organised polity, such as would protect them against the unreasonable claims of corporations, boards, and bodies of trustees, to which, be it observed, they are at present quite as much in subjection in this country as foreign scientific officers are to their state governments. They might justly call upon the legislature to assimilate their position somewhat to that of the *legal* profession, the highest authorities of which, while handsomely remunerated, are nevertheless, by the British constitution, made wholly independent of political influence.

It is, however, very noticeable, that gentlemen holding scientific appointments, under English corporate bodies, public institutions, and voluntary associations, are apt enough to cry loudly for better pay, although they too often denounce, as unconstitutional, any scheme of organisation which would make their services more generally available and beneficial.

A wise Legislature and a foreseeing Government will scarcely sanction, still less interfere to enforce, a rate of salaries commensurate with the notions of learned officials, without requiring, at the same time, a regulated system of inspection and reports, so as to render scientific appointments of the greatest possible service to the community. Liberal salaries should, indeed, be paid to those who hold such appointments, but not so much for the object of raising science in public estimation, as of providing a useful and important body of public servants. A grand defect in Dr. Gray's proposition is, that he does not attempt to show how or by whom the good salaries which he asks for are to be paid. Mere exhortations to "governing bodies"—mere appeals, whether to their justice or to their mercy, are not likely to improve the remuneration, to elevate the position, or to promote the independence of the petitioners. The customary reply, though silly enough, is always at hand:—"Many persons, equally qualified, equally scientific, accomplished, skilful, and honest, are ready to undertake these duties for the salaries already paid: we cannot raise the market-price of intellectual labour." Those who are destitute of the power or of the will (perhaps of both) to think correctly on the subject, gladly accept so convenient a solution of the difficulty,—and the officers are bowed out.

"Governing bodies" are the last to discover the fallacy of their market-price theory. They do not perceive, or, at least, do not admit the obvious conclusion, that, if it be in principle just and correct, and therefore expedient, it ought also to be applied to the higher offices of the State, the Church, and the Law,—offices which, curiously enough, are often held by their own members. In determining the salaries of scientific officers, corporate bodies are not yet to be trusted; and Dr. Gray deprecates the intervention of the Legislature. Is the House of Commons, indeed, unwilling to recognise the claims of science when properly submitted to it? If it be so, which I doubt, what can we say of our boasted representative system? If, then, the Government is not to act in this matter, where is Dr. Gray's resource? But, if scientific men would take another course; if, through the British Association, they would unite in a reasonable request and a well-considered plan for organisation, by legislative enactment, so that their corps might constitute an integral part—a distinct element of the polity of the state, in both its *central* and its *local* spheres of action,—proving, also, as might easily be done, how the public would benefit to an extent far exceeding the full amount of the cost of such organisation,—there might be a fair prospect, even in this commercial country, of their proposals being received with consideration, and ultimately adopted.

QUEEN'S HOSPITAL, BIRMINGHAM: RETIREMENT OF DR FIFE. At a special meeting of the council of Queen's College, held on the 3rd instant, the Vice-Principal Chancellor Law in the chair, the resignation of Dr. Fife, one of the physicians of the Queen's Hospital, was received, and entered on the minutes. It will be seen by advertisement, that candidates for the appointment are requested to send in their testimonials on the 30th of April; that the council are pledged, in accordance with the fundamental laws of the College and Hospital, without favour or affection, to elect the candidate best qualified and most eligible, whoever he may be; and that canvassing, either personally or through friends, is strictly prohibited, and will be held to be an entire disqualification. In addition to the usual routine, the successful candidate will be required to give practical instruction at the bedside to the student; thus, the utmost possible zeal and energy on the part of the physician will be thereby secured to the patient, inasmuch as whatever is a matter of daily demonstration must be maturely and carefully reflected upon.

Gulstonian Lectures:

ON

DIABETES AND SACCHARINE CONDITIONS OF THE URINE.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS,
FEBRUARY 25TH, 27TH, AND MARCH 4TH, 1857.

By ALFRED B. GARROD, M.D., Fellow of the Royal College of Physicians; Professor of *Materia Medica*, Therapeutics, and Clinical Medicine, at University College; and Physician to the Hospital.

LECTURE II.

MR. PRESIDENT AND GENTLEMEN,—At the close of my first lecture (which, from pressure of time, was necessarily somewhat hurried and curtailed), I was endeavouring to point out the frequent occurrence of saccharine urine, *unattended* with any notable diuresis; and to press the importance of attempting more accurately to diagnose such cases by other symptoms than the altered condition of the urine. I then stated, as my opinion, that there was no one symptom which could be regarded in any way as pathognomonic, but that the existence of a group might often excite such suspicions as would lead to the examination of the urine, and detection of the disease. The symptoms upon which I dwelt most strongly were the presence of slight *adema of the legs*, not arising from cardiac disease or albuminuria; and certain cutaneous affections, especially herpetic eruptions and prurigo. I also mentioned that I had met with other forms of skin-disease connected with this condition of urine; and likewise that these patients, as well as true diabetics, were very liable to boils and forms of low inflammation.

Saccharine urine is occasionally met with as a temporary occurrence in severe derangements of the digestive organs, and in chronic gout and rheumatism; and sometimes it is detected in severe and apparently functional disturbance of the nervous system.

Having passed in review the most important symptoms of this disease, I shall devote a few minutes to the consideration of the course it usually runs. I must beg of you, however, to bear in mind that my remarks at present will apply especially to the cases of confirmed mellituria, and not to such forms of saccharine urine as appear to be temporary only in their nature, or to those where the diuresis is not well marked. I must also anticipate somewhat, by stating that, although these cases can be most materially benefited by treatment, yet few, if any, can be really absolutely cured. A diabetic patient, notwithstanding he may live for very many years, and arrive even at old age, is one whose life is at all times precarious, standing as it were on the brink of a precipice; and accidents, diseases, and shocks of various kinds, which to a healthy person would be of little moment, to him may be the cause of the greatest apprehension and danger. It is not in my power to give instances from my own practice of patients who have been diabetic for a *very* lengthened period; but I can point to cases of six, eight, and twelve years standing, the urine still remaining saccharine. These cases, I fear, form the exception rather than the rule; and the lengthened course of the disease, when it occurs, is probably due to the great care exercised by the patients themselves, and is seldom found among the poorer classes, who are necessarily exposed to the vicissitudes of the weather, and at the same time are seldom able to adopt such a plan of diet as is most conducive to their well-doing.

Among the secondary affections to which diabetics are liable, may be mentioned boils and carbuncles. Dr. Prout laid great stress on the connexion between a saccharine condition of the urine and the occurrence of these affections: in his article, he observes, "Diabetes very frequently (as far as my personal experience goes, *always*) accompanies carbuncles, and malignant boils or abscesses allied to carbuncles. This is a fact mentioned by several of the older writers, and is of great importance to surgeons, who usually have the management of these affections. Some years ago, an interesting case of this kind occurred to me. The patient was a middle aged man, who told me that, for a long period, he had been subject, at intervals of a year or two, to boils, one of which, generally on the back or neck, assumed the form of carbuncle; and that, during such attacks, he always passed a large quantity of saccharine urine. When I saw him, he was recovering from one of these

carbuncular suppurations; and the urine was copious and very saccharine. I lost sight of him afterwards, and am therefore unable to state whether the urine, in the interval of the attacks, recovered its healthy character. He repeatedly assured me, however, that its quantity, after a certain time, always became quite natural." I have given this quotation at length, as I consider the subject of great importance—at the same time, one upon which, as far as my experience goes, much error is entertained. That diabetic patients are liable to boils and carbuncles, I have little doubt. Some time since, a gentleman, a diabetic subject, who had previously consulted me, again called, after an interval of about two years. Almost the first question I asked was, "Have you managed to escape boils?" His astonishment was great, for he informed me that it was for this troublesome affection that he had come to town for advice. Such cases are by no means uncommon, and many instances will be found in the writings of Cheselden, the late Dr. Latham, and others. The point, however, to which I wish to direct attention is this, Are boils and carbuncles *necessarily* attended with a saccharine state of the urine? Dr. Prout was inclined to think they were; for he states that, as far as his personal experience went, diabetes always accompanies carbuncles and malignant boils, or abscesses allied to carbuncles. Within the last few years, I have made several observations to determine the correctness of this statement, and am quite convinced that it is erroneous. In one instance, a gentleman, aged about 70, suffering from a large carbuncle between the shoulders, from which he subsequently died, I examined the urine very carefully when the disease was fully developed: no trace of sugar was discovered. In the second, a gentleman about 60 years old, the urine, at the time when a carbuncle existed on the back of the neck, exhibited no trace of sugar. I have also made several other examinations of the urine of patients suffering from boils and carbuncles, without being able to find any saccharine impregnation. I think I am justified, therefore, in concluding that, *although boils and carbuncles are of very common occurrence in diabetic subjects, the presence of sugar in the urine of patients suffering from these affections is by no means constant, probably very rare; and that, when carbuncles and boils occur in patients not previously diabetic, sugar is very seldom found in their urine.* My colleague, Mr. Marshall, has, I believe, also examined this point in many hospital patients, and with the same result.

I have in some few instances seen *gangrene* in connexion with diabetes, and have no doubt that there is a close connexion between the two affections, in the relation of cause and effect. In one case, a female, aged 33, who appeared to have suffered from diabetes for some years, gangrene of one leg came on a few weeks before her death. This patient had also, during the last few days of her life, a purulent discharge from the right ear; and, on *post mortem* examination, a considerable quantity of pus was found upon the membranes of the brain. Another and more interesting instance occurred in a gentleman about 68 years old, who consulted me last year, and whom I found labouring under well marked diabetic symptoms, with strongly saccharine urine. I ascertained from him that the disease had certainly been present for many years; and that, about twenty months before I saw him, he had been laid up for several weeks with gangrene of the base of one toe; the cicatrix was still well marked. My patient was totally unable to account for the affection, for he had received no blow or injury upon the part. This connexion between gangrene and diabetes appears to have been noticed by a Frenchman, M. Marchal, who has recently read a paper on the subject before the Academy of Sciences. He relates a case of a man who, after having suffered from a succession of furuncles, exhibited gangrene of a toe, without obvious cause; and his urine was found to be strongly saccharine. The gangrened part came away; the wound cicatrised; and, by means of appropriate treatment, he much improved, and enjoyed pretty good health for about the space of two years. He then neglected himself, and his diabetic affection returned; the whole foot afterwards sphacelated, and the patient died. M. Marchal relates also a case, in the practice of M. Landouzy of Rheims, of sphacelus of the lower extremities occurring in a diabetic patient; and two other instances, under the care of M. Menestrel. One, a plethoric man, aged 60, had a patch of gangrene on the thigh and back, accompanied by much thirst and saccharine urine. The second patient had a large gangrenous patch on the back of the neck, also coincident with the presence of sugar in the renal secretion. M. Marchal considers that the presence of sugar in the blood induces an inflammatory condition of the lining membrane of the blood-vessels; and that this, in connexion with the low vitality which

exists in such cases, induces the gangrenous tendency, which may lead either to furuncles or gangrene.

I could bring forward several other instances of gangrene occurring in subjects who have suffered from a saccharine condition of their urine: for example, Dr. Durand Fardel states, in his work on the *Vichy Waters*, that, of two instances of diabetic patients who have died under his charge at that place, the immediate cause of death in one was gangrene of the leg; and my friend Dr. Halley also informs me that he has lost two diabetic patients from the same affection. I have taken this opportunity of dwelling a little upon the point; for though, I doubt not, the fact is familiar to many, still I think that, up to the present time, the frequent occurrence of this secondary affection has scarcely been noticed by authors, and gangrene has seldom been looked upon as one of the immediate causes of death in diabetes.

Diabetic patients, although apparently enjoying pretty good health, and feeling tolerably strong, are usually unable to bear any sudden shock to the system, such as would probably be but little felt by those in health. The late Dr. Prout informed me that, during the course of his practice, he had more than once been summoned to see diabetic patients who had travelled some long distance to consult him, and had found them either dead or dying—in his opinion, the result of over fatigue. Not long since, a lady, a diabetic subject, whom I had seen professionally, suddenly died, apparently from over fatigue, produced by watching at the bedside of a relative. That such patients have but little power to resist the attacks of febrile or inflammatory diseases, I had a very striking proof a few years since. Two diabetic patients, a male and female, were in my hospital wards at the time when an epidemic of influenza was prevalent. The male patient, a man 38 years of age, had improved very much in health during his sojourn in the institution; had gained flesh, and lost most of the ordinary symptoms of the disease. His urine also had been reduced to about the average of 80 or 90 fluid ounces *per diem*, specific gravity 1031. One day he was seized with cold chills, slight sore throat, and redness of the tonsils and uvula. From this time he gradually became colder and colder, the respiration more and more difficult; and, in the course of a few days, he died, seemingly in the cold stage of a febrile attack, the system not possessing the power of reaction. At the *post mortem* examination nothing was discovered capable of explaining the cause of his sudden death; no other appearances, in fact, than those met with in other diabetics. A day or so after the seizure of the man, the female patient was attacked in a similar manner; the pulse became very rapid and almost imperceptible at the wrist; and it was only by the immediate administration of large amounts of ammonia, wine, and other stimulants that life was preserved. Many of the other patients in the same wards suffered from influenza, but exhibited simply the ordinary symptoms of that disease.

It will generally be found that patients with saccharine urine are ill able to bear injuries or surgical operations. The following case well illustrates the fact. A man, about 35 years of age, who had suffered from diabetes for several years, but in whom the disease had been kept, to a considerable degree, in abeyance, injured one of his toes from a tight boot or some such slight cause. Ulceration ensued, and, after a time, opened one of the phalangeal articulations; the toe was amputated, but the stump refused to heal, and in about three weeks the patient died from the supervention of a gangrenous form of erysipelas. Most surgeons would hesitate to perform operations upon diabetic patients unless there is great urgency in the case. One of the most common terminations, however, of diabetes is by the occurrence of phthisis; and it is the prevalent opinion that this secondary affection constitutes the immediate cause of death in the majority of cases. I am, however, disposed to question the correctness of this opinion, although, at the same time, willing to allow that very many die from tubercular consumption. In most of the cases where I have had an opportunity of making a *post mortem* examination tubercle has been present in the lungs; in some in its advanced stages, in others but little developed: some lungs, on the other hand, have been completely free. Numerous other causes of death in diabetic subjects have been mentioned by authors; for example, Dr. Prout has noticed hepatic affection with jaundice, apoplexy, over distension of the stomach by food, excessive in quantity or improper in quality, etc.; sometimes the patient becomes comatose, the urine suppressed, and death ensues with all the symptoms of uræmic poisoning.

There is one point connected with the supervention of secondary diseases in diabetes to which I would wish par-

ticularly to draw attention, as it is apt, if passed over unnoticed, to be a fruitful source of error. I allude to the alteration which the urine often undergoes during these affections; it is not very uncommon to find a complete absence of sugar, a sign often regarded as favourable, generally, indeed, as a proof of the efficacy of some particular mode of treatment which a patient is pursuing at the time, but which is in fact too frequently a symptom of some secondary disease which may speedily terminate in death. I could quote many instances illustrative of this; one or two, perhaps, may not be without interest.

A gentleman, about five years since, consulted me, having all the characteristic symptoms of diabetes; urine strongly saccharine; specific gravity 1040, etc. After a few months every trace of sugar suddenly disappeared; but this apparently good sign was only induced by the rapid supervention of phthisis, of which he soon died. Within the last two months I had a patient in the Hospital labouring under diabetes and phthisis in a somewhat advanced stage; and it was interesting to watch the increase and decrease of the diabetic symptoms (including the specific gravity of the urine), alternating in an inverse ratio with those of the tubercular affection.

Lastly, I may mention the case of a lady who had suffered from diabetes for many months, but whose urine became perfectly free from sugar during, and for a short time after, a mild attack of scarlatina. The importance, then, of the knowledge of the disappearance of sugar under these circumstances cannot be too firmly insisted upon.

Occasionally diabetes assumes an intermittent or recurrent form; the patients, for a time, more or less lengthened, losing all traces of sugar, and this principle again appearing in the urine. I have seen one or two cases of this form of disease; and Dr. Bence Jones has drawn particular attention to it. A very careful watching of such subjects would be exceedingly interesting, and might perhaps afford some clue to the nature of this disease, by the discovery of other phenomena which perhaps may arise at the time of the cessation of the saccharine matter from the urine. Patients who lose the sugar for a time from the occurrence of other detectable disease, cannot with propriety be considered as suffering from recurrent diabetes; the term should be confined to those cases in which it takes place without the presence of any such secondary affection. Now and then patients are found exhibiting sugar in their urine during full digestion, but not in the intervals; and these, if not absolutely diabetic, are yet probably on the brink of this affection, and liable to have it developed from slight exciting causes.

Lastly, diabetic patients may permanently recover. Several instances have been related; but those well authenticated are exceedingly few in number. I cannot say I have ever seen a diabetic patient, whom I have known to have been affected with the disease in a well marked degree, suffering, for example, from the thirst, dryness of skin, and great diuresis, *permanently* lose all traces of sugar from the urine. I have, however, been assured by patients that they were formerly diabetic, and I have been unable, after repeated examinations, to find sugar in their urine. In many of the slighter cases, where the urine has been distinctly saccharine, and the patients have experienced symptoms, doubtless arising from the morbid state of the blood, as the herpetic eruption, etc., I have seen the renal secretion become perfectly normal, and remain so as long as I have been able to keep the patients under my observation.

From what we have now shown of the liability of diabetic patients to be affected by the occurrence of secondary affections, by shocks and injuries of various kinds, and from what we have stated as to the rarity of their ever completely getting rid of the disease, I fear we cannot fail to regard the prognosis as anything but favourable: but at the same time I am convinced that in many instances life can be greatly prolonged, so as to enable the patient to reach at least a moderate old age. To effect this, however, the strictest attention must be paid to diet and regimen, and the avoiding of great mental exertion and over fatigue of body.

CAUSES OF DIABETES.

I am not aware that the cases which have fallen under my notice, in which I have been able to trace what appeared to have induced the affection, will throw any new light upon the etiology of this disease; still it will be of some importance to dwell a little on this part of the subject, as, when discussing the pathology of saccharine urine, the recent physiological discoveries as to the nature of glycogenesis may, perhaps, be in some degree, confirmed or refuted by such a study.

Dr. Prout believed that diabetes was much more frequently inherited than acquired; as far as my limited experience goes, I cannot acquiesce in this opinion. I have, indeed, known several instances in which more than one member of a family have suffered from the disease; but in by far the greater number of cases, I have seen no proof of any hereditary tendency: females appear to enjoy a greater exemption than males; but, as in gout, I should be disposed to consider this immunity due to the greater absence of powerful exciting causes: adults are, I believe, more subject to diabetes than children, although the latter are by no means exempt. With regard to temperament I can say little. As to other predisposing causes it seems to be a pretty well ascertained fact, that depressing agencies long continued, such as residence in cold, damp, and malarious districts, frequent excesses in alcoholic liquors, a poor and unwholesome diet, tend to induce the disease; but very commonly no such causes have been in operation, and the affection has come on suddenly in the midst of at least apparent good and robust health. The most commonly recognised *exciting* causes of diabetes may be divided into three classes:—

1st. Causes influencing particularly the skin.

2nd. Those affecting the nervous system.

3rd. Those influencing more particularly the mucous membrane of the alimentary canal, and the organs in connexion with this tube.

Among the first class may be mentioned, exposure to cold; drinking a large quantity of cold water when very warm; bathing when over-heated, and afterwards becoming chilled; attacks of rheumatism, and other febrile diseases, followed by exposure; the occurrence of boils, etc., but probably these last may be rather indications of already existing disease, than true causes of the affection. These form one class of exciting causes, and, perhaps, the most numerous: the majority of my hospital patients have assigned some one of these.

The second class of causes has, of late years, excited some interest, on account of recent physiological researches on the subject. Under this head are included cases in which injury to some portion of the nervous system has occurred, or where the patient has experienced some powerful mental shock, as sudden and intense grief, or extreme mental anxiety. A case has been related to me by a very intelligent person, in which saccharine diabetes was produced by prolonged anxiety and fear, arising from the following cause:—Two gentlemen fought a duel in Holland: after the first had fired he remained for some time in a state of suspense, from his adversary's pistol once or twice missing fire. He was uninjured, but, a day or so after, became diabetic. The narrator of this case was not a professional man, but appeared to be fully conversant with the subject. That diabetes occasionally follows diseases and injuries of the nervous system, in the relation of effect and cause, seems pretty certain. Epileptics sometimes die with diabetes: I have known one instance. I have also seen examples of saccharine urine accompanying great, apparently functional, disturbance of the nervous system; and there are on record numerous instances of a diabetic state being induced by injuries to the back, concussions of the brain, and fracture of the skull. I examined and discovered sugar in the urine of a boy, a patient of my colleague, Mr. Marshall, who had a fracture of the temporal bone, produced by a blow on the mastoid process, and in whom, after death, pus was found in the cochlea and in the canal of the seventh nerve. One of my hospital patients, with confirmed diabetes, received a very severe blow on the head shortly before noticing the symptoms of his disease; and many examples of the influence of injuries to this part of the body, producing a saccharine state of the urine, have been brought before the profession by Dr. Goolden. We shall shortly, when treating of the pathology of this disease, detail experiments having a considerable bearing on the subject.

A third class of causes, of which, at present, little is known, consists in the introduction of irritating matters, as alcoholic fluids, indigestible food, etc., into the stomach. An excessive debauch has been followed by the disease; drinking large amounts of cider, or other diuretic fluids, have been stated to have produced the same result. A gentleman, well versed in such subjects, informs me, that he can produce, and has more than once produced saccharine urine in his own person by eating very indigestible substances, and that such a state has lasted some days. An exclusively vegetable diet has been asserted to have caused diabetes; and the case is related of a priest, at a convent in the south of France, where the diet is of this character, having acquired the disease. A case is also related of

nitre, taken in a very large dose in lieu of Epsom salts, causing great diuresis and mellituria, after the symptoms of irritant poisoning had passed off. In lower animals we shall also find that the introduction of alcoholic and other irritants into the duodenum, or portal vessels, is followed by a saccharine condition of the urine.

Lastly, it is affirmed, that the administration of certain remedies, as arsenic and quinine, produces, at times, a temporary impregnation of the urine with saccharine matter. Although the causes included under the third head may occasionally operate in inducing the affection, yet they by no means necessarily cause it; otherwise we should find diabetes a much more frequent disease than it actually is. With regard to the whole subject of the etiology of diabetes, and of our knowledge of the causes which will temporarily produce a saccharine state of the urine, many and more accurately ascertained data are required than we at present possess.

[To be continued.]

Reviews and Notices.

ON THE PATHOLOGY, SYMPTOMS, AND TREATMENT OF ULCER OF THE STOMACH. With an Appendix of Cases. By WILLIAM BRINTON, M.D., Fellow of the Royal College of Physicians; Physician to the Royal Free Hospital; etc. pp. 227. London: Churchill. 1857.

AMONG the several works which have in recent years been written on the diseases of the stomach, that of Dr. BRINTON, though confined to the consideration of a special lesion, possesses a high value; inasmuch as it contains evidence that the author has laboured with much industry and a good share of success at the elucidation of the somewhat obscure subject of his investigations. We speak with limitation as to the absolute success of Dr. Brinton's researches; but in this we do no more than the author himself, who candidly admits "how much we have yet to learn respecting even the more obvious pathological indications of this important malady." The manner, however, in which Dr. Brinton has performed that which has been done, shews him to be competent for the performance of what remains to be done.

In his treatise, the author arranges his remarks under three heads:—1. Pathology; 2. Symptoms; and 3. Treatment. An appendix contains the histories of ten cases, "reprinted, with little change, from the ASSOCIATION JOURNAL." We note with satisfaction, *en passant*, that these cases "are intended to illustrate the more common (and therefore important) varieties of the malady." The recognition of the importance of common cases shews Dr. Brinton's good sense; and it would be better if this principle were much more generally recognised.

In the first part—that on Pathology—Dr. Brinton gives a large amount of valuable statistical information regarding the frequency of ulcer of the stomach, as well as of perforation and hæmorrhage, the age at which and the sex in which it most commonly occurs; and also particulars as to its size, shape, number, margin, base, depth, etc., of gastric ulcer, and its combination with cancer, tubercle, and other diseases.

In the second part, the author has derived his information regarding the symptoms of ulcer of the stomach from two sources, viz.:—"1. The records of several hundreds of cases, affording in many instances little more than an outline of the chief symptoms present, but always verified by careful necropsy. 2. The personal study of about one hundred and fifty cases, affording minute details respecting symptoms, but only verified by necropsy in a small proportion of that number."

Of the succession of symptoms in a typical case, Dr. Brinton gives the following outline:—

"The malady is announced by disturbances of gastric digestion: at first, mere uneasiness and pain in the epigastrium; then nausea and vomiting, or regurgitation, which expel the food previously taken, or a tasteless or acid watery secretion. At this stage of the disease, it is sometimes cut short by the

occurrence of perforation, with its sequel of fatal peritonitis. Failing such an accident, the dyspeptic symptoms are next complicated by hæmorrhage from the stomach; sometimes a sudden and dangerous gush, oftener a slow and intermittent drain, of blood. The anæmia produced by this hæmorrhage is generally associated with a cachexia which seems to be essentially independent of it; being chiefly the result of the inanition necessarily implied by frequent vomiting of the food, or by large destruction of the gastric mucous membrane, and consequent impairment of its function. In young females, another symptom is often present, in the form of more or less complete amenorrhœa, which may be associated with either of these two states of anæmia or cachexia; in other words, may be connected with ulceration, with hæmorrhage, or with both.

"The gradual acquisition of all these symptoms conducts the disease, in a variable period of time, to a climax, from whence we may next briefly trace it towards its termination. Retaining the liabilities to death by perforation, by hæmorrhage, by vomiting, and by exhaustion, which the above organic results of ulceration severally imply, the lesion often ends by one of these modes of dying, or by two or more of them in combination. In other cases, a spontaneous subsidence of these symptoms, in something like the inverse order of their occurrence, announces a recovery; or a similar amendment is only effected by careful medical treatment, such as quite entitles us to dignify it by the name of a cure. In less numerous instances, these symptoms continue with what is (for obvious reasons) rarely more than a moderate intensity, during a variable period of life; in the course of which their uniformity is from time to time varied by considerable fluctuations of severity. The remissions which form one extreme of such fluctuations sometimes merge into intermissions so complete, that we are left in doubt whether the process of ulceration has been merely reduced to a stand-still, or has broken out afresh after the cicatrization of the lesion. In any case, the protraction of these symptoms during many years of life gradually complicates the impairment of nutrition they produce, with that naturally resulting from the approach of old age; mingled with which they then constitute an indirect or conditioning cause of death, the influence of which it seems scarcely possible to estimate with any exactness." (pp. 60-2.)

But the symptoms vary much in different cases; and hence they each demand careful examination. The phenomena of pain, vomiting, hæmorrhage, constipation, diarrhœa (a comparatively rare symptom), amenorrhœa, cachexia, perforation, and ampliation, or enlargement of the stomach as a result of the constriction produced by a cicatrix, are therefore fully and ably discussed in all their varieties.

One of the statistical facts referred to in the first part of the work is the frequency with which perforating gastric ulcer occurs in females, especially in the six years between fourteen and twenty. This remarkable liability to perforation at this period of female life—a fact first established, as Dr. Brinton acknowledges in complimentary terms, by the industry of Dr. Crisp—naturally leads to the inquiry whether it has any relation with the physiological phenomena of the female system. The existence of any such relation is, as Dr. Brinton observes, very problematical.

"Not only do the proportions of older females, and of males, who succumb to this accident, afford abundant evidence that it is essentially independent of any such cause, but the circumstances of many of these cases (occurring in young females) themselves are such as inculcate great caution in coming to any definite conclusion on their causation. Some of them are expressly mentioned as not having arrived at puberty: others are recorded to have menstruated regularly, and even profusely: and finally, one of the most characteristic instances occurred in a person who, though supposed to be a female, was proved by a careful necropsy to be devoid of ovaries. And whatever the relations which the various symptoms of such cases bear to each other, or however expedient it may be to regard these, with their age and sex, and their liability to perforation, as constituting them a special group, there can be no doubt that we know nothing at present which would justify us in regarding them as pathologically distinct from others. On the contrary, there is every reason to affirm, that in a large number of the females who became the subject of the lesion at this epoch of life, it has precisely the same origin, course, termination, and