nevertheless we have no conclusive evidence that this is the case; hence, it is only after most exact and extensive histological study that we can advance any very secure arguments upon the existence of apparent simple hypertrophy, more especially of the ductless glands. The force of this statement will be seen when we come to discuss the bearing of disease of the hypophysis cerebri.

Another matter that has to be taken into account, one that has until now received scant attention, is the existence of vicarious activity. Because one organ is seriously diseased it does not follow that the organism as a whole exhibits disturbances commensurate with the lesions in that organ; other parts may vicariously fulfil its functions. We have the well known example of total extirpation of so important an organ as the spleen being succeeded for years by good health. Here,

[1] It is noteworthy how frequently in attempting to co-ordinate the anatomical data in the class of diseases now before us we are brought to regard the possibility—nay, probability—that neoplasms are not functionless (as we are too apt to consider them), but afford, it may be, an abundant, internal secretion.

presumably, the lymph-glandular tissue in general takes over the functions of the absent organ. There is the compensatory development of the parathyroids in athyrea, and further, the frequent, but not constant co-existence of atrophic disease of the thyroid and hypertrophy of the pituitary to which Boyce and Beadles (1) have more especially called attention. Similarly and curiously we meet with frequent persistence or enlargement of the thymus when either the thyroid or the pituitary body is the seat of disease. Thus not only is it a matter of peculiar difficulty in that class of diseases, which to-day we have specially to discuss, to determine which of the ductless glands is primarily and which secondarily affected, but the added difficulty besets us, that where the vicarious function is perfect and compensation is complete we may, in the apparently unaffected individual, meet with lesions of an organ—the thyroid for instance—of the same nature as, and every whit as extensive as, the lesions in well marked cases of those special forms of general disease which we are inclined to regard as the direct outcome of disease of that organ.

Time after time this co-existence of apparently identical lesions in cases of relative health and pronounced disease places us in a quandary, time after time we find ourselves groping vainly in a maze of facts which seem to point in all directions of the compass. And when the facts flatly contradict each other one cause of discrepancy must be this vicarious activity. In passing, I may suggest that vicarious activity affords a possible explanation of the not unfrequent cases in which we have the eventual co-existence of more than one of the diseases under consideration. If, for example, the thyroid be the seat of atrophic disease the compensatory hypertrophy and over-action of the pituitary may lead to eventual affection of that organ.

Yet another consideration, seriously weighing upon the morbid anatomist, is that two opposite processes may produce a similar symptomatology, one that he can recognise, another that he cannot. If the glands afford an internal secretion entering the lymph and so eventually circulating through the system, we know that the ultimate use of the secretion must be to effect a chemical transformation of some substance in some other part or parts of the system. There are thus four possible conditions, (1) production of an insufficient amount of internal secretion of any gland in consequence of disease of that gland, and (2) the assimilation or production of an excess of that substance which normally is acted upon and transformed by the internal secretion in question. In both cases there will be a heaping up in the system of the substance; in both cases there may be the same train of symptoms. In the one case the gland or glands may

show the clearest signs of disease; in the other they may appear normal. The morbid anatomist may in time discover collateral disturbances distinguishing these two states; at present he cannot adequately. In one case of diabetes he finds the pancreas unaffected, in the next it is extensively diseased. Unaided by experimental pathology he is quite incapable of determining the important *rôle* played by this organ in regulating the sugar supply of the organism and in the production of diabetes. Similarly there may be an accumulation of the internal secretion, either due to (3) hypertrophy of a gland, or (4) not associated with recognizable glandular change.

In short, gentleman, I fear that I stand before you as a kind of reversed contrary Balaam. Summoned to bless—to illumine this discussion—I can only curse (as I take it all my predecessors must have done who have attempted to reconcile the anatomical results in the class of cases now before us) and can but point out to you the darkness that is upon the face of the deep. But happily there is this to be said to the credit of the morbid anatomist that the demonstration of this darkness is of the highest value as indicating the lacunæ in our knowledge and suggesting the various factors that have to be taken into consideration and carefully studied in order that we may gain a comprehensive knowledge of this intensely interesting and valuable subject of internal secretion and glandular function. It is in itself a step towards higher things to feel acutely our own ignorance.

And then, perhaps, things are not quite so black as here painted. While it may be that I am overbold—it may also be that this darkness but precedes the dawn; that facts which seem so flatly to contradict each other can, in the growing light of experimental pathology, already be seen to range themselves in an orderly manner. Accepting the postulates, first, that the glands of the body afford an internal secretion capable of acting upon and transposing some substance or substances produced or assimilated by other regions of the body, and, second that, proceeding with due caution, we can utilise the results of anatomical and histological studies, then, applying the considerations which I have just urged, we must recognise the possible existence of three orders of conditions, each order being capable of further subdivision into two well marked groups.

It would seem that we have to deal with :

Changes Associated with Symptoms of Disease.	I. Glandular Inadequacy.—Excess of substance acted upon by the internal secretion of a gland, without due compensation. (1.) *Absolute:* Altered condition of gland leading to diminished activity and diminished internal secretion. (2.) *Relative:* No disease or alteration of gland but excessive production or assimilation of the substance acted upon by the internal secretion. II. Glandular Over-Activity.—Excess of internal secretion withoutc ompensation. (1.) *Absolute:* Altered condition of gland leading to increased activity and increased pouring out of internal secretion. (2.) *Relative:* No disease or alteration of gland, but diminished production or assimilation of the substance acted upon by the internal secretion of that gland.
Changes Unaccompanied by Symptoms of Disease.	III. Compensation.—Lesions of gland or altered systemic condition unaccompanied by symptoms. (1. Altered condition of gland leading to (*a*) increase or (*b*) diminution of internal secretion, with due compensation. (2.) *Gland unaltered* (*a*) increased or (*b*) diminished production or assimilation of substance acted upon by internal secretions, with due compensation.

Let me here emphasise the fact that I do not pretend that this table includes every possible condition leading to local or general disturbance of these glands affording an internal secretion, and leading to the symptoms most often associated with disease of these glands. For example we know from experiments with phlorizin that glycosuria may, among other things, be the result, not so much of increased production of sugar as of increased removal of this body through the kidneys. Such cases are not embraced in this table. Again, what I may term compound cases as, for instance, of glandular inadequacy, in part from disease, in part from increased production of the substance acted upon by the secretions are presented only by implication. All I urge is, that this table, conforming with what experiment has shown may occur, may very possibly be utilised to explain the apparently contradictory revelations of the post-mortem room.

I would now proceed rapidly to review those conditions, local and general, concerning which we have already a modicum of knowledge and which fall within the scope of to-day's discussion.

THE PANCREAS AND DIABETES.

Let me in the first place take into consideration lesions of the pancreas and their relationship to diabetes. Much more than a century has passed since attention was first called to the pronounced changes to be seen in the pancreas in some cases of diabetes. We all

know that not until 1889, when Von Mering and Minkowski in Germany, and de Dominicis in Italy, published the results of their researches did the belief in the existence of a pancreatic diabetes begin to become generalised, but even at the present moment the fact that two cases, closely resembling each other clinically, may post-mortem show, the one, extensive pancreatic disturbance, the other, an apparently healthy pancreas, creates great confusion.

What then are the facts gathered so far as to the relative frequency and the nature of the lesions of the pancreas which may be associated with diabetes ?

We have at least three careful studies upon this subject, those of Hausemann (2), Williamson (3) and Dieckhoff (4), and all demonstrate that three conditions may be distinguished (1) extensive pancreatic disease with associated diabetes; (2) extensive pancreatic disease without diabetes; (3) diabetes unassociated with recognisable pancreatic disease. Hansemann from a careful investigation of the records of the Pathological Institute and the Augusta Hospital at Berlin, found that the first condition (of pancreatic disease with diabetes) is more common than the two others combined. It may be that in Berlin the consumption of much beer predisposes to the pancreatic form of the disease, it may be that the material upon which Hansemann worked was imperfect to this extent, that full care was not taken to distinguish between extensive and extreme destruction of the pancreatic tissue, but it will, I think, be the experience here, as it was that of Williamson in England, and Dieckhoff in Rostock, that advanced pancreatic disease, associated and unassociated with diabetes, are to be encountered the one but little more frequently than the other.

This much, however, stands out very prominently that where in diabetes the pancreas is found affected, the morbid process within the gland is some one or other form of atrophy and destruction of the gland substance. Most commonly it is a form of periacinous fibrosis, originating it would seem secondarily to arterio-sclerosis, in which with thickening of the arterial walls there is malnutrition of the gland cells, atrophy and, what I have elsewhere termed, replacement fibrosis. Other forms of atrophy and fibrosis have not infrequently been observed—simple atrophy, congenital syphilitic fibrosis, obstruction of the ducts with calculi, dilatation of the ducts and atrophy of the gland tissue, scirrhous cancer of the pancreas, and I have found recorded five cases of necrosis, or hæmorrhagic necrosis (two by Fitz and a third, a case under Drs. Bell and Finley, in my own experience at the Montreal General Hospital).

There can, therefore. be no question that the pancreatic lesions

found in some cases of diabetes are such that there must be a marked diminution in the secretory activity of the gland. To this extent, in this one class of cases the results of autopsies are clearly in accord with the results of experiments. We have here examples of relative glandular inadequacy brought about by altered condition of the pancreas leading to diminution of internal secretion.

Examples of diabetes unassociated with disease of the pancreas are so well known that I need but refer to them. While such are difficult to explain from purely anatomical considerations the fact that they are found, and found relatively frequently is, in itself, an evidence that glycosuria is of at least a two-fold origin. That they are found is in conformity with the results of experiments, experiments which, on the whole, must be regarded as proving that there can be heaping up of sugar in the organism beyond the transforming power of the pancreatic internal secretion, or otherwise an incomplete burning up of the sugar. If this heaping up be in general due to increased glycogenesis, increased production of sugar, we should expect to find some evidence of increased activity of some glycogenetic organ, and here the recent researches of Glénard (5) and Triboulet (6) tend to show that this may be the case. Contrary to the older and generally accepted teaching, Glénard finds that clinically in over sixty per cent. of diabetics, there is evidence of some hepatic enlargement. Anatomically he finds that three conditions may be recognized, each possibly a stage in one morbid procees, namely, hyperæmia, general cellular hypertrophy (hyperplasia) and hypertrophy with cirrhosis (hypertrophic cirrhosis). Thus while I will not say that anatomical considerations prove the existence of my second subgroup in this connection, I must point out that the existence of this class of cases of diabetes without adequate recognisable pancreatic disturbance, is best explained on the supposition that there may be excessive production or assimilation of sugar with accompanying relative pancreatic inadequacy.

There is yet a third group of cases to be considered, that of extensive atrophic disease of the pancreas without diabetes. Here we have to proceed cautiously in our reasoning. As I have already indicated, Sandmeyer (7) has found that if only one-fifth to one-ninth of the organ be left in the dog, it may be months before sugar appears in appreciable quantities in the urine. Vaughan Harley (8) gives an even smaller amount, namely, one-fifteenth, but evidently he refers not to the eventual development of diabetes, but to its onset within a few hours. We can thus state that so long as from one-ninth to one-fifteenth of the glandular tissue of the organ is functional, for so long glycosuria

need not manifest itself in the dog. There is no valid reason why we should not apply these facts to the human being. Hence so long as a very small proportion of fairly healthy gland tissue is left, we have a satisfactory explanation why diabetes should not show itself, even though the major portion of the pancreas exhibits fibroid and atrophic or neoplastic changes. There are, however, aspects of that subject not capable of so simple an explanation. I remember my friend, Dr. H. D. Rolleston, of St. George's Hospital, showing to me a series of sections of the fibroid pancreas taken from both diabetic and non-diabetic cases, from which the only conclusion to be reached was that a given extent of fibrosis might or might not be associated with diabetes. Again, Hansemann has called attention to cases of complete replacement of normal pancreas by a diffuse cancerous infiltration. He seeks to explain these by the hypothesis already indicated, that the cells of a primary new growth of a ductless gland may continue to furnish an internal secretion. This may or may not be the case. Where there is primary cancer of the hepatic parenchyma, the new growth in the liver may be devoid of bile, the secondary growths are without exception free from bile. A more simple explanation of these and other examples of complete or almost complete destruction of the pancreatic glandular tissue is that of compensation, whether by vicarious function of Brunner's and other glands (the duodenal glands have frequently been found enlarged) or by diminished assimilation or production of sugar.

THE SUPRARENAL BODIES AND ADDISON'S DISEASE.

We meet with an identical series of cases in connection with another organ in which experimentally the existence of an internal secretion has been fully demonstrated. We may have (1) Addison's disease associated with disease of the supra-renal bodies, (2) Addison's disease with intact supra-renals, and (3) extensive, if not complete, destruction of the supra-renal bodies without the symptoms of Addison's disease.

Here, as with the pancreas in diabetes, the affection of the gland in Addison's is some form of atrophy or destruction of the specific gland tissue. Most frequently, I need scarce say, the change is tuberculous and necrobiotic, resulting in the disappearance of the gland tissue and its replacement by caseous material. But cases are on record of simple atrophy, hæmorrhagic necrosis and malignant growth of the bodies associated with or leading to all the symptoms of Addison's disease. In the vast majority of cases both glands are affected, but cases are on record (I have come across one such) where only one of

the bodies has been the seat of recognisable disease. Of the three conditions above mentioned the most frequent found is the association of the disease with complete or almost complete destruction of the gland. So frequent is the association that the attempts to explain away the other two rare states of Addison's disease with intact suprarenal bodies and suprarenal disease without the Addisonian symptoms have been almost painful in their ingenuity. Yet undoubtedly well authenticated cases are on record of both of these conditions.

We have in this connection singularly full statistical collections of cases. That of Lewin (9) is well known; he collected accounts of 285 cases, of which 211 showed caseous lesions of the suprarenals (74 %). Gilman (10) found an even greater proportion of either primary or secondary tuberculosis (80 %); in the remaining 20 % there were either other forms of atrophic disease or absence of recognisable disturbance.

The existence of cases of Addison's disease without obvious disease of the suprarenals is generally acknowledged. Lewin found that as many as 12 % of his cases were of this type. The explanation generally given is that in these there had been alterations in the neighbouring semilunar ganglia and abdominal sympathetic. Certainly disturbance of the nervous system, and especially of the sympathetic, does lead to pigmentation of the skin, We see this in cases of hysteria and again in Graves' disease, in which from whatever cause (I shall speak of this later) we have most marked nervous changes, but I must confess that I feel some little impatience towards the upholders of this semilunar ganglion theory of Addison's disease, for scarce two of them describe the same order of lesions. Most of the changes described would appear to be quite common in the adult dying from other causes; thus Hale White (11) found that examining 33 semilunar ganglia removed indiscriminately, if we leave out of account 3 perfectly normal taken from young children, 24, or 80 per cent of the remainder exhibited more or less extensive degenerative changes with frequent presence of granular masses of pigment. Dixon Mann (12) also making a careful comparative study of the abdominal sympathetics and semilunar ganglia from two cases of the disease and from the unaffected individual came to a like conclusion. He found them not more affected than are those of other individuals. Under the circumstances, therefore, I see no valid reason why cases in which the bodies are found apparently unaffected may not, in the light of our present knowledge, be most satisfactorily classed as possible examples of relative glandular inadequacy of the second order. This suggestion may to some appear revolutionary; but let me reiterate my main argument: We acknowledge that

glands like the suprarenals produce an internal secretion: We must inevitably admit that the function of such secretion is to affect a chemical transformation of some substance or substances distributed in other parts of the body. We must admit that when, for example, the suprarenal bodies are diseased, or removed, some, at least, of the symptoms that follow are due to the absence of the internal secretion, or, in other words, are due to the accumulation in the system of the substance or substances acted upon by the internal secretion. The same symptoms must be produced whatever the cause of the accumulation of the substance or substances, whether by diminution of the internal secretion or by excessive production or assimilation of the aforesaid substance or substances. When, therefore, a morbid condition, such as diabetes or Addison's disease, which may be caused by destruction of a gland is found to exist without recognisable disease of that gland, a very possible explanation of the condition is what I have termed relative glandular inadequacy due to excessive production or assimilation of the substance acted upon by the internal secretion. I would but ask you clearly to picture this, that in diabetes and Addison's disease it is not the internal secretion that causes the symptoms, but, if experimental data are to be trusted, the lack of the same—and that this lack may be absolute or relative.

I am far from suggesting that the whole corpus of symptoms will be the same in both conditions. Thus as Harley and others have pointed out where the pancreas is atrophied there are profound digestive disturbances not necessarily accompanying diabetes unassociated with pancreatic disease. But I am inclined to think that the cardinal symptoms in both will closely resemble each other.

A few words only are necessary concerning affections of the suprarenal bodies without symptoms of Addison's disease. If bronzing be required as the one essential symptom then cases of tuberculous disease of the suprarenal without 'Addison's' are fairly frequent. Addison himself noted this condition. We must however, it seems to me, acknowledge with Chvostek (13) and numerous previous observers, that bronzing is but one of a group of symptoms even though we be not prepared to accept Bedford Fenwick's (14) suggestion that bronzing is especially connected with disease of the cortical layer. Leaving this category out of consideration, cases of extensive atrophic or neoplastic disturbance of both suprarenals without Addison's disease are few in number, far fewer than the cases of extensive pancreatic disease without diabetes, and in general the descriptions given are not sufficiently exact to be relied upon. Nevertheless they exist. Greenhow (15) apparently met with a case of almost complete atrophy without sym-

ptoms, and, in 1050 autopsies upon subjects dying from diseases other than Addison's, Rolleston (16) met with an example of caseation of the right and atrophy of the left suprarenal and with three cases (under the age of forty-five) in which both were peculiarly small. All these were without symptoms intra-vitam. There are more frequent examples recorded of cancerous growth destroying both bodies without noticeable symptoms. There is a possibility that the new growth here was so rapid and so recent that symptoms had not time to develop. In the atrophic and tubercular cases it is not so easy to accept this explanation. Therefore, I am inclined to believe that compensation may occasionally manifest itself in man as it does occasionally in animals which have suffered complete ablation of both organs.

THE THYROID GLAND AND MYXŒDEMA.

I have already approached the limits of the time allotted to me and there is yet for me to pass in review the gland and its affections, which in this connection have created the most general interest. I refer to the thyroid and to the conditions of myxœdema, cretinism and exophthalmic goitre.

From an anatomical point of view there is little for me to say in elucidation of the pathology of myxœdema beyond the one all-important statement that, with very rare exceptions, there is discoverable a well marked atrophy of the thyroid. About this all pathologists are agreed. In the majority of cases the atrophy is peculiarly extensive, the specific cells of the gland being replaced by fibrous tissue; in some it is not so far advanced and areas may be found, not merely of degenerated remains of the vesicular epithelium, but of vesicles which by the superabundant proliferation of their epithelium would seem to be undergoing a compensatory hypertrophy. Yet where these are present they are localised and few in number; the main mass of the organ shows atrophy. A few cases only are on record, like that of Gulliver (17), where there has been a cancerous metamorphosis or replacement of the parenchyma.

That in these cases the myxœdema is associated with diminished internal secretion of the gland is, I need scarce say, substantiated by the good effects of treatment by thyroid extract or thyroid feeding.

It must next be asked whether myxœdema can show itself with apparently intact thyroid, *id. est*, whether there are any cases which may possibly be explained by excess of the substance or substances acted upon by the internal secretion of the gland. The literature is peculiarly silent upon this point. I can find no example of autopsies upon cases diagnosed clinically as myxœdema in which the gland was

found normal, or but little affected. I can only recall an autopsy upon a patient of Dr. J. Stewart at the Royal Victoria Hospital, in which I found a large cancerous tumour of the pituitary. Here there had been a myxœdematous swelling of the hands, and of other regions to less extent, without bony overgrowth, and no change was found in the thyroid. The condition, however, was not sufficiently advanced to deter Dr. Stewart from diagnosing tumour of the hypophysis. A somewhat parallel case (of apparent atrophy of the pituitary), in which the symptoms of myxœdema were more marked, is recorded by Codd (18), but the anatomical details are given very briefly. Similarly we possess no exact records of atrophic disease of the glands unassociated with myxœdema. I can only point out that it is not uncommon in the aged who show no signs that can properly be regarded as myxœdematous—unless senility itself be regarded as such—to find a condition of very extensive chronic interstitial thyroiditis (as it may be termed) with arterio-sclerosis, calcification and hyaline changes, with retrograde or pseudo-embryonic type of vesicles. I have come across more than one case of this nature. There can be no doubt that here the secretory activity of the gland tissue must be very greatly reduced. If, however, we turn to cases in which by surgical means the equivalent of complete atrophy, namely, complete thyroidectomy, has been attained, we then possess abundant evidence that the thyroid proper may be absent without myxœdema necessarily intervening, and almost as abundant evidence from the more recent researches that the absence of symptoms is connected with vicarious activity on the part of other organs, and especially of the parathyroids. These may be regarded either as true accessory thyroid tissue, or as distinct organs, according to the point of view of the individual. Certainly when the thyroid is functional they do not acquire the full characters of thyroid tissue, but similarly there are often within the healthy organ scattered areas of embryonal tissue. This can be said with precision, that they are independent masses of tissue, apparently most closely related to the thyroid, which are at times capable of development to, or towards, the adult type of the gland, and of assuming vicarious functions. In like manner the pituitary body can at times undergo very definite compensatory enlargement. This was first demonstrated experimentally by Rogowitsch (19), while Boyce and Beadles more especially have added to our knowledge of its enlargement in cases of myxœdema, cretinism and cachexia thyreopriva.

An interesting point in this connection, to which attention has been drawn by Rogowitsch, is that the rabbit, from which the thyroid can

be removed with impunity, has a pituitary body relatively five times as large as that of the dog, in which ablation of the thyroid leads rapidly to symptoms of acute athyrea; or more correctly, the relationship of thyroid to pituitary is 3 to 1 in the former, 15 to 1 in the latter animal.

On the whole, therefore, anatomical data in connection with myxœdema and cachexia thyreopriva support and are capable of explanation by this doctrine that where glands afford an internal secretion, the development or non-development of symptoms of disease depends primarly upon the relative amount of internal secretion produced and of the substance or substances acted upon by the same.

CRETINISM.

Cretinism presents a far more complicated histological picture—so complicated that Bircher (20) argues with very considerable force that "cretinic degeneration, as also dwarfism and chondrodystrophia fœtalis hypoplastica have no ætiological connection with the functions of the thyroid," Bircher, however, fails to recognize that if we accept the existence of an internal secretion, we must also admit the presence of substances upon which that acts, and he cannot see that widely contrasted anatomical conditions may lead to the same train of symptoms. We must, I think, abide by the experimental and clinical evidence that removal of the thyroid in the young leads to a condition undistinguishable from cretinism. This being so, we find that in some few cases of typical cretinism the thyroid is completely absent, in a large number it is small, in a yet larger number according to Von Eiselberg (21) and Kocher (22) there is a goîtrous condition present, while according to Bircher the goîtres may be of all possible forms, from simple hyperplastic through soft (parenchymatous) and cystic to fibroid. The only point clearly to be made out from Bircher's very destructive criticism is that while in several cases the thyroid has been found of normal size, apparently no case exists in which by microscopical observation it has been found of normal structure. Considering the amount of material he brings forward this is rather remarkable. I further gather that his statements as to the frequency of the various forms of goître are based upon examination of the living and not upon post-mortem or surgical material. This seriously weakens his case. Beyond this I will not venture to travel. Bircher's statements require to be dealt with by one in authority, and I await with interest Dr. Osler's presentation of the matter.

EXOPHTHALMIC GOITRE.

I will now briefly refer to the condition which presents a series of symptoms so remarkably contrasted with myxœdema—which also

anatomically presents an equal contrast. There is to be found in exophthalmic goître, as Greenfield (23) has shown, and as is now generally accepted a characteristic hyperplasia of the thyroid parenchyma, complicated, it may be in later stages, by increased fibrosis. The one question of immediate concern here, is whether from this we can safely deduce that there is accompanying increased internal secretion. As I have already hinted, I do not think that from anatomical considerations alone we can safely make this deduction. There is, however, an important fact in favour of such deductions, namely, the strong likeness between the primary glandular changes in Graves' disease and those described by Halsted (24) and others as occurring in the compensatory hyperplasia of the thyroid after removal of large portions of the gland; and if, together with the anatomical changes, we consider the favourable effects which so often follow removal, destruction, or diminution in the blood supply of portions of the hypertrophied gland in this disease—of operations which must lessen the internal secretion—it is difficult to arrive at any other conclusion than that in exophthalmic goître there is increased internal secretion, and that this plays a singularly important part in the development of the symptoms. Whether this be primary or secondary to lesions of the central nervous system—of the restiform bodies for example, our present anatomical data are insufficient to decide—as again they are incapable of deciding whether the increased secretion is altered or unaltered in quality. I may here note that as Joffroy and Achard (25) have indicated the symptoms of parenchymatous and adenomatous goître are at times curiously allied to those of exophthalmic goître. Indeed, together with Vanderv/elde and le Bœuf, they hold, I think without due cause, that there is nothing anatomical to distinguish the one condition from the other. That the one condition may lead to the other is a matter of clinical experience. As Dr. Shepherd has pointed out to me extirpation of the goîtrous nodules or cysts leads to the almost immediate amelioration of the symptoms.

The development of exophthalmic goître without hyperplastic alteration of the thyroid is a matter concerning which there is little anatomical evidence. I find one case recorded by Joffroy and Achard in which the gland was of normal size and, while not normal histologically, presenting nevertheless a series of changes wholly distinct from Greenfield's classic description. The vesicles instead of being small and corrugated, were enormously distended, instead of absence there was abundance of colloid material, in place of a columnar and proliferating epithelium, the lining cells were flattened. Not a few

believe in the existence of Graves' disease without goître. Among recent writers Buschan (26) especially holds this view, but save in the above case I cannot find anatomical substantiation for the opinion. Clinically Graves' disease without enlarged thyroid has very frequently been noted ; in some cases enlargement supervenes, in others it does not, but there may well be increased activity of the gland without marked enlargement. All that can be said at present from this evidence is that apparently the condition does occur. So also evidence as to the occurrence of marked hyperplasia and presumably increased secretion without symptoms is not so full and precise as could be wished. I can only point out that if adenomatous nodules in the thyroid produce any internal secretion then, while many cases of adenomatous goître show a train of symptoms somewhat allied to exophthalmic goître, and while a few cases pass on to undoubted Graves' disease, many on the contrary appear to last for years without symptoms. And in autopsies upon those dying from diseases, other than exophthalmic goître, we find a wide variation in the condition of the thyroid, from atrophy on the one hand to a condition not far removed from what Greenfield and others describe in association with exophthalmic goître.

Altogether, therefore, while not prepared, from general as from anatomical considerations, to state positively that exophthalmic goître is in all cases primarily due to increased thyroid secretion, I cannot but admit upon the whole that the facts can be best reconciled by assuming the existence of relative increase in glandular activity.

THE PITUITARY BODY AND ACROMEGALY.

Finally some few words must be said concerning that strange collection of symptoms and anatomical changes to which Marie has given the name of acromegaly. Yearly it has become more clearly recognized that the term indicates a definite disease although there is a liability towards confusion with gigantism on the one hand, and on the other with the remarkable overgrowth of bone in certain cases of chronic disease (mainly of the lung) which again Marie was the first to group together under the title—voluminous, and in other respects unsatisfactory—of hypertrophic pulmonary osteoarthropathy.

Here again the remarkable trio of conditions forces itself upon our notice; there may be acromegaly with disease of the pituitary, acromegaly with apparently unaffected pituitary and extensive disease of the pituitary without acromegaly. Where there is acromegaly, there in by far the greater number of cases the glandular portion of the ody is diseased. It is true that the condition is rare. Between 1890

and the present time less than thirty affected subjects have undergone post-mortem examinations. Leaving aside from lack of time sundry interesting observations upon the state of the thyroid and thymus, I may say that this one gland alone—the pituitary—has been repeatedly found altered, the alteration being especially in connection with its anterior or glandular portion. Out of 24 necropsies upon cases stated to be acromegaly, Tamburini (27) the latest collector, finds that in 17 or over 70 per cent. the pituitary has been found diseased. The remaining 7 are subjected by Tamburini to severe criticism with the result that he rejects 2 on the ground that the condition had only been recognised clinically for a few months and no microscopical examination had been made. He presumes that time had not been sufficient for the development of naked eye changes. Three other cases he holds to have been osteoarthropathy. There remain two which he could not definitely reject and consequently classified as doubtful. So far as I can follow Tamburini he is strongly of opinion that morbid changes in the hypophysis cerebri are essential to acromegaly. The majority of observers do not accept this extreme view, and with them I am inclined to believe that here as certainly obtains in diabetes and Addison's disease, there may be typical symptoms without recognisable involvement of the pituitary.

But granting this much, that in the majority of instances the gland is diseased, it is difficult to advance much further, for there is a curious discord concerning the exact nature of the alterations in the pituitary body. In about one half of the cases hypertrophy of the organ is described. Stroebe, (28) Tamburini, Boltz (29) and others of later date conclude that the change is adenomatous, Marino (30) Dallemagne (31) and Gauthier (32) describe a peculiar cystic degeneration, Boyce and Beadles a cystadenoma, while in another of Dallemagne's cases and in Wolf's (33) there was clearly sarcoma, and in Bury's (34) a 'glioma.' What are we to nclude? Is acromegaly accompanied by an increased pouring out of internal secretion, or the reverse? Mere hypertrophy and possibly adenomatous overgrowth might lead to increase, but surely degenerative changes and sarcoma can have no such effect.

It is difficult to reason by analogy, and if we attempt this and seek to base any argument upon what occurs in disease of the gland, which anatomically is most closely related to the pituitary—namely, the thyroid—we are led rather to the conclusion that acromegaly must be due to arrest of function of the former. That is to say there is a certain correspondence between the changes occurring in the connec-

tive tissues in myxœdema and those affecting the bone, and to some extent the subcutaneous connective tissues in acromegaly.

On the other hand, the pituitary is nearly always found enlarged and hypertrophied in general gigantism as distinguished from this localised acromegalic gigantism. It is difficult to reconcile such general gigantism with diminished activity on the part of the enlarged hypophysis, while again the contrast may be pointed out between gigantism and cretinic dwarfism. Tamburini, and independently Massolongo (35) have attempted to coordinate the contradictory anatomical discoveries by suggesting that two stages of the disease may be recognised, a first in which the hypophysis undergoes hypertrophy, and is in over-action, which may give place to a second in which the hypertrophied tissue either undergoes atrophy or adenomatous or sarcomatous change. The suggestion is seductive, but for the present must be regarded merely as a suggestion.

Briefly therefore, our knowledge in this connection is miserably inadequate, and experiments have so far been without result. We cannot say whether in acromegaly there is increased or diminished internal secretion. While the change in the pituitary appears often to be primary, we cannot with certainty lay down that this is the case. It has only to be added that if we admit that lesions of the pituitary are associated with acromegaly, we must also admit that compensation can occur, for there is considerably over a score of cases on record of hypertrophy, adenoma and cystadenoma of the organ, all of considerable size and presumably of long duration which had developed without signs of the disease in question.

Thus to conclude a long discourse, which in justice to the subject I could not well shorten: I have here, gentlemen, followed a single train of thought. Some may find it suggestive, to some it may be so simple as to be specious, so wide in its embrace that its very comprehensiveness is its damnation. I can only point out that what is here written has been already more or less definitely suggested by various writers in this country and elsewhere, in connection with most, if not all, the conditions here discussed, and impress upon you that, if we are prepared to accept the results of experimental research and to believe in the existence of internal secretions, then, inevitably, we must be led to some such views as those brought forward in the course of this paper.

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DOCTORS AND THE LAW.

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It does not come within the scope of this paper to discuss the respective origins of medicine and law nor to compare the professions one with the other, as might be inferred from the foregoing heading The law, deriving its origin from the relations between the members of the primeval family and of the village community, protects and safeguards the individual by defining his rights and duties. It to that extent therefore protects the person. Medicine, on the other hand, I use the term in its widest sense, has a more intimate relation with the person, inasmuch as by saving and protecting human life, it assists in enabling the individual to continue to enjoy the rights preserved by the law. Both seek the preservation of society, but in widely different manners. It does not follow however that they are upon an equality. Communities have lived without medicine. Law in some form or other is indispensable to their existence. Hence the latter is always the superior, though from its nature medicine may be the more noble. While the medical profession therefore, may be governed by its own rules and ethics, they do not and cannot effect society as a whole. Notwithstanding and irrespective of them, doctors are governed by the law, as fully and as absolutely as other members of society. Owing however to their intimate relations with the "person" of the individual, legal questions of unusual interest and difficulty arise.

So essential has the medical profession made itself to society and its immunity from disease, so valuable has its science become for the detection of crime, that its members may frequently be viewed in the light of public officers. The conflict between public and private duty is frequent cause of perplexity to them. In this paper, it is not my intention to discuss what may be termed Legal Medicine, or Medical Jurisprudence. That is a subject for the doctor rather than the lawyer. That is medicine as applied to law. I propose to deal with law as applied to doctors, to discuss the position of the doctor as respects the law—his personal rights and liabilities, as he performs some of his varied professional duties. He occupies a distinct place in society. Society, in virtue of statutory or common law places upon him certain obligations in addition to those of an ordinary member of it.

The subject is a broad one and difficult of condensation within the limits of a paper suited to the occasion. I shall briefly deal with the following principal subjects. The Doctor as a Witness, His duty in relation to Acts of Status, His Civil Responsibility and His Criminal Responsibility. For convenvience I have placed these under four chapters.

CHAPTER I.

The Doctor as a Witness.

(*a*) *The Subpœna.*

Every person is compelled to appear before the Civil Courts, whenever a copy of writ of subpœna is served upon him at least one clear day before that fixed for his examination, this delay of one day being increased at the rate of one day for every fifteen miles when the distance exceeds fifteen miles. (C. P. 244). If he does not obey the subpœna he is liable to a fine of not exceeding $40.00. Independently of this, the party who summoned him may have damages for his default and imprisonment for contempt, if it lie. (C. P. 249). If, however, he must disburse something to arrive at the place of examination he is under no obligation to obey the subpœna unless a reasonable amount is tendered to him at the time of its service.

(*b*) *The Doctor as a Witness on Matters of Opinion.*

He can only be summoned "to declare what he knows or produce some document in his possession, or do both." (C.P. 245). It would therefore appear, under the law, that he cannot be compelled to testify as to a matter of opinion. The public have no right to demand a man's services as an expert unless he consents thereto. They have, however, the right to demand his evidence upon facts which have come to his knowledge, no matter by what means. It is not for him to judge, whether he can testify to facts in the particular case or not. It frequently happens that amid the complications of facts and names in a busy man's daily life he completely forgets the facts, until reminded of them in the witness box. If he wishes therefore to avoid the possibility of a fine he must obey his subpœna and after ascertaining in open court that only his opinion is desired, he may refuse to give it unless his terms are complied with.

Once put upon the stand as a skilled witness his obligation to the public ceases and he stands in the position of any professional man consulted in relation to a subject upon which his opinion is sought. It is evident that the skill and professional experience of a man is so far his individual capital and property, that he cannot be compelled to bestow it gratuitously upon any party. Neither the public, any

more than a private person, have a right to extort services from him in the line of his profession, without adequate compensation. On the witness stand, precisely as in his office, his opinion may be given or withheld at pleasure, for a skilled witness cannot be compelled to give an opinion, nor be committed for contempt if he refuses to do so. Whoever calls for an opinion from him in chief, is under obligation to remunerate him, since he has to that extent employed him personally; and the expert at the outset may decline giving his opinion until the party calling him either pays, or agrees to pay him for it. When, however, he has given his opinion he has now placed it among the *res gestes* of the evidence, and can not decline repeating or explaining it on cross-examination. Once uttered to the public ear of the court, it passes among the facts in evidence, and counsel may use it as they please, without any further compensation to him. The point of declining to give it gratuitously must be made, if at all, at the opening of his examination in chief, and will avail him nothing if delayed until the cross-examination. He has been called to be consulted in open court by somebody and from that party alone has he a right to claim a compensation for his services (Ordronaux. Med. Jurisp., ¶ 114, 115).

The medical witness is not permitted to read his text-books in the witness box. But he may refer to them to refresh his memory (Roscoe's Cr. Ev. p. 137. Taylor Evid. vol. 2, p. 946. Ordronaux Med. Jurisp. par. 122). In cross-examination however, quotations from well known authors may be read by counsel and the witness asked whether he agrees or disagrees with them.

It is not within the scope of this paper to discuss the bearing and conduct of the doctor in the witness box. That is a matter rather for a doctor to discuss than a lawyer. But it may be my duty to refer in passing to the loss of prestige which expert evidence is daily suffering. I do not say that it is confined to the medical profession. It is caused by the apparent ease with which contradictory expert evidence and more particularly medical evidence, may be obtained. Medical men may reply that they are led astray by the legal profession. No doubt there is some force in the argument. Lawyers naturally will take advantage of any tendency which for the time being will militate in their favour. The predisposition to disagree is as strong among medical men as among the legal fraternity. I do not think the inaccuracies of science are altogether to blame. The popular distinction however remains between the "liar, the d—d liar and the expert," and the sooner its cause is removed the better. It seems to me that the only practical solution of the difficulty would be a law

requiring a board of experts to be appointed by the court in each instance independent of and above the influence of either side. (Ordronaux, Med. Jurisprudence, ¶ 114, 115).

(c) The Doctor as a Witness on Matters of Fact.

If he be a witness of fact he can claim no privilege but is compelled to answer all questions put to him relevant to the matter at issue, no matter whether he has obtained the information professionally under the pledge of secrecy or otherwise. (C. P. 275, Browne vs. Carter, C. S., Berthelot, J., 1865, 9 L. C. J. 163). In this respect he is not accorded the same favour as the clergy, lawyers and notaries. If he be in doubt as to the relevancy of the question, or as to whether he should answer it he may appeal to the presiding judge, whose decision he must accept without question. (Taylor, Med. Jurisp. p. 29). If he be in good faith and without malice he need not fear the consequence of his evidence, no matter how prejudicious it may be to the reputation of the party. Justice demands that he should give all his information on all points at issue, absolutely without reservation. Justice protects him from the consequences thereof and declares it to be a privileged communication. (C. R. Labbe vs. Pidgeon, 1 R. de J. 135; R. J. Q. 7 S. C. 27). It is not for him to inquire into the regularity of the proceedings, as for instance a Coroner's inquest. (*Id*).

(d) Fees for Evidence in Civil Matters.

It sometimes happens, I regret to say, that medical men are compelled to attend at court for hours at a time before their evidence is taken, the small fee for such attendance by no means repaying them for their loss of time. It is rarely, however, that physicians cannot make some arrangements with the lawyers who subpœna them, to give their evidence at a fixed hour. The professional tax amounts to four dollars a day. Lawyers, doctors and engineers are all in the same position. I know it is a matter of complaint among medical men, that they are unable to ascertain what is due them and even unable to collect this amount, when ascertained. I may say, that it is the custom, if a witness has attended even for a few minutes in the morning and has left on ascertaining that he would not be required, to tax him for one half day. If he again attends in the afternoon with the same result, it is the custom to tax him for the whole day. He is ordered by his subpœna to attend from day to day until heard.

On leaving the box finally, his proper course is to at once ask the clerk for taxation. He will ask him how many days and half days he has attended and he is permitted to reckon them upon the principle above

laid down. The clerk may swear the witness as to his attendance if either party demands it. The judgment when, rendered, condemns one or the other of the parties to pay the costs. The taxation of a witness is a judgment against the party who called him and may be executed like one, irrespective of the lawyers (C. P.281). Application should be made to the lawyer who summoned the witness. If the application is unsuccessful the witness may at once apply to the clerk for an execution.

(e) *Fees in Criminal Matters.*

Under a special Order in Council, the following is the tariff for expert witnesses in criminal matters.

Residents of the Cities of Montreal and Quebec for each complete day of attendance at court	$10 00
Residents of the Cities of Montreal and Quebec for any part of a day.	5 00
Residents of any other city for each complete day of attendance at court	8 00
Residents of any other city for any part of a day	4 00
" " any other part of the Province for each complete day of attendance	5 00
Residents of any other part of the Province for any part of a day..	2 50

For mileage when the distance travelled exceeds two miles, ten cents per mile each way.

For each day not exceeding three days, occupied in whole or in part in the study of any subject, question or matter ordered by the Judge, the Attorney-General or his representative and upon which professional evidence is subsequently to be given in court.

This tariff applies to all criminal trials.

If called by the defence, the doctor must take his chances of collecting from the defendant and usually they are very slim. As a rule however, he is called by the defence on matters of opinion and he can then protect himself by refusing to answer until his fee is paid.

(f) *Proof of Account of Services Rendered.*

It sometimes becomes necessary for the physician to sue for his fees. This action must be taken within five years from the last payment on account. Special exception is made in favour of the physician or surgeon enabling him by his own oath to make proof as to "the nature and duration of the services." Under this law up to this year there has been some conflicting jurisprudence on the question as to whether the physician could also prove the fact of the services having been rendered. The practice has of late years been to permit him to do so. However, a statute of the last session of the Legislature (60 Vic. cap. 54) enabling all parties to make proof in their own behalf in all cases, both disposes of this question and renders obsolete the special exception in favour of the medical profession.

CHAPTER II.

The Doctors' Duty in Relation to Acts of Status.

Questions may arise as to the duty of doctors respecting acts of birth and acts of burial.

(*a*) *Acts of Birth.*

In France the law charges certain persons, such as fathers, mothers and doctors, or midwives, or any other person who may have been present at the accouchement to declare the birth to the authorities.

In the Province of Quebec there is no such obligation upon any person save the father and mother.

(*b*) *Acts of Burial.*

It is different, however, respecting Acts of Burial. The provincial act concerning Compilation of Vital Statistics (56 Vic. cap. 29, sec. 3059e) provides that every physician who has been called upon to render professional services during the last sickness of any deceased person shall under his hand, certify to the death and cause of death of such person, giving the name and surname, age, sex, nature of profession or calling, date of death, duration of illness and cause of death. Such certificate must be required by the keepers of the registers of burial, for example the cemetery authorities, before proceeding to the burial or granting the burial permit."

Under this section, physicians should be careful to give such a certificate, only when they have been called to give their professional services during the *last illness* of the deceased person. Otherwise they may certify to facts on hearsay evidence, thereby causing themselves subsequent trouble and annoyance. Under the amendment to the City Charter however (59 Vic. cap. 50 sec. 17 b) it is provided that: "In all cases of death occurring in the city, a certificate be deposited in the health office, and that such certificate be made in the form and manner determined by the Board of Health and the Council. It would therefore appear that the medical man had to give two certificates of death in each instance. However, by Order-in-Council of the 29th September, 1896, doctors are relieved from the duty of giving a certificate to the Provincial Board of Health as required by 56 Victoria, but must conform to the City Regulations which are practically the same.

In this connection, Art. 69 of the Civil Code is of interest. It reads as follows: "When there is any sign or indication of death having been "caused by violence or when there are other circumstances which "give reason to suspect it, or the death happens in any prison, asylum "or place of forcible confinement, the burial cannot be proceeded with

" until it is authorised by the coroner or other officer whose duty it is " to inspect the body in such cases.

What is the duty of a doctor then, civilly speaking, when he finds himself face to face with any sign which indicates death by violence or when there are other circumstances which give reason to suspect it?

In the first place, what is violent death?

Worcester defines it to be that "produced by force or violence, not naturally." Taylor on Medical Jurisprudence (vol. i, p. 166) enumerates the various causes of "violent death" as being "poisoning, wounds and personal injuries, such as burns and scalds, as well as those forms of death which commence by the lungs, including drowning, hanging strangulation and suffocation." In his discussion of these forms he includes the *medical operation*. (See also Lacassagne, Médicine Judiciare, p. 102). Hence all deaths resulting from either accidental or criminal acts and even from medical operations are violent deaths in the meaning of the law and the deceased cannot be interred until his interment is authorised by the coroner.

It should be clearly understood that there is no law placing upon medical men the obligation to notify the coroner in cases of violent death. It is therefore evident that a failure to notify him does not beget a civil liability.

The physician may give his certificate, which in all cases he should be careful is absolutely exact, and throw the onus of informing the coroner upon the authorities who, by law, are prohibited from permitting the burial. In practice, however, with this ultimate result in view, physicians will usually consider it more convenient both for themselves and the relatives of the patient to at once notify the coroner. If the violent death be traceable in some measure to medical treatment it is in the interest of the physician himself to place the matter clearly before the coroner and thus avoid future possible misunderstanding.

CHAPTER III.

CIVIL RESPONSIBILITY.

Under this general term arise the great majority of questions in connection with the relations between medical men and the outside world, in the course of their daily practice. The word "responsibility" practically means in general, under the French law, "the obligation to repair a damage." (Villargues' Dict. de Dr. Civ.)

(*a*) *The Doctors' Civil Responsibility for the Betrayal of the Professional Secret.*

The majority of the questions which arise under this head, do so in relation to the observation or breach of the professional secret. They

are questions into which enter considerations of private interest, professional etiquette, public policy and the interests of society. So conflicting are the divers interests which must be considered, so varied are the circumstances under which the different questions arise, that it is exceedingly difficult to lay down a general principle for all cases. I propose, however, to discuss these questions one by one and shall attempt to solve as many of them as may be possible.

In France, the question is to a certain degree simplified by the existence of a section in the Penal Code of which the following is a free translation. (Art. 378, C. Penal). "Doctors, surgeons and other "health officers, as well as midwives, pharmacists and all other "persons, the receivers, either by status or profession, of secrets which "people confide to them, who, save in cases in which the law obliges "them to inform, shall have revealed secrets, shall be punished by an "imprisonment of one month to six months and to a fine of from 100 "francs to 500 francs." You will note the exception "save in cases which the law obliges them to inform."

This article of the Penal Code is only the legislative enactment of the old French law and jurisprudence on the subject. (Merlin Rep. vo. Médicine; id., vo. Chirurgie; id., vo. Apothècaire; Dareau, Traité des Injures, t. I., p. 87).

The betrayal of a professional secret is by the French considered to be a penal offence which according to their ideas, is midway between a civil and criminal offence. The Penal Code laying down this principle, the civil law applies it to civil cases. When by its infraction a medical man causes damages he is deemed to be in fault.

In the State of New York (Rev. Stat., 5th Ed. vol. 3, p. 690) "no "person duly authorized to practice physic or surgery is allowed to "disclose any information which he may have acquired in attending "any patient in a professional character, and which information was "necessary to enable him to prescribe for such patient as a physician, "or to do any act for him as a surgeon." According to this legislation the doctor is not to disclose his professional secret even in the witness box or in Criminal matters, unless there be exceptions in other statutes which I have been unable to find. Similar legislation exists in other States of the Union.

There is no such legislation in England or in the Province of Quebec.

The questions respecting professional secrets which arise in either country must be decided according to the common law in one instance and the principles of our code and of the old French law in the second.

It is curious to note that the sections respecting physicians and surgeons in the Revised Statutes make no mention of this important

matter. This is a contrast to the sections respecting notaries, (R. S. Q. 3622) which require them to keep secret the confidences made to them professionally and (R. S. Q. 3608) which places them under the safeguard of the law in the performance of their professional duties. Apparently under the Revised Statutes, the Board of Governors of the College of Physicians and Surgeons has no power to make rules beyond those respecting studies, examinations, credentials, etc., registry of names and rules and regulations for the general management of the corporation.

Apart from the oath of Hippocrates, administered to him by his own profession, the doctor is under our law quite free to disclose his professional secret, save in so far as he may render himself liable in damages for his act.

I propose to show how this legal liability arises.

From the moment of the consultation a contract of hire exists. This contract is subject to the tacit condition that the information given to the doctor by the patient, which is necessary to enable him to prescribe for such patient or do any act for him as a surgeon, shall be kept in strict confidence. This condition ceases to exist under certain circumstances which I shall discuss later. It owes its existence to the fact that the members of the medical profession by the rules which govern them, hold themselves out to the world as confidential advisers. It has also the sanction of public opinion and policy, which in fact lend to it its main strength.

Under our law, the breach of a condition in a contract renders the one in fault liable in damages under the following article of the Code. (C. C. 1053). "Every person capable of discerning right from wrong "is responsible for the damage caused by his fault to another, whether "by positive act, imprudence, neglect or want of skill.

It will be noticed that the provisions of the law thus laid down are very broad and general in their terms. The doctor is responsible for damage caused by his fault, whether by imprudence, neglect or want of skill.

In view of the express legislation in France we must depend upon the general interpretation of the above article, with such assistance as the English law may afford.

In England the general principles of the common law may be found laid down in the famous case of Kittson vs. Playfair tried last year. Probably no case for many years has excited such interest among physicians throughout the world, on account of the prominent position of the doctor involved and the tremendous damages of $60,000 awarded. Doctor Playfair was no doubt placed in a trying position. He had

discovered, as he believed in good faith, that a lady, a relative and connection of his by marriage, had been guilty of immoral conduct in the absence of her husband. He considered himself under the necessity of either breaking his professional oath or of permitting this woman to intimately associate with other members of his family. His desire to protect his wife and daughters was the stronger impulse as it would be with many other professional men, and I think justifiably so. It was quite possible for him and would be quite possible for any other medical man under the circumstances not only to have observed his professional oath, and at the same time protect his family life. All that was necessary for him to have said to his wife was, "I have reasons for desiring you to cease receiving this woman and desire that she no longer associate with my daughters," cautioning his wife to attain this end discreetly. Had he gone no further than this it is difficult to conceive how the law could have reached him in any way. He was, however, completely carried away by his personal feelings and went beyond the bounds of prudence and necessity. He first wrote to the unfortunate woman, informing her of his suspicions and threatening that, unless she at once left London, he would expose her and cause the withdrawal of her allowance by another branch of the family. He was obdurate to her pleading letters for a further hearing. He finally not only told his wife of his suspicions in detail, but wrote them to a relative who was granting this woman an allowance, advising him to withdraw it, which he did. I do not see how, under the circumstances, any court could fail to condemn not only a medical man, but any individual for such a series of acts. The fact that the information so utilised was obtained under the obligation of professional secrecy rendered the offence all the more glaring in appreciating the damages.

At the trial he pleaded privilege, but not the truth of his assertions, That question came up only incidentally.

As indicating the points at issue the following were the findings of the jury:

"That Dr. Playfair believed the words to be true, but did not give the plaintiff an opportunity of making an explanation; that the words were not uttered in good faith and without malice; and that the words were not uttered from a mere sense of duty, but from an indirect motive."

The general principles of the law on this question in France, England and here are practically the same, with the exception that the old French law in force in this Province and as expressed in the

section 1053 of the Code, above quoted, is much more severe in its appreciation of facts giving rise to damages, than the English law.

Before discussing particular questions, I would lay down a general rule respecting professional secrecy.

The physician is at all times bound to observe the confidences of his patient on pain of a condemnation in damages, with the following exceptions:

1. When he has been expressly relieved of his obligation by his patient.
2. When he is ordered by the court to answer as a witness.
3. When the rules of the Board of Health demand it.
4. When it is necessary to free himself from the danger of being held to be an aider and abettor of a crime or an accessory after the fact.
5. When an ordinarily prudent man, may in good faith, without malice or exaggeration consider it to be his duty to society or to himself.

The first three exceptions require no further comment. The fourth will be explained by a discussion of the criminal aspect of the matter which I treat of later.

The exception under which the physician finds the greatest difficulty is the last, that is as to when he may consider it his duty to society or to himself to divulge his patient's secret and does so without liability in damages.

I do not enter into a discussion of the struggle between the physician and the man, which is bound to ensue. I only treat the question on the presumption that he is prepared to lay aside professional scruples. I presume that he has determined that it is his duty to speak, but hesitates for fear of possible damages.

Our courts would consider the truth of the doctor's assertions, his clear and over-riding moral duty, his good faith and absence of malice, and the fact that he only divulged the secret as a last resort. As the matter always resolves itself to a matter of "right to damages," the doctor, keeping the above considerations in mind, should be able to appreciate the risk he runs and whether the moral and social duty is sufficiently great to incur it.

You will recognise with me the impossibility of imagining every variety of circumstance and of going far beyond general principles, upon so difficult a question. I shall however, discuss one or two of the more important questions which may arise.

(1) Before Marriage.

Take for instance the case of a patient who has been treated by a doctor for some virulent desease and who is about to be married, notwithstanding his physician's protests. If the lady is unknown to the

medical man the question is not likely to arise with the same force, as he will probably be less prompted to go out of his way to prevent the marriage. In fact he would have no opportunity of preventing it without a glaring breach of professional secret. If the lady, however, is within the immediate circle of his acquaintance there are numerous ways which may suggest themselves to him, by which he can bring about the same result without breaking confidence. Dr. Bruardel in his remarkably interesting treatise on "Le Secret Medical" gives an ingenious method. The father of the intended bride being a friend of his, he one day called his attention to the death of a young husband who left his wife entirely without means, and to the fact that had the young man held a policy of insurance, his wife would have been provided for. The consequence was that the father of the fiancée at once requested the intending bridegroom to take out a policy of insurance on his life and upon his inexplicable refusal, as it appeared to the father, the match was broken off. In neither of these cases do I think that the doctor would be justified in a breach of confidence.

It is presuming an extreme case, but within the range of possibility that the lady about to marry be a member of the physician's own family. In such a case I cannot conceive it possible that a court of justice would condemn a medical man for protecting his child to the fullest extent of his power even if it be necessary to disclose to her the true facts of the case as a last resort. The obligations and the duties of the parent rise transcendently above all considerations of professional duties, of etiquette or of public policy.

As the relationship or connection with the medical man lessened, I would consider him less justified in breaking professional confidences to prevent the marriage; and, when once he left the close relationship of father and daughter he would have to take his chances of the appreciation of the tribunal of the whole circumstances of the case.

(*2*) *During Marriage.*

Delicate legal questions also arise as to the duty of the doctor, when, after marriage, the consorts are individually his patients. It would seem that the professional secret should be observed in this instance as strictly as the circumstances of the case may require, but I do not think that owing to the intimate relations and confidences between husband and wife and the remote possibility of one or the other being able to claim damages, that the doctor has frequent cause for perplexity.

(*3*) *In Reference to Minors and Domestics*

The question of professional secret also occasionally arises in reference to minors and domestics.

In these cases the persons who demand information as to the illness from which the person is suffering and to whom the physician is inclined to give the information, are the parents and guardians in the one case and the master of the servant in the other.

There is no question that the duty of the doctor is in either case is to disclose the nature of the illness if it is a contagious nature. That comes within the exception as to the rules of the Board of Health. But if the disease be non-contagious and of a disreputable character. he should have considerable hesitancy in doing so.

The argument recited in books, which discuss the question, is that he who pays for the services of the physician rendered to another party, be he a minor or domestic, is entitled to full information. I do not think that such individuals are so entitled. For the information is obtained by the doctor from the patient, not because this third party has paid for the services, but solely in faith of the physician's professional obligation of secrecy and to enable him to perform his duties properly.

Of course, where there may be the difficult question between the obligation to preserve the confidence and at the same time respect the rights of the individual who has the welfare of the minor in charge, the physician must determine according to the circumstances of the case, and should be governed largely by what he considers to be the best interest of both parties. He should be careful that by his communication the minor does not suffer damage, of which in this class of cases there would be only a remote possibility.

It is more difficult, however, in the case of a domestic or servant. The physician should be extremely careful. If he is called in by the master to treat the servant whom he finds to be suffering from any ailment which she might under the circumstance object to be known by her master, her associates or the public, he cannot inform the person who employed him without rendering himself liable to an action in damages, unless there be a danger of contagion, which he is unable to at once remove by causing the removal of the servant.

(4.) In an Action for Professional Services Rendered.

The question is also discussed in the text-books as to whether the physician can sue for his fees, if by so doing he would have to divulge professional information of a damaging character to the defendant. It has been held in this Province that a doctor has not the right to publish in an account for professional services, the nature of the disease for which he claims the price of his services, when such publication is of a nature to injure his debtor (5 Q. L. R., p. 267).

I am not disposed to agree with some medical writers on this point who appear to be of the opinion that the doctor should forego his fees under such circumstances. There is certainly no necessity for him to do so under our system. He may take his action simply for professional services rendered. (Dareau, Traité des Injures, Tome I., p. 87). If the action be contested he need not give evidence beyond the facts that professional services were rendered on certain dates and for certain lengths of time and that they were of certain value. He may throw the onus upon the defendant himself to elicit, if he chooses, the nature of the services and thus bring the matter within one of the exceptions above noted. The fact that the defendant so demanded this information would free the doctor from the obligation of keeping it secret. The question is not likely to arise frequently, as a patient who wishes to conceal the disease will do all in his power to prevent the matter going to court. On the other hand, a physician will not sue an individual who is not able to pay.

(b.) The Doctor's Civil Responsibility for Negligence, Imprudence and Want of Skill.

The physician is responsible, as I have said, for his fault, negligence, imprudence or want of skill. The doctor who acts within the limits of his art with a conscientious opinion of the excellency of his system incurs no responsibility. The law determines the grades by which one acquires the title of doctor, but it submits the exercise of medical art to no control. He who has obtained degrees from a medical faculty is legally presumed to have the necessary capacity. Thus the practice of medicine from a scientific point of view can bring with it no responsibility. But when a grave fault or neglect can be imputed to the doctors, responsibility exists. The surgeon who performs an operatien in a state of intoxication is responsible for the consequences; so, too, if he has not properly arranged the bandages; so, too, if he commits a material and damaging or fatal error in his prescription or is guilty of other grave neglect or ignorance. A doctor would not be submitted to an action by the fact alone that he might have been deceived. He might, however, be responsible for giving an unaccustomed prescription, taking chances as to its efficacy. The court would, however, have to carefully distinguish between carelessness or empirical audacity and the confidence of a savant or a man of genius. For it has been the experience in the past on many occasions that such men have been a generation in advance of their time. The courts would have to carefully consider the reasoning and grounds for belief upon which the physician based his treatment

hitherto unknown or but slightly known to medical science. (Dalloz Vo. Responsabilité No. 128).

In accordance with this principle it has been decided in France that the obstetrician who without necessity amputated the two arms of a child in order to deliver the mother, can be held responsible in damages (id. No. 129).

It is to be noted that in order to legally perform a surgical operation the doctor should be authorised by the patient or by the person under whose authority he may be. The operation should never be performed without this authorisation, save in cases of urgency. But it is not necessary, nor is it customary, that the doctor should give the patient a thorough knowledge of the technical details of the operation. It is sufficient for him to simply term it a surgical operation for such and such a purpose. The burden of proof as to the consent of operation is upon the doctor. (Dalloz, J. G., 1891, Vo. Responsabilité-Médicine).

The doctor is under no obligation to answer every call, but having undertaken to attend any individual he is responsible for damages which may be caused by his subsequent unjustified refusal. It is not likely that such a question would arise (id. 131).

(c.) The Doctor's Civil Responsibility for Confidential Conversation.

The doctor may sometimes find himself embarrassed by the confidential question as to the standing of a fellow practitioner. It has been held "that a statement made by a person in the course of a private conversation with his family physician is privileged, particularly where there is no proof of malice (Sinn v. Marcus, 6 R.J.O.S.C. Tait, J., 1896)." It has been also held "that a doctor who expresses "in good faith, at a ball, to a friend who consults him in passing, his "opinion against a secret and new treatment adopted by a *confrère* for "the delivery of women without pain, and who cites a case in which "a woman had died after undergoing this treatment, referring at the "same time for details to a third doctor called to this delivery, cannot "be held for slander, because this conversation is privileged." It was "also held "that a letter on the subject of such conversation, written "by the defendant in reply to a letter from the plaintiff, which asked "him from whom he received this information, is also a private and "privileged confidence" (DeMartigny vs. Mount, 21 R. L. 461, Pagnuelo, 1891, S. C.)

The principle followed was that slander in order to be punishable should be public. (Nouveau Denizart, Vo. Diffamation, par. 2, No. 1). Thus what two people in conversation tell each other they think of a

third party would not render them liable for slander, as a result of natural liberty which all men possess of communicating their thoughts to those whom they deem worthy of it, save always professional confidence. (See also in the same sense Tellier J., S. v. D., 18 R. L. 132.) A decision which appears contradictory to this general line of jurisprudence is as follows (DeCow v. Lyons, R. J. Q. 4, S. C. 341): A druggist on being asked by a customer as to the professional position of the plaintiff, a doctor, replied that he had heard that he had tapped a woman for dropsy, when as a matter of fact she was pregnant. The Superior Court held that this conversation was privileged, but this decision was reversed in Review on the ground that it did not come within the duty of the druggist to give such information to his customer, and that the information was not only untrue, but he was officious in giving it. He had never verified its truth, nor even attempted to do so.

Ephemerides, 1896.

By William Osler, M.D.

XVIII.—Two Cases of General Bromidrosis.

General bromidrosis, particularly of the aggravated form, as in one of the cases I here report, is a truly terrible affection. As a local disorder it is not uncommon, particularly of the feet, but the variety in which the function of the entire skin is disturbed is rare, and usually very intractable.

Case 1.—A. B. aged 36, resident of British Columbia, consulted me August, 1893, complaining of offensive sweating of all parts of the body, and perceptible to persons in his vicinity. He has always been a very healthy man; has never had rheumatism. Nine years ago he had a doubtful sore on the penis, not followed by secondaries. He has always been fond of physical exercise, and has sweated a great deal. He has never suffered with offensive sweating of the feet or of the armpits.

The present trouble began a year and a half ago. His attention was first called to the odour of a pair of trousers which he had worn the day before. He then appreciated that there was a very definite odour from the skin; it was not worse in the arm-pits or in the groins, but general and very noticeable in the undershirt when removed at night. Last summer he had to stop playing cricket on account of it. The underclothing is never stained, and he does not think there has been anywhere an excess of sweating. The hands are sometimes moist but have no beads of perspiration. Naturally the condition has troubled him very much as it is at times noticeable to the persons in the room in which he works, and any ordinary sized room in which he remains for a few hours smells of it quite distinctly. He describes the odour as not the exaggerated odour of the sweat in the arm-pits, but rather a stale musty smell, not unlike the odour of the parings of the frog of a horse's foot. His general health is not impaired. The urine is sometimes high-coloured and he states that at times it has had an odour similar to that of the body. On his way from British Columbia he stopped for a couple of weeks at the Banff mineral springs, and there, under a line of treatment suggested by Dr. Brett, he improved very much.

Present Condition.—The patient is a strong, robust looking man. The skin is everywhere natural looking; not moist. There are no

changes whatever to be noticed. On removing the underclothing there is a very definite, musty odour which clings to the garment for some time. The same smell is perceptible in the palms of the hands and on the surface of the chest and back. It is not at all like the smell of ordinary axillary sweat, but reminds one very much, as the patient says of the parings of a horse's hoof or of corn. The skin was nowhere particularly greasy; there was no specially offensive odour about the feet.

The urine, of which I saw two samples, was clear, highly acid; the morning sample had an odour somewhat resembling that of the body.

The reaction of the sweat could not be tested, as when I saw him there was no visible perspiration. The strong alkaline treatment on which Dr. Brett had placed him seemed to have been of such striking benefit that I urged the continuance of it, and a fortnight later I heard from him that the improvement continued. In case this did not succeed I advised the persistent use of pilocarpine.

I heard from this gentleman on the 14th of December. He states that he kept on the alkaline treatment, and after October 1st, the offensive odour entirely disappeared. I heard subsequently that this patient has remained quite well.

CASE 2.—Mrs. X., aged 36, consulted me September 22nd, 1893, complaining of an intensely disagreeable odour of the sweat. When she came to make the appointment she handed a piece of dark alpaca which she had the day before worn about the upper part of her chest. It was thickly covered with a whitish gray material which microscopically presented fat droplets and epithelial scales.

The patient, a very healthy women, has been married 13 years and has three children. She states that as long ago as ten years her husband had noticed that the odour of the perspiration in her stockings was particular offensive, and would hang them outside the room. She herself had not noticed it and it gradually improved. Two years ago, after a severe shock in consequence of the sudden death in her presence of a friend she began to have very profuse sweating about the head and body. She states that on the head the colour of the perspiration was quite greenish, a statement corroborated by a friend who came with her. The odour is particularly marked now about the axilla and the trunk. The perspiration of the feet is no longer fœtid. Every day over the upper part of the chest and around the neck and down the back there forms a floury sediment which she says is at first greasy, but when the clothes are taken off it dries like a crust of sugar, and on her skin it looks sometimes as if there was flour. She perspires a good deal at night and her night gown smells

very badly in the morning. During the day it is not quite so noticeable if she keeps quiet, but if she is up and about and on her feet a good part of the day it becomes very perceptible. She has been nervous at times and the trouble has affected her very much.

Patient is a robust, healthy looking woman. The odour of the room in which she sits is very noticeable; of a musty, stale character, not recognisable as a very strong axillary odour. She compares it herself to some forms of cheese, and she says that at times the sweat from the back is as offensive as the worst Swiss cheese. The hands are perspiring and the musty odour is perceptible. The odour is very strong on the upper part of the neck and back, and in the arm-pits. The skin is moist, not particularly greasy. There was no floury powder at the time of the examination, but she says that the lining of the dress which she had just taken off would, when exposed for an hour or so until it dried, be quite white with this material, and sometimes the hair in the axilla is quite frosted with it. The peculiar odour is most noticeable in the upper part of the body. It is scarcely perceptible on the legs.

Oct. 6th. Patient returns to-day, after having tried local applications of carbolic and salicylic acids and scrupulous cleanliness. The odour is worse and is apparent at once when she enters the room. It is very pungent and strong. She states that it is now present over the whole body. The thick, floury exudate is still confined to the upper part of the chest and neck, and is present in a thick layer on the clothes which she wears next to the skin. She was ordered a hypodermic of pilocarpine, an eight to a sixth every other day, and the fluid extract of jaborandi, eight or ten mimims on the intervening days.

A few days subsequent to her visit, I got into a street car and instantly recognized by the odour that this poor woman was in it, although she was sitting at the far end.

Dr. Abel made an analysis of some of the seborrhœal material, and I add here notes and extracts from his letter.

"The material for analysis consisted of small white scales and crumbling material which I rubbed off from some pieces of alpaca cloth which has been put around the neck to protect the collar of the dress. This material had a very disagreeable odour. Analysis showed the presence of proteids, fats, organic and inorganic salts. Failing to detect anything in the nature of a neutral compound (ethylsulphide, for example) which would account for the odour, I made an extract of the material with alcohol and ether, expelled the alcohol and ether, and subjected the residue to distillation with a current of steam, first

rendering acid with dilute sulphuric acid. The distillate thus secured was milky in appearance and of an acid reaction. On standing, oily droplets formed on the surface. This distillate had an odour which was indistinguishable from that of the original material. Judging by the odour, I concluded that the acid droplets above referred to consisted of fatty acids, as caprylic, caprinic, capronic acid, etc. When a drop of each of the three acids just named was thrown into a little water and the whole shaken, the odour of this mixture was like that of the distillate.

I concluded that there must be several of these evil smelling acids present, as the odour was more marked than that given by capronic acid alone. You will observe that the above statements are based solely on the odour of the oily droplets floating in the distillate. It was impossible to make an analysis of these droplets, separating out the various acids, the material being insufficient in amount for this purpose."

A few months later I heard that this poor woman had died suddenly under circumstances strongly suggestive of suicide. I was not surprised as she was in a state of hopeless despair, having tried all remedies in vain.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

UNDER THE CHARGE OF JAMES STEWART.

A New Preparation of Tuberculin.

ROBERT KOCH. "Ueber neue Tuberkulinpræparate."—*Deutsche Medicinische Wochenschrift*, April 1st, 1897.

Since Koch first published his observations on tuberculin, he has continued working, striving to make improvements and to secure a better product than that first used by him in the diagnosis and treatment of tuberculosis.

The subject of the use of tuberculin is wrapped up with that of immunity, and immunising agents are (were) sometimes those working against the toxic products of bacteria, at other times against the bacteria themselves. The ideal agent is that which protects the body against both.

Under certain conditions there appears to be a degree of immunity induced against tuberculosis in the course of its progress in the body, but efforts to induce this by the use of tubercle bacilli, either living or dead have failed in Prof. Koch's experiments. In such a state they are not readily absorbed. This was his first step. His second step was taken with the view of rendering these micro-organisms absorbable. This was done by means of dilute mineral acids or strong alkalies. However, though readily absorbed, the immunising quality of the bacilli in the preparation was destroyed.

In the use of glycerine extract of tubercle bacilli for diagnostic purposes no bad effects were seen. The bacilli already in the body were not rendered mobile to invade other parts, and after each tuberculin reaction an improvement appeared. Finally there came a brief period when the animal was immune against tuberculin. This immunity however was toxic and not bacterial.

What was wanted plainly, was a preparation acting against both toxins and bacilli.

Such a preparation Dr. Koch believes he has now produced by subjecting dry cultures of tubercle bacilli to the mortar and pestle, and after mixing with distilled water the mixture is centrifugated. The upper clear fluid is taken off while the process of drying, pulverising and centrifugating is repeated many times until the whole mass of the original culture is changed into a clear fluid. It is noticed, that the first product in this process differs from those subsequently obtained in having properties the same as the original tuberculin, and the same as the alkaline extract of the bacilli. While the other products of the process *i. e.*, the fluid obtained in subsequent drying, trituration and centrifugation, has immunising effects and works, it is believed, against the tubercle bacilli.

In administering this fluid, Dr. Koch aims at producing as little reaction as possible and he increases the doses as rapidly as possible, until an immunity against this fluid is induced, and he states that when this is secured he believes immunity against the bacilli of tuberculosis is also secured. An animal so treated does not react to ordinary tuberculin. Such a belief is established upon the uniformity of many observations.

With details in the preparation, this resumé is not concerned, but a few points on the mode of administration may be of interest

The fluid is preserved in 20 per cent. of glycerine. It is administered by a hypodermic needle in the same manner as tuberculin. It is recommended to begin with $\frac{1}{500}$ m. g. The original solution (1 c. c., holding 10 m. g., of solid substance) may be diluted with a normal solution of salt. The maximum dose is 1 m.g. If the temperature rises one half degree the dose must be lessened If not, increase may be made slowly. The temperature must disappear entirely before a second injection is given, and every second day is quite as often as the doses may be given. Experiments on animals and man have been made both in immunising and treatment, and favourable results are reported. The cases in which good results may be expected are those in the early stages without secondary infection and where the temperature does not go beyond 38° C. Prof. Koch reports improvement in many cases of lupus under this treatment.

What is needed now is a faithful application of this preparation by numerous careful observers.

Cardiac Changes Under the Schott Treatment Demonstrated by X-Rays.

TH. SCHOTT. "Ueber Veränderungen am Herzen durch Bad und Gymnastik Nachgewiesen durch Röntgenstrahl."—*Deutsche Medicinische Wochenschrift*, April 1st, 1897.

Among the questions of sceptical observers of reports on the Schott method of treatment in cardiac disease are those concerning the variability of heart measurements; whether or not percussion was reliable, and whether, what is indeed of more importance, the lung was not the organ whose margin changed, while the heart was thus *apparently* diminished in size, as a result of the bath or of gymnastic exercise.

Both Brothers, Schott, taught that the heart was the organ changed, and recently Th. Schott has, by the application of the Roentgen rays, demonstrated the truth of this teaching.

To establish such changes by such means requires every precaution which Dr. Schott doubtless has taken, the choice of subjects, children, the arrangement of distances, and the accurate location of the nipples by means of leaden caps, which in the skiagraph comes prominently out.

He reports his results in two cases, and presents photographs in each case. One case shows the changes due to gymnastics, the other, those due to the bath. In the former the photographs are very clear, though definite changes are shown in measurements. The resulting diminution in horizontal measurement due to gymnastics is greater than that due to the bath, yet a comparison is scarcely allowable since the observations are so few and the variations of individuals must be considered.

A series of such observations is needed to settle the question concerning this physical sign.

W. F. Hamilton.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Appendicitis: Remarks and Cases.

MORRISON. "Appendicitis: remarks and cases."—*The Edinburgh Medical Journal*, March, 1897.

Mr. Morrison adopts a clinical classification:

I. Appendicitis with a localised and dry form of peritonitis.

II. Appendicitis with a localised collection of pus or inflammatory products. The fluid in these cases may be localised by adhesions or by the retrocæcal position of the appendix, and the condition may be acute or chronic.

III. Appendicitis with perforation into the general peritoneal cavity, and diffuse peritonitis.

The position of the appendix is of moment in the prognosis of cases of appendicitis, probably of more importance than has generally been admitted.

An appendix may lie between the cæcum and ascending colon on the inside and the parietal peritoneum on the outside, or it may lie behind the cæcum and ascending colon. In case of perforation in either of these situations, the escape of the contents would be into a fairly localised space, and the rapidity with which adhesions form tends to localise still further the subsequent infection.

All observers seem agreed that the normal position of the appendix is on the inner side of the cæcum, pointing towards the spleen. Any leakage from an appendix in this position would almost certainly set up a general septic peritonitis, and its removal from this situation would be attended by greater risk of infection of the general peritoneal cavity than would be its removal from the first or second positions. Again, it may hang over the brim of the pelvis and there set up pelvic peritonits. This would be more likely to be attended by increased difficulty of diagnosis in women then in men.

Mr. Morrison confirms the description given by Lockwood of a subcæcal pouch, and says that he has dissected the appendix out of the cellular tissue lying between the layers of the ascending mesocolon in at least three bodies in the post-mortem room, where no previous inflammatory attacks had obliterated the landmarks. This anatomi-

cal position may account for the symptoms indicating involvement of the psoas muscle which are occasionally observed.

Mr. Morrison claims that the teaching that the appendix is solely supplied by a single artery, a branch from the ileo-colic, is erroneous, and that this can be demonstrated by ligaturing the meso-appendix and cutting through the appendix before tieing its base. A fairly active circulation will be found going on.

The lymphatic supply, when infected, generally explains those cases of appendicitis in which no perforation of the appendix is to be found. The most common form of peritonitis from lymphatic contamination is plastic, seldom diffuse. A diffuse peritonitis or an abscess are usually the result of a gross lesion.

In discussing the etiology of appendicitis, mention is made of the similarity in structure between the mucous membrane of the appendix and the tonsil, of the frequency of appendictitis immediately following a severe strain, and of its frequent onset during sleep. The carbonic acid in the tissues is increased during sleep, and carbonic acid is a stimulant to intestinal movements. It seems probable that the colon is physiological active during sleep, for the majority of persons, soon after getting out of bed, have to relieve themselves of its effete products, and this activity with a damaged appendix may be the explanation of the sudden rupture during sleep.

Two cases are referred to in which, during the operation, undertaken for conditions diagnosed as appendicitis, a small perforation of the cæcum was found from a quarter to a half inch from the base of the appendix, which was not ruptured. No explanation of the pathology of such cases is given.

Geo. E. Armstrong.

Pharmacology and Therapeutics.

UNDER THE CHARGE OF A. D. BLACKADER.

On Anæsthesia and its Dangers.

HILL, LEONARD. "The causation of chloroform syncope."—*British Medical Journal*, April 17, 1897.

HARE, H. A. "Some important facts about chloroform."—*Therapeutic Gazette*, February 15, 1897.

WOOD, H. C. and CARTER, W. G. "A research upon anæsthesia."—*The Journal of Experimental Medicine*, March, 1897.

CAMPBELL, G. GORDON. "Ether anæsthesia ; clinical notes on three hundred cases."—*The Annals of Surgery*, December, 1894.

MARSHALL, C. T. "Deaths under anæsthetics."—*British Medical Journal*, November 17, 1894.

MIKULICZ, J. "Chloroform oder Aether,"—*Berliner Klinische Wochenschrift*, No. 51, 1894.

TREVES, FREDERICK. "Anæsthetics in operative surgery."—*The Practitioner*, October, 1896.

GURLT, PROF. "Some statistics of narcotisation."—*Annals of Surgery*, February, 1896.

The state of general anæsthesia is always one of more or less danger, and demands from the physician administering the anæsthetic not only the most watchful care during its exhibition, but a conscientious endeavour to acquaint himself beforehand with all possible sources of danger, and with the best means of recognising and avoiding or of combating them.

That the dangers associated with the administration of chloroform greatly exceed those incurred by the administration of ether is now conceded by almost every operator. The statistics of the administration of anæsthetics in Berlin for five years, as given by Prof. Gurlt, show that one death occurred in about every 3,000 cases in which chloroform was administered ; one death in every 6,000 in which ether was used ; one death in every 10,000 in which ether and chloroform were given, and one death in every 6,000 in which Billroth's mixture was employed. These statistics probably place the death rate in

ordinary chloroform anæsthesia too low; one death in every 2,000 administrations is perhaps a more correct average.

The source of danger in chloroform anæsthesia still continues to be a subject of much discussion.

In an able address delivered before the Society of Anæsthetists in London, Leonard Hill terms the doctrine that chloroform kills by paralysing the respiratory centre, one of the most pernicious and dangerous ever put before the medical profession; a doctrine that is upheld only by a series of experiments, many of which were so careless in execution that they could not for one moment be accepted by a trained physiologist. The fact that chloroform produces a fall of arterial pressure is, he says, determined beyond all criticism. He denies the conclusion arrived at by the Hyderabad Commission regarding the cause for this fall, and quotes the results obtained by MacWilliam. This experimentor opened the thorax while the animal was under chloroform, established artificial respiration, and directly observed and recorded the effect induced on the heart muscle by the chloroform. Evidence of dilatation was obtained when chloroform was given in the ordinary amount required to produce anæsthesia, and at a time when the arterial pressure had not fallen to any marked extent. When the dilatation became extreme, the heart failed in its functions as a central organ of the circulation. Though it continued to rhythmically contract, its action was feeble and entirely ineffective, and its cavities remained engorged with blood. Since the dilatation is not sudden in origin, and the organ in spite of its functional inefficiency beats rhythmically, it is clear that the method employed by the Hyderabad Commission of observing the movements of the heart by passing needles through the thorax into the cardiac muscle may lead to deceptive conclusions. The heart may continue to contract and to agitate the needles while its power of maintaining the circulation has completely vanished. According to MacWilliam the fall of arterial pressure is, in its earlier stages, due mainly to the depressing effect of the anæsthetic on the vasomotor centre. The stage of depression is often preceded by a period of slight stimulation. The later stages are associated with failure of the heart as well as of the vasomotor centre. In several animals MacWilliam observed sudden failure of the heart during the primary anæsthetisation, while the respiration continued unaffected. On rapidly opening the thorax of these animals he found the heart to be in a state of paralytic dilatation. In some cases he managed to revive the circulation by rhythmically compressing the heart, but in others he was not successful as the heart muscle remained paralysed. Dr. Hill also quotes the ingenious experiments of Gaskell

and Shore, and the results obtained from them, but adds that his experiments directly refuted their statement that the vasomotor centre is not paralysed, but rather stimulated by chloroform. Dr. Hill then described several experiments carried out by himself to determine the influence of gravity on the circulation and shows how powerful this force is when the vaso-motor tone of the splanchnic area is destroyed.

An experiment is described in which the splanchnic vasomotor tone was abolished by dividing the spinal cord at the level of the first dorsal vertebra. On dropping the animal into the feet-down posture, the arterial pressure fell from 80 mm. Hg. at once to zero. By violent diaphragmatic respirations the arterial pressure was raised to 6 mm. The respiratory centre, however, soon became paralysed, and the circulation ceased. The empty heart continued to beat vainly, and on returning the animal two minutes later to the horizontal position, the heart was filled, the circulation renewed and the arterial tension raised to its former level. This manœuvre is one which may be repeated several times. If the thorax be opened, the heart can be seen to fill or empty as the animal is turned into the horizontal or feet-down position.

Dr. Hill then says: "I know of no agent which can abolish the compensatory mechanism for gravity as can chloroform. Under morphine narcosis, the hydrostatic effect of gravity may produce a fall of 10 mm. Hg., while under chloroform anæsthetisation the fall may be as great as 75 mm. Hg. In a dog in the horizontal position during morphine narcosis the pressure equalled 186 mm. Hg., and in the feet-down position it fell to 174 mm. On then pushing chloroform the pressure fell rapidly to 30 mm. Hg. At this point the respiration ceased. On returning the animal to the horizontal position, the pressure rose to 56 mm. Hg., and respiration at once re-commenced. Compression of the abdomen will also cause an immediate rise in arterial pressure."

These experiments (and others not quoted) show that the paralysis of the respiratory centre depends not only on the chloroform which is circulating through and poisoning the centre, but also on the great lowering of the blood pressure. Dr. Hill says: "I do not wish to deny for one minute that chloroform damages the respiratory centre and weakens the respirations, but the point I insist on is that the respirations would not cease at the moment when they do cease, were not the centre damaged by the concomitant fall of arterial tension. The contrast between the effects of ether and chloroform on the compensatory mechanism for the hydrostatic effect of gravity is most marked. If the subject be in the horizontal position, and the chloroform be pushed,

a rapid fall of arterial tension will follow, and if in the feet-down position, the fall becomes precipitous. In the feet-down position the fall becomes indeed so precipitous, that the curve rapidly approaches the zero line, and the respiration then ceases. On the other hand, on pushing ether, the fall of tension is far more gradual, and in dropping the animal into the feet-down position, the tension does not fall to anything like the extent that it would do under chloroform. . . . . On turning the animal into a horizontal position, or on compressing the abdomen the contrast between the result of the two drugs is very striking. In the case of ether the heart is undamaged and the arterial tension is restored to normal by either means. In the case of chloroform the heart is damaged, and the pressure is not only not restored to normal, but in some cases on the application of compression it falls to zero owing to paralytic dilatation of the heart."

Dr. Hill also thinks that this action of chloroform in lowering arterial pressure may be much intensified by any condition of shock, a condition in which he thinks vasomotor paralysis plays a prominent part. He says: "In applying the conclusions drawn from their experiments and extended to man, the commission neglected the state of emotional fear, which in human beings frequently precedes anæsthetisation, and which may, by temporarily establishing vasomotor paralysis, produce syncope. During emotional fear, if the patient be in the erect posture, the face will blanch, the heart empty, and the blood pass into the abdomen. If the horizontal position be now taken, and the abdomen compressed, the circulation is renewed and syncope abolished. The vasomotor mechanism is, owing to the state of fear, partly inhibited, and on inhalation of chloroform, this partial paralysis may pass into total paralysis; the anæmic heart may suddenly pass into a condition of paralytic dilatation, and the anæmic respiratory centre cease to act.

Prof. H. A. Hare, in a paper read a few months ago before the College of Physicians, of Philadelphia, says that the truth in the question as to whether chloroform causes death by respiratory failure or cardiac failure, appears to lie between the two; in the majority of cases the primary cause of death is vasomotor depression, whereby the arterioles allow the blood to pass freely into the great blood vessel areas which are found in the capillaries and veins, and, as a result, the patient is suddenly bled into his own vessels as effectually as if into a bowl. When it is remembered that the capillary network of the body will, with the relaxed veins, hold many times the normal amount of blood; that the liver itself is able to contain all the blood in the body, and that we can inject salt solutions

into the vessels to the extent of several times the normal quantity of blood without raising the blood pressure, it at once becomes evident how the complete vascular relaxation caused by chloroform induces failure of all the vital functions, not because the drug has paralysed the heart or respiratory centre, but because these parts are deprived of blood by its stagnation in the widely dilated capillaries and abdominal veins. In confirmation of this view Hare quotes the results obtained in the many investigations carried on in all parts of the world, all of which attest the fact that chloroform anæsthesia is attended by a very distinct fall in the blood pressure.

Profs. Wood and Carter, on the other hand, after many experiments, reach the conclusions that lowered arterial pressure has a comparatively feeble effect upon the respiration; that only when the pressure falls very low does respiratory depression occur; and that the chief factor in the production of respiratory failure during chloroform anæsthesia is the direct influence exercised by the drug upon the respiratory centres.

Perhaps more interesting, because more practical, is the question, What measures may be employed in general practice to reduce this unfortunate death toll demanded by the anæsthetic state?

Dr. C. F. Marshall (late anæsthetist to the Great Ormond Street Hospital for Sick Children, London), asks if chloroform is ever necessary and, if not necessary, whether it is justifiable to give it? He maintains that it is never necessary to use pure chloroform as an anæsthetic; when used it should be mixed with ether. In his experience the most satisfactory combination is a mixture of equal parts of chloroform and ether which may be given with the same ease as chloroform. He maintains that the ether acts as a stimulus, counteracting the depressing effects of chloroform on the heart. His contention appears to be borne out by the statistics quoted by Gurlt which we have referred to. The above mixture of ether and chloroform (the quantities taken by weight, not by measure) I have myself employed for many years for producing anæsthesia in children, and in my opinion it has many advantages over the employment of either drug alone.

A recent American writer holds that, in view of the public opinion regarding the relative safety of ether as compared with chloroform, it is inadvisable for the surgeon to give chloroform except for very definite and well considered reasons; otherwise if an accident occur, he may be severely censured. Ether, he says, generally gives warning of danger, it kills slowly; and prompt treatment usually removes the threatening symptoms. Chloroform, on the other hand, kills quickly, frequently giving no warning symptoms, and treatment has generally

proved of no avail. Judging by all published statistics, ether is unquestionably, for most cases, the safest general anæsthetic; chloroform is more than twice as dangerous. Hence the burden of proof in justification of the use of chloroform must rest with the operator.

While we fully agree with this statement of the action of the two drugs, there is much truth in Mr. Treves' remarks when he says, "In the matter of anæsthetics, it may be said in general terms that more depends upon the particular anæsthetist than upon the particular anæsthetic. Experience shows that he who is to successfully meet the many requirements of anæsthesia in surgery must have had considerable opportunities, must be possessed of powers of patient observation, and must exercise a tact and judgment which are acute, subtile and sensitive. The anæsthetist is made, not born. There is a fairly widespread impression that to give chloroform is a minor act; that the power, if it be worthy of that name, comes to a man with the granting of his diploma, and I have known the insignificance of the procedure emphasized by the remark: Well, if a medical man cannot give chloroform what can he do? He certainly cannot "do" it without training and experience."

What Mr. Treves says about chloroform is to a great extent also true of ether. All the difficulties and dangers connected with the anæsthetic state are by no means confined to anæsthesia by chloroform. *En passant*, we would strongly urge upon medical colleges the necessity of instilling into every student, not only a theoretical knowledge of the action of these two powerful drugs, but a practical acquaintance with the details of their administration, and the conditions which should influence us in the choice of the most suitable agent for each individual case.

In reference to this vaunted superiority of ether, Prof. J. Mikulicz, of Breslau, is by no means convinced that it is proved; nevertheless in the light of Gurlt's statistics he considers that every surgeon who uses chloroform should be able to justify his action. During the winter of 1893-4 he employed ether 80 times, selecting his cases and excluding old people, young children, and persons with pulmonary trouble, weak heart, or anæmia. Out of this number threatening symptoms made their appearance in 11 instances. Asphyxia occurred in 3 cases during the narcosis; collapse followed its administration in 2 cases; whilst in 6 additional cases, bronchitis or pneumonia appeared as a result of the anæsthesia. Mikulicz insists that, with such a record, as much care and skill are required in the administration of ether as in that of chloroform. Such an experience with ether is certainly very rare with us in America. In only two instances in private prac-

tice have I met with a broncho-pneumonia following the employment of ether. In both the anæsthetic had been administered in a dentist's chair, and the patient had shortly after driven home. The weather at the time was inclement.

In connection with Mikulicz's experience, however, we would call attention to the suggestion of Mr. Lucas, of Guy's Hospital, that the apparatus used by anæsthetists may be responsible for many of the cases of pneumonia following the administration of ether, as it is conveyed from one patient's mouth to another without efficient antiseptic precautions. The same thought was mooted by Dr. James Bell in our Montreal Medico-Chirurgical Society two years ago, and to avoid possibility of contagion he has adopted an inhaler which can be rendered practically aseptic for every patient.

A recent addition to our knowledge on the subject of anæsthetics is contained in the paper by Prof. Wood and Dr. Carter, previously referred to. Their researches show that the circulation recovers itself more slowly after profound etherisation than after a similarly profound chloroform narcosis, and that it is possible for ether as well as chloroform to produce death (quite apart from shock or loss of blood) some hours after the cessation of its administration, at a time when the cerebrum has freed itself from distinct evidences of the narcotic.

Apart from the question of the anæsthetic employed, are there any measures to be adopted which may reduce the danger connected with anæsthesia to a minimum? Unquestionably there are. The well known and important precautions of having no constricting bands around the neck, of having no interference in the slightest degree with the free play of the diaphragm and the abdominal wall, and of having the stomach free from food, which might find its way into the trachea, are imperative. It is important that the pathway for the entrance and exit of air shall be kept as pervious as possible. Any obstructions arising from mucus, blood, or ejecta must be removed promptly. While a low pillow may be allowed at the commencement of the anæsthetic it should at an early stage be removed. The consequent slight extension of the head favours the easy passage to and fro of the air in respiration. Should any difficulty arise the head may be still further extended and at the same time slightly thrown forward, a position which, according to Hare, raises both tongue and epiglottis, whereas the complete extension of the head backward and downward, advocated by Howard, can have only the effect of strapping the soft palate over the dorsum of the tongue, thereby cutting off the entrance of air through the mouth. Pressure forward and upward

may at the same time be made upon the cornua of the hyoid bone, as generally recommended, and traction may be made upon the tongue.

The inhaler when chloroform is used should only be applied when the respiration is quiet. If the respirations are of irregular depth or should struggling ensue, the inhaler should be removed.

We must here emphasize the great danger incurred in administering pure chloroform in the dentist's chair, where the posture, half recumbent during the administration, is generally converted into a sitting one at the time of the operation.

Personally I am strongly in favour of the administration by the mouth of an efficient dose of strychnia $\frac{1}{20}$ gr., shortly before the induction of anæsthesia by either ether or chloroform. Such a dose must have a distinctly stimulating action upon the three important centres threatened by the anæsthetic, the respiratory, the cardiac and the vasomotor. Its action upon the heart muscle is also that of an excitant. On this subject Prof. Wood writes as follows: "Of all the experimental results which I reached those with strychnine were to me the most surprising. I found that the injection of strychnine into the jugular vein of a dog whose circulation and respiration were failing from an overdose of chloroform, was usually followed by a gradual rise of the arterial pressure, and always by an immediate and extraordinary increase of the rate and depth of the respiration." Digitalis is another drug of much service in combating the depressing influence of the anæsthetic on the heart muscle. In all cases where any symptom of a weak heart action exists, the previous hypodermic injection of a full dose of digitalis xx—mxl) before the administration of chloroform will greatly lessen the danger of cardiac collapse. In the Montreal General Hospital, a solution of camphor in olive oil (1 to 10) is, in addition to full doses of strychnine, employed immediately in threatened heart or respiratory failure during anæthesia by either ether or chloroform.

Among the more recent measures advocated to effect resuscitation in sudden heart failure we would call especial attention to two.

The first is the Laborde method of rhythmical traction on the tongue which both laboratory experiments and clinical observations prove to be one of our most simple and efficient methods of resuscitating even the apparently dead. It may, if thought best, be combined or supplemented by artificial respiration performed after Sylvester's method.

The second is Maas's modification of König's method. In König's method the operator stands upon the patient's left side, facing him, and lays the open hand upon the patient's chest with the ball of the

thumb between the apex beat of the heart and the edge of the sternum, and presses in the chest wall quickly and strongly thirty times to the minute. Maas advises the manœuvre to be done much more rapidly (120 times a minute) and states that it has been used with much success in the Göttingin Clinic.

In his address, from which we have already quoted at length, Dr. Hill, referring to the treatment of chloroform syncope, says as follows: "If it happened that we simply had to deal with failure of the respiration, artificial respiration would remove the danger. If simple vasomotor paralysis occur concomitantly with failure of respiration, as is always the case, artificial respiration, combined with elevation of the abdomen to a level above that of the heart, would immediately restore the patient to safety. It is when the clinician has to deal with paralytic dilatation of the heart that the gravest danger has to be feared. As it is impossible to diagnose whether this condition may exist or not, every case of chloroform syncope should be treated as if it did exist. Recovery can be brought about practically in almost all cases by following this simple procedure. At the moment syncope occurs the patient must be placed in the horizontal position, and artificial respiration applied. The chest must be rhythmically compressed by placing the hands on each side of the thorax, so that the heart may share in the compression, and the circulation through that organ may, by artificial means, be maintained to a certain extent. If this is not quickly successful in restoring the pulse and natural breathing, the patient should be turned into the vertical feet-down position. By this means the dilated heart is emptied into the abdominal veins. After a few seconds the patient should be returned to the horizontal position, and the right heart will thus be refilled with a fresh supply. Artificial respiration should be maintained continuously. If this manœuvre does not prove successful at the first attempt it must be repeated. Its success will depend on the promptness with which the condition of syncope is recognized. Nelaton's inversion or feet-up position is only a safe measure in cases of syncope arising from vasomotor paralysis. In cases of cardiac failure either inversion or compression of the abdomen is a fatal mistake."

In conclusion we would emphasize the words of Dudley Buxton, of University College Hospital, London. "The action of the anæsthetic should be restricted within those clearly defined limits which involve only the higher ganglionic centres, and under no circumstances should incomplete anæsthesia be deemed sufficient for even the most trivial operation." *A. D Blackader.*

Ophthalmology.

UNDER THE CHARGE OF J. W. STIRLING

The Eye in Hereditary Ataxia.

CHARLES W. BURR. "The eye in hereditary ataxia, with a report of four cases of Friedrich's ataxia in one family."—*Annals of Ophthalmology*, January, 1897.

This is an interesting and very full report of four cases of Friedrich's ataxia. The diagnosis was based on : The affection of four members of one family, the ataxia, the absence of knee jerk, the characteristic speech, the entire absence of sensory symptoms and the presence of nystagmus.

One curious symptom was the presence of marked chin jerk.

The diagnosis in ataxic children is, as Dr. Burr points out, greatly facilitated by the examination of the eyes. By it one is aided in deciding whether any given case of juvenile ataxia, is Friedrich's ataxia, or the family form of cerebellar ataxia, or the very rare locomotor ataxia beginning in early life, or cerebellar tumour.

In Friedrich's ataxia, the most frequent symptom is nystagmus, which may begin at the same time as the speech disturbance or not until much later. It is generally horizontal and ceases when the eye is at rest. The pupils react only sluggishly to light. Marked optic atrophy never occurs.

In the cerebellar type of hereditary ataxia, nystagmus is very marked, but in addition optic atrophy is very common. Pupillary reflex may here be absent.

Early Optic Atrophy in Locomotor Ataxia.

PEARCE M. BAILEY. "The effect of early optic atrophy upon the course of locomotor ataxia."—*Medical Record*, Nov. 14th, 1896.

This article is of value as being the result of the writer's observations in one hundred and thirty cases of locomotor ataxia, of which twelve showed early optic nerve atrophy.

The deductions are as follows : In about seventy-five per cent. of the cases of tabes in which optic atrophy is an early symptom, some of the other tabetic spmptoms may be late in appearing, or may not develop at all. This is especially the case in respect to the lightning

pains and the incoordination of movement. The loss of knee jerk in such cases is very constant.

The most distressing symptoms may develop simultaneously with or immediately succeed the blindness. The association with the optic atrophy of oculo-motor palsies is without prognostic significance.

Puerperal Embolism of the Eye.

M. JANERSKIERWICZ. "Two cases of puerperal septic embolism of the eye."—*Centralblatt für Augenheilkunde*, XX., 1896.

This exceedingly rare condition is reported from Hirschberg's clinics in Berlin. One case was in a woman thirty-eight years old, who had fever after abortion. Eight days after the birth the left eye began to fail and was totally blind in two days. Several abscesses had to be opened, and after a few months the left eye suppurated away. The case recovered. The second case was a woman, thirty-six years of age, who four days after her seventh normal child-birth developed fever, which lasted three months. A few weeks later both eyes became swollen and blind. Both ended in phthisis bulbi.

An abscess developed in the right knee.

Action of X-Rays on the Blind.

EMIL BOCK. "Hint as to the use of X-rays in some forms of blindness."—*Weiner Med. Wochenschrift*, No. 52, 1896.

E. BLOCH. "The application of the Roentgen rays in certain forms of blindness."—*Weiner Med. Wochenschrift*, No. 53, 1896.

L. WEBSTER FOX. "Clinical lectures on ulcers of cornea."—*The Medical Bulletin*, January, 1897.

Bock believes that in cases of blindness due to corneal cicatrices with intact retinæ, the X-rays should give rise to images on the retina.

Professor Eder, of Vienna, to whom Bock applied for aid in the necessary technique, declared it quite possible to gather the X-rays into a large pencil and so make them visible to a blind individual possessed of a healthy retina. He further said that letters, &c., must then be composed of material impenetrable to the rays.

Block, in his article the previous week, simply knocks these representations on the head, by pointing out an error in their very essentials.

He shows that in order to perceive anything, the fluorescent material must lie behind the situation of the ocular opacity, *i.e.*, behind the cornea, between it and the retina, a condition which can not obtain.

Dr. Webster Fox, in the course of a lecture on ulcers of the cornea, mentions among others a case in which the cornea ulcerated in the course of small-pox, a dense cicatrix being left.

On experimenting on this patient with the X-rays, it was found that with the fluorescope he could see nothing, but with the naked eye he could accurately describe the phosphorescent colour of a Crookes tube. Hence it would appear that X-rays will not pass through cicatricial corneal tissue although light will.

The Bad Eye Factory.

HENRY LING TAYLOR. "Editorial on an article with above title by Dr. E. W. Scripture."—*Pediatrics*, June 15th, 1896.

Dr. Taylor reviews and reinforces this article of Dr. Scripture's which is indeed worthy of much consideration.

It has to deal with the effects of eye strain in schools.

One per cent. of the cases of myopia are congenital, the remainder are the result of eye-strain, especially in schools. The strain occurring in childhood from holding the work too close to the eyes, this being necessitated by small size of the type or objects.

He inveighs against the kindergartens very justly on account of the fine work, sewing, stringing beads, perforating and drawing on cross ruled paper.

The standard of print should be as follows: The letter not less than $\frac{1}{16}$ of an inch in height, the lines of the letter $\frac{1}{100}$ inch, the distance between the letters $\frac{1}{32}$ inch or more, and between the lines $\frac{3}{32}$ inch or more; the length of line not over four inches. For children the print should be larger.

Holocain in Eye Surgery.

R. KUTHE. "Experiments with the new local anæsthetic, holocain."—*Centralblatt für Augenheilkunde*, February, 1897.

Yet another local anæsthetic is reported, and as with the others it is at the outstart highly lauded.

Dr. Kuthe's investigations extend over a large number of patients and show that the instillation of a 1 per cent. solution of holocain into the eye, causes anæsthesia of the ocular surface in fifteen seconds, which lasts at least for ten minutes. The instillation can be kept up for lengthened periods without giving rise to the dessication of the corneal epithelium which is so frequently observed under the prolonged use of cocain.

Holocain would seem to have no effect on the pupil or tension.

Judging by experiments on rabbits, holocain is not poisonous except in very large doses, when it gives rise to cramps, muscular spasms, &c.

The original title of the drug is "Diathoxyathenyldiphenylamidin," which pretty well fulfils Mark Twain's definition of an "Alphabet in perspective."

J. W. Stirling.

Reviews and Notices of Books.

Ewald's Diseases of the Stomach. Translated from the third German edition and revised. By MORRIS MANGES, A.M., M.D., Assistant Visiting Physician and Lecturer on General Medicine at the New York Polyclinic. D. Appleton & Co., New York, 1897.

There is so much of recent date written on diseases of the stomach that 1893, the year when Ewald published the third edition of his admirable work, has long since passed. This work which Dr. Manges has finished, dating his preface August, 1896, fills the double purpose of at once presenting a work on these important diseases fully up to date and presenting it too, in such a way as that the German teaching is available for all English physicians not familiar with the German text.

In addition new illustrations have been inserted and some of the older ones have been re-drawn, while the foot notes and references to articles quoted render this work of increased interest and especially useful as an index to other works.

The index of the work itself is full and the reader may readily find correlated subjects.

The added matter consists largely of the views of authorities, abstracts of whose articles and summaries of whose teachings have been carefully made by the editor.

Among many other points Dr. Manges has dwelt to some length on operative measures recently adopted in various gastric conditions, on the recent writings concerning the diagnostic value of lactic acid in cancer of the stomach, on the relation of tetany to gastrectasis, and on the subject of gastric conditions in pulmonary phthisis. An interesting feature of the book is the discussion of the electrisation of the stomach.

The work of translation is well done, and errors are rare indeed throughout its six hundred pages. When a "distended appetite" (p. 569) is printed a "distended stomach" is surely meant.

Though several books are written on Diseases of the Stomach none come to physicians with higher authority than Ewald's and this translation and revision is recommended to all practitioners interested in the finer points of diagnosis and treatment. W. F. H.

A Hand-book of the Diseases of the Eye and their Treatment. By HENRY R. SWANZY, A.M., M.B., F.R.C.S.I. Sixth edition with illustrations. London: H. K. Lewis, 136 Gower Street, 1897.

Mr. Swanzy's work herewith appears in its sixth edition, the fifth being exhausted within a little over a year of its publication. This is proof enough of the popularity, certainly well deserved, of this book.

Only eighteen months ago, we reviewed the last edition, and what we said at that time in strongest commendation, need not be again repeated.

There have been a few alterations in the contents; the first chapter on simple optics being omitted, the author considering rightly that the student should approach the subject of ophthalmology with a previous knowledge of elementary optics, as well as of the anatomy and physiology of the eye.

What enhances the value of this hand-book, is the article on the relation of the eye to diseases of the brain and nervous system generally, which has been greatly extended in the present edition.

The obscure subject of the tumour of the orbit has also been extended.

As for the rest of the work it is up to the same succinct, thorough style, as the previous editions.

The really high standard of Mr. Swanzy's book in every way renders criticism or praise a task of supererogation.

As a thorough guide on the subject it can not be too strongly recommended both to the practitioner and student. J. W. S.

The Royal London Ophthalmic Hospital Reports. Vol. XIV., Part II., Dec. 1896. Edited by WILLIAM LANG, F.R.C.S.. Eng. London: J. & A. Churchill, 7 Great Marlborough Street.

The December number of the Royal London Ophthalmic Hospital Reports supplies much material of interest, and one's only regret is, that these reports do not appear more frequently, considering the mass of splendid clinical material which is constantly passing through the hands of the staff.

The first article is by Mr. J. Herbert Fisher, M.B., &c., on a case of subhyaloid hæmorrhage, which he investigated.

The blood poured out from a retinal vessel, does not invade the retinal layers, but detaches the internal limiting membrane from the retina and accumulates in the space so formed. This would require the effusion of blood at a moderate pressure from an artery, whereas it is probable, that blood from a vein would be insufficient to effect this separation.

Mr. Treacher Collins is continuing his researches on the embryology of the eye and here discusses the development of the posterior elastic lamina of the cornea. From the result of examinations in the repair of corneal wounds, he assumes that this lamina is originally developed from the Descemal epithelium.

Mr. Devereux Marshall, the Curator at Moorfields, has written a most elaborate article on meningitis following excision of the eyeball for panophthalmitis, mentioning in detail five cases that occurred at Moorfields.

He holds that meningitis is by no means a result of the enucleation in these cases, but that from the post-mortem results, it is evident that the meningitis in many cases preceded the enucleation, and was likely due to embolism from the choroidal vessels.

Mr. Holmes Spicer, deals with striated opacity of the cornea which he holds is due to rumpling of Descemet's membrane or to engorgement of Bowman's tubules, secondary to inflammation of the adjoining uvea.

Mr. Devereux Marshall, also contributes a very useful article on the pathological examination of the eye.

These with a few shorter papers go to make up this number of the reports, which is most instructive. J. W. S.

A System of Practical Medicine by American Authors. By Loomis and Thompson. Vol. I, Infectious Diseases. Lea Brothers & Co., Philadelphia, 1897.

The name of the late Prof. Alfred Loomis, who is both editor and contributor to this new practice of medicine, is too universally respected already, to render any favourable criticism of his works necessary. Intimately associated with all the greatest medical minds on the continent, he readily secured as collaborators those whose work and experience place them at the high water mark of medical science in America.

Already in the first volume, one finds among its contributors Prof. W. H. Welch, Wm. Osler, J. C. Wilson, James Stewart, Geo. Sternberg, Geo. Dock, et al.

Dr. Gilman Thompson has been associated with the editor from the inception of the undertaking, and since the death of his colleague the entire work fell to his hands.

The first volume dealing with infectious diseases, opens with a lengthy article on malaria, by Welch and Thayer, than which probably no better article on the subject has ever been published in a work on practical medicine. The detailed description of the parasitology by Dr. Welch and the complete discussion of the anatomical and clinical features by Dr. Thayer are such as to render the material of extreme value.

Dr. J. C. Wilson contributes the chapter on enteric fever, which is more especially useful in view of the excellent pages concerning the treatment of that malady. The newer features of diagnosis by serum tests are not considered, his article doubtless having been contributed some length of time before the final publication.

Too much cannot be said in praise of Dr. Park's comprehensive section on diphtheria. The author is peculiarly well fitted for this work, having formerly practiced laryngology and of recent years being engaged as one of the directors of the Bacteriological Laboratories in the New York Department of Public Health. One cannot but commend in particular the pages on diagnosis and on pseudo-diphtheria.

One need merely say that the chapter on tuberculosis, covering about 120 pages is written by Dr. Osler, to realise how greatly enhanced thereby is the value of the work. An essentially practical and scientific article on tetanus is contributed by Dr. James Stewart; among other collaborators are the names of J. P. C. Griffiths, G. Robinson, W. James, etc.

Had some of the writers been enabled to withhold their articles till actually required by the publishers, some of the most recent work in connection with the plague, yellow fever and typhoid might with advantage have been added, though in many other respects the researches of even the past few months have been included in the text. C. F. M.

Practical Pathology for Students and Physicians. By A. S. WARTHIN, M.D., Ph.D. George Wahr, Ann Arbor, 1897.

The author evidently realizes the inefficiency of most of the English works on post-mortem technique and is eager that the student shall have very detailed directions as to how each step in technical pathology shall be carried out. With a few minor exceptions the methods recommended are those usually adopted in the German institutes, and the detail of description leaves but little to be desired.

The essential features of histology are well classified and all needful formulæ are given, with practical hints drawn from the author's own experience.

It is a matter of sincere regret that the publisher has done so little justice to the literature placed in his care, as evidenced by the character of the paper, the hosts of typographical errors and the type itself. It is from this point alone that any adverse criticism should be merited.

C. F. M.

A Treatise on Dental Surgery for Medical Practitioners and Students in Medicine. By A. W. BARRETT, M.B., Lond., M.R.C.S., L.D.S.E. London: H. K. Lewis.

The third edition of Professor Barrett's Dental Surgery will be welcomed by all students. Its clear concise description of the essential facts in dental surgery, illustrated as it is by about sixty well executed diagrams, makes it an almost indispensable work for reference and study by the student. The manual is divided into thirteen different chapters, each containing brief yet sufficiently complete statements of the methods adopted in modern dental surgery. This volume is unhesitatingly commended to all medical and dental practitioners, as one which cannot fail to be an important addition to their library. J. S. I.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY

Stated Meeting, January 29th, 1897.

GEO. WILKINS, M.D., PRESIDENT, IN THE CHAIR.

Experimental Cerebral Localisation.

Dr. WESLEY MILLS exhibited in a fresh condition the brain of the rabbit shown at his demonstration before the Canadian Medical Association in August last. The animal was exhibited the day after the operation, which consisted in the removal, not only of the cortical centres for the limbs, neck, etc., but, as the specimen showed, so much of the cerebrum that the ventricles were in part exposed. When exhibited the day after the operation the animal sat up in the usual position, walked and leaped so well that it was difficult to distinguish it from an intact rabbit.

In this instance the brain had been reached by cutting down to the dura, slitting the latter open and turning it aside without removing it. The cerebrum was sliced away, to the extent indicated before, with very little hæmorrhage. Antiseptic precautions were employed. The edges of the dura were approximately sutured, and the margins of the skin wound brought into apposition by the same means.

The wound healed rapidly, and the rabbit remained well and active till recently when it suffered from skin disease and died a few days ago.

Examination showed a scar on the line of the incision in the skin, but nothing of the kind was apparent in the dura. A thin straw-coloured fluid was found beneath the dura, but there were no adhesions either of skin and dura, or between the latter or the cerebrum. Dr. Mills said that without experience it would be difficult to believe that a rabbit should survive such an operation and have to all intents and purposes the same functional capacity as an intact animal for a period of about five months. He thought it proved clearly that so far as the cortex of the cerebrum was concerned there were great differences between different animals below the primates, and between the former and the latter.

Two Cases of Perforated Gastric Ulcer.

Dr. JAS. BELL exhibited two patients. (Will be published later.)

Dr. GEO. E. ARMSTRONG congratulated Dr. Bell on the success of

his cases especially the one in which he had sutured the stomach He thought that these cases when operated upon early gave good chances of recovery. Three cases of recovery after suture of a perforated stomach from gastric ulcer had now been reported in Montreal. He agreed with Dr. Bell's diagnosis of the case which he had drained.

The pain in peritonitis from perforation was generally central about the umbilicus, but the point of maximum tenderness determined the differential diagnosis. If this point was over the appendix then the seat of perforation was there, if the stomach was perforated the point would be found over that viscus, and especially so if the case was seen early. In a recent discussion Weir reported that of 74 cases, those operated on before 12 hours had a mortality of 42 per cent.; those from 12 to 24 hours, 81 per cent.; and after 24 hours, 93 per cent.

Infection from the stomach was not so severe as that from the appendix and intestines lower down, and Treves' idea, that the upper zone was less susceptible, was better explained by this fact.

It was an advantage before introducing the sutures to strip off the fibrin surrounding the perforation and so have a stomach wall of normal strength and thickness to deal with.

He felt that the question of recovery without operation depended on the seat and size of perforation. If it occurred on the posterior wall or lesser curvature, where adhesions were liable to form early recovery was much more probable than if a large perforation occurred on the anterior wall and the stomach, falling back empty, had nothing to adhere to. Gas and stomach contents would separate it from the anterior abdominal wall in the same way as gas got in front of the liver and spleen in perforation of the stomach or bowel.

A point made by Weir, with regard to the statement sometimes made that no vomiting followed perforation of the stomach, was that a large opening permitted the stomach to empty itself into the abdominal cavity; but, if the perforation in the stomach wall was small, then the stomach contents would more readily pass upwards and vomiting would occur.

Dr. F. J. SHEPHERD thought, from the fact of there being air in the abdominal cavity and recovery having taken place, that Dr. Bell's diagnosis of perforated gastric ulcer was the only possible one. He asked what the statistics of the pathologists showed the frequency of recovery without operation to be. He did not agree with Dr. Armstrong's idea of the stomach falling back.

That the upper zone of the abdomen was less liable to infection,

was due to the fact that the stomach contents were acid and unfavourable to the growth of bacilli, which were thus less virulent.

Dr. A. LAPTHORN SMITH asked if in sewing up the perforation it was the custom to remove the raw edges. He agreed with Dr. Armstrong that if there was a large opening the contents would escape and the organ collapse.

Dr. D. F. GURD asked if the first patient had been anæmic.

Dr. J. G. ADAMI said he could not give the statistics, but it was extremely rare to find evidences of perforation having occurred, although old extensive ulcerations of the stomach were frequently met with.

Dr. BELL, in reply said, in regard to the question raised by Dr. Shepherd and Dr. Adami, that one such case was mentioned by Taylor in the *Medical Record* during 1888. Irrigation and drainage had been carried out, and at the autopsy two months later, an anterior healed perforation had been found.

In reply to Dr. Smith, he said paring the edges had been done in a few cases, but the majority of surgeons did not think it was necessary, as what was really aimed at was closing by a Lembert's suture. The first sutures were only put in to hold the parts together and prevent escape of the contents while the Lembert's sutures were being introduced.

In reply to Dr. Gurd, he stated that the girl showed no symptoms of anæmia.

Hæmorrhagic Cysts of the Thyroid.

Dr. E. W. ARCHIBALD read a paper on this subject. (See page 780 of the April number.)

Dr. F. J. SHEPHERD said that the investigations of Drs. Bradley and Archibald explained the sudden increase in large thyroids which caused dyspnœa and induced the patient to seek relief. Hæmorrhage seldom occurred in a healthy gland, the history was always that of a slow growth before the rapid increase.

It was rare to meet with a pure cyst; in many, a large mass of adenomatous material was found at the base and they differed from the colloid cysts which were easily enucleated.

He had recently operated on an enlarged thyroid in a case presenting all the symptoms of Graves' disease with the exception of exophthalmos. Two solid tumours were removed with complete relief of all the symptoms.

Dr. W. I. BRADLEY felt that Dr. Archibald's paper had elucidated some of the obscure points in his own work, so that nothing now was left in doubt.

Dr. ADAMI said that the interest of these cases lay in their being the connection between the cystic and the goitrous forms. The large proportion of Dr. Shepherd's cases were cystic, and the same thing was found in Reverdin's report of cases examined in Switzerland. It was not generally known that Osler had shown that here in the neighbourhood of Montreal we have the most goitrous region in America and the most favourable opportunity for study, and to thus advance the knowledge of this interesting part of the human frame.

In a series of goitres received from Drs. Bell and Shepherd, he had noted a great tendency to hæmorrhage in some which were not cystic. In adenoma it was quite common to have very thin-walled vessels which ruptured easily.

An Obscure Case of Purpura Hæmorrhagica.

Dr. W. F. HAMILTON reported this case. (Will be published later.)

Dr. J. M. ELDER had seen the patient the day he entered the hospital, and had been struck by his anæmic condition. Having been acquainted with his family for a number of years, he could add to the family history as given by Dr. Hamilton. One aunt had died from profound anæmia with frequent vomiting of blood. There was also a distinct history of tuberculosis on both the father's and mother's side.

Dr. R. TAIT MCKENZIE had examined the boy in the fall of 1895 and found him sound in every particular, both under conditions of rest and exercise.

Dr. H. A. LAFLEUR thought a chemical examination of the blood in such cases might be of value. The case seemed somewhat analogous to snake-bite, in which the poison was chemical and not bacterial.

In purpura of such wide distribution fever was not uncommon, although it was often absent in mild cases. It was quite analogous to the fever found in severe cases of anæmia, leukæmia, and other conditions in which there was a profound alteration of the blood.

Stated Meeting, February 12th, 1897.

GEORGE WILKINS, M.D., PRESIDENT IN THE CHAIR.

Comminuted Fracture of the Lower Jaw.

Dr. J. ALEX. HUTCHISON exhibited the case and read the following report:

Ralph B., aged 7 years, entered ward L, Montreal General Hospital, September 26th, 1896.

A short time previously (one hour) he had fallen through an elevator shaft, a distance of about thirty feet. On examination by me on the following day (Sunday), it was decided to endeavour to bring the parts together by sutures. This I did on the 28th, the second day

following the accident. After anæsthesia by chloroform, examination showed the following:

A dirty contused wound on the right side under the border of the lower maxilla leading down to the fracture and communicating with the mouth. The bone was shattered and several teeth gone. The canine of lower set was found imbedded in the cheek, passing through a rent in the mucous membrane. On left side, the mucous membrane was torn and the bone fractured opposite the canine tooth.

Owing to the two fractures and the violence of the blow the central portion of bone was very loose, and silk sutures were applied on each side, on the left bringing the bone in good position, but on the right, owing to the loss of bone there was a considerable space which allowed the bone to fall away. After cleaning the part a leather splint was applied. Suppuration followed, and sutures gave little support.

Dr. J. S. Ibbotson, the dental surgeon to the Hospital, was asked to make an inter-dental splint of rubber, which he did, opposing this by a plaster of paris bandage round the jaw. This successfully held the parts in position till union took place. The patient now has a good jaw, the lower teeth that remain are in fair position. I bring the case before you to show the value of the inter-dental splint, and the good result in so grave an injury.

The notes are from report of my house surgeon, Dr. H. K. McDonald.

Removal of a Fibroma of the Mesentery with Resection of nearly Eight Feet of the Small Intestine.

Dr. F. J. SHEPHERD stated that the man from whom the tumour and intestine had been removed was 28 years of age, and had first noticed the enlargement of the abdomen over a year ago. He had never suffered any pain. The operation was performed on January 18th, 1897, and a round smooth tumour was seen attached in front to the abdominal wall by adhesions but apparently free at the sides. On enlarging the incision and delivering the tumour it was found that about 2½ feet of gut was intimately associated with its under surface and that the tumour grew from between the layers of the mesentery. To remove the tumour it was necessary to tie a number of mesenteric vessels and this deprived a large amount of gut of its nutrition. Within an inch or two of eight feet of small bowel had to be removed before living bowel could be reached. The two ends were united by immediate suture. The bowel removed was chiefly ileum, only about six inches of the lower end of the ileum being left. There was an attachment of the tumour also to the transverse colon but it seemed to grow from between the layers of the mesentery. During the opera-

tion there was a great deal of shock and three quarts of saline solution were introduced into the veins of the arm.

The patient got well without a bad symptom and, with the exception of a tendency to flatulency and slight diarrhœa, he was well and gaining flesh. Dr. Shepherd remarked that as far as he was able to find out this was the greatest length of bowel successfully removed, so far. Kocher, of Berne, had removed 6 ft., 10 in.; Koeberle of Strassburg, 6 ft. 6 in.; and Elliott, of Boston, 4 ft. He said that at some future time he intended writing a paper on the subject and would deal more fully with the history of intestinal resection.

Dr. JAS. BELL considered this a remarkable surgical triumph. The difficulty of removing an enormous tumour, situated between the folds of the mesentery and displacing such important structures as the aorta and vena cava, was very great; but the removal of so large a portion of the intestine as well, was a remarkable achievement. The removal of the intestine for gangrene could not be compared with this.

Some years previously he had performed experiments on dogs and demonstrated that considerable portions of their intestines could be removed with success. By this means he had gained considerable experience of the different methods of uniting the ends of the bowel. Of those united with the continuous suture in some cases a constriction was subsequently found at the point of union; of those done by the through and through method the results were good. He, however, had not realised then that the dog was not so prone as the human being to suffer from peritonitis after such operations.

In man, Dr. Bell stated, he had united the cut ends in almost every way and in cases of direct union had found the bowels closed off well when fatal results had occurred from other causes. He had been greatly impressed by Maunsell's method especially by a modification described in the last number of the *Annals of Surgery*.

He had no criticism to offer on Dr. Shepherd's case but wished to congratulate him on one of the greatest achievements on record in abdominal surgery.

Dr. WESLEY MILLS felt this was a great surgical triumph but with regard to the effect of removing such a large portion of intestine the case was one from which we are likely to get physiological light rather than one on which he could throw light. His experiments upon the alimentary tract of dogs had impressed him with the danger of these operations being followed by shock rather than peritonitis.

Of late years the tendency had been rather to exalt the intestines functionally at the expense of the stomach, but both had much reserve power and if this case succeeded it would be clear evidence of this.

Dr. LAPTHORN SMITH was pleased to know that such a case had occurred as it would encourage less daring operators to be a little more bold. He thought that much of so called shock was due to hæmorrhage, the anæsthetic, or sepsis.

Dr. WM. GARDNER thought that a point often overlooked, in considering the shock following long operations, was refrigeration, and cited a case in support of this.

Dr. G. G. CAMPBELL drew attention to a fact which he had demonstrated by examination of the urine, that metabolism was much diminished during anæsthesia, becoming less and less as time passed. Thus, during long operations this might be a cause of refrigeration.

Dr. F. J. SHEPHERD intended reporting the case in full later on and so had not given the details of the history. It was not known what shock was, but no doubt hæmorrhage was often the source of shock and this man would have died if he had not had the intravenous injection.

A Respiratory Symptom of Tobacco-Poisoning and its Experimental Investigation.

Dr. W. S. MORROW in this paper described a peculiar form of breathing which he had observed in a number of cases of tobacco-poisoning. He read reports of the three most typical cases he had seen. The symptom referred to consisted of audible deep inspirations occurring at intervals, and often accompanied by a feeling of lack of air. He referred to a case reported by Chapman, of Louisville, at the Mississippi Valley Medical Society, in 1891, where similar symptoms were observed. He had been unable to find any explanation of this peculiar form of breathing and had consequently undertaken a series of experiments, in the hope of throwing some light on it.

He had tracings of the breathing showing the effects on it of poisoning with tobacco in rabbits and dogs; other tracings showed the effect of tobacco after first cutting the pneumogastric nerves; others again, the effects of stimulating these nerves at various stages of poisoning. Still others exhibited the effects of various degrees of ether and chloral for comparison. As a result of these cases and experiments the following conclusions were reached:—

A fairly common symptom of tobacco-poisoning is a deep gasping inspiration, occurring at intervals, and sometimes quite audible. This may be practically the only symptom complained of. It is probably due to a paralysing action of the drug on the respiratory centre, affecting especially the expiratory division but also diminishing the irritability of the whole centre to afferent impulses. This symptom may persist from a few days to several months after the tobacco is discontinued.

Dr. N. D. GUNN said that clinically the action of tobacco was supposed to be principally upon the heart and he thought that Dr. Morrow should have investigated this point as well.

Dr. WYATT JOHNSTON asked concerning the occurrence of this sign in poisoning by other drugs; if this were not the case it might turn out to be a valuable physiological test for nicotine poisoning.

Dr. WESLEY MILLS expressed satisfaction that a paper of this kind had been brought before the society. It was the first instance in this country of such an application of the graphic method to the solution of a definite clinical problem.

Dr. F. J. SHEPHERD congratulated Dr. Morrow on having been able to verify his diagnosis by this method. Such a paper was most valuable to those outside of laboratory work from a practical standpoint.

Dr. W. F. HAMILTON asked if Dr. Morrow had considered the possibility of this respiratory symptom having been due to the influence of the poison upon the heart.

Dr. MORROW in replying to Dr. Gunn said that experimental evidence went to show that tobacco was a stimulant to the heart. He himself had seen the heart beating vigorously after death from respiratory failure in the rabbits poisoned with tobacco from which his diagrams were obtained.

To Dr. Hamilton he said that even if circulatory changes could cause some change in the respiration, they could not explain the failure of the respiratory centre to respond to stimulation through the pneumogastric nerves. He did not think the peculiar breathing he had observed could be explained through any change in the circulation.

He could not answer Dr. Johnston's questions as he was not sufficiently acquainted with the literature of other poisons.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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BRITISH MEDICAL ASSOCIATION.

According to accounts received from England, the steamship companies are already finding an active demand for berths in connection with the coming meeting, and the boats journeying direct to Canada are rapidly being filled. At this rate we ought soon to be able to estimate approximately the number of visitors coming from the Old Country.

Since our last issue the list of officers has been completed, Dr. Herman M. Biggs, of New York, having accepted the invitation of the Council to deliver the address in Public Medicine. No better choice could have been made, for Dr. Biggs is the scientific head of the most progressive and best conducted health department upon this continent, that of the City of New York; and to his endeavours are largely due the foremost position attained by it. We may safely predict that his address will be one of the features of the meeting.

The Canadian officers of the various sections are now fully engaged in drawing up the provisional programme of each section, and in a very short time we shall be able to announce the general discussions which are to take place and the names of the leaders of these discussions, together with a list of those who have promised papers. Here the various sections find themselves in most cases confronted with a difficulty, that even with the best wishes in the world it will be difficult to give a hearing to all those who desire to read papers before the Association. We may take it in general each section will be in session for altogether not more than twelve hours; at a minimum four hours will be devoted in each section to general discussions. This leaves eight hours for the reading of papers and for the discussions which may arise out of individual papers. Thus, even though no one is allowed to read a paper exceeding a quarter of an hour in

length, it would seem that only about twenty-five papers can be heard, and the President and Vice-Presidents of the sections will have a delicate matter before them in asking for papers and in determining what shall be read in full and what by title. It is here worthy of note that all papers read before the Association become its property, and must in the first place be offered to the *British Medical Journal* for publication. Invitations to the leading members of the profession in the United States have already been forwarded.

We are glad to state that by an order in council the Provincial Government has subscribed $2,000 to the purposes of the Association. Thus, altogether, through the public spirit of the Dominion Government, the Provincial Government and the Municipal Government of Montreal, $10,000 has been granted towards the coming meeting.

While several of the leading citizens have of their own free will offered pecuniary aid, it has been, after mature debate, considered advisable not to beg subscriptions from the general public, though aid in other directions will be gladly received. It has however, been thought well to obtain from members of the profession a guarantee fund. The meeting is being financed with great care and it is certain that this fund will be scarce drawn upon.

We note in the number of the *British Medical Journal* for April 17th, just to hand, a short editorial upon the cost of last year's meeting at Carlisle. After paying all out-goings there remains a balance in hand of £304 18s. 2d., giving a return of 10s. in the pound to the guarantors and still leaving in hand a sum sufficient to defray certain gratuities and acknowledgements of personal services which the local committee desired to make. Excluding these, the cost of the meeting to the members of the Border Counties Branch was considerably under £200, though the meeting was eminently successful, as already mentioned in these pages; indeed, our "British" contemporary quotes our words of commendation. We certainly cannot expect to conduct the meeting at so singularly low a rate; the cost of cabling and of correspondence with the Council must alone be a considerable item; but there is no reason why our meeting should cost more than ten times as much as that of Carlisle, however profuse be our hospitality. We are glad to announce that the citizens of Montreal are coming nobly to our aid, and that Sir Donald Smith, foremost as ever in good works, has already invited the members of the Association and its guests to a reception at 1157 Dorchester street upon the evening of Wednesday, September 1st. The Golf Club has also thrown open its links to members of the Association during the meeting. Others, again, are offering entertainments.

We note in several journals, and indeed one of the official announcements of the Association, one or two typographical errors which may cause some confusion, thus we therefore publish this in an amended and extended form.

PROVISIONAL PROGRAMME.

Wednesday, Aug. 18th to Thursday, Aug. 26th.

Meeting of the British Association for the Advancement of Science at Toronto.

Thursday, Aug. 26th to Monday, Aug. 30th.

Excursion for Members and Guests of the British Association, from Toronto via Niagara, Kingston, The Thousand Islands. Ottawa, etc., to Montreal.

Monday, Aug. 30th.

Meeting of the Canadian Medical Association at Montreal.

BRITISH MEDICAL ASSOCIATION.

Tuesday, Aug. 31st.

12.00 a.m.—Service in the English Cathedral.
2.30 p.m.—Windsor Hall: Opening ceremonies and addresses of welcome.
3.00 p.m.—Address by the President-Elect, T. G. Roddick, M.D., M.P.
4.90 p.m.—Garden Parties, Excursion around the Mountain, etc.
9.00 p.m.—Soirée at Laval University.

Wednesday, Sept. 1st.

10.00 a.m.—McGill University: Opening of sections.
3.00 p.m.—Windsor Hall: Address in Medicine, by Dr. Wm. Osler.
4.00 p.m.—Excursion down the St. Lawrence, etc.
9.00 p.m.—Reception by the Hon. Sir Donald A. Smith, G.C.M.G.

Thursday, Sept. 2nd.

9.30 p.m.—McGill University: Sectional meetings.
1.30 p.m.—Lunch on the Mountain.
3.30 p.m.—Windsor Hall: Address in Surgery, by Mr. T. Mitchell Banks.
4.30 p.m.—Excursion across the Island, etc.
7.45 p.m.—Annual Dinner of the Association, Windsor Hall.

Friday, Sept. 3rd.

9.30 a.m.—McGill University: Sectional meetings.
3.00 p.m.—Windsor Hall: Address in Public Medicine, by Dr. Herman M. Biggs, and concluding General Meeting.
4.15 p.m.—Excursion to Ste. Anne's and down the Lachine Rapids.
9.00 p.m.—Soirée at McGill University.

Saturday, Sept. 4th.

Excursions to Ottawa, Quebec, Kingston, Lake Memphremagog, etc.

THE OTHER SIDE OF THE CASE.

In the October number of the JOURNAL we published an editorial upon the use of a forged testimonial by the vendors of a quack medicine, which we characterised as flagrant and unscrupulous. We are still of the opinion that we were justified in our action, and that the vendors and proprietors by their action laid themselves open to the severest animadversions.

As the result of an action begun against them, and then only when they had contested the granting of an injunction to restrain publication, the vendors published an ample apology in the two leading

English medical journals and the leading American organ of our profession. At the same time we are perfectly willing to publish the explanations of their conduct forwarded to us by the Od Chem. Co., the vendors of the preparation in question.

"It is true," they write to us, "(that) we recently published in a pamphlet issued by us, entitled 'Witness Box No. 4,' relating to our product 'Sanmetto,' a testimonial purporting to have been given by Dr. W. B. Ransom, of Nottingham, England. The testimonial in question was received on a postcard, purporting to come from Dr. Ransom, but upon his affidavit as against any confirmatory particulars, including similarity of hand-write *(sic)* in the signature . . . we concluded that we had misguidedly made use of his name in connection with Sanmetto, and apologized to him for it. . . . . The above postcard referred to, having all the ear-marks of genuineness, even down to the minutest circumstance, and no motive of forgery apparent, we were naturally not led to question its authenticity at the time of its publication."

The pathologist for the Board of Health of the Province of Quebec desires to call attention to the fact that he has prepared a number of small outfits to practically test the amount of disinfection secured by our present methods, and will furnish the same to any physician applying for the same.

The outfit consists of pure cultures of suitable bacteria spread out on smooth surfaces and enclosed in small porous packets. The cultures are impregnated with bacteria, which while themselves harmless have a resistance to disinfectants equal to that of the common disease bacteria, but unless specially requested these test objects do not contain spores.

These packets are marked in four colours and are accompanied with the following directions:

Place packet A (red mark) a few feet from the spot where the disinfectant is generated, leaving it uncovered on a table, chair, etc.

Place packet B (yellow mark) at a spot in the apartments to be disinfected as far as possible from the source of the disinfectant, leaving it uncovered on a table or chair, etc.

Place packet C (green mark) in a place where there will be only a slight obstruction to the access of the vapours, *i.e.*, in a pocket of a dress or beneath a cloth or carpet.

Place packet D (blue mark) so that it will be in a place where the vapours will only penetrate with difficulty, *i.e.*, rolled up in several folds of blankets or placed inside or beneath a mattress or pillow.

After the disinfection is over they are to be replaced in the envelope and posted without delay to the Laboratory of the Board of Health. The packets are on no account to be opened, and should not be kept for more than three or four days before using. A report upon the result of the test will be forwarded as soon as it can be decided whether the bacteria have developed or not.

The Twenty-fifth Annual Meeting of the American Public Health Association will be held at Philadelphia, Pa., October 26, 27, 28, 29, 1897.

The Executive Committee have selected a number of topics for consideration, upon which special committees have been appointed. Papers will be received upon other sanitary and hygienic subjects also.

It is expected that the Philadelphia meeting will be largely attended. Its location is central, and the local Committee of Arrangements are already hard at work for its success.

All communications relating to local matters should be addressed to Dr. Benjamin Lee, Chairman Local Committee of Arrangements, No. 1532 Pine St., Philadelphia, Pa.

IRVING A. WATSON,
Secretary, CONCORD, N.H.

We are asked by the Curator of the Medical Museum, at McGill University, to state that the very valuable collection of calculi formed by Dr. Fenwick, and added to largely of late years by the members of the Medical Faculty and others, is at present being classified and mounted so as to form a very leading feature in the Museum. He would be glad to receive from old members of the university and from Canadian practitioners in general further contributions so as to make the collection thoroughly representative. Renal and vesical calculi, biliary calculi, salivary, pancreatic and other concrements will be duly acknowledged, both upon receipt and in the Museum Catalogue.

The many friends of Dr. T. Johnston-Alloway, will be pleased to hear that his health is now re-established, and that he is resuming practice at once.

The following appointments to the Resident Staff of the Montreal General Hospital have been made for the ensuing year: Drs. Pennoyer, von Eberts, Wainwright, Robertson, Harding and Gurd.

Dr. Fisk, who has been the Resident Medical Officer at the Montreal

General Hospital Section of the Civic Hospital for the past year, has been reappointed as Senior Resident Medical Officer. Dr. MacTaggart has been reappointed House Pathologist.

At the Royal Victoria Hospital the appointments to the Resident Staff are: House Physicians, Drs. Robins, Argue, McDougall and McCallum. House Surgeons, Drs. Feader, Archibald, Keenan, and Roy. House Ophthalmologist, Dr. Campbell. House Gynæcologist, Dr. Bruce Shaw. Dr. H. K. Wright, has been appointed Medical Registrar.

At a recent meeting of the Board of Trustees of the Jefferson Medical College, Philadelphia, Dr. J. Chalmers DeCosta was elected Clinical Professor of Surgery. Dr. DeCosta has been connected with the College for many years, and has recently been Demonstrator of Surgery and Chief of the Out-patient's Department. The new appointment is made in recognition of his long service and valuable contributions to surgical literature.

NEW BOOKS, ETC., RECEIVED AND NOTED.

Clinical and Pathological Report of a Case of Cerebral Syphilis. By George Emerson Brewer, M.D., and Pearce Bailey, M.D. Reprinted from the Journal of Cutaneous and Genito-Urinary Diseases, Sept., 1896.

Notes on some of the Newer Remedies used in Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., New York. Reprint from the Journal of the American Medical Association, Nov. 28th, 1896.

Actinoymcosis. By Parker Syms, M.D., New York. Reprint from the Annals of Surgery.

X-Rays. By Edward P. Thompson, M.E., E.E. D. Van Nostrand Co., New York.

Hand-book of Diseases of the Eye. Swanzy. 6th Edition. H. K. Lewis, London.

Braithwaite's Retrospect of Medicine. Vol. CXIV. January, 1897. Putnam, New York.

Transactions of the College of Physicians. Third Series. Vol. XVIII. Philadelphia. 1896.

Trifacial Neuralgia. Reprint from Transactions of Medical Society of Virginia, 1896. Anal Fistula; Peritonitis; Laparotomy; Recovery. Reprint from Cincinnati Lancet-Clinic, July 4th, 1896: Surgical Melange. Reprint from do., Sept. 26th, 1896; Twelve Deaths. Reprint from do., Sept. 12th, 1896. Chest Surgery. Reprint from do., Sept. 5th, 1896. Branchial Cysts. Reprint from do., Dec. 9th, 1896. By Merril Ricketts, Ph. B., M.D.