

## Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /  
Couverture de couleur
- Covers damaged /  
Couverture endommagée
- Covers restored and/or laminated /  
Couverture restaurée et/ou pelliculée
- Cover title missing /  
Le titre de couverture manque
- Coloured maps /  
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /  
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /  
Planches et/ou illustrations en couleur
- Bound with other material /  
Relié avec d'autres documents
- Only edition available /  
Seule édition disponible
- Tight binding may cause shadows or distortion  
along interior margin / La reliure serrée peut  
causer de l'ombre ou de la distorsion le long de la  
marge intérieure.
- Additional comments /  
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /  
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /  
Qualité inégale de l'impression
- Includes supplementary materials /  
Comprend du matériel supplémentaire
- Blank leaves added during restorations may  
appear within the text. Whenever possible, these  
have been omitted from scanning / Il se peut que  
certaines pages blanches ajoutées lors d'une  
restauration apparaissent dans le texte, mais,  
lorsque cela était possible, ces pages n'ont pas  
été numérisées.

CANADA

# MEDICAL JOURNAL.

---

## ORIGINAL COMMUNICATIONS.

---

*The Hypodermic Administration of Morphia.* By JAMES ROSS, M.D.,  
Toronto.

Permit me to avail myself of space in the columns of your valuable journal, to direct the attention of the medical profession to the administration of morphia, hypodermically, in various forms of disease to which the human family are very liable.

Every practitioner is fully aware of the good effect of morphia over pain in almost all painful diseases when it can be readily taken into the system by the absorbents; but when the *primæ viæ* are so deranged as to prevent the morphia from passing into the circulation, every one will admit the inutility of the medicine; hence in cholera, or in acute gastritis, opium, morphia, and many other medicines may be given in enormous quantities, without producing their characteristic effects; and in many instances those diseases have proved fatal, because the system could not be brought under their powerful soothing influences in time to counteract the powerful morbid influence. But when medicine is applied hypodermically, my experience teaches me, that a given quantity put into the blood produces a positive effect, as the following cases will prove:

*Case 1.*—Feb. 1860. A lady, aged thirty-five years, had suffered under hemicrania of the right side for four or five months of a periodical character, recurring in severity every evening, who had tried all the usual remedies, both anodyne, and anti-periodic, such as opium, morphia, conite, arsenic, quinine, iron, &c., but with only temporary relief.

At last, I determined to try the effect of morphia, hypodermically applied, and injected half a grain into the areolar tissue of the posterior aspect of the arm, which in ten minutes produced a peculiar sensation of

dizziness in the Lead, and within an hour the pain had entirely subsided and she fell asleep. I repeated the operation every evening for ten days, and then every second evening for ten days more, always anticipating the attack, when the pain showed very slight disposition to return, and was completely routed by giving her three drops of tincture of aconite with thirty drops of the Syrup Ferri Iodide three times a day for a few days.

I have seen her repeatedly since, but she has had no return of the pains, and now enjoys good health.

*Case 2.*—Feb., 1860. A man about thirty summers afflicted with a violent pain in the back of his neck, evidently of a neuralgic character, that had tormented him for several weeks, and had entirely incapacitated him to perform his duty as a labourer in the gas works.

I injected into the posterior part of his arm half a grain of morphia, which gave him relief in about fifteen minutes, and in less than half an hour he felt disposed to sleep. I saw him next day; he had passed a comfortable night, but the pain had slightly returned. I repeated the injection of the same strength, and two days afterwards, I again repeated it, each repetition being followed by additional relief. I followed up the treatment with three drops of tincture of aconite, and thirty drops of Syrup Ferri Iodide three times a day, and the patient was soon able to resume his occupation. I saw him two months after in good health, when he expressed himself very thankful for the relief he had obtained.

*Case 3.*—Feb., 1860. A woman, aged thirty, suffering under a violent attack of puerperal mania, who had become so uncontrollable as to cause her friends to call in three policemen, who, when I arrived, were in the act of holding her down upon the bed.

Her pupils were dilated; she was talking incoherently, and severely struggling beneath the iron grasp of her guardians in blue.

Believing morphia would be more conducive towards quieting her troubled mind than the straight jacket, I was induced to insert half a grain beneath the skin of her arm, and at the end of twenty minutes she became quite passive, not requiring to be held, but did not sleep; and two days after I sent her to the asylum, where she subsequently, ten days after, died.

*Case 4.*—Feb., 1860. A young lady, suffering under an attack of acute inflammation of the left ear, accompanied by intolerable pain, which had been greatly aggravated by pouring chloroform into the ear, by order of some would-be doctor.

I injected into the right arm half a grain of morphia. In ten minutes she began to feel relief, and in half an hour the pain was entirely gone, and the patient slept. I saw her the next day, she had slept nearly all

night, and appeared much refreshed, but had a slight return of the pain. I directed that a warm poultice, as ordered the previous night, should be continued over the ear, and repeated the injection the same strength.

The following day she appeared to be almost well, and expressed herself thankful in the kindest manner for so sudden and unexpected transition to health.

*Case 5.*—Later in the year, I was called upon to visit a man of middle age, who was suffering under an attack of delirium tremens. He was very restless, and required constant watching. His stomach was very much disturbed, his pulse feeble, and his pupils much dilated. In such cases, morphia or opium will generally act kindly, and I therefore injected half a grain of morphia into his arm, and left him for the night. Next day I was told that he had slept nearly all that night, and was still inclined to sleep. I ordered him to have small doses of morphia by the stomach, occasionally, to keep up the effect, and he made a rapid recovery without further treatment.

*Case 6.*—Jany. 23rd., 1861. Mrs. D., a young lady aged twenty-four, during the seventh month of utero-gestation of her third child, was seized with an attack of acute gastritis, produced by indiscretion in dieting and over exertion. Her stomach was very irritable, she was vomiting incessantly, her tongue was furred, unquenchable thirst, severe pain in the epigastrium, increased by pressure, and bowels were constipated.

After cleansing the stomach and bowels by warm water drinks and enemata, I administered the whole catalogue of remedies deemed appropriate for such cases, both inwardly and outwardly, which appeared only to palliate the symptoms, not to cure the disease. Consequently upon the 27th, the fourth day of the disease, finding her much prostrated, and unable to retain a spoonful of cold water upon her stomach, I determined to try morphia hypodermically, and injected half a grain into her left arm. At the end of fifteen minutes she closed her eyes in sleep. I saw her again at the end of half an hour, when she was sleeping calmly. The anxiety and distress, that had dwelt upon her countenance for the past four days, had now given place to a calm and happy expression. The next day, at nine A.M., she was still inclined to sleep; had slept five or six hours during the night without intermission, and had not vomited since the application of the needle. In the evening she was still better, but complained of slight pain in the stomach, had taken some gruel, and had had no return of the vomiting. I again injected half a grain into the arm, and left her for the night.

Jan 29. Had slept considerably during the night, felt comfortable

and still inclined to sleep. Ordered broth. In the evening continued favourable, but still complained of tenderness in the epigastrium, which appeared to be in the abdominal muscles, near their attachment to the ribs and sternum, no doubt, produced by the excessive vomiting.

I applied the needle over the ensiform cartilage, and injected one fourth of a grain of morphia.

The next day, Jany 30th, she experienced marked relief, and expressed herself comfortable. The bowels being constipated I ordered her to take a teaspoonful of magnes: sulph: and repeat every three or four hours until the desired effect should be produced. Jan 31st. Bowels moved and doing well, ordered beefsteak and roasted potato. I saw her again several days after when she appeared quite relieved but weak; and continued to improve until March 1st, when she again sent for me. She was then threatened with the same symptoms, which had been produced by overloading her stomach with a variety of indigestible articles. Her full term of gestation being now nearly completed, I induced labour as a palliative measure, and delivered her in about eight hours of a healthy, living child. The next morning, the after pains being very severe and her stomach rejecting everything, I injected half a grain of morphia into her arm which was followed by marked relief. I repeated the dose in the evening of the third, and again on the morning of the fourth, same strength, each application being followed by additional relief. March 5th much better, and did not require the needle. In the evening she complained of a slight cough, for which I prescribed a mild cough mixture and cautioned her against sitting up, as she was disposed to do, the weather being extremely cold. The next morning she had a severe chill; pleuro-pneumonia of both sides set in, and she died two days after.

*Case 7.*—August, 1861. A man aged twenty-five, whom I saw in the early part of the day afflicted with rheumatism, and for whom I prescribed a mixture containing three drops of tinct. verat. veridi: and eight grains of potassia: acetat, in every teaspoonful, but instead of giving one teaspoonful, the dose prescribed, his wife gave him a dessert-spoonful, which contained nearly three times as much, and before bedtime, he having taken three doses, vomiting severely after each dose, and being excessively prostrated, I was sent for in great haste, and not without good reason, for when I arrived I found him very much prostrated, retching violently, and a tough ropy mucous was issuing from his mouth, which indicated poisoning from the verat. verid. He could not speak audibly, his pulse could scarcely be felt, his countenance appeared ghastly, his skin cold, and bathed in perspiration, and his pupils were widely dilated; in fact he appeared upon the very verge of dissolution. I in-

mediately applied the hypodermic needle, and injected half a grain of morphia into his arm. Five minutes after the injection the retching ceased, and in half an hour, his pupils contracted, and he fell asleep. I saw him next day. He had slept six or eight hours, almost without intermission, and now felt comfortable, and expressed himself much pleased because of the sudden disappearance of his rheumatism. He made a rapid recovery without further treatment, and in a few days was able to walk about.

In this case I do not attribute the sudden cure of the rheumatism to the morphia, but to the *verat. verid.* The morphia however saved his life, and could not have been administered in any other way with timely effect to arrest the poisonous action of the *veratrum*.

I come now, to the treatment hypodermically, of Cholera Canadensis, to which I wish more particularly to draw the attention of the Medical profession, because it is a disease that has proved very troublesome, and unmanageable to every practitioner acquainted with it; not because medicine could not be found to control the horrid symptoms which so rapidly prostrate the vital powers of its victim, but simply because it could not be introduced through the usual channels, in sufficient quantity, and with timely speed to arrest the devastating power of the choleraic poison.

The stomach, and bowels, the great thoroughfare through which the system is fed and nourished having become so deranged, that nothing can be digested, or absorbed; but on the contrary, that which is within, —the fluids, and in the fluids, the solids of the body, are constantly pouring out, and with them vitality also.

And having noticed in the case of gastritis and also that of poisoning by *verat. virid.* before mentioned, that the vomiting and retching was so quickly relieved after the administration of the morphia, I felt satisfied that cholera might be relieved in the same way, and the opportunity for trying it was soon afforded me.

*Case 8.*—August, 1861. A lady aged thirty was seized with cholera; her symptoms were excessive vomiting and purging, rice-water evacuations, cramps in the muscles of the extremities, pulse feeble, countenance pallid, lips livid, and her skin bathed in clammy perspiration. She had been a woman of full plethoric habit, but was now pale and prostrated.

I administered all the usual remedies in such cases, such as rinsing the stomach thoroughly with warm water, applying sinapisms to the epigastrium and extremities, and giving calomel, opium, morphia, chalk, and hydrocyanic acid by the stomach, but without any permanent relief to my patient. After the lapse of several hours, finding the symptoms growing worse, I determined to try morphia hypodermically, and inserted nearly half a

grain into her arm, and in half an hour I was pleased to find a most favourable change. Next day she was much better, had not vomited during the night, and only twice up to 10 a.m. which was caused by the patient rising up to take a drink. Her bowels had not moved, she had slept occasionally and still seemed inclined to sleep. I saw her again in the evening of the same day, when she appeared more restless, and complained of slight pains and rumbling in the bowels. I repeated the injection of half a grain, and saw her the next day. She had slept well, and was much improved, and could bear nourishment upon the stomach, the bowels remained undisturbed, she convalesced rapidly, and is now enjoying good health.

*Case 9.*—August, 1862. Mrs. J. C. was suddenly seized with cholera, six or eight hours previous to my arrival, and was supposed to be in a dying condition. I found her much prostrated, skin pale, cold, and bathed in clammy perspiration, lividity of the lips, pulse almost imperceptible at the wrists, incessant vomiting, and purging; the evacuation being of the rice-water character, and her limbs contorted by agonizing spasms which caused her to shriek aloud, her voice husky, hoarse, and almost unintelligible.

The coldness of the tongue and fauces was very marked, which appears to be characteristic of the advanced stages of cholera. I immediately inserted half a grain of morphia beneath the skin of the arm, and then watched its effects.

The purging ceased in ten minutes; she never vomited after the application of the needle, and within half an hour she lay calm and quiet in sleep.

I directed the nurse to give her some rice water or gruel, if awake, and left her for two hours. On my return she was still sleeping, neither stomach nor bowels having been disturbed; she breathed naturally; her pulse was more perceptible, and her countenance began to resume its usual expression. She slept for eight or ten hours, almost without intermission, after which she began to take nourishment, in the form of gruel and milk, and continued to improve. About the third day the bowels not having moved, I gave her a mild purgative, and directed that she should be kept quiet in bed for a few days until she regained her strength, which she did rapidly, and now, in 1866, she is still living.

*Case 10.*—July, 1863. An old dissipated man, of over eighty winters, had been seized with cholera twelve hours previous to my arrival. I found him very much prostrated, skin cold, lips livid, pulse could scarcely be felt, the stomach and bowels constantly moving, the voice husky, the tongue and fauces cold, and the legs cramped.

I injected half a grain of morphia into his arm, and within forty minutes the symptoms were relieved, and he fell asleep. I visited him occasionally throughout that day, and he appeared comfortable; the purging and vomiting having entirely ceased. I saw him again the next day. He was much better, the stomach and bowels were still quiet; but being a very old man whose constitution had been shattered by dissipation, and having been allowed to suffer for twelve hours before any relief had been sought for, he gradually sank from exhaustion.

I might enumerate several other cases, but let the above suffice to draw the the attention of the profession to this very important subject.

In all these cases I used the "sulphate of morphia" in solution, prepared as follows

℞ morph. sulph. grs. xxx ij.  
Acid sulph. gtt. ij.  
Aquæ ℥ ij. M.

Consequently every 3 contains grs. ij. and xv m. half a grain, the usual dose employed.

The instrument used, was made by Teiman of New York, after the plan suggested by Dr. Alexander Wood, and consisted of gutta-percha, with capacity to hold half a drachm, having four graduations upon the piston; the nozzle a hollow, sharp-pointed needle being made of platinum.

The power, of morphia, as an anodyne, anti-phlogistic, and anti-spasmodic, is undoubted, when a certain quantity is directly introduced into the circulation, its effect is prompt and decisive; and as an antidote to cholera, I believe, will be found perfectly reliable.

In neuralgia, some objections may be raised to the exhibition of morphia, because of the nausea, and vomiting which sometimes follow its use; but in gastritis, or cholera, when these symptoms are always present, and distress the patient so much, it certainly cannot aggravate, but, according to my experience, invariably arrested them when administered hypodermically, and when proper precautions were taken to keep the patient in the recumbent posture, with the head upon a level with the long axis of the body until its effects had passed off.

I hope that the facts, as above related, will prove interesting to my professional brethren, and beneficial to suffering humanity.

I have omitted to state that, in over forty cases where I have used the hypodermic needle, there has been no local irritation, requiring treatment at the seat of puncture; and therefore no fears need be entertained in that direction.

J. R., M.D.

74 Caroline Street, Toronto, March 5th, 1866.

*The Optical Defects of the Eye, and their Treatment, by the Scientific use of Spectacles.* BY A. M. ROSEBRUGH, M.D.

(Continued from page 411.)

CHAPTER III.—MYOPIA.

**CONCAVE LENSES.** — Before proceeding to the consideration of Myopia, it will be well for us to glance at some of the properties of concave lenses; and, in order to simplify the subject, we will confine ourselves to equi-concave lenses. An equi-concave lens is bounded by two surfaces, which are portions of the concave side of two circles which have equal radii.

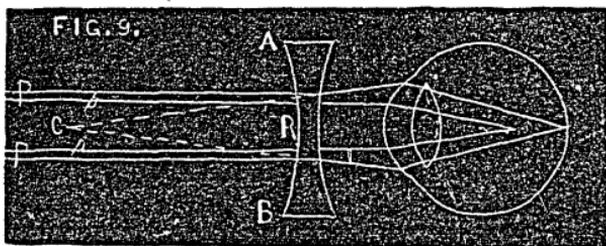


Fig. 9. A, B, one of the concave surfaces of the lens. C is the centre of curvature, and C, R the radius of curvature. When parallel rays, P, P', strike one surface of the lens, they have divergence upon leaving the second surface of the lens, as if they proceeded from the centre of curvature, C, which, in an equi-concave lens, is also the principal focus of the lens. C, R is the focal length of the lens. In a convex lens, the focus is measured *behind* the lens; in a concave lens, it is measured *in front* of it. If we call the focus of the convex lens positive, we must call the focus of the concave lens negative. When parallel rays of light fall upon a convex lens, they are converged to a focus. When they fall upon a concave lens, they are made to diverge. A convex lens enlarges, and a concave diminishes the apparent size of objects. The focal length of a convex lens is measured behind; and that of a concave lens, in front of the lens. They are, therefore, entirely opposite in all their properties; and, for this reason, a convex lens is called a positive lens; and a concave one, a negative lens. Or, shorter still, they are indicated by the plus (+) and minus (—), algebraic symbols; thus, + 5, and — 5; or, +  $\frac{1}{5}$ , and —  $\frac{1}{5}$ . To ascertain the focal length of a concave lens, we ascertain what convex lens it will neutralize.

1. In a myopic eye, parallel rays, as well as those that have a certain degree of divergence, are focussed *in front* of the retina; and, the inverted image of distant objects being formed in the same position, the picture upon the retina will be ill-defined, and vision for distant objects consequently indistinct.

Patients with myopia complain that, although their vision for near objects is perfect, they cannot see objects at a distance with any distinctness. They can read the smallest type, when brought near the eyes, even better than persons with normal vision, but they are not able to recognize their friends at a distance of fifteen or twenty feet.

In order to enable such persons to see distinctly at a distance, it is necessary for them to wear concave spectacles of such a strength, that the parallel rays from distant objects may have such a degree of divergence, that, falling upon the myopic eye, they may form a focus upon the retina. Theoretically, we should prescribe concave glasses of such a strength that their focus will correspond with the patient's "far" point. Thus, if the "far" point be 12 inches, we should prescribe — 12, as a twelve inch concave lens, placed before such an eye, will give parallel rays from distant objects the same degree of divergence as if they proceeded from the "far" point of the eye; namely, at 12 inches from the eye. Thus, in Fig. 9, P, P, represent parallel rays falling upon the concave lens, A. B.; they are made to diverge, as if coming from the focus, C, and falling upon the eye divergently, they are focussed upon the retina at F. Practically, however, we would find that — 12 would be rather too strong, and that — 15, or — 16 would probably answer better. As a rule, the weakest glasses should be worn that will enable the patient to see distant objects with distinctness.

In testing the degree of myopia, we use a series of test types that are so constructed that No. I (smallest) can be distinctly seen and read by a person having normal vision, at a distance of 1 foot; No. II, at 2 feet; No. V, at 5 feet; No. XX, at 20 feet; and so on. A specimen of these types will be annexed to this paper. The types are also used in testing the acuteness of vision in Presbyopia, Hypermetropia, Amblyopia, &c.

2. In determining the degree of myopia in any case, we ascertain the greatest distance at which No. I test types can be read distinctly; if at 10 inches, the "far" point will be at 10 inches, and the myopia would be called  $\frac{1}{10}$ ; if at 6 inches the myopia would be called  $\frac{1}{6}$ . From this we can, as stated above, get a proximate knowledge of the strength of the concave lens necessary to relieve the myopia.

3. A myopic eye, when in a state of rest, is adjusted for diverging rays. To enable such an eye to see distant objects, that is, to bring parallel rays to a focus on the retina, it is necessary to give these parallel rays a preliminary degree of divergence by the interposition of the proper concave lens.

Myopia can be distinguished from every other defect of vision, by the

fact that concave glasses improve vision for distant objects. If we have no concave glasses convenient, we can diagnose it from Amphyopia, (insensibility of the retina) by the following ready method:—A person with normal vision can read distinctly, No. I test type at 12 inches, and even a little farther. We will suppose that a patient's vision is so impaired, that he can only read No. II at 6 inches; if he is *not* also myopic, he can also read No. IV at 12 inches, or No. LX at 180 inches—that is at 15 feet. However impaired then a person's vision may be, unless he be also myopic, he can see as well proportionately, at one distance as at another. On the contrary, a person with myopia, say  $\frac{1}{6}$ , can see the smallest type (much smaller than No. I,) at 6 inches, but he cannot see No. II, or even No. V, at 12 inches.

This disease is often hereditary. Over exertion of the eyes upon near objects at the age of puberty, (about 14 or 15) is a very frequent cause of myopia.

Short-sighted persons often inquire if we would advise the use of spectacles. There can be no objection to wearing glasses that will enable them to see distant objects; for their eyes are thus changed to normal ones, but as most persons use their eyes much more frequently upon near than upon distant objects, the glasses should be no stronger than necessary. Some contend, however, that short-sighted persons should dispense with glasses for reading, writing, &c. Prof. Donders, however, recommends their use for this purpose, for the following reasons:—

1st. "Because strong convergence of the optic axes is necessarily paired with tension of the accommodation. The latter is an associated action, not arising from the mechanism of the convergence, but existing within the eye itself, and may consequently easily lead to an increase of the myopia. Besides this, the pressure of the muscles upon the eye ball appears to be greater when the optic axes are convergent, than when they are parallel, and this increase of pressure cannot but tend to give rise to the development of posterior staphyloma.

2nd. "On account of the habit which short-sighted persons have of bending their head forwards during reading or writing. This must cause an increased flow of blood to the eye, and an increased tension within the eye itself. Owing to this development of sclerotic-choroiditis posterior, effusions of blood and detachment of the retina, which are so apt to occur in short-sighted persons, are undoubtedly greatly promoted. For this reason, we should always tell these patients to read with their head well thrown back, and to write at a sloping desk. But it may, on the other hand, be urged that it is just in looking at near objects that myopic persons have an advantage, for they can see them remark-

ably distinctly. And the great danger is, that after reading for a short time with spectacles, the patient, on getting somewhat fatigued will, instead of laying the book aside, approach it nearer to the eye, in order to gain greater retinal images, and thus strain and tax his power of accommodation too much. If we, for instance, give a patient whose far point lies at 8 inches, a pair of spectacles which enable him to read at 12 inches, he will if not very careful, after a short time almost insensibly bring the book nearer to his eyes, and thus have to make use of a greater amount of accommodation. If he does this frequently, he will soon increase his myopia. The greater the range of accommodation the less harm will spectacles do, and *vice versa*. Spectacles may also be used for near objects in these cases of myopia in which asthenopia (depending upon insufficiency of the internal recti muscles) shows itself as soon as the patient has read or worked at near objects for a short time. Whilst those forms of myopia may be furnished with spectacles for near objects, it is very dangerous to permit their use in patients whose range of accommodation is very limited, and who, moreover, suffer, perhaps from such an amount of amblyopia (generally depending upon selerotico-choroiditis posterior) that they cannot read No. 4 or 5 Jager even with the most accurately chosen glasses. Such patients will bring the object very close to the eye, in order to obtain large retinal images, the accommodation will be greatly strained, the intra-ocular tension be increased, and great mischief will be sure to ensue. If there is much amblyopia, spectacles should not be permitted at all for near objects."\*

In cases where the myopia is extreme, there usually co-exists posterior staphyloma of the sclerotic. Von Græfe says it is present in all cases of myopia where the "far" point is less than five inches; the myopia being less than  $\frac{1}{2}$ . Out of sixty cases of myopia examined by J. Z. Laurence, forty-four had posterior staphyloma.

The presence of this disease can be easily diagnosed with the ophthalmoscope. (See Hulke or Zander on the ophthalmoscope.)

Posterior staphyloma is a serious complication in myopia, as the sensibility of the retina becomes more or less impaired in the position of the bulging of the sclerotic, and in some cases the retina becomes detached from the choroid. It is the existence of this disease that prevents improvement in cases of myopia, as the eye becomes flattened with advancing age.

\* Mr. J. Z. Laurence, of London, recommends that deeply concave lenses be fitted, in order to obviate their "dazzling" effect.—(Med. Times and Gazette, Oct. 22nd, 1864.)

Donders considers that in myopia, the antero-posterior diameter is alone at fault; that is, it is too much elongated, and that the cornea and crystalline lens have usually a normal curvature.

The characteristics of a myopic eye, are \*

- 1st. Parallel rays are focussed in front of the retina.
- 2nd. The "far" point is at a definite distance and positive.
- 3rd. When the eye is in a state of rest it is adapted for divergent rays.
- 4th. Concave glasses improve vision.

#### CHAPTER IV.—HYPERMETROPIA.

You will remember that when a normal eye is in a state of rest, and directed to a distant object, parallel rays are brought to a focus upon the retina, and that when a myopic eye is in a state of rest, parallel rays are brought to a focus in front of the retina. When, however, a hypermetropic eye is in a state of rest, parallel rays would (if continued) form a focus behind the retina. Hypermetropia is, therefore, the reverse of myopia. In myopia, the refractive power of the eye is excessive, and in hypermetropia it is not strong enough. When the accommodation of a myopic eye is paralysed, it has the power of focussing none but diverging rays upon the retina, but a hypermetropic eye under the same circumstances can focus only converging rays upon the retina. The "far" point of a myopic eye is at a definite distance and positive, but the "far" point of a hypermetropic eye is at a definite distance and negative. Concave glasses improve the vision for a myopic eye, and convex for a hypermetropic one.

This is an affection which has received very little attention until within the last ten years. It was indeed noticed by Dr. McKenzie of Glasgow, in 1841, but it was not until about five years ago that Prof. Donders, of Utrecht, from his elaborate researches on this subject, first pointed out how common this affection is, and how frequently it is the sole cause of that peculiar weakness of sight (formerly so little understood) called asthenopia.

Donders believes that this condition of the eye depends more upon a shortening of the antero-posterior diameter of the eye, than upon a too low degree of its refractive power; that the cornea and crystalline lens have a normal degree of curvature, and that parallel rays would form a focus at the normal distance behind the lens, were the retina far enough back to receive it.

---

\* From Donders' system of classification.

A very good illustration of a hypermetropic eye is one in which the crystalline lens has been removed in the operation for cataract. To enable such an eye to see distinctly, even distant objects, it is necessary to place in front of it a strong convex lens of about four inches focus, called a cataract glass. The eye having too low a refractive power to converge rays to a focus, on the retina, it is necessary to give rays falling upon the eye, a preliminary degree of convergence; the eye having sufficient power to complete their refraction to a point upon the retina. We do the same thing in relieving cases of hypermetropia.

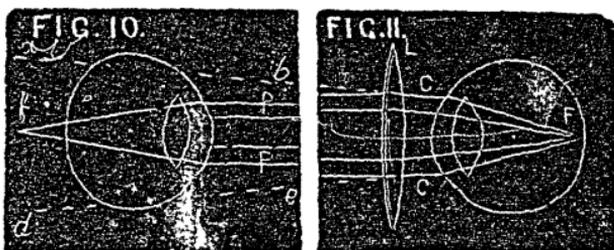


Fig. 10 represents a hypermetropic eye in a state of rest. P, P are parallel rays which are focussed behind the retina at f. L, Fig. 11, is a convex lens which changes the parallel rays to convergent ones, at c, c, as if they came from the direction a b and d e, which again are refracted by the eye, and brought to a focus upon the retina at F.

When a hypermetropic eye is in a state of rest, and directed to distant objects, it is adjusted for convergent rays; images upon the retina will consequently be ill defined, and vision will be indistinct. To remedy this, it is necessary for the eye to increase its refractive power by increasing the antero-posterior diameter of the crystalline lens, so as to bring parallel rays to a focus on the retina.

When a person with hypermetropia attempts to read or write, or accommodate his eyes to short distances, it is necessary for him to tax his accommodation to its utmost extent, in order to bring the diverging rays to a focus on the retina. This excessive effort at accommodating the eye for short distances, can not be kept up for more than a few minutes, when the ciliary muscle begins to relax,—the “near” point commences to recede, and (if he is reading) the letters become indistinct. The eye also feels fatigued, and others symptoms arise which will be referred to when speaking of Asthenopia.

*Diagnosis.*—When we suspect a patient has hypermetropia, we test his eyes as follows:—We place series of test-types, No. xv., xx., xxx., &c., at a distance of about 20 feet. If he can read No. xv. or xx. at this distance, his acuteness of vision is normal. We then try his vision with weak convex glasses, say No. 50, and if he can read the same type, at the

same distance, we try successively Nos. 40, 36, 30, 24, &c., until we reach the glasses that render the test type indistinct at that distance. Some persons may possibly be able to relax their accommodation so as to see as well at a distance, with convex 50 lenses, as without them; and not be hypermetropic; it would, however, be very strong presumptive evidence of its presence; and if, in addition, the patient complain of the symptoms of Asthenopia, we would be generally safe in pronouncing it a case of hypermetropia. The shorter the focus of the lens he can use, the stronger is the presumptive evidence of the disease.

Again: if another patient be tested with the same type, at the same distance, and we find that he can not read a smaller type than No. XL. at 20 feet without spectacles, and that he can read No. XV. or XX. with convex glasses, say + 10 or + 12, this would be called a case of hypermetropia *absolute*.

In order, however, to test accurately the degree of hypermetropia in any case, it is necessary to neutralize one element in the refractive power of the eye; namely, the power of accommodation. In most cases of hypermetropia, particularly in young subjects, the accommodation of the eye is so constantly exercised, even when directed to distant objects, that it is quite impossible for them, by any effort of their own, to completely relax that accommodation. I related in a former chapter, the case of a patient who had lost the power of accommodating his eye to different distances. As the refraction of his eye was normal, parallel rays were brought to a focus upon the retina, and vision for distant objects remained perfect.

Had his eye been hypermetropic, parallel rays would not have been sufficiently converged by the refractive power of the eye, to form a focus upon the retina; vision would, consequently, have been indistinct. By placing, however, the proper convex lens in front of such an eye, the requisite preliminary convergence would be given to the rays, to enable the eye, with its low refractive power, to focus these rays upon the retina, and thus render vision distinct.

The lens used in such a case would indicate the degree of hypermetropia. If the lens were a + 15 inch, the hypermetropia would equal  $\frac{1}{15}$ ; if a + 10, the hypermetropia would be  $\frac{1}{10}$ , and so forth.

We have, however, the means of temporarily producing this condition of the eye by artificial means. By applying a four grain solution of atropine to the eye, within two hours the action of the ciliary muscle will be completely paralysed. A solution of one grain of atropine to an ounce of pure water (also a solution of the extract of belladonna) will dilate the pupil widely, and in some cases, will render the eye slightly presbyopic, but it will not paralyse the accommodation.

If we test, in this manner, the case of suspected hypermetropia mentioned above, and find that after his accommodation is paralysed, he is not able to read No. xxx. even with  $-50$ , and that the only glass with which he can read No. xv. and No. xx. at 20 feet is  $+20$ ; his hypermetropia is therefore  $\frac{1}{50}$ . But as he could see as well with  $+50$  as without them, before his accommodation was paralysed; he had a manifest hypermetropia of  $\frac{1}{50}$ . The difference between his total hypermetropia, and his manifest hypermetropia will give the amount of the *latent* hypermetropia, which he overcame with the exercise of his accommodation, namely,  $\frac{1}{33\frac{1}{3}}$ , thus  $\frac{1}{20} - \frac{1}{50} = \frac{1}{33\frac{1}{3}}$ . \*

*Asthenopia*, according to Donders, depends almost invariably on hypermetropia. He describes it as follows: "The power of vision is usually acute,—and nevertheless, in reading, writing, and other close work, especially by artificial light, or in a gloomy place, the objects after a short time, become indistinct and confused, and a feeling of fatigue and tension comes on in, and especially above the eyes, necessitating a suspension of work. The person affected now often involuntarily closes his eyes, and rubs his hand over the forehead and eyelids. After some moments' rest, he once more sees distinctly, but the same phenomena are again developed more rapidly than before."

According to my own experience with these cases, the above description corresponds very closely with the description that most patients give of their symptoms. Some give more prominence to the neuralgic pains which they experience in and around the eye, and in some cases extending to the back of the head. I was consulted, about a year ago, by a lady from the town of Simcoe, C. W., who had all these symptoms in the most aggravated form. If she attempted to read even one line, it gave her so much pain in her eyes and forehead that, for several years, she had scarcely dared to even raise the lid of a book. She was unable to keep her eyes upon any one object for more than an instant at a time, without causing her pain. Others, again, do not speak of any pain or fatigue of the eye; but that, after reading a short time, the letters become indistinct, so that they are obliged to stop or look away at something distant, or close the eyes for a short time, when they can proceed, the same symptoms recurring.

In regard to the *prognosis* in hypermetropia, Donders thinks that when it is once developed it never gives way. All the inconvenience of the accompanying *Asthenopia* can be relieved by wearing the proper

---

\* Hypermetropia can easily be diagnosed with the ophthalmoscope.

glasses to relieve the hypermetropia; but the cause, namely (in most cases), a congenital flattening of the eye-ball from before, backwards, will probably remain through life.

As age advances, the "near" point recedes from the eye, as in a normal eye, so that in time it becomes complicated with presbyopia.

*Treatment.*—In order to correct this optical defect, it is necessary for the patient to wear a pair of convex spectacles of sufficient strength to enable him to see distant object distinctly, without any effort of the accommodation. In cases where the hypermetropia is absolute, and the patients are not able to see distinctly at any distance, they can, approximately, by trial, select glasses that will remedy the low degree of refraction of their eyes. But, in all other cases, it is necessary to paralyse the accommodation, and test with lenses of different strength in order accurately to ascertain the degree of hypermetropia. When we ascertain this fact, we also know the number of the glasses that we must prescribe for them. The effect of the atropine usually lasts about a week, after which the patient can commence wearing glasses. Before, however, he use the spectacles that he is to wear permanently, his accommodation must first be gradually relaxed by the use of weaker lenses. Donders' rule is to prescribe first that glass that will neutralize his manifest hypermetropia, and  $\frac{1}{4}$  of his latent hypermetropia, and every two or three weeks change them for a stronger pair, as he becomes accustomed to their use, until the glasses are reached that we found to be necessary to correct his hypermetropia. Thus if a patient has a total amount of hypermetropia equal to  $\frac{1}{10}$ , and a manifest hypermetropia of  $\frac{1}{80}$ , his latent hypermetropia ( $\frac{1}{10} - \frac{1}{80} = \frac{1}{13}$ ), would equal  $\frac{1}{13}$ ; one fourth of  $\frac{1}{13}$  is  $\frac{1}{52}$ ; this, added to  $\frac{1}{80}$  ( $\frac{1}{80} + \frac{1}{52} = \frac{6}{260} = \frac{1}{43}$ ), equals  $\frac{1}{43}$ . We would therefore prescribe, at first, 20 inch convex spectacles, which we should afterwards change successfully for + 18, + 16, + 14, &c., until he has so relaxed his accommodation that he can, with ease, wear + 10. It will not be until he becomes accustomed to this last pair that all his symptoms of Asthenopia will disappear.

*Strabismus.*—Prof Donders was the first to direct attention to the fact, that nearly all cases of convergent strabismus arise from the presence of hypermetropia. We know that when both eyes are directed to a near object, they are very much converged, the optic axes cross at the point to which they are directed. If one eye be covered, and the opposite eye be accommodated for its "near" point, the covered eye will be found to be very decidedly converged towards the nose,—to have, in fact, a temporary convergent squint. This arises from the constant association of the act of accommodating the eye for short distances, with the act of con-

tracting the internal recti muscles. The hypermetropic, however, being obliged to exert the accommodation of their eyes, even when looking at distant objects, it is easy to understand that they would be inclined to contract their internal recti-muscles unduly, so as to increase this power of accommodation. This converges the eyes to a point at a nearer distance than the object looked at, and causes one of the eyes to turn inwards, while the other is fixed on the object. When, therefore, they wish to see distinctly with one eye, they instinctively turn in the other. At first the convergent strabismus is seen occasionally only, and in this stage may be prevented by using the proper spectacles to correct the hypermetropia. After the squint has existed sometime, it becomes confirmed, and cannot be cured without an operation.

If the convergence exceeds three lines, a partial tenotomy, upon each eye, should be performed, and the effect controlled by a conjunctival suture, by which means we have the power of regulating our operation, in proportion to the effect we wish to produce.

When Strabismus shows itself in childhood, it should be treated without delay, for, if not corrected, the vision of the "cross-eye" will very soon become impaired.

To get the full benefit of spectacles, in cases of hypermetropia, they should be used both on the street, and at church, as well as when reading or writing,—in fact whenever the eyes are used.

The characteristics of a hypermetropic eye then are :

- 1st. Parallel rays form a focus behind the retina.
- 2nd. The "far" point is at a definite distance and negative.
- 3rd. The eye, in a state of rest, is adjusted for convergent rays.
- 4th. Convex glasses improve vision.
- 5th. This affection is usually accompanied by symptoms of Asthenopia and Amblyopia, and frequently by convergent Strabismus.

#### CHAPTER V.—PRESBYOPIA.

This affection usually develops itself between the ages of 40 and 45. Most persons at this age, although previously enjoying excellent vision, complain that their sight, particularly in the evening, is beginning to fail for near objects, as small print, &c., although they can see distant objects as well as ever.

In reading they will hold the book or paper at nearly arm's length and perhaps bring the lamp almost between their eyes and the page. Reading in this manner soon fatigues them, and they are obliged frequently to rest,—or to resort to spectacles.

In childhood, when the vision is normal, the "near" point is from  $3\frac{1}{2}$

to 4 inches from the eye, and the "far" point at an unlimited distance; that is, we can see objects distinctly as near as from  $3\frac{1}{2}$  to 4 inches from the eye, and we can see objects clearly (the size being in proportion to the distance) from that to an indefinite distance. As age advances the "near" point recedes. At the age of 40 the "near" point is about eight inches from the eyes. When the "near" point recedes to a greater distance than 8 inches, Donders calls it a case of presbyopia; Laurence, however, thinks that it should not be called presbyopia unless the "near" point is at least 10 inches from the eye.

Presbyopia, then, is not an optical defect of the nature of myopia or hypermetropia, but is simply a lessening of the accommodative power of the eye.

It is supposed to depend upon, or to be caused by, the crystalline lens becoming hardened as age advances, so that it does not yield sufficiently to the contraction of the ciliary muscle.

In a case of pure presbyopia where, for instance, the "near" point is 12 inches from the eye, vision will remain normal for all points beyond that distance. When the "near" point is 12 inches distant, and the "far" point at an infinite distance, the accommodation is only  $\frac{1}{12}$ . Taking eight inches as the normal "near" point,  $\frac{1}{8}$  would represent the normal accommodation. Deducting  $\frac{1}{12}$  from  $\frac{1}{8}$  gives the degree of presbyopia thus  $\frac{1}{8} - \frac{1}{12} = \frac{1}{24}$ . The degree of presbyopia in this case would then be  $\frac{1}{24}$ . This fraction  $\frac{1}{24}$  also represents the strength of the glasses necessary to correct the presbyopia, namely, 24 inch convex. Practically, we would probably find that a pair of 30 inch convex would answer better, as the weakest glass that can be worn with comfort, is the one that should be prescribed. Again, if a person's "near" point be at 16 inches, his presbyopia ( $\frac{1}{8} - \frac{1}{16} = \frac{1}{16}$ ) will be  $\frac{1}{16}$ , and a 16 inch convex lens would enable him to read at 8 inches.

"There can no question as to the advisability and necessity of affording far-sighted persons the use of spectacles. They should be furnished with them as soon as they are in the slightest degree annoyed or inconvenienced by the presbyopia. Some medical men think that presbyopic patients should do without spectacles as long as possible, for fear the eye should, even at an early period, get so used to them as soon to find them indispensable. This is, however, an error, for if such persons are permitted to work without glasses, we observe that the presbyopia soon rapidly increases."\*

If, however, we call all cases presbyopia, where the "near" point recedes to a greater distance than eight inches from the eye, it will follow

\* J. Soelberg Wells.

that we may have presbyopia in cases of myopia and hypermetropia. If a person's far point be at 20 inches from the eye he would be called *near-sighted*, and if his near point recedes to 10 inches from the eye, he would be also *far-sighted*.

In some persons, as age advances, the "far" point also recedes so as to render the person hypermetropic; this form of hypermetropia seldom exceeds  $\frac{1}{24}$ . When a person has both hypermetropia and presbyopia, it is necessary for him to use a stronger pair of glasses for reading, &c., than for ordinary use. If a person, for instance, wears a pair of 18 inch convex spectacles to correct a hypermetropia of  $\frac{1}{18}$ , and as age advances his "near" point recedes to 12 inches, even with the addition of his glasses, it will be necessary for him to wear, for reading, a pair of glasses having a focus of about  $10\frac{1}{2}$  inches. Thus  $\frac{1}{18} - \frac{1}{12} = \frac{1}{24} =$  presbyopia, this added to the lens to correct his hypermetropia, ( $\frac{1}{18} + \frac{1}{24} = \frac{1}{10\frac{1}{2}}$  nearly) equals  $10\frac{1}{2}$  nearly.

In the very aged, it is necessary to prescribe glasses that will enable them to read at 5 or 7 inches from the eye, as their vision is usually somewhat impaired.

The following table, constructed by Dr. Kitchener, may give a general idea of the glasses required at different periods of life when the presbyopia is unaccompanied by hypermetropia or amblyopia.

At 40 years,—36 inch focus.	At 70 years,—12 inch focus.
" 45 " 30 " "	" 75 " 10 " "
" 50 " 24 " "	" 80 " 9 " "
" 55 " 20 " "	" 85 " 8 " "
" 58 " 18 " "	" 90 " 7 " "
" 60 " 16 " "	" 100 " 6 " "
" 65 " 14 " "	

Prof. Donders thinks that when there is no hypermetropia present we should generally advise those glasses to be worn that will enable the person to read distinctly No. 1 (smallest) test type at a distance of 12 inches.

There is an optical defect of the eye that is occasionally met with called astigmatism (from *a* and *στῆγμα*), in which horizontal and vertical lines are not brought to a focus at the same distance behind the crystalline lens. It is relieved by glasses specially ground for each case; these glasses are cylindrical. I have seen but one case of astigmatism.

A very comprehensive article on the subject appears in the *Medical Times and Gazette*, Nov., 1864, from the pen of J. Zachariah Laurence, M.B., of London.

The paralysis of the accommodation of the eye I have already referred to in a case on page 409.

## SPECIMENS OF JÄGER'S TEST TYPES.

*No. I.—Diamond.*

It was the Saturday evening of that same week, and Green the foreman stood, hat in hand, at Mr. Hawkins's parlour door, sullenly and reluctantly taking his leave. There were small piles of silver on the table beside an open ledger, for it was pay-day. Mr. Hawkins looked busy and pre-occupied. "I won't interfere in this matter, Green," he said. "You don't like this fine young fellow, and your spite is

*No. II.—Pearl.*

always bitter. If two workmen fight fairly, in honest quarrel, I don't object. It is ten times better than perpetual wrangling, or lying, pettifogging law. Why can't you leave the fellow alone? You've lost the girl. Very well; then lose her with good nature; for, man, you know the old proverb, 'There's as good fish in the sea as ever

*No. III.—Nonpariel.*

came out of it.' She was'n't the sort of a girl for you. Now, observe this: so end all this scuffle. I shall make Cartier assistant foreman, and manager of the glazing-mills, from Monday next—a fortnight, at least, earlier than I intended. No words about it, or you and

*No. IV.—Brevier.*

I must part, Mr. Green." Mr. Hawkins looked at the door, and then bent irrevocably over his account books. Saltpetre sulphur, and charcoal, when mixed,

*No. VIII.—Long Primer.*

contain, in their black, compound grains, a fierce and deadly, though a dormant power. The foreman's heart at that moment held passions

*No. X.—Pica.*

that possessed evils of a more terrible potentiality; but he bowed, and said nothing. His black hand was

*No. XII.—Great Primer.*

still on the handle of the door when Mr. Hawkins called him. "Stay," said the

*No. XVI.—2 Line English.*

manufacturer; I'd almost

*No. XX.—Double Paragon.*

forgotten the

*No. XXX.—Canon.*

only thing

*No. XL.—5 Line.*

to be h

*Case of Strangulated Femoral Hernia.* By Dr. B. S. WILSON, Roslin, C.W.

On the evening of the 29th of June, 1859, Mrs. Scott, aged 62, of the Township of Rawdon, C.W., while running after cattle, fell, but felt no inconvenience, or any particular injury from the fall at the time. Soon after retiring for rest, she was seized with vomiting, and great pain in the femoral region, which continued to increase in severity until next morning, when I was called upon to attend her. When I arrived, I found her suffering from strangulated femoral hernia. The vomiting was incessant, and the paroxysms of pain of a violent character. After using all the ordinary means to effect reduction, and remaining with her the greater part of the day, and finding everything ineffectual, I suggested an operation, as I thought that it afforded the only chance for her; but she objected, saying that she would prefer death.

She passed a restless night. Next morning I was again sent for. By this time, I found the symptoms were all aggravated. There was a strong tendency to sink, the pulse being almost imperceptible, and the sweat cold. When, apparently, death was about to close the scene, she consented to an operation.

Having given her aromatic spirits of ammonia and brandy, I at once proceeded to operate, by making a perpendicular incision directly over the tumour; beginning at a little above Poupart's ligament, and extending it nearly three inches downwards, I divided all the parts between the integument and the bowel, which being exposed I found mortified.

The point of stricture being ascertained, which was at Gimbernats ligament, I relieved it, and pushed back the contents of the bowel strictured, the mortified part of the bowel being left in the wound. The ordinary dressings were applied; and on the fifth day the mortified part sloughed away, leaving an artificial anus, from which the contents of the bowel continued to escape up till the 1st of September following, when the opening closed. About two years after the operation, I heard of the old lady, who had removed to one of the back Townships, and understood her health was very good.

---

*Wound of the Abdomen. Recovery.* By WILLIAM G. MIDDLETON, Surgeon, Elora, C. W.

About 9 a.m. on Tuesday, the 27th February, I was sent for in great haste to see a young man, who had been fearfully injured at a flax mill about a mile from the village of Elora.

It seems that he had been removing the flax from the scutching machine

with a pitchfork, when he was caught by one of the blades of the machine and the handle of which was projected with great force into the cavity of the abdomen, about an inch below and a little to the left of umbilicus, making a transverse wound one and a half inches in length, through which about a yard of intestine protruded.

On reaching him, I found Dr. Paget supporting the bowel, compressing with his finger and thumb, one of the mesenteric arteries which had been bleeding freely. I at once secured it, and assisted Dr. Paget to reduce the bowel, which was highly congested and distended with gas; after a little difficulty we succeeded in *replacing* the gut, which had been returned into the abdomen by Dr. Paget before my arrival, but which from the man's vomiting, had been again ejected; the wound was immediately secured by three sutures, and adhesive plaster, and a drachm of laudanum given, which was repeated at the end of three hours, when he was removed to bed, with his shoulders raised, and the thighs slightly flexed; his pulse was about seventy, rather weak; the catheter was required at night to empty the bladder.

Wednesday 28th. Has passed a good night, having slept several hours. Pulse this morning seventy-eight, tongue coated; the catheter was used this morning and night; about 1 p.m. there was great pain at the wound. Pulse 100, with flushed face and pain in the head; about ten ounces of blood were taken from the arm and six powders containing two grains of calomel and five grains of Dover's powder were left, with directions to give him one every three hours; fomentation with hot water was freely used, and tea and toast with crackers were given him.

Thursday 1st March. He had a good night. Pulse eighty, the catheter was used in the morning, but it was not required at night; little or no tenderness in the wound or abdomen; ten grains of Dover's powder to be given at night.

Friday 2nd March. Progressing favourably; he passes his water freely, no pain in belly. Pulse seventy-eight.

Saturday 3rd. Still improving; as the bowels have not been moved since the accident; oatmeal gruel and cooked apples were ordered freely.

Sunday 4th. Going on favourably.

Monday 5th. Bowels opened to-day by enema; an ounce of castor oil was ordered; complains of no pain, sleeps and eats well. From this time convalescence was rapid, so that he was able to be up and moving about on the thirteenth day after the accident, when he was desired to use a bandage.

## HOSPITAL REPORTS.

*Cases of Enteric Fever in Montreal General Hospital, under the care of DR. D. C. MCCALLUM.*

## CASE 1.

(Reported by Mr. W. Gardner.)

Ellen Mulvenner, aet. 26, a native of Ireland, but has been living in Canada for five years, was admitted to the Montreal General Hospital, on Thursday, the 2nd November 1865, suffering from symptoms of fever. To the date of commencement of the present illness, she has been quite healthy. She is of a dark complexion, black haired, and the state of her nutrition is good. She is a general servant, but does not complain of having been over-wrought; has been accustomed to sleep in a cellar-kitchen. About twelve days ago she was seized with a rigor, which lasted for about half-an-hour, and for the next few days she suffered from frequent returns of a feeling of chilliness, alternating with flushes of heat. About three days after the rigor, she was seized with diarrhoea, which lasted for three or four days, but was not severe; she never had more than three or four stools a day, and they were not accompanied with any pain in the bowels. Since then her bowels have been pretty regular. Ever since the rigor she has had very little appetite, and for the first three or four days she had a headache, which was situated about the summit of the forehead. At the time of admission, she was suffering from great heat of skin, frequent, full, and comparatively strong pulse, furred tongue, thirst, loss of appetite, weakness, and general malaise. The appearance of the tongue was somewhat peculiar; resembling that of the organ in scarlatina; the points of the reddened and preternaturally elongated papillae projected through the white fur which covered it.

*Nov. 3rd.*—She is suffering from great heat of skin, which is of a pungent burning character, and there is a bright red flush on the face. There are no rose coloured spots on the chest or abdomen, but on the back, in the neighbourhood of the spinous processes of the vertebrae, there are a few spots, which, however, have not many of the characters of the eruption of enteric fever. She does not complain of tenderness on pressure over the abdomen, and on percussion there does not seem to be any tympanitis, no tenderness or gurgling on pressure over the caecum. The temperature is  $104^{\circ}\frac{1}{5}$ , the pulse 106; full and moderately strong. The patient is ordered milk diet, with barley water as a drink, together with acid. hydroch. dilut. m x, and ether chlor m x, every 4th hour.

*Nov. 4th.*—She is somewhat better, at least expresses herself so. There is less heat of surface, the flush of the face not so bright-red as yesterday, but more of a dusky red. She did not sleep well last night, was restless, and another patient in the same ward, says she moaned in her sleep. The tongue is moist, pretty clean, except a small point near the centre, the papillæ still present the appearance before mentioned. She had one liquid evacuation from the bowels, last night. Pulse 103, temperature  $103\frac{2}{3}^{\circ}$ .

*Nov. 5th.*—She feels somewhat better, tongue is cleaning, and begins to lose the peculiar appearance connected with the elongated and reddened papillæ; surface less heated, moist and perspiring; flushes of the face not at all well marked. No pain on pressure over any part of the abdomen; percussion indicates tympanitis; on pressure over the cæcum there is gurgling. The pulse 96, temperature  $100\frac{2}{3}^{\circ}$ .

*Nov. 6th.*—The case progressing very favourably. The heat of skin diminishes; has no headache, or pain anywhere, does not sleep well at night, perspires occasionally. No alteration in the appearance of the tongue; slight tenderness on pressure over the cæcum, and well marked tympanitis in the corner of the colon. There has been no motion of the bowels since the evening of Nov. 3rd. There are two spots visible on the chest to-day, their diameter is about  $1\frac{1}{2}$  lines, they are elevated slightly above the skin, and are obliterated by pressure. Those previously noted on the back are fading. The pulse 96, temperature  $101\frac{2}{3}$ .

*Nov. 7th.*—The patient still retains somewhat of a dull and apathetic appearance. The tongue not altered in appearance; she complains of want of sleep in the fore part of the night, but sleeps well enough in the latter part. The heat of surface perceptible to the hand, does not seem to be altered in any way; no improvement in appetite, but she takes all the milk and beef-tea she gets. The tympanitis on percussion over the abdomen is more marked than yesterday, and seems to extend to the small intestines. There was a liquid evacuation of the bowels last night. The pulse 84, no alteration in its volume or strength; temperature  $100^{\circ}$ .

*Nov. 8th.*—She says she feels pretty well, but is still very weak; says that she usually has an exacerbation of fever in the evening; that of last evening took place about 9 P.M., and was followed by perspiration. There is scarcely any perceptible flush of the face, but it presents somewhat of a dusky hue. Emaciation is beginning to be apparent in the sharpening of the features, and apparent lengthening of the face; the eyes look more sunken. There is no improvement in the appetite, tympanitis is diminishing, and there is no tenderness on pressure over the abdomen. The pulse 84; temperature  $105\frac{2}{3}$ .

*Nov. 9th.*—There is very little alteration in most of the symptoms. There is, however, less tympanitis. There was no febrile exacerbation last evening, and she slept well. The two spots on the chest are still perceptible, but are fading. The pulse 80; temperature  $102\frac{1}{2}$ .

*Nov. 10th.*—She feels pretty well to-day; slept well last night; the tongue nearly clean; the appetite is improving; there is very little heat of surface, and it is moist. The tympanitis of the abdomen almost gone. There was a motion of the bowels this morning, of natural consistency. The countenance betrays more intelligence; the pulse 84; the temperature  $100\frac{2}{3}$ .

*Nov. 11th.*—The bowels have not been moved since yesterday morning. The spots on the chest are nearly gone; had no febrile exacerbation last evening; pulse 94; the temperature  $101\frac{4}{5}$ °. Is ordered 4 oz. wine daily.

*Nov. 12th.*—She is pretty well this morning; there is no tenderness or tympanitis of the abdomen. Last evening about seven p.m., she had headache and felt unwell, and afterwards there was a febrile exacerbation; had an evacuation from the bowels this morning. The pulse 82, the temperature  $100$ °.

*Nov. 13th.*—She says she is improving in strength, and her appetite is better; rested well last night and had no exacerbation. The surface is moist and moderately warm; the bowels moved this morning; the tongue has a slight white coating towards the centre; has no pain or tenderness anywhere. The pulse 78; the temperature  $100$ °. Is ordered to have her clothes, to enable her to sit up.

*Nov. 14th.*—Says she is getting stronger; bowels regular, abdomen quite natural; up a while during the day, pulse 96; temperature  $102$ °.

*Nov. 15th.*—Bowels regular; appetite not much improved; no alteration in any of the other symptoms, sits up a little while each day. The pulse 92, the temperature  $103\frac{3}{5}$ °. There's nothing to account for the rise in temperature.

*Nov. 16th.*—The heat of the surface is increased, but it is moist; says she feels hot, but attributes it to the heat of the ward; has been sitting up to-day; appetite not deteriorated; has no cough, no headache, no pain or tenderness anywhere. The papillae of the tongue are redder and seem to project more than for a few days past; there is no fur on the tongue. Pulse 116, temperature  $105\frac{2}{3}$ °.

*Nov. 17th.*—The heat of surface remains; the tongue still retains the prominent papillae noticed yesterday; the bowels moved this morning,

and the evacuation natural; no pain or tenderness of the abdomen, on pressure; no tympanitis on percussion; the abdomen is quite flaccid; she has no headache, rested well last night; physical examination of the chest discovers nothing abnormal. There are no symptoms of local lesion to account for the rapidity of the pulse and increased temperature. Pulse 112; temperature 104°.

*Nov. 18th.*—Pulse 112, temperature 104½°, no alteration in any of the other symptoms.

*Nov. 19th.*—Pulse 96; the temperature 102°.

*Nov. 20th.*—There is more flush of the face than yesterday; the heat of skin is increased and of a burning character. At 3 p.m., yesterday she was seized with pain in the umbilical region, which however did not prevent her from sleeping last night. To-day there is tenderness confined to a small spot of the umbilical region. At about the same time as she was seized with the pain, the bowels commenced to act more freely than natural, and have been moved three or four times since then. The evacuations were attended with pain. The tongue is red and the papillae prominent, the appetite very much impaired. The symptoms to-day would seem to indicate a slight relapse. She is ordered for the diarrhoea pilula plumbi cum opio three times a day. Pulse 110, temperature 104°.

*Nov. 21st.*—Pulse 96, temperature 104°. She feels very weak, and has very little appetite; the bowels more regular; there is no cough; the tongue still presents the same appearances; she feels somewhat more thirsty than usual; surface is hot, but feels moist.

*Nov. 22nd.*—Pulse 112; temperature 103½°.

*Nov. 23rd.*—The pulse 88; temperature 102°. The tongue is changed, and somewhat tender at the edges and tip. There is no alteration in any of the other symptoms, and no new ones discoverable.

*Nov. 24th.*—Pulse 76; temperature 101½°. She feels better, but is still weak; slept well last night; bowels regular; there is very little improvement of the appetite.

*Nov. 25th.*—Pulse 76; temperature 101°. No alteration in any of the other symptoms. Is ordered the following, ℞ quin sulph gr. i., and acid nitric dilut. mij., three times a day.

*Nov. 27th.*—She seems to be convalescing rapidly, the bowels regular; the appetite improving. Pulse 88; temperature 100½°.

*Dec. 4th.*—The patient is quite convalescent; appetite pretty good; is sitting up; looks much better; her appetite improves rapidly since she commenced to take tonic.

Dec. 11th.—She goes out to-day quite well.

Nov. 3rd	Pulse 106	Temperature 104 $\frac{1}{5}$
" 4th	" 103	" 103 $\frac{2}{5}$
" 5th	" 96	" 100 $\frac{3}{5}$
" 6th	" 96	" 101 $\frac{2}{5}$
" 7th	" 84	" 100
" 8th	" 84	" 103 $\frac{3}{5}$
" 9th	" 80	" 102 $\frac{1}{5}$
" 10th	" 84	" 100 $\frac{2}{5}$
" 11th	" 94	" 101 $\frac{4}{5}$
" 12th	" 82	" 100
" 13th	" 78	" 100
" 14th	" 96	" 102
" 15th	" 92	" 103 $\frac{3}{5}$
" 16th	" 116	" 105 $\frac{3}{5}$
" 17th	" 112	" 104
" 18th	" 112	" 104 $\frac{1}{2}$
" 19th	" 96	" 102
" 20th	" 110	" 104
" 21st	" 96	" 104
" 22nd	" 112	" 103 $\frac{2}{5}$
" 23rd	" 88	" 102
" 24th	" 79	" 101 $\frac{2}{5}$
" 25th	" 76	" 101
" 27th	" 88	" 100 $\frac{2}{5}$

#### CASE 2.

(Reported by Mr. Thomas D. Lang.)

Joseph Bond, act. twenty-four, body well developed, native of England; is an engine-driver, his parents are both living and enjoying good health. The patient has always enjoyed good health up to the 15th December, 1865, when he began to feel unwell, complaining of languidness and slight headache.

In a few days he had rigors, headache, thirst, loss of appetite and pains in his back and limbs, followed by a tendency to diarrhoea, more or less drowsiness, and a disinclination to go about. During the day he had cold chills followed during the night by hot skin.

On the third day of his illness he called upon a medical man who gave him some powders which produced two or three evacuations; and in a few days finding himself not improving much he called upon a

second medical man who gave him a mixture which did him some good. He continued the use of this mixture for some time, but finding himself not improving much, he sought admittance to the Montreal General Hospital, and was admitted on the 26th December 1865, under Dr. McCallum, who, on examining him, pronounced it to be a case of enteric fever.

*Dec. 27th.*—Pulse 84, weak, and dicrotic in the right pulse, temperature 105.3 F.

Tongue dry, fissured, covered with a pale brown fur, papillæ prominent, and edges indented. Heart sound weak, but otherwise normal. Rhonchus heard all over both lungs, but little cough or expectoration. Countenance anxious, conjunctiva pale, pupils slightly dilated, and the cheeks flushed. Abdomen enlarged and resonant on percussion, and careful pressure in right iliac fossa gave pain and caused gurgling. Splenic dulness increased, and tenderness on pressure over liver and stomach. One evacuation of the bowels, during the twenty-four hours, of a brownish yellow colour, and liquid with whitish yellow flocculi.

Some characteristic rose spots on abdomen, chest and back, which readily disappear on pressure. Urine diminished, chlorides diminished, high colored, but no albumen. Ordered milk diet, with beef tea and 1 pint milk extra. ℞. Pot. chloras ℥ij. acid, hydroch, ʒijs. Vin Ipecac ʒij. Syr. Zingiber ʒij. mist. camph. co. ʒviij. a teaspoonful every three hours.

*Decr. 28th.*—Pulse 86, weak and dicrotic in the right, temperature 104.5 F.; did not rest well during the night; skin hot and dry; countenance more anxious, cheeks flushed, of a pinkish color, and is slightly delirious. Tongue more fissured, rhonchus increased, of a snoring character, accompanied with slight expectoration. Heart's action weak, but otherwise healthy. Typhoid eruption increased. Abdomen more enlarged, tympanitic, gurgling in right iliac fossa, splenic dulness increased, and liver and stomach still tender on pressure. Bowels moved three times during the twenty-four hours. Ordered turpentine stupes to abdomen and chest, with the acetate of lead and opium pill.

*Decr. 29th.*—Pulse 96, weak and still dicrotic, temperature 104.4 F. Heart's sounds very weak especially the first sound. Countenance more anxious, slight delirium, vivacious and disposed to leave his bed. Tongue more fissured but not so glossy. Rhonchus very extensive and of a loud snoring character, but not much cough or expectoration. Abdomen still enlarged, less tympanitic, and gurgling still in the right iliac fossa. Bowels moved four times, and of the usual yellow brown

color. Rose spots very well marked and abundant; had in the morning a severe attack of epistaxis.

Ordered in addition to the above treatment, ℞. Oleum Terebinth, Ether chlor aa. ʒ ij. Vitellus Ovi—1 Aqua ad. ʒ viij.

Dose, a tablespoonful ever four hours.

*Decr. 30th.*—Pulse 84, weak, but less dicrotic, temperature 104°5 F. Bronchitis somewhat better; heart's sounds weak, but otherwise healthy. Countenance dull, mind obtuse and wandering. Rose spots increased; skin very hot and dry. Abdomen still enlarged tympanitis increased, gurgling in right iliac fossa; splenic dulness increased, and a considerable tenderness on pressure over liver and stomach. Has had an attack of emesis and epistaxis. Bowels moved once, urine continues small in amount, and contains abundance of lithates, but no albumen. Tongue somewhat improved.

Acetate of lead and opium pills to be discontinued.

*31st. Dec.*—Pulse 92, weaker and less dicrotic; temperature 103°4. Heart's action very weak; no headache; rhonchus still extensive and snoring in character, but very little cough or expectoration; countenance very anxious; vivacious, and disposed to leave his bed. Abdomen as usual, but no gurgling in the right iliac fossa; had slight attack of epistaxis; weaker; rose spots decreased but still visible. Tongue improving; ordered two ounces of wine.

*Jan, 1st.*—Pulse 84, temperature 102°5. Tongue improving; countenance anxious; abdomen more tympanitic, but no gurgling. Bronchitis somewhat better. Bowels moved four times, the stools having the characteristic yellowish brown color. The acetate of lead and opium pill to be given every four hours.

*Jan. 2nd.*—Pulse 90, and somewhat stronger, temperature 103°5; heart's sounds still very weak especially the first rhonchus general but less audible. Abdomen still tympanitic, splenic dulness increased, distension of stomach with tenderness on pressure. Bowels moved once.

*Jan. 3rd.*—Pulse 96, temperature 102°5 F. Heart's sounds stronger than usual. Tongue much improved. Profuse perspiration and sudamina over chest. Abdomen slightly tympanitic, but no gurgling in the right iliac fossa. Bowels moved twice. Bronchitis much better.

*Jan. 4th.*—Pulse 85, temperature 102°4, no headache. Tongue still improving. Bronchitis rapidly disappearing, skin hot and dry. Pain beneath left mamma. Abdomen distended but slightly tympanitic, no gurgling in right iliac fossa, but pain and pressure. Distension of stomach, and the splenic and hepatic dulness increased. Rose colored

spots still visible. Bowels moved five times. Ordered the acetate of lead and opium pill.

*Jan. 5th.*—Pulse 80, and improving in strength, temperature 103°. Heart's sounds more audible. Tongue improving. Abdomen slightly tympanitic, and gurgling in the right iliac fossa. Bowels moved twice. Skin hot and dry. Bronchitis much improved.

The acetate of lead and opium pill to be discontinued.

*Jan. 6th.*—Pulse 90, temperature 104° 5. Skin very hot and dry. Tongue a little more furred. Bronchitic rales decreasing and of a moist nature; no headache. Bowels moved twice, and tenderness on pressure over liver with conjunctiva slightly colored. Countenance very much improved.

*Jan. 7th.*—Pulse 86, temperature 103° 5 F, abdomen slightly tympanitic, and tenderness on pressure over liver and stomach. Bowels moved twice. Rose spots still present, but not well marked.

*Jan. 8th.*—Pulse 96, but stronger, temperature 102° 4: Skin hot and dry, rose spots very indistinct. Abdomen slightly tympanitic, but tenderness on pressure over liver and stomach, not so marked. Bowels moved twice.

*Jan. 9th.*—Pulse 88, temperature 102° F. Skin hot and dry. Bowels moved twice. Countenance, and other symptoms much improved.

*Jan. 10th.*—Pulse 84, temperature 102° P. Tongue very much improved; skin cool and moist; no rose spots. Abdomen considerably distended, but very little tympanitis. Splenic dulness decreased, and the liver not so tender on pressure; no gurgling in the right iliac fossa. Bowels moved three times, and appetite much improved. Urine more normal in quantity and quality.

*Jan. 11th.*—Pulse 78, temperature 99° 5. Skin cool and moist. Abdomen not so tympanitic, no gurgling in the right iliac fossa. Bowels moved twice, and stools becoming natural. Tongue very much improved. Countenance improved.

*Jan. 12th.*—Pulse 76, temperature 98° 4. Heart sounds quite natural and much stronger. Tongue becoming quite clean. Skin cool and moist. Bronchitic rales gone. Abdomen still slightly tympanitic, but of a doughy feel.

Ordered a mutton-chop.

*Jan. 13th.*—Pulse 75, temperature 98° F. Abdominal symptoms much improved. Bowels moved three times. Skin more moist and cool. Tongue moist, and only slightly furred. Appetite much improved.

*Jan. 14th.*—Pulse 78, temperature 98° F. All the symptoms very

much improved. Bowels moved twice, stools natural. Urine normal in quantity and quality.

Ordered full diet.

*Jan. 15th.*—Pulse 70, temperature 98° F. Convalescence continued, and the man left the Montreal General Hospital on the 20th Jan., 1866, quite well.

### CASE 3.

(Reported by Mr. G. W. Ross, B. A.)

Eliza Laberge, aged 15, a native of Canada was admitted into the Montreal General Hospital on the 28th Dec., 1865.

She had been ill for about a week before applying for admittance—had then only slight fever with headache, and it was thought there was some disturbance of the system or febricula from cessation of the menses owing to having taken cold. Soon, however, diarrhoea and rose spots made their appearance, and it was pronounced to be a case of typhoid fever—She was ordered dilute hydrochloric acid in 10m doses every fourth hour. The diarrhoea was at first profuse, but was readily checked by a few doses of the acetate of lead and opium pill.

The present report of the case was not begun until the 3d January, 1866.

*3d. Jan.* Expression dull and heavy; dark purple, congestion about the malar prominences. Intellect very torpid; answers questions very slowly and reluctantly, but apparently correctly; somewhat delirious at night. Slight diarrhoea present. Pulse 115, compressible. Temperature in axilla 104° F. Rose-colored spots on the chest and abdomen numerous and very well marked, disappearing completely on pressure, and reappearing very quickly. Gurgling and tenderness in the right iliac fossa, tenderness also present over the whole front of the abdomen, but in a less degree. Abdomen slightly tympanitic. Tongue moist and covered with a rather thick and perfectly white fur with numerous enlarged red papillae sticking up through it. Skin particularly harsh and dry. Passes urine regularly and in normal amount. Bronchial râles, mostly sonorous, but some sibilant, heard over the whole front of the chest, percussion resonant throughout. Scarcely any cough.

*Diet.* Milk, with 1 pint beef tea.

*4th. Jan.* Tenderness and gurgling persist; bowels moved only three times during the last 24 hours. Pulse 116, weaker and more compressible. Temperature 104.4° F. Tongue less moist and the fur becoming brown.

*Ordered,* wine, 2 oz; milk, 1 pint extra.

5th. Jan. Expression somewhat better, bowels only moved twice in the 24 hours. The spots previously noticed have disappeared, and a fresh crop have come out. Pulse 110. Temperature 104.4° F.

6th. Jan. Lying upon her side, and says feels a little better. Coughs a good deal, the sonorous and sibilant râles persist in the anterior aspect of both lungs, and posteriorly at the base of the left lung, the same are heard together with large mucous rhonchi. No dulness perceptible in any part. Pulse weak, 108. Temperature 105° F. Tongue dryish and brown.

Ordered, wine to be increased to 4 oz.

Turpentine stupes to chest.  
and ℞. Spirit. ether. chlor.  
Spirit. terebin.....āā ʒ ii.  
Vitelli ovi..... i.  
Aquæ..... ʒ vi.

Capt. cochl. magn. quartâ quâque horâ.

8th. Jan. Much the same. Tested the urine for albumen and found it quite absent. Pulse stronger, 110. Temperature 104.8° F. Tongue, dry in centre, moist at the edges. No diarrhœa.

9th. Jan. Coughs more, but the expression is better, and she seems more sensible. Still a dark flush on the cheeks. Moisture at the edges of the tongue rather extended. Pulse 112. Temperature 105.4° F.

10th. Jan. Better. Pulse 100, fuller and firmer. Temperature 104°. 2° F. Tongue, almost covered throughout with a yellowish, white moist fur, 12th Jan. Much better, much more sensible, though still there is slight delirium at night. Pulse 92. Temperature 103° F. Tongue quite clean and moist.

15th. Jan. No return of the diarrhœa, appetite good, the congested appearance of the cheeks remains. Still coughs a good deal, bronchitic râles remain as last reported. Pulse 100. Temperature 103.4° F.

17th. Jan. More cheerful—Answers questions now pretty readily. No diarrhœa, and tenderness completely gone. Sonorous and sibilant râles are still heard in the front of the chest at the end of deep inspiration, but not at all during ordinary quiet breathing, the mucous râles before mentioned have entirely disappeared from behind. Pulse 98. Temperature 102.2° F.

19th. Jan. Very much improved. Expression almost natural; mind much clearer, talks and laughs cheerfully, but is somewhat childish in ways and sayings. Cough much better. Pulse 96, Temperature 101°. Tongue quite clear and moist, and the appetite good.

Ordered, mutton chop.

and ℞. Quine disulph. gr. vi.  
Acid. sulphur. dil m. xx.  
Aquæ..... 3 vi.

Capt. cochl. magn. ter in die.

From this time she continued to gain strength very rapidly. Sat up on the 23rd Jan., and was finally discharged quite well on the 28th Jan., 1866.

Date.	Day of the disease.	Pulse.	Temperature.
3rd Jan.	12th	115	104°F
4th "	13th	116	104°4
5th "	14th	110	104°4
6th "	15th	108	105°
7th "	16th	110	104°5
8th "	17th	110	104°8
9th "	18th	112	105°4
10th "	19th	100	104°2
11th "	20th	98	103°5
12th "	21st	92	103°
13th "	22th	96	103°2
15th "	24th	100	103°4
17th "	26th	98	102°
19th "	28th	98	102°
21st "	30th	92	100°

NOTE, The *temperatures* recorded were taken daily at noon, in the axilla.

#### CASE 4.

(Reported by Mr. A. C. Savage.)

Agnes English, æt. 10, native of India; her father was a soldier in the British service, died at the age of forty. Mother still living, and enjoys good health. The patient is of robust habit, has never been sick (that is confined to bed) before the present illness.

On January 16th, 1866, she was seized with severe rigors, vomiting, headache, and a generally confused state of the senses, continuing for three days previous to her admission into hospital.

January 17th. Severe headache—being worse at night than during the day—loss of appetite, and intense thirst, tongue coated with a whitish or cream-coloured fur, pain on pressure on the right iliac fossæ, pulse 118, respiration 32, ratio 3.68, temperature 104½, ordered hospital hydrochloric acid fever mixture, milk diet and a pint of beef tea.

January 18th. Experiences a sensation of giddiness on sitting up, tongue still coated, slight pain in the stomach, aching pain in the back part of the head, pulse 106, (this is the 6th day) three lenticular rose-coloured spots are visible on the upper part of the chest, they disappear completely on pressure and return when pressure is removed, slight pain on pressure on the right iliac fossa, temperature  $103\frac{2}{3}$ , ordered a drachm of *oleum ricini*.

January 19th. Took medicine last night, her bowels remained unmoved, tongue cleaner than at last visit, slight pain in the bowels, and tympanitis, pulse 112, temperature 102, about twenty typhoid spots, sparsely scattered over the surface of the back, face considerably flushed.

On January 20th. Ordered *oleum ricini* 3j, bowels have not yet been moved, says she feels better, has slight headache, pulse 100, temperature  $101\frac{1}{2}$ , additional spots visible on the anterior parts of the chest—the number also increased on the posterior region; pupils much dilated.

January 21st. Looks much better, and says she feels well; is anxious to sit up, had one evacuation of an ochrey yellow colour, and offensive; feels no pain in the head or bowels, tongue cleaning off at the edges, slightly fissured in the centre, and papillæ somewhat enlarged; pulse 94, temperature 98; no fresh spots visible, and those which were well developed are fading; pupils remain dilated.

January 22nd. No important changes to note since last visit, had one natural evacuation this morning, she is very much improved, tongue cleaning off, and no fresh spots visible, pulse 86, temperature 98; wishes to be allowed to sit up.

January 23rd. Tongue clean, no pain, is convalescing rapidly, pulse 84, temperature 98, ordered full diet and clothes, and is permitted to sit up in the ward.

January 24th. Is restored to perfect health.

---

## PERISCOPIC DEPARTMENT.

---

### Surgery.

#### TREATMENT OF FRACTURE OF THE RADIUS AT THE STYLOID PROCESS BY MEANS OF GORDON'S SPLINT.

By Mr. RAWSON TAIT.

Few fractures have had so many painfully ingenious splints devised for their treatment as that common injury to the radius, which generally

goes by the name of Colles's fracture, if we except fracture of the patella with the awe-inspiring hooks of the late M. Malgaigne. The French pistol splint for twisting the hand to either side, the American splint for twisting the hand down, and some other kind of splint for twisting it up, have all been used, and nearly all given up as insufficient, besides being, for the most part, perfectly intolerable to the patient. Thus it is that we find Sir William Fergusson recommending the ordinary palmar and dorsal straight splints for the treatment of this fracture, and these, I believe, are used by most British practitioners with the addition of various supplementary pads as required by the exigencies of each case.

In spite of the utmost care most cases of this fracture turn out unsatisfactorily, and many are the actions of damages that have been raised on its account. The reason of this non-success is, I think, very plain; and let any one examine his own wrist, and the following explanation will be clear. Holding the hand straight out in a plane with the forearm, it will be seen that, while the dorsal aspect is almost a straight line, there is a considerable concavity at the wrist on the palmar aspect; indeed, that a line drawn from the elbow to the ball of the thumb would be, so to speak, the chord of a segment of a circle. Thus it is that when an arm, with the radius broken as it is in Colles's fracture, is pressed by two straight splints, one of either aspect, extending from the elbow to the fingers, the upper fragment must necessarily be pressed towards the palmar aspect of the limb; while the lower fragment, which is practically the same in this condition as the ball of the thumb, is pressed in the opposite direction—in fact, that the distortion is only increased by the splints as they press the fragments in the very direction in which they are already displaced. If this be correct, then it is easy to understand the success which has attended the use of Dr. Gordon's splint in the treatment of this fracture, and to believe that it is devised on sound anatomical and mechanical principles—that it really is what all splints ought to be, viz., a dermal skeleton.

This instrument was originally invented and described by Dr. Gordon, of Belfast; the only notice, however, which I am aware that it has subsequently received is in a paper by Mr. Stokes in the *Dublin Medical Journal*. It is composed of two pieces of wood, the one for the palmar aspect of the forearm being about nine inches long, two and a quarter inches wide at the elbow; the surface to be in contact with the skin is slightly hollowed out to fit the arm, and along its radial border it has screwed to it a wooden bar or pad, which is rounded off at the distal extremity to fit the concavity of the radius; this latter, of course, necessitates that, to fulfil this condition, separate splints are required for the right and left arms.

The pad, in addition to its being rounded off at the extremity, is rounded all along its inner surface so as to press accurately against the radius throughout nearly its whole length, and it is of sufficient height to embrace rather more than half the thickness of the forearm. The other portion of the apparatus consists of a plain piece of three-eighth inch board, two inches and a quarter broad, and two inches longer than its fellow; it is for application to the dorsal aspect of the forearm, and has the surface to be in contact with the skin slightly hollowed, and it likewise has its distal extremity transversely rounded. Its application is effected as follows:—The fracture having been reduced, the limb is retained in position by an assistant, the lower part of the apparatus is then applied, padded with spongio piline or lint, to the radial portion of the forearm alone, and not to the hand. Then the upper splint is to be applied, likewise padded, in such a manner that the proximal ends of the two parts of the apparatus are maintained at the same level, while the distal end of the upper one projects about two inches beyond the end of the radius. For a more particular description and a drawing, see *Dublin Medical Journal*, for February, 1865. The whole apparatus is firmly secured, by two small straps with buckles. In this manner no pressure is exerted on either of the fragments but what is calculated to keep them in their correct position. The arm, during the after progress of the case, is recommended to be kept in the position most agreeable to the patient, which will be found to be that of almost complete pronation. In the employment of this apparatus the wrist will be found to be confined only to a limited extent, while the movements of the fingers and carpo-metacarpal articulations are quite unimpeded; thus entirely doing away with the most objectionable condition of stiff joints, which is such an annoyance both to surgeon and patient for weeks after the common splints have been removed from the forearm.

Shortly before I became acquainted with this splint, I met with two cases of Colles's fracture, in which, in spite of the greatest care I could possibly bestow on them, there still resulted a considerable degree of the deformity peculiar to this particular injury. The first case occurred in an old lady, and the other in a young collier lad; in both the injury resulted from a fall on the palm of the hand. The unsatisfactory results of the ordinary methods of treatment of this fracture having been thus prominently brought under my notice, I was induced to pay special attention to what had been suggested by surgical authors as to the cause of the displacement and as to the best means of overcoming the resulting deformity. Much has been written on the action of those muscles which some have supposed to be the cause of this peculiar deformity; but I think

that this is one of the many instances where muscular action is blamed for ill effects of which it is blameless. The deformity seems to me to be caused solely by the direction of the violence which is the cause of the injury, this being almost invariably a fall on the palm of the hand. The mechanism of the fracture seems to be that when the patient falls on the hand, and that by its being forced outwards it drags with it the epiphysis of the radius, the ligaments breaking the bone rather than yielding themselves. Much the same, indeed, as in the very analogous fracture of the fibula at its lower fourth, where the internal lateral ligaments of the tarsus much more frequently drag away with them the tip of the malleolus externus than are ruptured themselves. Again, the idea that the displacement depends merely on the violence is borne out by the occasional occurrence of a case where the patient falls on the back of the hand, and when the ball of the thumb and lower fragment of the radius are driven upwards and towards the palmar aspect of the forearm. Bearing these things in mind, and looking at the great improbability of fragments so displaced returning spontaneously to their normal position, it seems to me that, in this instance at least, the theories which would attribute to particular muscles the power of drawing particular fragments this or that way, thus producing and maintaining the displacement, are quite needless. What is required in the treatment of this fracture, if we wish to obtain a perfect result, is not mere repose of the parts, which alone is secured by the ordinary straight splints, but such special adjustment of the normal curve of the shaft of the broken radius with its apophysis as will restore their normal relation to each other, and to the corresponding extremity of the ulna. This result, theory satisfied me was obtainable by the use of Dr. Gordon's apparatus, and the result in the following cases will, I think, satisfy any one of its utility and success.

Since reading Mr. Stokes's paper on this splint, I have met with two cases of the fracture, both of which were treated by means of it with remarkably pleasing results. The first occurred in the left arm of a boy, about eight years old, who fell from a height and lighted on the palms of his hands. In this case, the deformity was excessive, putting me in mind at the moment of that mysterious symbol connected with our early faith, known to antiquarians as the zig-zag sceptre ornament. He had his arm in the Gordon splint scarcely three weeks; and now, from careful examination of both wrists, it could not be told in which arm the fracture had occurred. The other case occurred in a gentleman, aged 63, whose carriage was upset, and who likewise lighted on his palms. In this instance the deformity was well marked, but not nearly to so great a degree as in the former example. After their original adjustment, the

splints were not touched for six weeks, and there now exists not the least deformity. In fact, I had an opportunity of examining this gentleman's wrist within the last few days, and am quite as well satisfied with it as with the other.

Recently Dr. Heron Watson mentioned to me a case of this fracture which he had treated by Dr. Gordon's apparatus with the most satisfactory results. The patient was an adult male, and had met with the accident in the usual way. "The injured limb," writes Dr. Watson, "had been put up in the first instance in Gooch's splints by my House-Surgeon; but when I saw him next day, as he was uneasy, I took them off and applied Dr. Gordon's. They were adjusted two or three times while they were required, which was only four weeks. The original displacement was well marked, and the result was eminently satisfactory, the position of the ulna with reference to the carpus being natural, and the movements of the wrist quite unimpaired; while the rotation backwards and outwards of the styloid process and articular surface of the radius was, if present, imperceptible."

In none of the cases did the patients complain of the slightest pain or inconvenience arising from the apparatus.—*Medical Times and Gazette, February 17th, 1866.*

#### HYSTERICAL SPEECHLESSNESS—SPEECH RESTORED BY THE INTIMIDATING EFFECT OF GALVANISM.

Under the care of Dr. PAVY at Guy's Hospital.

The following particulars are from the report of Mr. Vaudrey:—

S. C., aged 17, having been occupied as a domestic servant at Tottenham, was admitted into Mary Ward, under the care of Dr. Pavy. Her history, which she gave in writing, is as follows:—About seven months ago, whilst out on an errand in the evening, a man laid hold of her arm and demanded money of her. He tore her jacket, but inflicted no personal injury upon her. She was so frightened that she could neither speak nor move for some time. She, however, at length reached home, although she does not remember how. On her arrival home she had a hysterical fit, which lasted for two hours and a-half, and from that time up to her admission—a period of nearly seven months—she has been perfectly speechless and partially deprived of the use of her lower extremities.

She is healthy in appearance. When spoken to she does not attempt to answer, but shakes or nods her head. The movements of her tongue and lips are free enough for other purposes besides speaking. She can

move her legs, but requires support in walking; neither leg, however, is dragged, as in paralysis. Apart from the speechlessness, her other faculties are right. She usually has a fit of a hysterical nature every night, about nine. Catamenia regular, and bodily functions in general healthy.

Dr. Pavy remarked that he believed this to be one of those strange vagaries brought about by hysteria. Here was a girl of healthy and lively appearance, and of good bodily condition, who had not uttered a single word for seven months. Doubtless she had excited the commiseration and sympathy of her friends, but one would have thought it must have been a great hardship to endure to forego speaking altogether for such a length of time. There was evidently nothing physically to interfere with her speaking. She was never to be caught unawares. When spoken to she made no attempt to answer by speech, but was ready to write down her reply. It was difficult to suppose that the girl was a voluntary agent in the part she was performing, or that she was practising a wilful deception. It was more rational to suppose that she was herself deceived—that she was so impressed with the conviction, so deluded with the belief that she could not speak, that she did not make the attempt. Some powerful impression would have to be made to dissipate the delusion. The galvanic shock had succeeded before in such cases, and Dr. Pavy would have it tried in this. An instrument in use by a paralytic patient in the ward was set to work, and the girl made to grasp the handles. The battery was not strong enough to yield a very powerful shock, and she did not utter any sound, although she cried and moved her mouth as though attempting to speak. She was told that a more powerful battery would be used another time if she did not find her voice, and that she was meanwhile to try all she could herself to speak. The next day she had a fit of hysteria, and afterwards uttered some sounds. She now began to speak, and in the course of a few days talked as freely as any patient in the ward. The use of her legs also became restored, and her hysterical attacks disappeared. The medicine administered was *sp. ammon. foet., mxx.; inf. valerianæ, ʒj., ter die.*—*Medical Times and Gazette.*

---

## Medicine.

### THE THERMOMETER IN DISEASE.

Much attention has of late years been paid to the temperature of the body in disease, and much practical information has been gained from this study. We therefore propose to lay before our readers an account of the help which we may get from the temperature of the body in the diagnosis, prognosis, and treatment of disease.

To Traube, Baerensprung, and Wunderlich on the Continent, and to Parkes and Sidney Ringer in England, we are chiefly indebted for the information we possess on this subject. By the use of the thermometer we are enabled to distinguish between diseases the symptoms of which are so similar that the most practised must wait for the disease to declare its true nature by its further development. Such cases constantly present themselves to the practitioner. They baffle his skill, compel him to postpone his treatment, and they may injure his reputation. In such cases the thermometer, by the evidence it gives of the temperature of the body, often affords us a certain means of diagnosis.

A patient is suddenly seized with a severe pain in the side. This is increased by breathing, coughing, or pressure on the chest. The expression is anxious, and the breathing is hurried and superficial. There may be slight cough. The pulse beats quickly and feebly. Sleep is prevented and the appetite becomes impaired. By a physical examination of the chest we find that the painful side expands imperfectly. The percussion note may be slightly dull, and the respiratory murmur is weak and jerking.

This group of symptoms is unfortunately too common. Have we here a case of pleurisy or pleurodynia? How are we to decide? The pain is of itself sufficient to explain all the symptoms and physical signs. This prevents the free play of the chest, and consequently the movements are hurried, jerking, and abrupt. It quickens and enfeebles the pulse; it prevents sleep. The pain and want of sleep impair the appetite. On account of the impairment of the movement of the chest walls, the respiratory murmur is weak on the affected side.

In such a case the presence or absence of cough and the state of the pulse may afford much information. But this evidence cannot be implicitly relied on. With pleurisy there is always some cough, and, owing to the fever which accompanies the disease, the pulse is quickened. Neither of these symptoms usually occur in pleurodynia; but cough due to some bronchitis may be present in pleurodynia, and pain, or fear, or the excitement caused by the visit of the Medical attendant may cause the pulse to beat quickly. Pleural friction often cannot be detected by auscultation. But pain is common to both pleurisy and pleurodynia. This pain, as we have seen, may produce all the symptoms and physical signs that are often present in either disease. The diagnosis, therefore, at the outset of the attack becomes in some instances impossible, and must be postponed till well-marked physical signs are developed.

Fortunately, by means of the information that we gain by the thermometer in very many cases we can at once decide the true nature of the

disease in question. Pleurisy is an inflammatory disease; pleurodynia is not so. *In all acute inflammatory diseases the temperature of the body is raised.* Hence in all cases of pleurisy the temperature is considerably raised at the very commencement of the attack. In pleurodynia the temperature remains normal. The temperature of the body in health varies from  $97^{\circ}$  to  $99.6^{\circ}$  Fah. In pleurisy it rises to  $101^{\circ}$ , or even to  $105^{\circ}$  Fah.

On the other hand, with such an elevation of the temperature as that just mentioned, occurring with the symptoms detailed above, we are justified in diagnosing pleurisy. It is true that this elevation may be caused by some co-existing disease. This, however, is a rare coincidence, and such co-existing disease can be mostly detected; therefore, in the absence of such co-existing disease, our diagnosis must be pleurisy, and the event will justify such a conclusion. Should it be urged that the hand can detect this elevation, and that thus the use of the thermometer is uncalled for, it may be answered that, firstly, if the hand alone be employed, much error is liable to be incurred; for a dry skin of natural temperature may feel preternaturally hot, while, on the other hand, a hot but moist skin may feel to be considerably cooler than the temperature indicated by the thermometer.

As a means of estimating the amount of preternatural heat, the hand is all but useless. But it is important to obtain an exact estimate of the elevation of the temperature; for by careful observations it has been shown that *the degree of elevation is proportionate to the severity of the disease that causes it.* Hence the amount of preternatural elevation of the temperature forms one of the most important factors on which the prognosis is made. This exact information the thermometer alone can give us. Nor are the other symptoms, individually or collectively, at all to be compared to the temperature in this respect; *for in every case of fever, no matter from what it originates, the temperature is elevated, and this elevation of the temperature is the only constant symptom of fever.* It alone is pathognomonic of fever. Thus fever and preternatural heat of the body are used as synonymous terms; for the pulse may beat with the frequency of health, the tongue may be clean, and even the appetite good, and thirst may be absent; but there is always preternatural heat of the body if fever exists. Thus cases are recorded (and such frequently occur to those who use the thermometer) where from the presence of various symptoms grave disease was apprehended, while an appeal to the thermometer negatived this assumption; or from the apparent mildness of the symptoms an unimportant complaint has been suspected, when the thermometer has indicated some grave affection. In all these cases the

predictions made by the assistance of the thermometer have proved correct. The following cases illustrate these remarks:—

A girl, aged 18, was admitted into Hospital. She was extremely weak, so that she had to be assisted into the ward. She had been ill eight days. During this time she had suffered from severe frontal headache and some diarrhoea. The motions were liquid. The tongue was thickly coated. The attack had commenced insidiously. There were no typhoid spots, and her abdomen was not distended. Her sister was at that time in the Hospital under treatment for typhoid fever. These circumstances were sufficient to render it highly probable that she suffered from typhoid fever. Her temperature, however, was normal, and thus our diagnosis was corrected. In two days she had so far recovered as to be able to dress and walk about the ward, and in a few days more she left the Hospital.

A girl, 22 years of age, was admitted into Hospital a month after her confinement. She felt slightly indisposed. Her appetite was good and her tongue clean. She assisted in the work of the ward. On careful examination very slight tenderness of one breast was discovered. Of this, however, she had not previously complained. Her temperature varied between  $101^{\circ}$  and  $102^{\circ}$  Fah. In a few days the breast became much enlarged, hard, red and tender, and subsequently an abscess of considerable size formed.

While advocating, however, the use of the thermometer, we by no means wish to lead our readers to the conclusion that the information it gives us enables us to disregard the remaining symptoms; for it is from these latter that the diagnosis must be mostly made. It is from these that the greatest information in respect of the treatment is obtained. Much care is necessary in the use of the thermometer. It is, therefore, advisable that we should make a few remarks respecting the method of its application.

The temperature of the body should be taken by a thermometer placed in the axilla. The patient should be in bed and undressed; otherwise the temperature of the surface of the body may be considerably below that of the internal parts. A difference of  $2^{\circ}$ , or even  $3^{\circ}$ , Fah. can easily result from the non-observance of this precaution. The patient should be in bed an hour before the temperature is taken, as this time is often regulated before the surface of the body recovers from the effects of the previous exposure. The patient should be placed diagonally on the right or left side; for if placed on their back patients are apt in their anxiety to retain the thermometer in the axilla to press the arm too firmly against the side. The axilla is thus converted into a cavity in which the bulb

of the thermometer moves about loosely without coming thoroughly in contact with the tissues. This is specially apt to occur in emaciated people. On the other hand, if placed quite on the right or left side, the distal end of the thermometer becomes depressed, thus rendering the reading of it difficult—nay, sometimes the column of mercury divides when part gravitates down the tube, giving a fictitious result. If, on the other hand, the patient be placed neither completely on the back nor side, but in a medium position, these objections are obviated; for the parts then fall naturally together, no muscular effort being required to retain the thermometer. Care should be taken that the patient has been previously covered up, and that the axilla has not been exposed; otherwise a difference of 2° or 3° Fah. may result. It is, therefore, better, if the patient has been lying on one side, to turn him diagonally on the other, and to use the axilla which was previously most dependent. Care should be taken that the thermometer be in *complete contact* with the skin, and that no clothes are in the way to separate it from the surface of the body. All these precautions being observed, it is better to allow the thermometer to remain in the axilla at least five minutes. The temperature should be taken twice in the day—at 8 a.m. and 8 p.m. If only one observation can be made in the day, the evening must be chosen, for often the temperature is normal in the morning, but very considerably elevated at night.

It is better to use a thermometer constructed for the purpose. Those of the ordinary make are often untrue, and are always difficult of application. Trustworthy and suitable thermometers can be obtained of Mr. Casilla, of Hatton-garden.

---

## Midwifery and Diseases of Women and Children.

### REMARKABLE CASE OF "MISSED LABOUR":

#### RETENTION OF A FŒTUS IN THE ABDOMEN FORTY-THREE YEARS.

By R. W. WATKINS, F.R.C.S., Towcester.

On January 10th, 1866, I visited, by request, Elizabeth Jones, aged seventy-four, widow of William Jones, a small village shopkeeper at Stoke Bruerne, Northamptonshire. She gave me the following history, which I will narrate as nearly as possible in her own words.

About forty years ago, she was in labour with her second child. Her first, born two years previously, having had water in the head, had survived its birth only a few years. The labour being very lingering, they had sent for my late father, who had attended her, and remained with her

the night. On the following day, being very busy, and the labour having made no progress, he left her in charge of the midwife who was in attendance upon her. The pains were lingering, but not very severe. On the third day, she felt something "drop down suddenly inside her; and the child, the movements of which she had constantly felt up to that time, at once became cold as a stone." She was in great pain, and my father had attended her for a considerable period. She refused to allow any surgeon or physician to attend her, or to have any operation performed. She gradually improved in health, although she was very weak for a long time, and did not decrease in size for several years.

Upon examination, I found her much emaciated, with a hard bony tumour in the lower part of the abdomen, exactly resembling the foetal head. It could be easily moved from side to side; and, on careful manipulation, I believed that I felt the back part of the thorax in close approximation to it. She was evidently sinking from chronic renal disease; and, knowing that her end was approaching, had sent for me to request that I would make a *post mortem* examination. She had previously made a similar request to Mr. William Knott.

The story was corroborated by some of her neighbours, and by the rector of the parish, who had heard from my father a full report of the case. It was also stated, that at different times three little bones, "like finger-bones," had come away from her; but they had not been preserved.

On referring to old ledgers, I found the entry of the attendance on October 8th, 1822, in the handwriting of my grandfather, with the subsequent payment of the fee marked in my father's handwriting, and with his initials.

The woman died on January 13th, and the examination was made on the 15th by Mr. William Knott, in the presence of Mr. Knott, sen., Mr. Garlike, and myself. On making an incision through the abdominal parietes and opening the peritoneum, we immediately observed a hard white substance, which proved to be the vertex or foetal skull; and on enlarging the opening, a perfect foetus was extracted without difficulty. It was covered with plastic lymph; the limbs were flexed anteriorly on the body, and the head bent forwards to meet them, in the manner usually depicted in plates of the gravid uterus. It was attached by the umbilical cord to a vascular tumour of about the size of half an orange, which appeared to be the atrophied placenta, and which was connected by ligamentous attachment to the peritoneal covering of the broad ligament near the left ovary. One portion of this vascular tumour appeared to be a mass of unorganised lymph containing fluid. Neither

the focus nor the supposed placenta had any adhesions to the peritoneum, except the ligamentous attachment I have already mentioned. The uterus was perfectly normal. There was no cicatrix or other marks of injury on any portion of its surface. The ovaries were pale, but quite natural in size and form. There were no adhesions of the peritoneum in any portion of the abdominal cavity, and no appearance of previous inflammatory action in any part of the large or small intestines. The kidneys were extensively gorged with venous blood, and very friable; the left being more affected than the right. The spleen also was much congested and friable. The stomach and liver were healthy. The gall-bladder contained about twenty hard dark gall-stones. The pancreas was very much diminished in size. In front of the aorta, and immediately above the inferior mesenteric artery, to which it was connected by condensed cellular tissue, was a white encysted tumour, of about the size of a hen's egg, containing a milky fluid.

The above extraordinary case is, so far as I am aware, quite unique, and will be interesting, not only as an instance of recovery from tubular gestation and probably rupture, but also from the comparatively slight local and constitutional effects of a foreign body retained in the cavity of the peritoneum for more than forty-three years. The specimens have been forwarded to Dr. Barnes, for exhibition at the meeting of the Obstetrical Society.—*British Medical Journal*.

---

#### CYCLE OF DISEASE.

Doctors have been writing a good deal lately about "change of type in disease." Some of them, indeed, adopting a recent "heresy," have said there is no such thing, the change being solely in their modes of treatment, not at all in the constitution of their patients. Dr. F. J. Brown, of Dorchester, however, brings forward a startling fact. Formerly, he says, the peasants round him used to be bled once or twice a year, losing 16 ounces, and walking home many miles without inconvenience. Of late years the same men and their sons have fainted from the loss of from four to eight ounces, and so the practice has been dropped. Dr. Brown, who seems to have been a very careful observer, thinks that change of type, like so many other things, is periodic. Since the spring of 1864, he says, the plethoric type is gaining upon the nervous; "men can lose blood with benefit now who could not do so a few years since." The nervous type, he asserts, came in with the first cholera epidemic, and has lasted about the third of a century. This is encouraging. If the nervous type goes, we may hope that cholera will go along with it. But the whole question of cycles of disease can scarcely yet be handled scientifically.—*Pall-Mall Gazette*.

# Canada Medical Journal.

---

MONTREAL, APRIL, 1866.

---

There are certain forms of disease which are well known to be the result of a specific poison entering the blood. Of these, we may mention the various forms of fever; in fact, that class of disease known as of zymotic origin. Among this class is to be mentioned cholera, the question of the contagious and non-contagious nature of which is attracting considerable attention at the present day throughout the scientific world.

This question has divided the profession into two schools—those who assert that disease of the zymotic class is produced by special poisons independent of condition, and capable of being generated and reproduced from one individual to another. Another class of sanitary reformers there are who regard zymotic disease as being caused alone by neglect of certain sanitary laws, and from emanations from decomposing animal or vegetable refuse. Much injury is done by extreme views of either party, while the advocates of measures calculated to embarrass trade such as rigid quarantine regulations on the one hand, and those who regard disease as occasioned alone by neglect of common cleanliness on the other, are each clamouring for the adoption of their specific views. It would be well to consider the advisability of adopting, as a whole, common sense views of the obligations imposed on each individual for his own safety, and that of the whole community. That cholera is contagious in the same nature as is small-pox, typhus fever, or other zymotic diseases of this class, we do not believe; it is a question, however, which is far from being settled definitely. There is much to be said in favour of contagion, and much against it. There are certain conditions which, of necessity, must exist prior to the development of any contagious disease: firstly, we must have the poison capable of developing the disease; secondly, a medium of communicating the poison; and, thirdly, an individual predisposed to receive it. That cholera is produced by a specific poison seems to be the generally received opinion; that the

poison of cholera is developed or propagated by defective drainage and uncleanness of localities, appears to be unquestionable; and that individuals are rendered more liable to its attack by neglect of personal sanitary measures of whatever kind, be it of personal cleanliness, scanty or unwholesome food, intemperance or loose living, is to our mind conclusive. With regard to the medium of communicating the cholera poison, this is a question which is far from being satisfactorily settled. One theory is that water is the medium of communication, hence the theorists assert that the disease invariably follows the course of navigation; but unfortunately for them, it generally goes up stream. Cholera in 1832 appeared in Quebec early in the month of June, and almost simultaneously—we believe it was a few hours after—it broke out in the Barracks in Montreal. No personal communication had occurred between the two cities. In 1834 it appeared in Quebec, Montreal, and Toronto on the same day; and on the Upper Ottawa a case is mentioned of a party of raftsmen bringing their timber to market, who had not held communication with any civilized community for months, but who were attacked with a violent purging and vomiting, and three of their number died in a few hours. This last circumstance we have heard from several men connected with the lumber trade, and can be authenticated. A somewhat similar case is on record. In November, 1848, two vessels left the port of Havre bound for America, one the Swanton, on the passage to New Orleans; the other, the ship New York, bound for the port of that name. While in mid-ocean the cholera broke out on board of each vessel, and proved fatal in from twenty to thirty individuals in each ship. The port of Havre at the time the vessels left, was entirely free from the disease, nor had any of the crew or passengers been in the vicinity of the disease before embarkation. These circumstances would almost point to the atmosphere being the medium of communication of the cholera poison; certain local conditions, as low marshy or ill-drained land being favourable to the development of the disease.

General sanitary precautions should be adopted by communities, and the cleaning of streets is a necessity which should be rigidly enforced. All house refuse should be removed without delay; vegetable or animal matter should not be allowed to remain in heaps until a sufficient quantity accumulates to form a load, but should be removed each morning. A proper system of scavenger carts ought to be introduced. All marshy lots—and there are many in the lower parts of this city—should be efficiently drained, as there can be no doubt that the moist atmosphere, which is found near such situations, is highly favourable if not to the development, at least to the propagation of cholera. These are a few suggestions, which we trust will

be acted on in time to be of service to the community. There are other duties more of a personal character which deserve mention. House cleanliness, frequent ventilation, and the free use of lime ought to be insisted on; the police should have the power under instruction of the Health Officer of enforcing sanitary measures under penalty.

But while we are attending to the condition of our houses and thoroughfares, let us not omit personal sanitary precautions.

Intemperance both in eating and drinking should be avoided at all times, but more especially during the existence of epidemic disease. The daily use of spirituous liquors is unnecessary if not positively injurious, and especially so with the thermometer ranging between 90 and 100 degrees in the shade. We advise no sudden change in the habits of life, but would especially enjoin temperance and abstemiousness in all things.

The diet should be plain, nutritious and easily digestible—unripe vegetables and fruit should be avoided; in a word, let each individual live—as far as his diet is concerned—in that manner which he has found most conducive to his health.

Severe mental or bodily fatigue is highly injurious, inasmuch as considerable waste of nervous power is the consequence, and hence the system is rendered more liable to an attack of any prevailing malady. The necessity of personal cleanliness cannot be too urgently recommended. The clothing should be comfortable, seasonable; let each individual watch the changes which occasionally occur with such rapidity, and if need be change his clothes to suit the temperature. Nothing can be more injurious than the sudden arrest of free action of the surface, by exposure, without sufficient or adequate clothing during the sudden vicissitudes of our ever changeable climate. Such are the measures we would recommend for general adoption. The object being to preserve the body in a state of as perfect health as possible, avoiding excesses of all kinds and abstaining from anything likely to derange or impair the digestive functions.

---

Our readers will receive with this number of the journal a circular from Dr. Hingston, to which answers are requested. The same circular has been sent to the French Canadian Physicians through the *Gazette Medicale*, and in these ways a fair expression of the views entertained by the profession generally, is expected. We are in a position to state that should the answers indicate a more than usual acquaintance with the subjects contained in the questions, Dr. Hingston will give them expression, and the writers due credit. As the questions are of interest to the profession generally, we hope the circular will receive immediate attention.