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CANADA

MEDICAL JOURNAL.

ORIGINAL COMMUNICATIONS.

On the Exanthemata which have prevailed in Quebec during the past twelve months. By Wm. James Anderson, L.R.C.S.E.

When we consider the important functions dependent on the skin; that through it there transpires in an adult, every twenty-four hours, from thirty to forty-five ounces of matter, and that the diseases which affect it cause one ninth of human mortality, the importance of the study of the Protean forms which the exanthemata present will at once be admitted, especially at the present time, when there is much reason to suppose that they, as well as other forms of disease, have been, and still are undergoing *change of type.* Having already made the exanthemata my special study, I have availed myself of the opportunities lately presented by the prevailing epidemics, of prosecuting my enquiries, and in so doing, I have had the advantage of consultations with several friends, who have afforded me opportunities of observing many cases of interest both in private and Hospital practice, and I now propose to give the results.

Of the primary sources of the exanthemata, we know nothing certain, but it is instructive to mark the gradual expansion in their diagnosis. All of them have sprung up since the sixth century; and the Arabian physicians were impressed with the belief, that small-pox and measles, the only two of the now numerous family, then known, were pathologically associated; and as late as 1687, Diemerbroeck asserted that these two diseases were only different degrees of the same malady; but Sydenham, his contemporary, who had devoted much of his attention to measles, permanently separated small-pox from them (which he designated *morbilli*), and pointed out also the probability of scarlet fever being another distinct disease though the belief of the identity of measles and scarlet fever still generally prevailed, and it was only a century later

that observers recognized them, as two distinct diseases, arising from two distinct miasms.

About the middle of the present century, no less than twelve distinct forms of exanthematous fever, were recognised, and divided into three classes;—first, the greater exanthemata seriously affecting life, viz, small-pox, measles, scarlet fever and erysipelas;—second the lesser, vaccinia, varicella, herpes and miliaria; and third, the simple efflorescence, lichen, urticaria, roseola and erythema. It could not be denied that these bore a certain pathological relation to each other; but it was said that this principle was not more applicable to small-pox and cow-pox, than it was to small-pox and measles, to small-pox and chicken pox, to measles and scarlet fever. "The relationship," says Dr. George Gregory, "may possibly consist in some modification of the elements which compose the morbid miasm, and may be analagous to that which exists between nitrous oxyde and nitrous acid and nitric acid, but is very different from absolute identity." That these poisons were very different, was supposed to be proved by the alleged fact of the body being capable of receiving at the same time, the germs of two exanthemata, which went on *pari passu* or the lesser might be suspended by the greater. It was also noted that when one epidemic diminished, another increased, and that each year was distinguished by some *master* epidemic, and hence the recognition of *vicarious mortality*, by which the blessings of vaccination were to a certain extent counterbalanced. Thus when small-pox ceased, measles prevailed; when measles disappeared, scarlet fever held its fatal sway, so much so, that McIntosh, writing in 1831, says, "The plague is scarcely more dreaded in Constantinople than scarlet fever is in Edinburgh." In 1840 scarlet fever was so general and so fatal, that the mortality exceeded by one fifth the ravages of small-pox. During the epidemic of 1838 we find that under the law of vicarious mortality, the sum total of epidemic mortality, on an average of years, since the introduction of vaccination has remained nearly the same.

In treating of the exanthemata, most of the eminent writers have recognised certain laws as bearing on them, viz:—

1st. Law of contagious origin;

2nd. Law of universal susceptibility;

3rd. Law of epidemic diffusion;

4th. Law of presence and course of constitutional proneness;

5th. Law of the course of the local or cutaneous affection;

6th. Law of non-recurrence.

And in 1851, Dr. George Gregory thus wrote;—"The peculiar steady course of exanthematous fever enables us to predict the result, or, as we

commonly say, to prognosticate in eruptive fevers, with a certainty which it is not permitted us to do, in any other tribe of diseases." Since then, however, circumstances have occurred, which have compelled many greatly to modify the views which they had entertained; and perhaps few will now be found, who would be willing to subscribe the six laws above given. Many now believe with Drake (who gave it as the result of thirty-years' observation) that scarlet fever and measles may be merely *varieties* of the same species, and think that it is quite possible that the same miasm may produce different exanthemata. Many more will be found who repudiate altogether the law of *non-recurrence*, believing, for instance, that scarlatina may be taken not only twice, but many times. It will be my object to shew the bearing which the cases which have recently come under my notice have on the question.

The past season has been characterised by a more than ordinary prevalence of exanthemata, and there are at present epidemic, variola and varioloids, varicella and its several forms. Scarlatina and morbilli of various types, and lastly roseola, many cases of which, I have reason to believe, have been classed under the heads which I have previously mentioned. I shall first select for remark *scarlatina*. It has been very prevalent and very fatal, and so far as I can judge from pretty extensive enquiry, has generally shown a typhoid tendency.

On the 25th of last November, I was asked to see a little boy about seven years of age, at his parents' residence in St. Louis suburbs. There were eleven children from twenty-two to three years of age. The house was not drained, and was badly ventilated, and scarlatina had been some time prevalent in the vicinity. The little patient had hot skin, quick pulse and sore throat; I could discover no eruption, though I suspected scarlatina fever. The mother had given a dose of laxative medicine, which had operated very powerfully. There not being any mustard in the house, I recommended *coal oil* to be applied round the throat, a gargle of chlorate of potass, a soap bath at bedtime and acidulated barley water for drink. Next day I found the throat relieved, no eruption visible, but it could be distinctly felt along the back. Continued the treatment with the addition of chlorinated waters, after Watson's formula. In the evening the eruption showed itself imperfectly, and was of a raspberry hue, more like measles than scarlet fever. On next morning's visit, found he had passed a tolerable night, and that the eruption was pretty freely developed, but the cervical glands were also very much enlarged. There was yet no unfavourable symptom, but having been informed by the mother that she had lost her three first children by scarlatina in one day, and as another of the family a girl of fourteen years of age showed premonitory

symptoms, I asked permission to bring Dr. Moffat of the staff, who had been for some time in attendance on the father of the family, and I had the advantage of his aid and counsel during the whole of my subsequent attendance. Dr. Moffat advised perseverance in the treatment already adopted; and the case, though severe, with typhoid tendency, progressed favourably till the 30th, when there was some retrocession of the eruption, attended with aggravation of throat symptoms and oppression of chest. Solution of nitrate of silver was applied to the throat; a mustard bath and a sinapism to the chest, afforded great relief, and carbonate ammonia and camphor waters were also administered. On the 31st diphtheritic symptoms were presented; the disease had extended from the throat to the larynx; and early on the morning of Dec. 1st, the little sufferer expired suddenly.

In the meantime on the 28th Nov., there appeared on various parts of the body of the girl already mentioned, a dullish raspberry eruption, and the tonsils were swollen and ulcerated, yet she could not be prevailed on to go to bed, being desirous of helping her mother with the other children, several more of whom had now succumbed to the disease. At length an attack of epilepsy, to which she had been for some years subject, compelled her to keep her bed. The eruption continued to extend, and continued of the same dull colour, deepening to a purple when the fits came on, which they did several times a day. It was considered requisite to give ammonia and wine freely, but the disease of the tonsils extended to the larynx, the fits became more frequent, great oppression of breathing, which was only temporarily relieved by the sinapsims, and it was utterly impossible to keep the extremities warm. On visiting her on the afternoon of 5th Dec., I was overpowered with a most offensive smell, which on enquiry, I found proceeded from a profuse discharge of a thick dark *tarry* matter from the uterus. The whole surface of the body was mottled and livid and deathly cold, and she expired while I was there. At this time all the children were down with the fever, except the second son, a lad of twenty, and though none of them showed the bright scarlet eruption, and there was a tendency to a sort of erysipelatous action of the tonsils, yet by great attention to the throat, by the frequent use of gargles of chlorate of potass, of hydrochloric acid, of tinct. of capsicum, and by painting with solution of nitrate of silver, and by the internal administration of carb. and citrate of ammonia, and by the frequent application of sinapsims, all fortunately overcame the disease. On the 9th December, a dull miliary eruption began to show itself on the face and forehead of the second son already mentioned; there was only slight sore throat, but great tendency to laryngeal symptoms, with aphe-

nia. The eruption extended over parts of the body, maintaining its miliary character and dull purplish hue. He also suffered from severe rheumatic pains, especially of the shoulders, for which it was found necessary to prescribe iodide and citrate of potass. This case also terminated favourably, though the aphonia continued for many days. Three of the cases were complicated with epilepsy, and from the unfavourable circumstances under which we had to conduct the treatment, (eleven patients being confined to two small rooms, communicating with each other) several of the younger children had dropsy, and the elest daughter, nineteen years of age, had sharp secondary fever, accompanied with *blebs*. There were no proper means of ventilating the chambers, and though chloride of lime and Condy's fluid were freely used, the air was so vitiated, that both Dr. Moffat and myself remarked that we could not remain anytime in the chambers, without finding soreness of our throats. In all the cases with the exception of the second one, the anginose symptoms were sufficiently marked to characterise the disease as scarlatina, but in none of them was the eruption such as would answer, either in appearance or course, the description usually given of that exanthem.

The case of the second son might be with propriety viewed as a severe case of roseola miliaris. I may mention that Dr. Rowand was called in to consult, and on one occasion saw eight of the cases, but did not think it necessary to suggest any alteration in treatment. Dr. Marsden, who was called in, on the same occasion as Dr. Rowand, as a friend of the family, also concurred.

I shall advert to one other instance of scarlatina in a family in the same suburb, but residing in a well-ventilated house and possessing every comfort and convenience for health or sickness. I was called on the 8th Jan. last to consult with Dr. Rowand on the case of a fine girl of about twelve years of age, whose case of *decided* scarlatina had been complicated with chorea, with which she was then alarmingly affected, and under which I regret to say she subsequently died. The symptoms of scarlatina in this case had been well marked, as to the angina eruption and subsequent desquamation; but in the cases of two of her brothers, which I had an opportunity of seeing, one much more resembled measles and the other roseola.

I now come to a very interesting case. On Sunday, 28th January last, Dr. Moffat invited me to visit with him, a boy in the same suburb St. Louis. He informed me that some time previous he had been summoned to visit this boy's brother who was about eleven years of age. He found him presenting all the symptoms of some impending exanthem; on inquiry he found that he had been vaccinated, the cicatrices being present.

To his surprise however in a few days the case presented itself as a most severe attack of confluent small-pox, from the crown of his head to the sole of his feet. Under *Saracenia*, administered internally, and solution of nit. silver applied to the face, he made a most favourable recovery, and no pits were left. This boy had scarcely recovered when the baby, a child over one year of age, fell sick; a sort of purple eruption made its appearance, attended with sore throat, which became diphtheritic, and the child suddenly died. Next day the little boy we were about to visit was attacked with high fever and sore throat, but as yet no eruption had appeared. On entering the house we found the child lying in bed, the countenance flushed, but no eruption; however on removing the bed clothes, the whole body was seen red as a lobster. This turned out an unmistakable case of scarlet fever; he had no bad symptoms, and has made a most favourable recovery. The mother has since had a very sharp attack of angina unaccompanied by eruption. Here we have within one month, in the same family, and in the same room, a marked case of confluent small-pox; a case of diphtheritic roseola; a most undoubted case of scarlatina, and a case of angina—Were four specific miasms present, or was one specific poison sufficient to produce these different forms of disease?

I may here mention, that in the London Lancet for May, 1845, Dr. Robert Barnes has reported an instance of the infection of the system at the same time, by the poisons of small-pox and scarlatina, in a girl of nine years of age, from whom *varioloid* was communicated to her three sisters, and *scarlatina*, to another girl in the house. From which Dr. Barnes assumes, that a patient affected with coexisting small-pox and scarlatina, may serve as a common focus of contagion, from which either of these diseases may be separately transmitted. Dr. Bickley, the American editor of Dr. Gregory, in commenting on these cases, says, he has not unfrequently seen variola preceded by scarlatina, and also coexisting with it. Mr. Marson, of the London Small-pox Hospital, has seen seven cases and numerous instances of the coexistence of different eruptive fevers—The Md. Chir. Rev., Oct., 1847, contains cases by Barthez, Relliet and Levey, of scarlatina coexisting with variola twelve times, and with morbilli seven times; and since then we have had epidemics of rubeoloid, scarlatina or hybrid.

Morbilli or Measles.—Measles have been very prevalent, but, as a general rule, have not been by any means so fatal as scarlatina. Measles and scarlatina have been, in many instances, present in the same neighbourhood and same family, and hybrid has not been of unfrequent occurrence.

On the 24th January, I was called to visit a boy, fourteen years of age, the son of the gardener at Merton Lodge, two miles from the city. He had been complaining for several days, with what, under ordinary circumstances, I should have been disposed to consider premonitory symptoms of measles, but as he had been in contact with a family with small-pox, I hesitated to say whether it would turn out to be measles or small-pox. On the evening, rubeoloid eruption appeared partially on the face, and epistaxis occurred; there was coryza and very troublesome cough, and pain in the larynx. Coal oil was applied to the throat and chest, steam inhaled, and chlorinated water administered. On the following day, the eruption had extended to the back and thighs, and laryngitic irritation still very prominent. On 26th eruption well out, and undoubtedly morbillious—the laryngitic irritation shown by a very troublesome short cough, being still the most prominent symptom. On 27th eruption disappeared from face; all symptoms ameliorated. On 28th eruption totally disappeared from body. On 30th quite well, only to guard against urgency of appetite. On this day the eruption appeared on three more of the children, and other two and the mother were complaining. On the 31st eruption appeared on the mother and one of the remaining children. In the five children, the measles were fully developed, and ran their course regularly. The mother believed that she had measles before; and recollected that the little boy nine years of age, still unattacked, had had them very severely. This latter continued to lounge about, complaining of headache, soreness of his bones, and *sore throat*, and his face was flushed, and pulse accelerated. Had measles not been in the house, I should have suspected scarlatina; but on the 2nd February, slight miliary purplish eruptions appeared, chiefly on the back thighs, which prevented him from sleeping at night, from a stinging itchiness, which kept him constantly scratching. He had no cough. After the second day the eruption gave no further trouble, and disappeared on the fourth. The body of the mother was completely covered with true morbillious eruption. Coryza was very severe; the eruption on the forehead was the same as that on the body; but on the cheeks, instead of a rash, there had appeared triangular purple blotches, about an inch in extent, attended with intolerable itching, which was readily relieved by sponging with tepid waters. On the evening of the fourth day all the symptoms were alleviated, and the eruption was fading gradually away. On the following morning I was surprised to find my patient with her face swollen with a confluent conoid eruption, and a new and distinct conoid eruption over the whole body. On the following day the eruption was still more developed, and vesicated on the apex. I was alarmed by

a most offensive smell which proceeded from her person, and, on enquiry, I ascertained that it proceeded from the menses, which had ceased on the 17th January, but had unexpectedly returned. The eruption on the body had also assumed a coppery colour. In addition to the chlorinated water, I now prescribed effervescing draughts of carbonate of ammonia and citric acid, and a solution of citrate of ammonia, to be frequently taken.

On examination of the vesicle by the magnifying glass, there appeared a tendency to become pustular, and I was inclined to consider it a case of mild vesicular variola; but on the following day the eruption on the face began to dry, and the skin to crack, and on the sixth day from the appearance of this second eruption it began to desquamate, and the conoid eruption on the body showed under the glass on its apex, a small shrivelled dry scale or rather scab. On the eighth day the face was clean, the conoid eruption could not be felt on the body, but a brownish spot, *not pit*, showed where each cone had been. All fever and uncomfortable feelings had passed away, and nothing further was required but attention to diet. The six children were all treated alike, and required nothing but a simple dose of senna and tartars, and the chlorinated waters. The diet during the eruption was confined to barley waters and sago or porridge.

On mentioning this case to Dr. Moffat, he directed my attention to a case then under the care of Dr. Duff, of the artillery, in the garrison hospital, which, with the permission of Dr. Duff, I have had the opportunity of watching. The man, an artilleryman, had been attacked with all the premonitory symptoms of a severe exanthem, but no eruption for a time appeared; at length a purplish papular eruption appeared round the loins, like a belt. On Friday, 9th February, I visited him with Dr. Duff; the eruption on the loins was beginning to fade, but the face was now covered with a papulo-vesicular eruption, and he was complaining of very sore throat. On Saturday, 10th, I again visited him with Dr. Adset, and on examining the eruption with the aid of the glass, the vesicle was found to contain fluid, which appeared to be thickening, and unless it should terminate as the case I have mentioned, I had no doubt it would become pustular. Sunday, 11th, vesicles becoming pustular. Monday, 12th. On visiting him with Dr. Duff, this morning, the face was swollen with confluent small-pox. A ring of pustules surrounded each wrist and ankle, and looking through the glass several of them showed depressed centres. This man had been vaccinated. This case reminds me forcibly of that which occurred to Dr. G. Gregory and W. Hammond, at Windsor, and which was at first pronounced to be fever; two days

afterwards roseola, and still two days later, small-pox. Such cases have been styled, erythema rubeolasum and variolosum, but I think it better described by the term used by Dr. Erasmus Wilson, viz: *roseola punctata.*

Variola, &c.—Variola, varioloid and varicella have been remarkably prevalent during the past twelve months, and as yet there is no diminution in the number of cases—variola has been both severe and fatal, and varioloid in persons who had been undoubtedly vaccinated has been of frequent occurrence, but I have not heard of any fatal cases. During the past week, I have seen two cases in the Military Asylum, under Dr. Moffat, two little brothers of the respective ages of five and seven years. They are the sons of a soldier, and their mother says they were both vaccinated in early infancy, by the regimental surgeon, and the cicatrices are now quite distinct. Both cases are progressing most favourably, under saracenia and painting with solution of nitrate of silver. Mild and vesicular and vesica pustular variola, have presented themselves in such a form as not to entitle them to the designation *mild*, given to them by Dr. Thomson; and varicella presenting its threefold lenticular, conoidal and globose eruption, has been ushered in with symptoms so remarkably severe, as to warrant the belief, that the disease might be variola; and in some cases, the vesicles so closely resembled, at a certain stage, those of variola, that no one would venture to affirm that they would not become pustular. Many such cases, I have no doubt, have been classed as small pox.

From a review of the present epidemics, I have come to the conclusion, that a very great change has taken place in the character of the exanthemata. Can any one who knows the high powers which Sydenham brought to bear on his investigations and descriptions of disease, suppose for a moment, that if the marked distinction, which at a later period showed itself between scarlatina and morbilli, had been present in his day, that he would have hesitated to separa them from each other, as he did, morbilli from variola. I can have no doubt that the type of continued fever is not what it was thirty years ago; and I believe that the character of the exanthems has changed as greatly within the same period. When small-pox began to disappear, measles and scarlet fever assumed distinctive types, and produced a mortality which had not previously attended them; afterwards they presented themselves in the coexisting or hybrid form, and within the last ten years, roseola—which, on its first appearance, was viewed as a very slight affection, neither deserving notice nor treatment—has assumed an importance and severity which rank it with variola, scarlatina and measles, &c. &c.; the most experienced, at times, finding it difficult to pronounce to which of these it belonged.

During thirty years of my medical life I have seen epidemics which I had no difficulty in pronouncing scarlatina or measles; but after 1838, I have met with numerous cases which I could not conscientiously pronounce the one or the other. And latterly, I think, to find a case which would answer, in every respect, the description either of measles or scarlet fever, as given to us by the authorities thirty years ago, is the exception and not the rule. I am one of those who, without denying the contagiousness of scarlet fever, decline to admit its contagious *origin*. No doubt can possibly exist, that in a very large proportion of cases, scarlatina is produced by contagion; but I believe that many epidemics, and many sporadic cases, are produced without personal contact, or contact with fomites, and that a certain combination of circumstances can develop an eruption possessing *all* the characters of scarlatina. I not only believe this, in connexion with scarlet fever, but also with variola, morbilli, varicella and roseola. All my observations made during ten years, as health officer of the Port of Pictou, N. S., went to convince me, that all these diseases had arisen from causes created on board ship at sea, and had not been produced by contagion from the country of emigration. My later observations incline me to believe, that scarlatina has not its own specific miasms and morbilli another and roseola a third; but that the system being in certain distinct conditions, the *same poison* may produce the disease to which the condition is prone. If this be not admitted, then we must believe that, as one of the instances I have cited, a small room in St. Louis suburb contained, at the same time, four distinct poisons, viz, of variola, roseola, scarlatina and angina. I believe that the types of morbilli and scarlatina have changed and are changing still more; and that under the term roseola, we are presented with varieties of exanthems, daily increasing in importance, which were not dreamed of in the philosophy of the standard authorities of thirty years ago. We can, however, congratulate ourselves that, while the type of disease has changed, the resources of our art are increased; and that though we may be at a loss to classify an epidemic, our sound principles of pathology will lead to no uncertain practice—and that we have at the present time attained a more complete mastery over disease, than was at one time thought possible.

Quebec, 25 St. Genevieve Street, 12th February, 1866.

A Few Thoughts on Puerperal Fever. By GEO. D. SPOONER, M.D.

Considering the anxiety the above-named disease excites in the minds of all who encounter it, its frequent fatality, and the obscurity in

which it is yet involved, I presume any remarks calculated to inspire greater confidence in the minds of physicians when contending with it, or which are intended to give a clearer if not a more rational insight of its character, will be quite in order, and not foreign to the object of your publication.

By some, puerperal fever is treated in an unvarying routine, believing the disease to be always essentially the same, and these may be divided into two classes. One class believes the *fons et origo mali* is in phlogosis of one or more of the abdominal viscera, and as might be expected, their treatment is strongly antiphlogistic and depletive; the other believe it to be typhus or adynamic in its nature, and their treatment is stimulant and supporting. Both are right, and both wrong; and he who attaches himself unwaveringly to either, although perhaps apparently successful for a season, will in the end meet with great disappointment. Dr. Mitchell is an unflinching advocate of the former, (see his paper in the fourth vol. Obstetrical Transactions, p. 96.) and his treatment, following Dr. Armstrong, is to bleed to syncope, followed by the administration of large doses of opium and extensively irritating the whole abdominal surface. Having adopted and practised his views, I will give the details of the management of three cases, with their result.

Mrs. F., mother of a large family, aged 35. I was called to see her two days after confinement; she complained of *severe pain* in her hypogastric region, with high fever, pulse 133, and middling as to fulness and force, slight perspiration, dark circle under eyes, sallow complexion; she ascribed her trouble to having taken cold through injudicious exposure. I bled her to incipient syncope, administered hyd. submur gr. j et pulv. opii. grs. ji every five hours, applied a blister over seat of pain, darkened the room, and enjoined absolute quietude. This was continued for six days, when the pain and fever being completely gone, castor oil was administered—the bowels having remained inactive during this time—which operated well and the patient steadily recovered.

Mrs. C., mother of several children, had an abortion at three months; attended to by an old woman. I found her three days after complaining of *very severe pain* in hypogastric region, with fever and delirium; on examination, found a large putrefying clot in the *os uteri*, which of course was removed. I bled her, although very weak, to incipient fainting, and proceeded as in the other case. In eight days she was able to be up for a few minutes at a time, although at first her life was quite despaired of by her friends.

Several other cases might be mentioned, treated on the same principle, all of which recovered; the prominent symptom and complaint of which,

as in the foregoing, *was the pain in the hypogastric or lower abdominal region. But*, last summer, I was called to attend a Mrs. P. in her first accouchement, which was quite satisfactory, except that the pains were weak with long intermissions, necessitating an occasional drachm of the tinct. ergot., and terminated in about ten hours, the patient feeling pretty well exhausted. On the fourth following morning was called to see her, and requested from herself to bring something to quiet the nerves. On arrival I found her nerves quite unsettled—had not slept during the night, nipples very painful—looked depressed and complained of great weakness, dark circle under the eyes—*articulation not so distinct as usual*, which she ascribed to a feeling as of thickness of the tongue; had asked the nurse strange questions during the night during which time the bowels had operated twice; some tympanitis, pulse weak, quick and regular, skin cool and moistened with sweat, *no pain* in abdomen or pelvis, even by pressure. Supposing the trouble to be merely of the nerves, I prescribed morph. acet. and spirit ammon. arom. with rest and quietude, and solution of gutta percha tissue in chloroform for nipples. The second evening after, I was called to visit her again, and on arrival about 8 o'clock, to my great surprise, I found her quite incoherent and much prostrated—high fever, skin hot and dry, tympanitis much increased, tenderness of hypogastric region, patient very weak, she thought she was improving, &c. Treatment as in other cases venesection to ℥ 12, sinapism to hypogastrium, pulv. opii. gr. j, et hydr. submur. gr. j every four hours, quietude, &c.

Next morning at 5 o'clock, was called again in haste, but on my arrival at 6 o'clock, she had expired. The nurse said she *complained of nothing, but gradually sank.*

I will leave your readers to draw their own inferences as to the treatment and the result; but for my part, if I ever have another case of this kind, the treatment will be of an exactly opposite character.

From the foregoing it must be evident to all unbiassed minds, that the types of two diseases were met with, which are very different in their symptoms, and require altogether different treatment; and consequently, that there is a radical error in the nomenclature of these puerperal complaints. According to the classification at present in vogue, every inflammation of almost any organ of the body, contracted from delivery to seven or ten days after is called puerperal fever—pleurisy for instance; and this fever was formerly described as being almost uniformly fatal. Now, however, the vast majority of this so-called fever recover. This improvement cannot be owing to a difference of treatment, as that which is now the most successful was practised to even a greater extent

formerly; but is explicable on the assumption, that the puerperal fever of the ancients, which was almost uniformly fatal, is now made to include their disease, and which yet retains its pristine malignity, and a great many other diseases of a simple inflammatory origin, and quite amenable to antiphlogistic treatment. It seems to me, therefore, that there are included under this specific term two fundamentally different diseases, viz: One having its origin in inflammation of one or more of the organs, usually those of the abdomen or pelvis, apparently in consequence of the ordinary exciting causes of inflammation—neither contagious nor infectious,—may prevail epidemically, as other inflammations sometimes do, pneumonia for example, and is quite under the power of well directed antiphlogistic medication; and a *specific fever*, which has not its origin in inflammation of any of the organs but which may secondarily set up disease therein, is contagious and extremely fatal, requires a stimulant and supporting treatment, but which usually defies all medication. Dr. Churchill is one of those who favour the inflammatory theory, and he divides it into five varieties, depending upon the part inflamed, and recommends antiphlogistic treatment; but also states, with Dr. Tyler Smith, that cases occur without any inflammation manifested before or discoverable after death, and confesses that the latter are very fatal.

It is evidently wrong to include under and apply one specific name to a great many different diseases, particularly if the name be the name of one of the symptoms, because its tendency is to lead to routine, and to distract the attention from the true pathology. There is a strong tendency to treat the same disease in the same way under all circumstances, bearing a difference of degree; so, if one specific term be applied to the exanthematous affections, one can readily imagine what the treatment would be; the body would be kept warm as it should be in rubeola, or cool as it should be in variola, and the result would necessarily be disastrous. This generalization is injurious to the student, because having his mind impressed with the great mortality from puerperal fever, he is, in its treatment at first, anxious and meddlesome; but having had several cases as it ordinarily occurs, and conducted them to a satisfactory issue, he falls into the error of thinking he has hit upon the hitherto undiscovered means of successfully combating it, and his anxiety gives way to ill-grounded confidence and routine; but after awhile a true representative case of the malady occurs, and the patient becomes a sacrifice before he knows what he is about.

Clarke, C. W., Feb. 1866.

The Optical Defects of the Eye, and their Treatment, by the Scientific use of Spectacles. By A. M. Rosebrugh, M.D.

(Read before the Canadian Institute, February 3rd, 1866.)

The following pages were written as an introduction to a course of lectures recently delivered by me on the diseases of the eye. I have not thought it necessary to alter the form, as I propose publishing them as a pamphlet, hoping that they may be useful, not only to the members of my ophthalmic class, but to Canadian medical students generally.

In their preparation, I must here acknowledge my indebtedness to the elaborate works of Mr. J. Z. Laurence and Mr. J. Soelberg Wells, of London, and especially to the very comprehensive treatise of Professor Donders, of Utrecht, published in 1864, by the New Sydenham Society.

Chapter I.—Optical Considerations.

The eye is pre-eminently an optical instrument, and the phenomena of vision all depend upon the laws of optics. Hence, a knowledge of some, at least, of the elementary principles of light is essential to a correct appreciation of the physiology of the eye. The diagnosing of optical defects of the eye,—long and short sight, &c., &c., and their treatment with the scientific use of spectacles, require some knowledge of the laws of refraction, and the properties of convex and concave lenses.

The philosophy of the ophthalmoscope can hardly be understood unless the principles of both refraction and reflection are thoroughly mastered.

You will, therefore, I hope, not consider the time ill-spent if, before proceeding with the investigation of diseases of the eye—you review with me some of the elementary principles of optics which lie at the foundation of all ophthalmic science.

The *nature* of light is not known. I can no more tell you what light is, than your professor of physiology can tell you what life is. We know that the sun shines, but how it shines we cannot tell.

"Two different theories have been advanced of the more intimate nature of light." "One, the *Newtonian* (*corpuscular*) conceives that each luminous point is constantly giving off a succession of luminous corpuscles which follow each other in uninterrupted succession on an imaginary line or axis like a string of beads on a rigid thread."

The *undulatory* theory (Christian Huyghens') on the other hand considers space as pervaded by a subtle gaseous fluid or ether; that luminous bodies have the power of communicating to this ether a wave

motion which affects the retina the same as vibrations of the air affect the auditory nerve.

Sir John Herschel, speaking of the great ingenuity of the undulatory theory says, "if it is not true it deserves to be."

The sun is the great natural source of light; as it shines by its own light it is called *self-luminous*. The fixed stars are also self-luminous; so is a lighted lamp and bodies in a state of ignition. But most bodies by which we are surrounded, are seen only by reflected light. The light from an object seen by moonlight is reflected twice before it reaches the eye. The moon reflects the light from the sun, and the object the light which it receives from the moon.

Every luminous object gives off, or radiates, in every direction, an infinite number of straight lines of light. Each of these lines taken alone is called a *ray* of light. A bundle of rays is called a *beam* of light when the rays are *parallel* to each other. When the rays *diverge* from a luminous point or are made to *converge* to a focus they are called a *pencil* of rays thus:

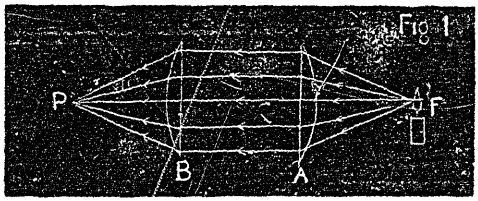


Fig. 1 represents a pencil of rays diverging from a flame F, after passing through a convex lens they are rendered parallel and these parallel rays passing through the second convex lens B, the rays are converged to the point (focus) P.

The parallel rays may be called a *parallel* pencil; the diverging rays a *divergent* pencil, and the convergent rays a *convergent* pencil. The point where rays of light meet is called the *focal* point or simply a *focus*.

Strictly speaking, there is no such thing in nature as parallel rays; the nearest approach we have to it are the rays of light we receive from the sun and the fixed stars. Practically, we may consider rays of light parallel that are received by the pupil of the eye from objects that are twenty feet distant or any greater distance. Pencils of light from objects less than twenty feet distant are more decidedly divergent.

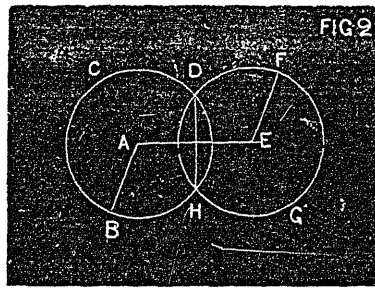
A good illustration of a divergent pencil can be obtained from a lighted lamp or candle in a dark room. If a piece of card board, with a

small circular opening in it, be held near the lamp, you will have, upon the opposite wall, an illuminated spot of the same shape as the opening in the card, but very much larger.

This will prove not only that the rays *diverge*, but also that the rays proceed in straight lines. *

Convex Lenses:—We shall now proceed to the consideration of convex lenses, which, for our purpose, is the most important part of the subject. Lenses are made of various transparent substances as amber, alum, quartz, glass, diamond, and even of ice. Those in ordinary use are made of glass. When the two surfaces of a convex lens have the same degree of curvature, the lens is said to be equi-convex. When one of the surfaces is flat or plane, the lens is called a plano-convex lens. Glass spectacles used by old persons for reading, &c., are commonly made double convex.

In order to simplify the subject as much as possible, let us confine our attention to lenses that are equi-convex.

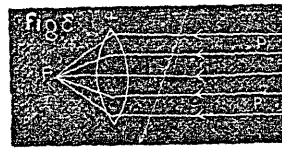


In fig. 2 let A be the centre of the circle B C D of which A B is the radius, and let E be the centre of the circle F G H of which the radius, E F is equal to the radius A B. The circle F G H will be equal to the circle B C D. The part D H, common to both circles, represents a section of an equi-convex lens. The line A E is called the *axis* of the lens, and the line D H is called the *diameter*. The centre of the diameter (where it is intersected by the axis) is the optical centre of the lens.

Reading glasses and burning glasses are examples of a double convex lens. Many of you have doubtless seen the experiment of setting fire to wood, paper, &c., by means of a burning or sun glass. The explanation

(* Convergent pencils of light do not exist in nature. Parallel pencils or divergent pencils of rays can be rendered convergent by means of a convex lens. Thus in fig. 1, the rays diverging from F. are made to *converge* to P. by the convex lenses, A. and B.)

of this is simply that the convex lens possesses the property of converging a portion of the sun's rays to a point called the focus.



In Fig. 3, P P represent a pencil of parallel rays converged to a focus at F, by means of the double convex lens L.

The focus for parallel rays is called the *principal* focus. It is always the same distance from the optical centre in the same lens. The length of the focus for parallel rays is, in equi-convex lenses, equal to the length of the radius of curvature.

The shorter the focus the greater is the "power" or "strength" of the lens. A lens that can bring parallel rays to a focus at a distance of one inch from the optical centre of the lens, would be called a *one-inch* lens. Another lens whose focus is two inches from the optical centre, is called a *two-inch* lens, and so on. Convex lenses therefore receive their names according to the number of inches, or fraction of an inch, the principal focus is distant from the centre of the lens. The strongest lenses used for spectacles are those called cataract glasses; they are worn by patients who have had their crystalline lenses removed. Their strength ranges from 2 to 4 inches focal length. The weakest spectacles that are ordinarily used have a focus of 36 inches. Convex lenses having a focus of 36 inches do not enlarge the letters of a book at the ordinary reading distance.

Let us now see what practical application we can make of this principle of convex lenses.

Supposing that a person accustomed to using convex spectacles gets one of the glasses broken, and applies to you to learn the power of the glass that would be necessary to replace the broken one, or in other words—to learn the strength of the glass that is still whole. How would you proceed? One method is to use the lens as a sun glass, and ascertain by measurement how far from the glass, sun's rays are brought to a focus. If you find, for instance, that the focus is 10 inches from the lens, you will have ascertained that the person has been wearing glasses of 10 inch focus, or as they are sometimes called No. 10 convex, or simply + 10 (plus 10).

The method, however, that is usually adopted, depends upon a property of convex lenses that will be more fully explained as we proceed.

If, for example, you hold up a 10 inch convex lens at a distance of 10 inches from a white wall—the wall being about 20 feet from an open window, opposite—there will appear, behind the lens, upon the wall, an inverted miniature image of the window, and trees or buildings, &c., in front of the window. If the lens be held at a greater or less distance from the wall than the focal length of the lens, the inverted image will be indistinct. Measuring the distance therefore that the lens must be held from the wall, to produce the best defined image, will give the focal length image of the lens.

Suppose, now, that we bring the lens within, say 5 feet of the window, and hold a sheet of white paper at the principal focal distance behind the lens, viz., at ten inches, we will find a change in the inverted picture; there will still appear distant buildings, trees, &c., but the sash of the window will be very indistinct. If, however, we move the sheet of paper 12 inches from the lens—that is, two inches further from the lens, we will again see the image of the sash, but scarcely any trace of the buildings, trees, &c. This experiment is an illustration of the fact that the nearer an object approaches the front of a convex lens, the more distant its image will be behind the lens; thus, when an object is 5 feet or rather 60 inches from the front of a 10 inch convex lens, the inverted image is found to be 12 inches behind the lens; when 30 inches, it will be 15 in.; when 20, that is, double the length of the focus, the image will be double the length of the focus behind the lens; viz., 20 inches; when 15 inches, the image behind the lens will be removed to 30 inches. As the object approaches the principal focal distance of the lens the image recedes much more rapidly; thus, when at 12 inches, the image will be 60 inches; when at 11, the image will be 110 inches behind the lens. When however we bring the object to within 10 inches of the lens—that is, at its principal focus, there will be no image formed behind the lens, as the rays after passing the lens will be parallel.

(I would recommend you, gentlemen, to perform all these experiments for yourselves, as in that way only can you become familiar with these important principles. These latter experiments can be performed best in a dark room—taking for an object the flame of a lamp or candle.)

From the above we can easily understand the principle, 1st, that the *less* divergent the rays of a pencil (that is, the more nearly they approach parallel rays,) incident or falling upon a convex lens, the nearer will the focus of the convergent pencil be to the principal focus of the lens. 2nd, and the *more* divergent the incident pencil, the less convergent (the more nearly parallel) will be the refracted pencil, and the more distant will its focus be from the principal focus of the lens.

Questions of the following nature very often arise in optics, viz., the length of the principal focus of a convex lens and the distance a certain object is in front of it being given;—to find how far behind the lens will the inverted image of the object be. Or to express it more technically, the length of the principal focus of a convex lens and the length of the divergent incident pencil being given, to find the length of the focus of convergent refracted pencil. Thus: suppose you have the following question: A 10 inch lens is 60 inches from an object; how far behind the lens will the inverted image be?

This could be solved immediately, by actual trial, and measurement, but this is not always practical.

The rule given in some text books on optics is as follows: multiply the length of the divergent incident pencil, that is, the distance the object is from the lens, by the focal length of the lens, and divide by the difference; thus: $60 \times 10 = 600$, $60-10 = 50$, 600 divided by $50 = 12$; or $\frac{60\times10}{60-10} = \frac{600}{50} = 12 =$ the distance behind the lens.

There is another property of convex lenses which I must not omit to mention; namely, what is called its magnifying power.

When a convex lens is placed between the eye and an object,—the object being at a less distance from the lens than its principal focus, the object will appear enlarged or magnified. The shorter the focus of the lens, the greater is its magnifying power. Thus, a 4 inch lens has a greater magnifying power than an 8 inch lens; a 2 inch lens greater than a 4, and a 1 inch greater than a 2 inch lens. The 1 inch lens has, in fact, double the magnifying power of a 2 inch lens; a 2 inch, double that of 4 inch; a 4 inch, double that of an 8 inch, &c.

The "power" of a lens is therefore inversely proportional to its focal length. For this reason a different form is used in expressing the "power" or strength of a lens. A 1 inch lens is taken as unity, and as a 2 inch lens is just half the strength, it is simply expressed $\frac{1}{2}$, and as a 3 inch lens has just one-third the power of a 1 inch, it is written $\frac{1}{3}$; a 4 inch is $\frac{1}{4}$, &c. We will find that this nomenclature is not only very convenient, but scientifically correct.

For example, suppose we have two lenses of 4 inch focus each, and we wish to know their combined "power" when used as one lens; we simply add their reciprocals thus $\frac{1}{4}+\frac{1}{4}=\frac{2}{4}=\frac{1}{2}$. The two lenses have, therefore, the magnifying power of $\frac{1}{2}$, which is the reciprocal of 2, and are consequently, together, equal to a 2 inch lens, which can be proved by actual measurement. Again, having a 6 inch lens, and a 12 inch lens and we wish to know their combined strength, $\frac{1}{6}+\frac{1}{12}=\frac{3}{12}=\frac{1}{4}$ lens which

represents the power of a 4 inch lens; the 6 and the 12 inch lenses taken together being equal to one lens having a focal distance of 4 inches.

To save repetition, I may here state that when a *concave* lens enters into combination with a *convex* lens, it has a neutralizing effect upon the convex lens. If we have a convex 6 and a concave 6 the one would neutralize the other,—thus $\frac{1}{6}-\frac{1}{6}=0$. But if the convex lens has the higher power, the concave lens simply weakens it—that is, lengthens its focus—thus, if we have a convex 6 and a concave 9 the result will be $\frac{1}{6}-\frac{1}{9}=\frac{3}{18}-\frac{2}{18}=\frac{1}{18}$, which represents the strength of one lens having a focus of 18 inches. If, however, the concave lens has the higher "power" it will simply be weakened by the concave lens,—the combination will be equal to a concave lens having a lower "power" or a longer focus than the concave lens taken,—thus reversing the last example. Suppose we have a *concave* 6 and a *convex* 9, we will then have—$\frac{1}{6}+\frac{1}{9}$ or simply $\frac{1}{9}-\frac{1}{6}=\frac{2}{18}-\frac{3}{18}=-\frac{1}{18}$, which represents the strength of a *concave* lens having a focal distanc of 18 inches.

This fractional nomenclature (taking 1 for numerator and the focal length of the lens for denominator) will assist us also in understanding the principle of the formation of images at different distances behind a convex lens, according to the distance of objects in front of it.

Let me remind you that when an object, for instance the flame of a candle, is placed in the focus of a convex lens, the diverging rays of light from the object are rendered parallel by the lens. Thus, a lens having a focus of 20 inches will render parallel pencils of light diverging from an object 20 inches from the lens. Bearing this in mind let us again try the solution of the following question, propounded not long since, viz.:—When an object is 60 inches in front of a 10 inch convex lens, how far behind the lens will be the inverted image of the object? Or, to express it differently, when a divergent pencil of light emanates from a point 60 inches from a 10 inch convex lens, at what distance behind the lens will the pencil be converged to a focus?

Now we know that a lens of 60 inches focus, placed in the position of the 10 inch lens, would render the rays parallel that fall upon it from the object 60 inches distant. Were it possible, therefore, to divide the 10 inch lens into two lenses, one having a focus of 60 inches to render the rays parallel, the remaining portion would bring these parallel rays to a focus at its principal focus. Deducting then $\frac{1}{60}$ from $\frac{1}{10}$ will give the strength of the remaining portion of the lens $\frac{1}{10}-\frac{1}{60}=\frac{5}{60}=\frac{1}{12}$, the two parts then $\frac{1}{60}$ and $\frac{1}{12}$ are equal to the one lens $\frac{1}{10}$. And as the $\frac{1}{60}$ will render the rays parallel from the object 60 inches distant, and these parallel rays falling upon the other part $\frac{1}{12}$, they will be brought

to a focus at the principal focus of this part, viz: at 12 inches from the lens. Let us illustrate this with another example. Suppose that an object is 30 inches in front of a convex lens of 10 inch focus, and we wish to know how far behind the lens will be the focus of a pencil of rays diverging from a point in the object. We will have $\frac{1}{15} - \frac{1}{30} = \frac{2}{30} = \frac{1}{15}$; this $\frac{1}{15}$ represents the power of a 15 inch lens, which we know will bring the parallel rays to a focus at 15 inches behind the lens.

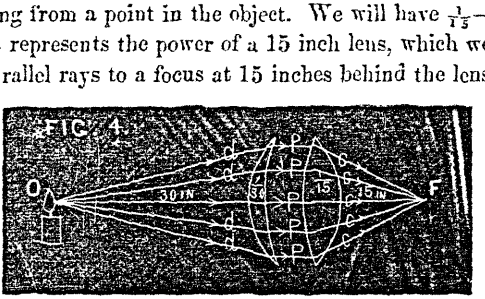


Fig. 4 illustrates this; O represents an object 30 inches from a ten inch convex lens; the lens supposed to be divided into two parts, one having a focus of 30 inches, and the other a focus of 15 inches. The 30 inch lens refracts the rays of the divergent pencil d, d, d, d, so as to render them parallel, as shown at P, P, P, P, P. These parallel rays, meeting the 15 inch lens, are again refracted and are converged to a focus at F, which is the principal focus of the lens, viz., at 15 inches.

Fig. 1, page 3, represents a 10 inch lens, at a distance of 20 inches from an object, F. The lens is supposed to be divided into two equal parts, of 20 inch focus each: the first half renders the diverging pencil parallel, and the second half converges the parallel pencil to a focus, at 20 inches from the lens; $\frac{1}{10} - \frac{1}{20} =$, $\frac{1}{10}$.

(Gr. Giraud-Teulon, of Paris, has ascribed the origination of the above theory to Mr. J. Z. Laurence, of London, to whom we are very much indebted, for his praiseworthy efforts to popularize this, hitherto neglected, field of Physiological and Pathological Optics.)

Let me next direct your attention to certain optical considerations, which have a most important application, in the treatment of optical defects of the eye.

You may remember that in a former experiment, a 10 inch lens was held ten inches from a white wall, so as to show the miniature inverted picture of the window, &c., 20 ft. distant; and that when the lens was brought to a distance of sixty inches from the window, it was found that the image of the window was formed 12 inches behind the lens, instead of 10 inches, and that at 10 inches the image was so indistinct as to be scarcely recognizable.

Now suppose that a 12 inch lens be immovably fixed 12 inches from

the same wall, it will then be in a proper position to bring parallel rays to a focus on the wall, where it will form an inverted picture of the window, and objects at a distance beyond the window.

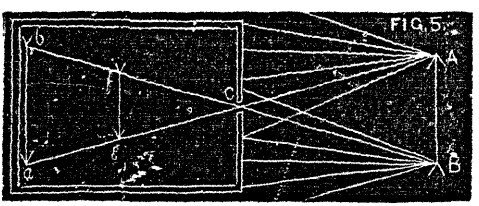
If we now bring the flame of a lamp, for instance, to a distance of 60 inches from the lens, no distinctly defined image of the flame will appear upon the wall; but if, by any means, we can render the pencil parallel that diverges from the flame, the 12 inch lens will then converge it accurately to a focus upon the wall, where we will have an inverted image of the flame.

From the knowledge that we have now obtained, we know that a 60 inch lens placed in front of the 12 inch lens will render these rays parallel. All that we have to do then is to combine a 60 inch lens with the 12 inch lens: the 60 inch lens to render the rays parallel that diverge from the flame, 60 inches distant, and the 12 inch lens to converge these rays to a focus, at the principal focal length of the lens. This is exactly what we do in supplying old people with convex spectacles. Their eyes are constructed to bring parallel rays to a focus, on the retina; but the rays from near objects are too divergent to be brought to a focus upon the retina without artificial aid; this deficiency is what we supply with suitable glasses.

Before leaving the consideration of optical lenses, there is one subject to which I wish to direct your attention; namely, the formation of an inverted image behind a convex lens.

Many of you are probably familiar with the fact, that when light is admitted into a darkened room, through a small orifice, there appears upon the opposite wall of the room, an inverted, dim, shadowy picture of buildings, trees, &c., in front of the aperture. This can also be seen, on a smaller scale, by holding a sheet of white paper a few inches from the key-hole of a darkened hall.

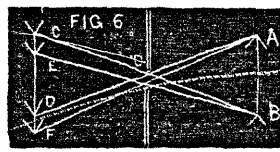
The cause of this is explained by Fig. 5.



Let A B represent the position of a flame of a lamp that is a short distance in front of an aperture of a darkened box. Pencils of divergent rays of light radiate from the apex of the flame in every direction: one of these pencils is represented in the figure to illuminate the end of the

box, and one of the rays escaping through the small orifice *c*; this ray passes in a straight line to the back of the box, and strikes the point *a*, which it illuminates.

Rays of light diverge from the lower part of the flame, also; one of these rays is shown to enter the aperture *c*, and to pass to the back of the box at *b*. In a similar way it might be illustrated that pencils of light radiate from every point in the flame A B, and that one ray from each point passes into the box and illuminates a portion of the back. In this way we have an illuminated spot at the back of the box, which is an exact counterpart of the flame in front of the box, but *inverted*, the apex of the flame pointing downwards. The reason that the picture is reversed is that, as rays of light (in the same medium) pass in straight lines, a ray from the top of the flame, after passing the aperture, must necessarily pass to the lower part of the back of the box; and a ray from the lower part of the flame must necessarily (in moving in a straight line) pass to the upper part of the back of the box. You will observe, also, that the size of the image depends upon its distance behind the aperture; if the image is as far behind the aperture, as the object is in front, the image will be of the same size as the object, if half the distance, half the size, as seen at f g.



If, in the above experiment, the aperture be enlarged, it will be found that the image at the back of the box will become much less distinct; the more the aperture is enlarged, the more indistinct will be the image. The reason of this indistinctness in the image is that, when the aperture is enlarged, a number of diverging rays from one point in the flame pass through the aperture, and each one repeats the image, so that the parts of the image overlap each other.

This is shown in Fig. 6. A B represents the flame of the lamp, and C E D F the image behind an aperture. The aperture is supposed to be just large enough to admit two divergent rays, each of these rays produces a separate image; thus, the point A is repeated twice at D and F, and the point B is repeated at C and E. The larger the aperture, the more light is admitted, but the more indistinct is the image.

If now, a convex lens be inserted in the enlarged aperture, these divergent rays that enter the aperture (from every point of the object) are converged to a focus; thus, in

Fig. 7.

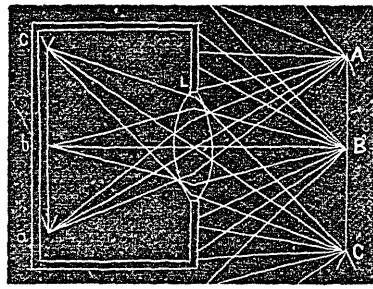


Fig. 7. A C represents an object in front of a convex lens, and *a c* the inverted image behind the lens. Rays diverging from the point A and falling upon the lens L are brought to a focus at *a*; rays from B are similarly focussed at *b*, and so on. In a similar manner, diverging rays from every point in the object A C that enter the lens, are brought to a focus in the image between *a* and *c*. We will then have in the position of *a c* a distinct inverted image of the object A C. If this image is received upon a sheet of white paper, we can see it only upon its front surface; but if it is received upon thin oiled paper, or upon ground glass, we can see it from behind; and if, while viewing the image from behind, the ground glass be removed, we can still see the inverted image (or at least a portion) occupying the same position as the ground glass just occupied—being suspended, as it were, in the air, and forming what is called an ærial image. In order to see this ærial image under favourable circumstances, one eye only should be used, and should be in a line with the lens and the object, and should be at least ten inches behind the position of the inverted lens.

Chapter II.—Optics of Normal Eye.

The human eye, from before backwards, is about one inch in diameter. Its transparent media are the cornea, aqueous humour, crystalline lens, and vitreous humour. This combination, with the convexity of the cornea, is equal to a convex lens having a focus of about one inch (more accurately $\frac{1}{2}\frac{8}{0}$ of an inch.

When a normal eye is directed to a distant object (*i. e.* in a state of rest), parallel rays of light are brought to a focus upon the retina, and a very minute inverted picture of the object is sharply defined upon that membrane. If the sclerotic coat be removed from the back of the eye of an ox, and the eye be placed in an aperture of a darkened room, with the cornea looking, for instance, towards the opposite side of the street, an

inverted image of the buildings, &c., in front of the aperture will be seen at the back of the eye.

The impression that objects make upon the retina, is conveyed through the optic nerve to the brain, but in what manner this communicates to the mind a knowledge of the appearance of objects, is more than we can tell. We can simply say with Potterfield, that "God has willed it so."

We are aware, however, that although the eye may be free from disease, and the connection between the retina and brain in every way perfect, if the optical mechanism of the eye be in any way defective so as to produce ill-defined images upon the retina,—vision will be indistinct, and that the distinctness or indistinctness of vision will be in exact proportion to the distinctness or indistinctness of the inverted picture. Hence the necessity of understanding the optics of the eye in order to comprehend the pathology and treatment of the numerous optical defects to which it is liable.

Case 1.—Let me here take an example. A few weeks ago a physician of this city sent a patient for my advice, fearing that he was losing the sight of his left eye. Upon examination, I found that he had what we call "paralysis of accommodation" of that eye.

He could see distant objects with perfect distinctness, but near objects he was unable to define; he could not read large type unless the letters were very large, and several feet from the eye. The eye was, in fact, simply passive, like a convex lens, or a camera-obscura with the screen to receive the image immovably fixed at the principal focus of the lens, and could only bring parallel rays to a focus on the retina.

I found that by rendering the diverging rays parallel, by means of a convex lens, he could see near objects distinctly; by placing a six inch convex lens before that eye, he could read fine type at six inches, with a ten inch lens at ten inches, with an eighteen inch lens at eighteen inches, &c., &c. The six inch lens rendered the rays parallel that diverged from the letters six inches distant, and these parallel rays falling upon the eye were brought to a focus upon the retina. [A six inch lens does not increase the apparent size of letters one-half, whereas this patient could not see letters ten times the ordinary size at six inches, or any distance less than about two feet from the eye.] The ten inch lens rendered the rays parallel from objects ten inches distant, and the eighteen inch lens from objects eighteen inches distant.

The eye was unable to bring diverging rays to a focus upon the retina; in other words, it had lost the power of "accommodation." (We can tem-

porarily paralyse the accommodation of the eye by applying a strong solution of Atropine.)

A normal eye differs from the glass lenses we have been describing in the fact that it can, not only focus parallel rays upon the retina, but also rays that diverge from objects as near as from four to six or eight inches from the eye. When parallel rays fall upon a one inch convex lens, they are brought to a focus one inch behind the lens, but if an object, for instance the flame of a lamp, be brought to within four inches of the lens, we know that the focus will fall further than one inch behind the lens. If we wish to receive the inverted image of the lamp upon a screen, the screen must be held one inch and a third behind the lens.

Now when an object is brought to within, say four inches of the eye, it has no power to move the retina backwards to receive the image that would be formed behind that membrane, but, what answers the same purpose, it has the property of so far increasing its refractive power, as to be able not only to render parallel these diverging rays, but also to focus them upon the retina. This increase in the power of the eye is equal to the addition of a four inch lens in front of an eye that has its "accommodation" paralysed, as a four inch lens renders rays parallel that diverge from objects four inches distant.

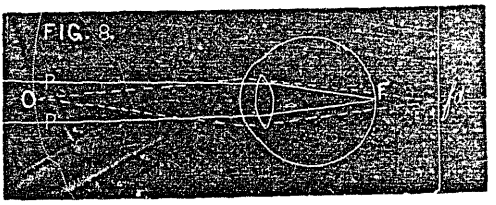


Fig. 8 represents the section of the normal eye. When it is accommodated for distant objects parallel rays P P are focussed upon the retina at F, while diverging rays from O, would form a focus at *fd*. When, however, the eye is accommodated for the near object O these diverging rays are focussed upon the retina at F.

The manner in which this increase in the refractive power of the eye is effected is still a disputed point. Most physiologists, however, are now inclined to the theory that it is caused by an increase in the curvature,—a thickening from before backwards, of the crystalline lens.*

* The accommodation of the eye was at one time believed to be produced by the external muscles, but it is now ascertained that the accommodation can remain perfect with all the external muscles paralysed.

The "near" and "far" point.—The nearest point to which objects can be brought to an eye and be seen with perfect distinctness, is called the "near point, and the farthest point of distinct vision is called the "far" point.

In a normal eye the "near" point is about seven inches from the front of the cornea, and the "far" point is at an unlimited distance. In childhood, however, the "near" point is about $3\frac{1}{2}$ inches from the eye, and recedes as age advances. At the age of forty the "near" point of a normal eye is nearly eight inches from the eye.

When the "near" point recedes to a greater distance than eight inches from the eye it becomes inconvenient; such an eye is called *presbyopic* or long-sighted.

When the "far" point is not unlimited, but is at a definite distance from the eye, as, for instance, from six inches to four or five feet from the eye—such an eye is called *myopic* or short-sighted.

Range of Accommodation.—The distance between the "near" and "far" point in any eye is called the "range of accommodation." If a person can read distinctly very fine type at four inches from the eye, and can also see clearly at an infinite distance, the range of accommodation would be said to equal $\frac{1}{4}$, because when such an eye is directed to objects at an infinite distance, (accommodated for parallel rays) in order to see clearly objects only four inches distant, it is necessary to increase the curvature of the crystalline lens, or, in other words, the "power" of the eye to an extent equal to the addition of a four inch convex lens; the power of which is expressed by $\frac{1}{4}$. If a person's "near" point is at eight inches from the eye, and his "far" point at an infinite distance, his range of accommodation would be said to be equal $\frac{1}{8}$.

If the "near" point of a myopic eye be three inches, and the "far" point be twelve inches, we get the range of accommodation by the equation $\frac{1}{3} - \frac{1}{12} = \frac{1}{4}$.

(To be continued.)

The iris was thought, by others, to have the power of increasing the refractive power of the eye, but it was proved by a case that occurred in Dr. Von Graefe's practice that accommodation can still be effected with entire absence of the iris.

Helmholtz and Cramer have proved, by means of the ophthalmometre, that when the eye is accommodated for a near object it undergoes the following changes:—1st. The pupil contracts; 2nd. The pupillary edge of the iris moves forward; 3rd. The peripheral portion of the iris moves backwards; 4th. The anterior surface of the lens becomes more convex (arched); 5th. The lens does not change its position; 6th. The cornea retains the same degree of curvature.

The Removal of a Foreign Body after Twenty-Five years presence beneath the Skin of the Upper Arm. By G. P. GIRDWOOD, M.D., M.R.C.S.E., late assistant-surgeon 1st Battalion, Grenadier Guards.

Mr. W——, whose wife I was attending at the time, casually asked me one day whether it was a painful operation to remove a splinter from under the skin of the arm. I replied not. He then said that twenty-five years ago, as a child, he fell whilst playing on an old waggon in his native place, and ran a splinter of wood into his right arm, on the inner side, immediately over the centre of the course of the brachial artery, when it was broken off in the arm. A small portion was removed at the time, but the other and much larger portion remained behind, and the wound healed over it. He said he would consider about having it removed, and nothing was done at that time. A few days afterwards, a friend caught him by the arm and gave him a squeeze, and apparently forced the one end of the splinter through the skin. When I saw him again it was to ask me to remove the splinter. On examination, I found a small tumour just beneath the skin in the position already mentioned, about one inch and a quarter long, and half an inch wide, the long axis being across the artery. Over the centre of this tumour was a small abrasion of the skin nearly healed up. The splinter was readily removed by a small incision across the one end, and drawing it out with a pair of forceps.

There is nothing in the operation that makes this case worthy of record. Is is, however, an interesting fact, that a fragment of wood, a little more than an inch in length and half an inch wide and three-eighths of an inch thick should remain embedded in the tissues for a period of twenty-five years. Bullets, metallic ligatures, and sutures we know, will remain for years without giving any trouble unless they are pressing on some nerve or artery, but it is not often we have the opportunity of seeing fragments of organic matters being so embedded. In this case no discomfort was experienced until an accidental pressure caused a protrusion of one end through the skin. To avoid a recurrence of such an accident, my patient determined to have the splinter removed.

HOSPITAL REPORTS.

Case of Tertiary Syphilis—Albuminuria—probable Waxy Degeneration of Kidney, Spleen, &c. Direct Pulmonary Murmur. Under the care of D. C. MacCallum, M.D. Reported by Mr. J. McCurdy.

John Brown, aged 29, an immigrant, unmarried, was admitted into Montreal General Hospital on the 27th December, 1865, under the care of Dr. MacCallum.

History.—While a soldier in the Crimea, twelve years ago, he contracted a chancre, which was followed in a few weeks by a cutaneous eruption on the trunk and forehead, of twenty-four days' duration. Since that time, he has, till lately, been free from any cutaneous affection. For the last few months he has been getting thinner and pale, becoming easily fatigued on exertion. In his passage from Ireland to this country, he was sea-sick during the whole period; and, when he landed, he was extremely weak, had occasional bleeding at the nose, and frequent vomiting, He notices that for some time back he has been making more water than usual, and that he is obliged to rise frequently during the night to void it.

Symptoms on admission.—He is of light complexion, freckled, with a harsh dry skin. His appearance is anæmic, and the exposed portions of the body have a peculiar dusky-yellow hue. There is no œdema of the face or ancles. Tongue is coated and moist. Pulse 84, regular. Cicatrix of chancre on glans penis, and of buboes in the right groin. Syphilitic lepra (*L. gyrata*) in circular and crescentic spots, on the right arm surrounding the elbow-joint, on the inside of the left elbow, and on the front of his forearm, on the trunk below the right nipple, and in the right and left iliac regions. Large irregular spots on inside of right thigh, and outside of left. Nodes on shins, with marks of old ulcers. Large crescentic spots on outside of both fore-legs. On the arms and body are white circular, slightly eroded spots—remains of a tubercular sereptiginous irruption.

A blowing systolic murmur is heard at base of heart. Most distinct, and of harsh quality, at the pulmonary cartilage. Very indistinct at aorta cartilage, and not propagated along aorta. Rapid loss of intensity along left side of heart, and scarcely heard at left apex, but propagated strongly down the right side, and heard very distinctly at the right apex. The apex beat is in the normal situation, and transverse dulness not in-

creased. A loud, very musical bruit de diable is heard in the veins of the neck.

Spleen is enlarged, and painful on pressure. Its line of vertical dulness is seven inches and a half in extent, and it reaches forward to within four inches of the middle line of the abdomen. Its lower edge reaches to within three inches of the upper border of the ilium, and is found, by palpation, to be firm and easily defined. Liver is very slightly enlarged in the downward direction. His bowels have always been regular.

Urine is pale, sp. gr. 1015, of acid reaction, containing a large amount of albumen. Result of examination of the deposit is not decisive.

The blood has relatively a large number of colourless corpuscles.

Diagnosis.—1. *Tertiary Syphilis.* 2. *Waxy Degeneration of Kidneys, Spleen, and possibly, of other Organs.*—All that is wanting to complete the diagnosis being the presence of hyaline casts in the urine.

A Direct Pulmonary Murmur.—On the following grounds. It has its greatest intensity at the pulmonary cartilage, it is propagated with little loss of intensity along right side of heart to right apex—towards the left apex, with intensity greatly diminished, and up the aorta to scarcely any distance. Still the contrast between its characters as heard at the aortic cartilage, and that which it is found to possess at the pulmonary valves is greater than would obtain, if the sound were communicated to the pulmonary artery, from a bruit originating at the aortic orifice. The absence of swelling or pulsation in the veins of the neck, of signs and consequences of pulmonary congestion, preclude the existence of regurgitation through the tricuspid orifice.

Progress of the Case.—30th., Vomiting biliary matters. Tongue furred and urine scanty, ordered haustus albus (magnesia carb. et sulph.) nocte.

31st. Bowels not yet moved, but experiences less nausea. Put on milk diet, mutton chop extra, and ordered to take, tr. ferri sesquichlor. mxx. acid. nitrom. m x. ter in die.

Jan. 1st. Bowels freely moved, urine more copious, sp. gr. 1011. Urinary deposit contains no hyaline casts, but an abundance of large crystals of oxalate of lime; urozanthine in slight excess.

2nd. Passed in 24 hs. 34 oz. urine, sp. gr. 1016; urea, (calculated by means of Rev. Dr. Houghton's table, from amount of urine in 24 hs. and sp. gr.) 256 grs. Albumen (amount in 2 oz. ascertained by drying and weighing the precipitate obtained by boiling with nitric acid.) 13 grs. to 1 oz. or 442 grs. in 24 hs. Tenderness on pressure has disappeared from the spleen which retained its former dimensions.

3rd. Albumen of same amount in urine. Bowels continue open.

4th. Passed urine 79.5 oz. sp. gr. 1012. Urea 470 grs. Albumen 3 grs. to ℥ j. or 239. One hayline cast was discovered after a vigorous search. Still oxalate of lime; urine of last 120 hours still acid.

5th. Passed urine 101 oz. sp. gr. 1012, urea 561 grs. Albumen 3½ grs. to ℥ j. or 354 grs., acid when passed but that of 24 hours has an ammoniacal odour and a deposit of phosphates.

6th. Passed urine 112 oz. sp. gr. 1013, urea 740 grs., albumen 5 grs. to ℥ j. or 560, still much urozanthine in urine, few or no oxalates. Cardiac murmur is becoming more intense over the 3rd costal interspace. Patient sleeps but little, and continually complains of cold.

7th. Passed urine 112 oz. sp. gr. 1013, urea 662 grs., albumen 2½ grs. to ℥ j. or 255. The albumen of the last few days differs in character from that previously obtained. Formerly it used to dry into a semi-transparent, vitreous substance resembling gum-arabic, but now it is gelatinous when fluid, and dries into a dark pulverulent mass.

8th. Passed urine 110 oz. sp. gr. 1012, urea 650 grs., albumen 4 grs. to ℥ j. or 440 grs. After coagulation and separation of albumen, the urine remained cloudy. Upon adding tests for urozanthine no marked change in colour ensued, but a colourless jelly was obtained by agitating it with ether. The cardiac murmur is to-day harsh, almost rasping, and the peculiar methods of its propagation are still more striking. Patient drinks a great deal of water, sometimes as much as conggs at night. Lepra fading from the trunk. White blood corpuscles not quite as numerous as before. The blood was examined both before and after his dinner, and shewed a considerable increase of colourless cells at the latter period.

9th. Passed urine 106 oz. sp. gr. 1012, urea 638 grs. albumen 7½ grs. to ℥ j. or 759. Albumen of to-day easily separable, and dries into a transparent mass. Complains of pains in the epigastrium. Stop mixture. ℞ Pulv. Rhei. Co. ℥ j. and sinapsims to pit of stomach.

10th. Passed 95 oz. sp. gr. 1011, urea 508 grs., albumen 3½ grs. to ℥ j. or 333. Bowels freely moved and pain much diminished. Ordered barley water.

11th. Passed urine 104 oz. at sp. gr. 1011, urea 552 grs, albumen 4 grs. to ℥ j. or 416. The deposit contains hyaline casts in abundance, with many squamous trigonal cells. Tenderness on pressure over the lower edge of the spleen, and excessive pain occasioned by palpation over region of left kidney.

12th. Passed urine 122 oz. sp. gr. 1010, urea 628 grs. Albumen 2½ grs. to ℥ j or 305. Albumen tenacious, and separable with difficulty. Mixture to be resumed.

13th. Passed urine 134 oz. sp. gr. 1009, urea 670 grs. Albumen 3 grs. to ℥j or 402.

14th. Passed urine 92 oz. sp. gr. 1010.5, urea 502 grs. Albumen 3 grs. to ℥j or 294.

15th. Passed urine 118 oz. sp. gr. 1010.5, urea 607 grs. Albumen 4½ grs. to ℥j or 521.

16th. Passed urine 135 oz. at sp. gr. 1011, urea 722 grs. Albumen 7 grs. to ℥j or 945. The cardiac murmur remains the same in intensity and modes of transmission. Tenderness, still, in kidney and spleen. The latter retains its former dimensions. There is felt a slight venous thrill on pressing lightly over the veins of the neck, and a remarkably musical hæmic murmur is still to be heard. Patient looks much better. Lips are redder. Lepra fading slowly. Ordered beer one pint.

17th. Passed urine 155 oz. at sp. gr. 1011, urea 820 grs. Albumen 6½ grs. to ℥j. or 1008. Blood examined to-day. White corpuscles in same ratio as before. Red corpuscles do not collect in rouleaux, but aggregate in masses, and when a current is created by pressing on the thin glass that covers them, they adhere to each other in passing, stretch out for some distance, and separate in a tailed form.

18th. Passed urine 124 oz. at sp. gr. 1011, urea 658 grs. Albumen 4 grs. to ℥j. or 496. Tenderness in spleen increased. Stop beer, and apply sinapisms to the spot.

19th. Passed urine 114 at sp. gr. 1011, urea 606 grs. Albumen 3 grs. to ℥j. or 342. Pain and tenderness in spleen excessive. Mixture stopped. ℞ ant. tart. gr. ⅛, liq. amm. acet. ℥ ij. omn., 4 horis. Torulæ forming a scum in 24 hs. urine.

20th. Passed urine —— at sp. gr. 1011. Alb. 3½ grs. to ℥j. or ——. Cannot lie on left side. Stomach very irritable. Mixture to be taken in one-half dose.

21st. Passed urine 41oz. sp. gr. 1013, urea 266 grs. Albumen 2½ grs. to ℥j. or 103. Many granular casts, none were perfectly hyaline. Urine smoky appearance.

22nd. Passed urine 102 oz. at 1012, urea 602 grs. Alb. 2 grs. to ℥j. or 204. Slight swelling of the face, and pallor. Spleen measures 9 ins. in a vertical direction. Pain less complained of. Mixture stopped. To have two ounces of Gin.

23rd. Passed urine 115 oz. sp. gr. 1011, urea 550 grs. Albumen 1½ gr. to ℥j or 173.

25th. Passed urine 131 oz. at 1010.5, urea 593 grs. Albumen 2 grs. to ℥j. or 262. At 4 p. m. suddenly seized with a violent pain over the loins, especially severe on the left side.

26th. Passed urine 122 oz. sp. gr. 1011, urea 648 grs. Albumen 2 grs. to ℥ j. or 244. Pain in forehead very severe. Has lost sleep during last 48 hours. Left eye congested, its sight is confused. Face œdematous, especially the left side. Pulse full and frequent. Tongue coated. ℞ Pulv. Jalap Co. ʒ ij. Gin to be stopped.

27th. Passed urine 65 oz. at sp. gr. 1010, urea 335 grs. Albumen 6½ grs. to ℥ j or 423. Powder has not operated. Œdema of face still greater, and pain almost unbearable. Patient is almost delirious, and experiences twitchings of the limbs. ℞ croton oil mj, castor oil ʒ ij.

28th. Passed urine 31 oz. at 1012, urea 182 grs. Albumen 2¼ grs. in ℥ j or 70. Copious watery evacuations. Pain much relieved, and œdema of face visibly subsided. Appetite returns.

29th. Passed urine 79 oz. at 1011, urea 420 grs. Albumen 5 grs. to ℥ j. or 395. Still remains easy. Slight pain still remains over loins, and sensitiveness on pressure. Murmur, as heard at right apex of heart, is more intense than ever before.

30th. Passed urine 77 oz. at sp. gr. 1011, urea 409 grs. Albumen 5¼ grs. to ℥ j. or 504.

31st. Passed urine 101 oz. at sp. gr. 1010, urea 516 grs. Albumen 3 grs. to ℥ j. or 303. Patient is much improved in appearance. Appetite greater. Sleeps more soundly. Cardiac and venous murmurs remain as before. There is slight œdema of the face. The specific eruption has almost entirely disappeared. There are slight traces of it only on the lower limbs. Urozanthine is not in great excess present in the urine, and oxalate of lime has lately been never found. Blood still exhibits a tendency to fibrinate, and the colourless corpuscles are still in excess. Spleen's vertical dulness nine inches, its anterior border being felt three inches from the middle line of the abdomen.

The following table has been compiled for the purpose of showing at a glance the varying amounts of urine and albumen voided daily, and the totals for one month. Its consideration may also tend to throw some light on the circumstances that attend the occasional appearance of hyaline casts in the urine, and the changes that congestion of the kidney may effect in the material of the casts.

By the rough modes of computation employed, it will be seen that the greatest amount of urine passed in one day was 155 oz, and the least 31 oz. The largest quantity of albumen for the same period, 1008 grs., the smallest 70 grs. The waxy casts appear to have been desquamated at a time, when, for some cause, the urine was suddenly diminished in amount. The albumen was not materially affected on these occasions.

DAY.	URINE IN OZ.		SP. GR.	UREA. GRS.	ALB. TO ℥j. GRS.	TOTAL ALB. GRS.
Jan. 1, 1866	——	oxalite	1011	——	——	——
" 2, "	34	casts (?)	1016	256	13	442
" 4, "	79.5	oxal. no.	1012	470	3	239
" 5, "	101	casts or	1012	561	3.5	354
" 6, "	112	oxalates	1013	740	5	560
" 7, "	102	none	1013	662	2.5	255
" 8, "	110	"	1012	650	4	440
" 9, "	106	"	1012	638	7.5	759
" 10, "	95	"	1011	508	3.5	333
" 11, "	104	casts	1011	552	4	416
" 12, "	122	none	1010	628	2.5	305
" 13, "	134	"	1009	670	3	402
" 14, "	98	"	1010.5	502	3	294
" 15, "	118	"	1010.5	607	4.5	521
" 16, "	135	"	1011	722	7	945
" 17, "	155	"	1011	820	6.5	1008
" 18, "	124	"	1011	658	4	496
" 19, "	114	"	1011	606	3	342
" 20, "	——	"	1011	——	3.5	——
" 21, "	41	casts	1013	266	2.5	103
" 22, "	102	none	1012	602	2	204
" 23, "	115	"	1011	550	1.5	173
" 24, "	131	"	1010.5	693	2	262
" 26, "	122	"	1011	648	2	244
" 27, "	65	"	1010	335	6.5	423
" 28, "	31	"	1012	182	2.25	70
" 29, "	79	"	1011	420	5	395
" 30, "	77	"	1011	409	5.25	404
" 31, "	101	"	1010	516	3	303
Total....	2717.5		29329.5	14871	124	10687
Average..	100.65		1011.4	543	$4\frac{3}{7}$	395.7

REVIEWS AND NOTICES OF BOOKS.

On the Diseases, Injuries, and Malformations of the Rectum and Anus, with Remarks on Habitual Constipation. By T. J. Ashton, formerly Surgeon to the Blenheim Dispensary, Fellow of the Royal Medico-Chirurgical Society, Corresponding Fellow of the Pathological Society of Montreal, &c., &c. With illustrations. Second American, from the fourth English edition. Philadelphia: Henry C. Lea. 1866. Montreal: Dawson Brothers.

Of the numerous diseases which come under the observation of the surgeon, none, perhaps, are met with more frequently, or cause more trouble than those which are embraced under the various heads of this work; and a somewhat singular fact is, that authorities on the subject

are not at all numerous. Standard writers upon surgical topics glance but briefly at this class of diseases; and often, indeed, will the enquiring student search such works for the desired information, but in vain. This is to be regretted, for there are many practitioners unable to afford frequent additions to their library, and depend upon text books for all necessary information in time of need. When, however, such an addition can be afforded, we can recommend this volume of Mr. Ashton's in the strongest terms, as containing all the latest details of the pathology and treatment of diseases connected with the rectum. We have read the greatest portion of the work with a good deal of care, and although we cordially recommend it as an authority of great merit upon the subjects of which it treats, yet there are one or two faults, to us so conspicuous, that we feel that we cannot omit to mention them. First of all then, to our idea, Mr. Ashton commits a fault—one which is common to many authors—and that is, instead of simply writing a work for the benefit of his professsional brethren, there is an attempt, every here and there, to show what wonderful cures were performed by him upon Mr. So-and-so, who came from some great distance for the purpose of obtaining the benefit of his experience. We do not for a moment doubt the correctness of the statements made, and no one who reads the book will doubt that its author has both talent and experience on the subject on which he writes; but we do object that, in a work of such practical utility as the one in question, there should be anything which would give rise even to a possible suspicion that the author's object in publishing the work was to push his own professional reputation and extend his practice, rather than to benefit the science and art of medicine. One more slight fault that we have noticed is that here and there we have come upon repetitions, following close one upon the other. Perhaps this latter is hardly avoidable, and, therefore, we do not lay much stress upon it; but the former is so often noticed in works that, however unwilling, we feel that it was not right to pass it over without comment. The first chapter of the volume is on itching and irritation of the anus, a very prevalent disease, which Mr. Ashton states is often regarded as a local complaint, while, in truth, it is but a symptom of a constitutional disease. Local remedies are, however, at times useful, and he speaks favourably of lotions of acetate of lead, with vinum opii, black wash, and ointments of zinc and lead. Chapter V. is on Fissure of the Anus, and Lower Part of the Rectum. This disease is of very frequent occurrence, and gives rise to more suffering, in proportion to the pathological condition of the structures involved, than, perhaps, any other ills to which the human frame is liable.

"If the fissure exists at the verge of the anus, and is of recent origin, the patient must be directed to have recourse to ablution with soap and water, night and morning: after evacuating the contents of the bowels, half a pint of cold or tepid water should be thrown up; and when this has been ejected, a small piece of lint, saturated with a lotion of a solution of lead with opium, or one of similar properties, must be kept applied to the part. When there is much spasm of the sphincter, the extract of belladonna, in the proportion of a drachm of the extract to an ounce of spermaceti ointment, or ointment of acetate of lead, is commonly successful in relieving this distressing symptom. Belladonna has been employed in combating pain and spasm in diseases of the rectum by many eminent surgeons for a number of years.

"If, after a fair trial of the simple means that have been recommended, the fissure does not heal, but on the contrary, the edges become indurated, and the surface pulpy and indolent, the free application of the nitrate of silver, at intervals of a few days, for two or three times, will generally induce a healthy reparative action in the part, though often at the cost of much pain to the patient. The use of belladonna ointment and enemata after stool must be continued.

"But cases will occur in which both these plans fail, and it will be necessary to have recourse to a modification of the operation recommended by M. Boyer, namely, incision, through the ulcer; but it needs not be carried through the sphincter, as he advised, though since his time, and even at present, the greater number of surgeons divide the parts to the extent he recommended.

"The operation may be performed in two ways, either by cutting from within outwards, or without inwards. In either mode the patient must rest on his side, with his knees drawn up and the buttocks projecting over the edges of a sofa or bed, or he may lean over a table or back of a chair. For the purpose of cutting from within outwards—the plan hitherto generally adopted—a straight probe-pointed knife will be most useful; it is made thicker at the back than an ordinary bistoury, by which a ridge or button on the end is rendered unnecessary. The fore-finger, previously oiled, being introduced into the rectum, the knife must be pressed flat upon it till the point reaches the upper margin of the fissure or ulcer, when its edge must be turned, and an incision made through the mucous membrane, without extending it through the other structures. The other mode of making the incision is that advocated by Mr. Syme, and is performed by transfixing the ulcer beneath its base with a small, sharp-pointed curved bistoury, and cutting inwards through its centre; the opposite side of the bowel must be protected by the introduction of the finger, as previously directed."

The most important chapter, however, is that upon Hæmorrhoidal Affections, and it is impossible for any one who reads it attentively not to be struck with the very practical value of Mr. Ashton's remarks. He gives Montègne's classification, dividing hæmorrhoids into eight varieties, but at the same time says, "No better classification can be adopted in respect to the pathological structure of the several tumours, as well as to the treatment to be pursued, than the division into internal and external hæmorrhoids." Internal hæmorrhoids, he says, consist of three varieties.

"The first consists of loose folds of mucous membrane, with the submucous cellular tissue hypertrophied, the arterial capillaries abnormally developed and actively congested, the venous radicles being in a like condition. When these tumours are prolapsed, they are seen to be of a bright-red colour, spongy in texture, the surface villous like the conjunctiva in chronic ophthalmia; they readily bleed, the blood being spirted out in fine jets, as if from dilated pores, or oozing from the general surface. Its character is arterial. These tumours are usually attached by a broad base near the upper margin of the internal sphincter; sometimes the anal integument is implicated either from the great size the hæmorrhoidal tumours have attained, or their originating near the external orifice. In the second variety the tumours are more solid, somewhat round or pyriform, with a smooth dull-colour surface. They are attached by a peduncle, and, when not prolapsed, lie in the pouch of the rectum above the internal sphincter. They are composed of mucous membrane, hypertrophied cellular tissue, and veins having their tissues much thickened. The third variety differs essentially from the two preceding, and its character would be more clearly indicated by the term vascular excrescence, it being a florid, excessively vascular, granular condition of a portion of the mucous membrane, seldom exceeding a shilling in size, and generally much smaller."

As ointments to be applied by means of bougies to internal hæmorrhoids, Mr. Ashton speaks most favourably of combinations of conium, opium, or hyoscyamus, with spermacetic ointment (ten grains of either to the ounce); and, for the relief of excessive hæmorrhage, injections of iced water or solutions of copper, logwood, &c., are recommended; but he says he places much dependence on an injection of tannic acid, about a drachm to twenty-four ounces. At the same time, sulphuric acid or acetate of lead and opium must be given internally. The radical treatment of this form of disease is, of course, removal by means of the ligature, although, somewhat strange to say, Mr. Ashton does not seem to think that there are many cases which will not be sufficiently relieved by local applications. He says,

"In the majority of cases it will not be necessary to interfere surgically with internal piles, if the patient strictly attends to the instructions of his medical adviser with respect to diet and exercise. Even when the tumours are large, and have existed for some time, the use of soap and water externally, night and morning, the injection of cold water or lime water after each dejection, and keeping the bowels easy, will enable the subjects of them to pass their lives in tolerable comfort."

This fact we are not prepared to deny, but must be allowed to express our doubts of its correctness. External piles must be removed, this being the only satisfactory treatment—although other plans of treatment may be adopted—but it will only relieve for the time; ultimately recourse must be had to the knife. This chapter contains the record of a number of cases, all going to prove the views put forth by our author.

The other chapters of the work are all interesting and practical. The work is very neatly produced by Henry C. Lea, of Philadelphia; he is successor to the well-known medical publishing house of Blanchard & Lea.

A Text Book on Anatomy, Physiology and Hygiene for the use of Schools and Families. By JOHN C. DRAPER, M.D., Professor of Natural History and Physiology in the New York Free Academy, &c., &c., with one hundred and seventy illustrations, 8vo. pp. 300. New York: Harper & Brothers, publishers, Franklin Square, 1866. Montreal: Dawson Bros.

Is there a necessity for a work of this nature, and with the object professedly to teach the youth just so much of the anatomy and physiology of the human frame as would in many instances lead to the very worst results? Dr. Draper, in his preface, says: "Although the chief object has been to "propose a text-book for academic students, the work is also designed for the use of schools and families." Again we would seek to find the utility of laying bare (except to a strong minded woman) the many functions of the living organism. Works of this nature are not generally sought by the young for the purpose of instruction, but with a view of satisfying a morbid curiosity, and especially will you find well thumbed, and read and re-read those parts which relate to the reproductive organs. Although the space devoted to this subject in this volume is exceedingly short and concise, yet as a whole, we think it objectionable—the fashion of the age appears to be to break down that fine barrier of modesty, the very pride of the human female, and we do think that the greatest care should be exercised in the introduction of objectionable literature especially for children.

PERISCOPIC DEPARTMENT.

Medicine.

POISONING BY PHARAOH'S SERPENTS.

By William S. Rowen, Act. Assist. Surgeon U.S.N.

Observing your excellent article in the last number of the Journal, on the injurious effects which may result from the inhalation of poisonous gases set free by combustion of "sulpho-cyanide of mercury," in the form of the new toy, the "eggs of Pharoah's serpents," I beg leave to give the particulars of a case that came under my observation a short time since in Washington, D. C. The "eggs" being, as you say, one of the fashionable sensations of the day, are introduced into the drawing rooms and nurseries of many of our citizens, who are in a measure ignorant of their true character, and who may realize the fact only when serious mischief has been done.

A gentleman of my acquaintance, who has been troubled with a slight bronchial affection for several months, ignited one of the "eggs" in a close room; and while watching the singular appearance of the mellone slowly exuding from the apex of the cone, was seized with vertigo and asphyxia, and, losing consciousness, fell to the floor, the flame from the burning "egg" igniting a portion of his clothing. He recovered in a moment, but suffered with an aggravation of his bronchitis for several days, accompanied with severe hemicrania.

I have heard of another case similar to the above, in which a child was partially suffocated by the obnoxious gases.—*Boston Medical and Surgical Journal.*

THERAPEUTICAL FRAGMENTS.

By Theodore C. Miller, M.D., Athens, East Tennessee.

Valerianate of Zinc in Sleeplessness.—In some form of fevers, the typhoid pneumonia, etc., where opium or morphine increased the difficulty, I succeeded admirably, by giving 2 grs. of val. zinc 4 times daily.

Dysentery.—In one epidemic where the disease showed more of a gastric nature, the following removed the whole disease in a few days:

℞ Epsom salts, ℥ j. Camphor water, fl ℥ viij. Muriatic acid, fl ℥ j. Fluid ext. ipecac, ☋ j.

M. S.—A tablespoonful every 2 hours.

CHRONIC DYSENTERY.—In a very severe case, after the use of a variety of treatment, I restored the patient complete in eight days, by giving the following:

℞ Fluid ext. cascarilla, fl ʒ ij. Camphor water, fl ʒ iij. Vinum opi, fl ʒ ß.

M. S.—Every two hours a large tablespoonful.

HYPOPHOSPHATE OF QUINIA IN DYSENTERY.—In the year 1861, August, I observed a form of dysentery, confined only to a small space of country, and which was obstinate to treat, but gave, by the administration of hypophosphate of quinia (2 grs. every 2 hours), the most satisfactory results.

LACTUCARIUM IN DYSENTERY.—In September, 1862, I observed by the combination of lactucarium with small doses of ipecac, a quick and sure remedy. It is nothing new as the same has been praised many years ago by Dr. Rothammel.—(Heidelb. Klin. Annal. v. v.)

CIMICIFUGA IN RHEUMATIC OPHTHALMIA.—In several cases, I found the fluid extract an excellent remedy. In one case it improved the patient, but did not completely cure him, till I combined it with iron.

CIMICIFUGA IN CHRONIC VOMITING.—In a case of a lady 28 years of age, who had been treated by physicians in all her reach for over a year, and who laboured for one day under a cardialgia, the next day under a severe vomiting, I gave the alc. ext. of black cohosh 2 grs. at a dose, with pulv. altheæ. in pill form. In twelve days it arrested the disease, but let her take afterwards for two months, 1 gr. pill four times daily. This was in 1861; the disease has never returned.—*Journal of Materia Medica, New Lebanon, N.Y.*

Midwifery and Diseases of Women and Children.

AGGRAVATED DYSMENORRHEA; EXPLORATIONS OF THE UTERUS WITH THE ENDOSCOPE; CURE.

Anne Crolly, aged thirty-five, unmarried, settled in England many years, and has worked in a cotton factory; of full habit, rather pale and flabby, and apparently in good health, admitted June 23, 1865.

History.—Two years ago had bleeding, followed by copious hæmorrhage from the womb, which was accompanied by discharge of "clots;" this occurred suddenly, and continued eight months without intermission, but was not attended with pain. Has been repeatedly under medical treatment in England, and took mercury to salivation.

Bleeding ceased for five weeks; it then returned, and has continued

to the present time; it is now, however attended with pain, which she describes as being of a "squeezing" kind, and accompanied by "forcing."

Os uteri is patulous, and plugged with glairy mucus; its lips are congested, and on the slightest irritation florid blood flows freely from them.

Examined with Dr. Cruise's endoscope; the lining membrane of the uterus presented streaks of vascular engorgement, like the conjunctiva in a state of chronic inflammation: in several situations, also, the mucous membrane was seen to be rough and granular. It was touched, through the endoscope, with a twenty-grain solution of nitrate of silver, and the *blanched* surface so treated was subsequently distinctly visible through that instrument.

Treatment consisted, in addition to the above, in repeated leeching of anus, warm hip baths, injections of sulphate of alum and oak bark, mild aperients, and vaginal suppositories, composed of acetat. plumbi, gr. x, extract opii aquæ, gr. i, unguent hydrarg. ʒ j. M.

July 5.—Greatly improved; no bleeding for several days, and pain in breasts, which, when hæmorrhage was troublesome, had becen urgent, no longer exists.

Diagnosis—Dysmenorrhea from uterine congestion.

July 19.—Examined to-day; os uteri much less patulous; it is now pale, and a transparent glairy mucus oozes from it; no hæmorrhage or pain for last three weeks; breasts still tender to pressure, but pain removed, partly by means of aconite and chloroform liniment, and gr. i of valerianate of zinc, ter in die; but mainly, no doubt, by the treatment directed to the uterus. Discharged this day.

With the assistance of my colleague, Dr. Cruise, the interior of the uterus was examined by means of his endoscope, by Dr. Churchill and William Stokes, jun., at a time when vascular congestion existed in high degree.

There can be no doubt that the practical value of the endoscope was illustrated in this case, as without the use of it—although one might infer from the symptoms the condition of the interior of the womb—it would have been impossible to have the advantage of *ocular* demonstration of this, and to have directed local treatment with the eye.

September 13, '65.—I received a letter from Crolly's mother to-day, from Bolton, England, thanking me "for saving her daughter's life," etc., "after she had been treated to no effect in England."

I mention this letter, which was not in any way solicited, for the purpose of showing that up to that time the girl had continued well.—*Ibid. Clinical Records of Mater Misericordæ Hospital.*

SUCCESSFUL CASE OF CÆSAREAN SECTION.

By Professor JACOLUCCI of Naples.

On the 4th of August, 1862, Philomene Morvillo, nine months pregnant, was brought to the Hospital of Incurables. This woman was only forty-one inches in stature. On examination, the following were ascertained to be the dimensions of the pelvis:—From right to left anterior superior spinous process of the ilium, eight inches; from middle of one iliac crest to the corresponding point on the other side, a little less than two inches; right sacro-coty-löidion space rather more than one inch, left ditto one inch. On the 27th August labour pains set in, and on the arrival of Professor Jacolucci he found that the waters had escaped, and that the umbilical cord was protruding. The pulsation in the cord becoming gradually more feeble, the Cæsarean section by the method of Mauriceau was decided on. The abdominal cavity and anterior wall of the uterus having been laid open, the operator introduced his hand in the direction of the right iliac fossa in which was found the head of the still living fœtus. The loss of blood was considerable. By the retraction of the uterus the wound in that organ diminished to half its extent. The twisted suture was then employed, and the application of a bladder filled with ice to the abdomen and cold enemas constituted the entire treatment during the next three days. The wound in the abdomen united by the first intention.

The thirteenth day after the operation the points of suture were removed, the cicatrisation being complete. The lochial discharge and lacteal secretion were established normally; and at the expiration of fifty days the patient left the hospital.

Professor Wurtz has been appointed Dean of the Faculty of Medicine of Paris.—*Dublin Medical Press and Circular.*

OBSTETRICAL CLINIC OF PROF. CHAS. A BUDD.

Reported by S. HENDRICKSON. Sub-acute Inflammation of Cervix Uteri, with Endocervicitis.

Mrs. S., æt. 24 years; has been married fifteen months. No children. Patient enjoyed good health previous to her marriage. Her general health is also at present good; appetite fair; bowels regular; monthly periods constant, lasting four days. She comes here complaining that she experiences pain during the act of sexual congress.

Now, *a priori*, upon what may this inconvenience depend? This pain during copulation may be dependent upon—first, *vaginitis*, which condition always causes violent paroxysms of pain on introducing anything

into the vagina, even the finger in making a digital examination. Another cause is ulcerations in the vagina, around the caruncule myrtiformes, from a failure of the hymen, lacerated in the natural way, to heal. Another cause is vulvitis. Other causes may be a general hyperæsthesia of the uterus from hyperæmia, or inflammation, or ulceration of the cervix. We very frequently find this hyperæthesia at the time of sexual intercourse, associated with sterility.

On making a digital examination, there seems to be no soreness about the vulva or vagina, but the patient shrinks on touching the neck of the uterus. There is a slight disposition to retroversion of the uterus.

On making an examination per speculum, the neck of the uterus is seen to be the seat of a subacute inflammation, giving rise to endocervicitis, or catarrh of the neck. The pain, therefore, which the patient complains of, is due to this sub-acute inflammation of the cervix, and the sterility upon the endocervicitis.

(The case was now exhibited to the class. There was seen a thick, tenacious, alluminous fluid issuing from the cervix.)

Probably this inflammation may have existed for many months, and is not the result of her new relations. What is the cause of the cervical catarrh? All we can say is that it is a remnant of the detritus resulting from inflammation which has existed at an antecedent period.

One great obstacle to the success of our treatment in these cases is the continuance of sexual intercourse. Hence you can see the benefit to be derived in such cases by causing a temporary separation of the wife from her husband. We will treat this patient by scarifying the cervix, taking about half an ounce of blood, and then pass the saturated tr. iodine by means of a probe tipped with cotton, to the os internum.

Materia Medica and Chemistry.

THE NEW ANÆSTHETIC.

Professor Simpson, the well known discoverer of Chloroform, has recently been experimenting further in the same direction. In a late number of the *Medical Times and Gazette* he gives his observations concerning its effects—the essential portions of which are embraced in the following:—

"The last of these compounds—the bichloride of carbon is the new anæsthetic which forms the special subject of the present observations. It was first, I believe, discovered by M. Regnault, in 1839. It has already received various appellations from various chemists, as perchloroformene, perchlorinated chloride of methyl, dichloride of carbon, carbonic

chloride, tetrachloride of carbon, superchloride of carbon, perchloruretted hydrochloric ether, and perchloruretted formene (see Gmelin's 'Handbook of Chemistry,' vol., vii., p. 355, and Watt's 'Dictionary of Chemistry,' vol. i, p. 765).

"If it becomes, as I believe it will, for some medicinal purposes, an article of the materia medica, it will require to have a pharmaceutical name appended to it, and perhaps the designation of perchloroformene, or the shorter term chlorocarbon, may prove sufficiently distinctive. In its chemical constitution, bichloride of carbon, or chlorocarbon, is analogous to chloroform; with this difference, that the single atom of hydrogen existing in chloroform is replaced in chlorocarbon by an atom of chlorine, for the relative chemical consitution of these two bodies may be stated as follows:— Chloroform $= C_2HCl_3$

Chlorocarbon $= C_2ClCl_3$.

"The chlorocarbon can be made from chloroform by the action of chlorine upon that liquid; and Genther has shown that the process may be also reversed, and chloroform produced from chlorocarbon, by treating it in an appropriate vessel with zinc and dilute sulphuric acid, and thus exposing it to the action of nascent hydrogen. The most common way hitherto adopted of forming bichloride of carbon consists in passing the vapour of bisulphide or bisulphuret of carbon together with chlorine through a red-hot tube either made of procelain or containing within it fragments of porcelain. There result from this process chloride of sulphur and bichloride of carbon, the latter being easily separated from the former by the action of potash.

The bichloride of carbon, or chlorocarbon, is a transparent, colourless fluid having an ethereal and sweetish odour, not unlike chloroform. Its specific gravity is great, being as high as 1·56, chloroform is 1·49. It boils 170° Fahrenheit, the boiling point of chloroform being 141°. The density of its vapour is 533, that of chloroform being 4·2.

Beside trying the anæsthetic effects of bichloride of carbon upon myself and others, I have used it in one or two cases of midwifery and surgery. Its primary effects are very analogous to those of chloroform, but it takes a longer time to produce the same degree of anæsthesia, and generally a longer time to recover from it. Some experiments with it upon mice and rabbits have shown this—two corresponding animals in these experiments being simultaneously exposed, under exactly similar circumstances, to the same doses of chloroform and chlorocarbon. But the depressing influences of chlorocarbon upon the heart is greater than that of chloroform; and, consequently, I believe it to be far more dangerous to employ as a general anæsthetic agent. In a case of midwifery in

which it was exhibited by my friend and assistant, Dr. Black, and myself, for above an hour, with the usual anæsthetic effects, the pulse latterly became extremely feeble and weak. In another case in which it was exhibited by Dr. Black, the patient who had taken chloroform several times before, was unaware that the new anæsthetic was different from the old; her pulse continued steady and firm, although she is the subject of valvular disease of the heart. The surgical operations in which I have used chlorocarbon have been, the closure of a vesicovaginal fistula, the division of the cervix uteri, the enlargement of the orifice of the vagina, and the application of potassa fusa to a large flat nævus upon the chest of a young infant. In all of these cases it answered quite well as an anæsthetic. The child did not waken up for more than an hour and a half after the employment of the caustic, which was used so as to produce a large slough. Its pulse was rapid and weak during the greatest degree of anæsthetic sleep. One of the mice exposed to its influence, and which was removed from the tumbler where the experiment upon it was made, as soon as the animal fell over, breathed imperfectly for some time after being laid upon the table, and then died.

"Chlorocarbon, when applied externally to the skin, acts much less as a stimulant and irritant than chloroform, and will hence, I believe, in all likelihood be found of use as a local anæsthetic in the composition of sedative liniments.

"In two cases of severe hysteralgia I have injected air loaded with the vapours of chlorocarbon into the vagina. The simplest apparatus for this purpose consists of a common enema syringe, with the nozzle introduced into the vagina, and the other extremity of the apparatus placed an inch or more down into the interior of a four-ounce phial, containing a small quanity—as an ounce or so—of the fluid whose vapour it is wished to inject through the syringe. Both patients were at once temporarily relieved from pain."

NEW TEST FOR ARSENIC.

The wonderful delicacy of the previous tests for arsenic which have been thought to be almost perfect, are surpassed by the electrical test. By means of a simple apparatus all the arsenic in a substance may be rapidly extracted. Place a solution of arsenic matter in a platinum vessel, plunge a zinc wire into the liquid, and the arsenic will appear on the platinum; by prolonging the action the whole of the arsenic may be extracted from the compound. This process is superior in sensibility, and as it requires far less manipulation of the suspected substance, is much more trustworthy for toxicological examinations than the methods now in use.

Canada Medical Journal.

MONTREAL, MARCH, 1866.

A HEALTH OFFICER.

Although we have written strongly in previous numbers of the journal of the apathy of the Health Committee—we feel that as they have at at last moved in the matter of sanitary reform, we can extend to them our congratulations upon having taken a step for which the entire city will commend them. The Finance Committee, having agreed to recommend an appropriation of $1600 for the employment of a medical man as Health Officer for the City of Montreal for eight months, the Health Committee advertised for applicants. On the 2nd of this month the Committee met, and opened a number of applications. After mature deliberation, it was decided to recommend the appointment of Gilbert Prout Girdwood, M.D., M.R.C.S.E., late assistant-surgeon 1st Battalion Grenadier Guards; and without detracting from the merits of other applicants, we think, that from the high testimonials presented on behalf of Dr. Girdwood, (a requisition in his favour signed by all the leading English practitioners being presented) the Committee could not well come to any other decision. At the time we write, the Council have not met, and the appointment has not therefore been made, but, in the meantime we congratulate Dr. Girdwood on the probability of his appointment. When made, we trust he will at once enter heart and soul into his work, and practically show the value of his labours—when, we believe, the city will see they cannot dispense with his services. As we said in our last number, the appointment of a Health Officer should be permanent, and we trust that he may so become.

DR. MARSDEN'S PLAN OF QUARANTINE.

In our February number, we inserted an article from our friend Dr. Marsden, of Quebec, giving the details (along with a plan) of a system of quarantine which he has suggested, and which, we understand, he is

urging upon the Government for adoption. Dr. Marsden's experience during the various epidemics which have visited this country has been very extensive, and his opinions are, therefore, entitled to weight, which will, doubtless, be accorded to them. The plan is evidently based upon the theory of the contagiousness of the disease—a question which is still unsettled—and the arrangements to prevent non-intercourse of persons suffering from the affection in its various forms, mild and severe, are very complete. Whether the disease be contagious or not, it cannot possibly be a fault to err in the belief that it is, and take all precautions. Those, therefore, who may disagree with Dr. Marsden in his belief on the contagiousness of the disease, can but admit he errs—if at all—on the safe side. More particularly, however, we believe Dr. Marsden's plan would be an immense service in an epidemic of typhus fever, and other well-known contagious maladies. While our authorities are reflecting upon this plan, or, perhaps, resolved to make no change in the quarantine at Grosse Isle, the New York Board of Health have adopted the plan of Dr. Marsden, and state that a Bill will shortly be presented to Congress, with the intention of making the system complete and universal along the entire American Atlantic coast. To our friend this must be satisfactory; and, should our own Government pass his suggestions by unheeded, it would be but another illustration of the old but true proverb, "A man has no honour in his own country."

A meeting of the medical profession of Montreal, called to consider the expediency of adopting such measures as might be deemed advisable in view of the possible appearance of cholera, was held in the Mechanics' Hall on the evening of the 2nd instant. Dr. George W. Campbell was called to the chair, and Dr. J. L. Leprohon was appointed Secretary. Considerable discussion ensued, and it seemed to be the unanimous opinion of all present that the Council was the proper body to take action in the matter, and as they had already exhibited considerable zeal in proposing various measures—it was not advisable for the profession to interfere.

The appointment of a Health Officer, as suggested by the Health Committee, was highly approved, and after passing the following resolution, the meeting adjourned.

Moved by Dr. Hingston, seconded by Dr. D. C. MacCallum, that the appointment of an efficient Health Officer, with all the powers properly belonging to such office relieves the members of the profession from the necessity of present action in the matter.

We have to thank our readers for the response they have made to our appeal for literary aid, and trust they will continue to forward to us such communications as they may deem of interest. But we must insist upon communications being prepared solely for our journal. In future we will positively decline papers forwarded simultaneously to several journals.

OLEUM ERIGERONTIS CANADENSIS AS A REMEDY IN HEMORRHAGE DIARRHŒA, AND DYSENTRY.

Dr. J. W. Moorman, of Hardinsburg, Ky., recommends in the *American Journal of Med. Sciences* the use of oleum erigerontis canadensis in the treatment of hæmorrhage, diarrhœa, and dysentery. Several favourable cases are related. The usual dose according to the U. S. Dispensatory is from five to ten drops, but Dr. Moorman has given it with benefit in much larger doses—from 3 ss. to 3 j. "It may," he says, "be given in a little water, to which a small quantity of sugar may be added. In cases of hæmoptysis, 10 or 15 drops may be placed on a handerchief and inhaled at the same time it is taken internally. The same method will answer in epistaxis. In diarrhœa 15 drops every 4 hours until it is relieved, will in most cases be sufficient." Although in dysentery Dr. Moorman has not obtained the gratifying results claimed by some, more or less advantage has in every case been derived from its use. He concludes: "In heemorrhage and diarrhœa of debility I know of no better remedy, and I trust the profession will give it a trial, and let us know the results."

ANÆSTHESIA BY NITROUS OXIDE GAS.

Dr. Carnochan performed two severe surgical operations on Saturday last, at Ward's Island Emigrant Hospital, while the patients were under the influence of nitrous oxide gas, administered by Dr. Colton. The operations in both consisted in the amputation of the leg above the ankle. The patients said that they knew nothing of what had taken place, while one declared, on waking, that he had not been asleep, and the operation had not been performed! Dr. Carnochan and several surgeons who were present, expressed themselves well pleased with the effects of the gas. It required less than one minute to put the patient asleep, and after the operation was completed, and the gas removed, the patient recovered entire consciousness in about twenty seconds. There was no vomiting or sickness attending or following the operation, and the patient awoke as fresh as from a natural sleep.—*Philadelphia Medical and Surgical Reporter.*