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CANADA

MEDICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

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*Severe Incised Wound of Liver: Recovery.* By HAMNET HILL,  
M.R.C.S., Eng.

William Perkins, aged fifteen, on the 4th July, 1868, whilst working in one of the large saw-mills at the Chaudière Falls, on the Ottawa River, was overbalanced by the accidental thrust of a truck cart, and thrown right side forward on to a circular butting saw of about sixteen inches diameter and making 1500 révolutions per minute. His right arm was instantaneously cut off about two inches above the elbow. One of the mill hands seeing the boy's danger, seized hold of him while in the act of falling, in the vain endeavour to save him, but not before the saw had inflicted a frightful wound in the lower part of the right side of the chest, of about nine inches in length, cutting completely through the 8th, 9th, 10th, and 11th ribs, laying open the cavity of the pleura (without, however, wounding the lung), thence finding its way through the diaphragm into the cavity of the abdomen, and finally wounding the convex surface of the liver to the extent of about four inches superficially, and to the depth of about one inch at the deepest part, as measured on the periphery of the saw; the escape from instant death was perfectly miraculous, as the cicatrix remaining on the skin shows that the saw went within half an inch of the medium line posteriorly, on the spine, and to within about two and a half inches of the median line on the sternum anteriorly. I was in attendance on the boy about thirty minutes after receipt of the injury and found him as described. Air was rushing in and out of the cavity of the pleura, during each attempt at respiration, through the wound in the side, which was gaping about three inches wide at its middle and was partially dammed or plugged up as it were by the bright and glistening substance of the liver, exhibiting the incision in its surface. There had been a large amount of hæmorrhage, as seen by the saturation of the clothing, and by the exsanguined aspect of

the patient, but at this moment there was little if any bleeding going on either from the stump or the side. Without loss of time I returned the liver from between the edges of the wound well into the abdominal cavity, and closed it up as expeditiously as possible by means of fourteen stitches isinglass plaster, compress and bandage, which gave so much relief that he immediately exclaimed "Now I can breathe." It was found necessary to re-amputate the arm higher up to get integument to cover the end of the humerus. On attempting to put him to bed with the wounded side of course uppermost, so intense was the agony by disturbance of the injured parts that the only endurable position was found to be the semi-erect or sitting posture on the nates with the body at an inclined plane of about forty-five degrees. Considering the gravity of these injuries, the exhaustion and shock were not so great as might have been expected. He was ordered Tinct. Opii. gtt. xxx. immediately, and gtt. xv. every two hours if awake, wine and water "ad libitum;" at the night visit reaction was fairly established; natural heat was restored; there was no faintness, consequently no internal hæmorrhage could be going on, and he expressed himself as suffering but little pain.

July 5th.—Surprisingly well; an almost entire absence of fever; no pain except that induced by any effort to move or change position; had slept considerably; no cough or bloody expectoration; respirations about forty-two; pulse one hundred and twenty; cheerful voice and countenance; no jaundice; continued opiates and wine, and enjoined most perfect quietude, restricting the talking to necessary requests only, and that to be done in whispers. A daily record of the case is unnecessary; cold water dressing was applied constantly to the side and stump, bowels were opened occasionally, but not too often by means of enemata, and the frequent exhibition of opiates gradually discontinued as the respirations and pulse became lessened in frequency. Secondary hæmorrhage came on from the stump on the eighth day, which was arrested by immersion in ice, and the side was dressed with much difficulty from changing his position for the first time about this date; I was surprised to find how much union by first intention had taken place (a very unusual circumstance after saw-cuts); many of the stitches were removed; I dressed the side every third day thence after, and each time found a very marked improvement; so painful, however, was change of posture that it was fully four weeks before decubitus could be borne, which thus permitted of the daily cleansing and attention to the wound in the side, so that by the end of the seventh week he was enabled to walk about, as it was almost entirely healed. Several small pieces of bone came away in the dressings, evidently "saw-shavings" from the ribs; these latter have not united by

bony union, so that they are in reality "floating ribs," but respiration is perfectly natural, and all the functions of the thoracic and abdominal viscera are well and efficiently performed. Within the limits of a tolerably extensive practice, the above is the first case I have met with of such extensive injury of the liver, and I look upon it as unique in at least two particulars, first when we consider the extent of the penetrating wound into the chest, abdomen and liver, without immediate destruction of life, and secondly in its remarkable termination in perfect recovery without a single bad symptom supervening from receipt of injury to date of convalescence; the fatality which usually follows injuries, at all approaching this one in severity is of course very great, the chief danger to the patient, should he indeed survive the immediate loss of blood and shock of injury, being from inflammation set up in the serous membranes; medical literature, except as refers more particularly to military surgery, records but few instances of such severe injury either for instruction or for comment, which is doubtless owing to the infrequency of such accidents; there is every reason to believe, however, that penetrating wounds of the abdomen are much complicated, and that the severity of their danger is much increased by lesion of either the solid or hollow viscera; and from the reports of various cases of wounds of the liver, spleen &c., these latter appear to have been more fatal than similar lesions of stomach and large or small intestines. According to the experience of Dr. Hennen "a deep wound of the liver is as fatal as if the heart itself were engaged though slighter injuries are recoverable," other authorities, Drutt especially, refer also to the fatality of such injuries in almost the same terms. I must confess that the prognosis of the above case was of the most unfavourable nature and I looked forward to no other result than its fatal termination in thirty-six or forty-eight hours from the combined accession of pleuritis, peritonitis and possibly hepatitis. Considering that the serous membranes must have suffered a "solution of continuity" to extent of twenty lineal inches at least, it is indeed most surprising that nothing but adhesive inflammatory action was set up, which was indeed highly necessary for reparation; the non-occurrence of more severe inflammatory symptoms may be not unreasonably traced to the very large amount of blood that had been lost from the wounded side and stump. The detail of the case would also point favourably to the very decided use of opium in similar accidents, which can hardly be given in too large or too frequent doses—a system of practice much extolled by all military authors, from Hennen, Thompson, Cooper, Larrey, &c., down to more recent writers on military surgery in Europe and in the United States.

City of Ottawa, December 21st, 1868.

*Case of complete Extirpation of the Tongue, for Epithelial Cancer* with clinical remarks. By GEORGE E. FENWICK, M.D., Prof. Clinical Surgery, McGill University; Reported by GEORGE ROSS, A.M., M.D., House Surgeon, Montreal General Hospital.

A—R— aged forty-five, was admitted into the Montreal General Hospital, under the care of Dr. George E. Fenwick, on the 18th Nov., 1868, suffering from cancerous disease of the tongue. He is a man of rather full habit and generous mode of life. He has been accustomed to smoke a pipe for many years, but says that he always held the pipe on the *right* side of his mouth, whereas it is the *left* side of the tongue which is diseased. He has always enjoyed excellent health until the commencement of this affection, and there is no history whatever of cancer in the family.

His notice was first attracted to the tongue, in the month of November, 1867, when a small flat warty excrescence was found on the left side of that organ, and about midway between its base and apex. This excrescence was ligatured in January, 1868, by Dr. Grant of Ottawa, having in the meantime increased considerably in size. The base which was left, however, always remained sore and ulcerated, and has continued steadily, though very gradually, to increase in extent from that time until the present. On two occasions profuse hæmorrhage occurred, which was arrested by the use of the per-chloride of iron: this left him in a very weak and depressed state and being anxious to be rid of his malady he determined to seek other advice, and came to Montreal accompanied by his surgeon, Dr. Bell, of Ottawa.

His present condition is as follows: An ulcer is situated on the left side of the tongue; it extends from within three lines of the apex of the organ, getting gradually wider as it proceeds backwards, to within  $\frac{3}{4}$  of an inch of its extreme base; thus involving a triangular surface of about  $1\frac{1}{2}$  inch in length, by  $\frac{3}{4}$  of an inch in width. The surface of the ulcer is unhealthy looking, devoid of granulation, and exudes a copious acrid, thin, very foetid fluid. The margins are raised and extremely firm; nearly cartilaginous. No nodules can be felt in any other part of the tongue, the remainder of the mass seeming soft and healthy. Immediately beneath the ulcer on the floor of the mouth, there is a small spot of the mucous membrane which seems to have taken on the diseased action; as there is here a superficial ulceration, which has obstinately refused to heal. The submaxillary and sublingual glands seem to be quite unaffected, no hardness or change of any kind in them being perceptible.

Since removal of the original outgrowth, the treatment has consisted simply in palliation by means of disinfectants such as washes of carbolic acid, etc.

The disease was diagnosed by Dr. Fenwick, as *Epithelioma*, and a rather favourable prognosis, in case of operation, consequently given.

The Doctor decided to remove the *whole* tongue at once, rather than increase the risk of recurrence by leaving some portion behind, which might possibly be already involved. Dr. Campbell, Professor of Surgery, McGill University, who was consulted, was also of opinion that complete eradication was advisable.

Accordingly on Friday, the 20th November, the patient having been put under the influence of chloroform, the operation was performed by Dr. Fenwick, assisted by Drs. Campbell and Bell, (of Ottawa). The steps of the procedure were as follow :

An incision, about one inch in length, was made below the chin, exactly in the mesian line, through skin, fascia and muscle, down to the floor of the mouth; a very long curved needle in a handle was then passed through this into the mouth emerging to the right of the frænum linguæ and close to the root of the tongue—this needle carried a strong thread to which was attached the chain of the *écraseur*. The chain of the *écraseur* thus introduced into the mouth was passed completely round the base of the tongue, being pressed back as far as possible by Dr. Campbell. The tongue was then transfixed by a strong cord and drawn well forward out of the mouth. The instrument was locked, and constriction immediately commenced. Fifteen seconds was allowed to elapse between each click and at the end of nine minutes and thirty seconds, the separation was found to be complete. The organ was then removed from the mouth by the attached cord and the operation was finished. The bleeding throughout was very slight indeed. On examination of the tongue it seems as if all the parts cut through were quite healthy.

He was put to bed and kept supplied constantly with small pieces of ice in the mouth. By 10 p.m., whatever oozing there had been during the day had entirely ceased.

Saturday, 21st Nov.—No bleeding, but profuse secretion of tough mucus, which is troublesome, requiring to be constantly removed with a swab for the purpose. Swallows freely but with some little hesitation. Pulse 100. Quite cheerful. Ordered.

R̄. Potass. Chlorat. ʒ ii.

Aquæ Oi.

Ft. Gargarisma.

To be fed on beef-juice, brandy and water, and milk.

25th Nov.—The wound looks exceedingly healthy, granulating nicely.

He sat up to-day—can articulate many words distinctly. To use a piece of lint soaked in the following wash as a dressing to the sore.

℞. Acid Carbolico ʒ ii.

Aquæ Oi.

1st Dec.—Leaves the Hospital to day. He can now readily swallow such food as soft boiled eggs, etc. He can articulate wonderfully well, being readily understood in almost anything he says. The wound has nearly all cicatrised over. He started that same evening for Ottawa, having to travel by rail a distance of about 190 miles. He bore the journey surprisingly well, arriving at his home the following day 2nd December, at eleven a.m.

CLINICAL REMARKS.—The operation as here described differs in some minor points from that performed by Mr. Nunneley. Mr. Nunneley transfixes the floor of the mouth midway between the symphysis and hyoid bone, by means of a curved needle, carrying at once into the mouth a wire rope doubled; in the operation as performed by myself, not having a wire rope, and time not permitting to procure one elsewhere, I determined to use the ordinary chain of the *écraseur*; in doing so I felt convinced that the opening beneath the chin would have to be enlarged. An incision was made through the skin and fascia extending downwards from the lower margin of the symphysis to within a line or two of the body of the hyoid bone. The genio hyoid and mylo hyoidei muscles were separated with the point of the finger; having arrived at the mucous lining of the floor of the mouth I transfixed it with a curved needle to the right of the frænum and close to the base of the tongue. The needle carried a strong thread to which was attached the middle of the chain of the *écraseur*, so that the chain was introduced into the mouth double: Dr. Campbell, who kindly assisted me, then slipped the tongue through the loop of the chain, forcing it to the back of the organ, and its substance was transfixed with a piece of strong whip cord, by which he drew it forcibly out of the mouth and a little upwards. I now found that on raising the handle of the instrument the chain was thrown forcibly backwards in the very position which was desired. Having first satisfied myself that it was free of the epiglottis, I drew it sufficiently tight to strangulate the organ, and then proceeded to draw in the chain allowing fifteen seconds between each click of the instrument, being timed by Dr. MacCallum.

Mr. Nunneley uses a strong wire rope, and to prevent its slipping forward, transfixes the base of the tongue with two or three strong pins the points of which are made to protrude on the upper surface of the organ in front of the rope. In this case I was enabled to dispense with

the pins as the chain was sufficiently stiff and unyielding to prevent its displacement forward.

The advantages of this mode of operating over that selected by Mr. Syme, and also that of Professor Regnoli, will be sufficiently obvious. The operation of Mr. Syme, as compared with the above, is of far greater magnitude and must be attended by greater risk or at any rate followed by greater shock. The operation of Regnoli, as described by Mr. Sampson Gamgee, and which he recently performed (vide *Lancet*, Nov. 14th, 1868,) appears to me to be objectionable on several grounds. The time consumed in the operation is considerable, and although the interval between the tightening of the instruments (two *Écraseurs* were used) varied from half a minute to one minute, yet the severance of the organ was attended by alarming hæmorrhage. In speaking of the operation Mr. Gamgee remarks, "with the incision for the submental aperture according to Regnoli's directions, I am quite satisfied, for they fulfil the great indications of giving plenty of room without. Involving considerable vessels or important structures; they permit of the safe administration of chloroform throughout the operation, bringing into view the whole extent of the disease, and place under command the possible sources of hæmorrhage." The extensive muscular detachment is a serious objection to this method of operating as it must to a certain extent interfere with the process of deglutition. The success of an operation very frequently depends on the amount of nutriment you can get your patient to swallow, and as a general rule the rectum is a poor substitute for the stomach. More especially is this the case in a person who has never suffered deprivation of food taken in the natural way, so that having to depend on the back entrance for supply, after a large loss of blood for at least forty-eight hours is placing the patient in a very unfavourable position.

With regard to the vessels involved, they are the same in either case, but placed under very different conditions. By dividing the floor of the mouth and drawing the tongue downwards beneath the chin, it appears to me that the vessels would be sliced obliquely, and the risk of hæmorrhage would be increased, whereas if the tongue is drawn out of the mouth, and its point directed upwards, the vessels would be divided across transversely and the chances of bleeding be very much less, but whether this be the correct interpretation or not, certain it is that in Mr. Gamgee's case the hæmorrhage was extreme, whereas in the case here reported, it did not amount to the loss of a single ounce.

With regard to the safe use of chloroform the operation as here described, did not in any way interfere with its administration, for the patient was placed under the influence of the anæsthetic, before a single



step of the operation was taken, and its action was kept up with facility throughout. I cannot see in what respect the safe administration of chloroform is secured by the operation of Regnoli.

The whole extent of the disease is brought into view as well through the mouth, as by an artificial opening beneath the chin. And with regard to more room being afforded to the operator, it is questionable if there is as much as through the natural opening. The results of this operation so far are most flattering. The patient never suffered from a single bad symptom, and he bore the journey to Ottawa on the eleventh day after the operation without fatigue.

Since writing the above I have heard from my patient through Dr. Bell, of Ottawa. The tongue has entirely healed, he is able to swallow solids, and his speech daily improves. His general health is very good, but on the right side of the neck the sub-maxillary glands have become swollen and inflamed. This is attributed by his surgeon to cold which followed after a drive into the country, but appropriate means are being adopted, and it is hoped that it will gradually subside. I shall give on another occasion a further report of the case.

Montreal, January, 1869.

*Note.*—We give in the Periscope Department, the report of Mr. Gamgee's case, taken from the *Lancet*.

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## REVIEWS AND NOTICES OF BOOKS.

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*A Theoretical and Practical Treatise on Midwifery including Diseases of Pregnancy and Parturition.* BY P. CAZEAUX, Member of the Imperial Academy of Medicine, Professor in the Faculty of Medicine, Paris, &c., &c., &c. Revised and annotated by S. TARNIER, adjunct Professor in the Faculty of Medicine of Paris, &c. Fifth American, from the seventh French Edition. By W. R. BULLOCK, M.D. With one hundred and seventy-five illustrations. Royal 8vo., p. 1124. Philadelphia: Lindsay & Blakiston, 1868.

The work of Cazeaux, on the subject of obstetrics has long deservedly held the foremost rank as a text book or book of reference. The present edition is a translation by Dr. Bullock, of the revised and annotated edition of Professor Tarnier, who undertook the task of editing this work, after the death of Cazeaux. This is the seventh edition of the work, which circumstance alone would speak well for its general appreciation, if indeed we neglected to observe that this work has been adopted by the superior council of Public Instruction in Paris, as holding the

first rank as a classical work, and placed for the use of students in the Maternité Hospital, Paris. In the preface, Mr. Tarnier observes :

“ A classical book soon grows old in these days, and it was found impossible to bring out a new edition without subjecting it to the alterations demanded by the progress of science. I was charged with its preparation, and accepted the honour of the task with a full appreciation of its difficulties. I had never been Cazeaux's pupil, but his book was the first from which I had studied obstetrics, and I had been accustomed to see it in the hands of all my fellow-students, and, at a later period, of my pupils also. Independently, therefore, of my personal observation, I was in a position to become acquainted with its character through others. Thus, together with merited praise, I sometimes also listened to criticisms of its details, and profited by all I heard.

“ I was left at liberty to remodel the work according to my judgment, to make the alterations which seemed to be required, to suppress some passages and to introduce new ones. Out of respect to Cazeaux's memory it was decided that the printing should be done in two kinds of type; the larger for the old text, and the smaller for what I had myself written.

“ The reader will readily distinguish what belongs to Cazeaux and what to myself, but the work has been resolved into a homogeneous body without contradictory annotations. This last result could not possibly have been attained without retouching the old text, by which a new direction and meaning has been sometimes given to the original ideas. Should it be desired to know certainly what Cazeaux's opinions were, it will, therefore, be necessary to consult an old edition.

“ Especially have I made it a duty not to change the spirit in which the work had been conceived; therefore I can say with Cazeaux, that, ‘After a work has passed through several editions, a preface is hardly needed, for its object is then sufficiently well known. The present is more particularly intended for the use of students of medicine and midwife-students, although general practitioners may also, perhaps, gain something by its perusal, for I have endeavoured to make it a condensed summary of the leading principles established by the masters of our art, and for that purpose have drawn from all the works published down to the present day. My position in the lying-in hospitals has enabled me to test the value of the doctrines put forth by former authors; and I have adopted as true all which my daily experience has confirmed, and have rejected unhesitatingly, from whatever source they came, all such as were disproved by the numerous cases brought under my observation, confining myself to quoting, without comment, those whose value I have been unable to determine.’”

The plan of this work has been remodeled, so that it may be regarded as altogether new. The chapters are grouped into eight parts. In the first part are considered the female generative organs, in which will be found not only a minute description of the female organs concerned in the generative act, but also the physiology of these parts. In the next section are considered the various changes, which occur throughout the pregnant state. The perusal of this section will repay any man; written in clear and lucid language, it will be found to contain all that is known of those wonderful changes which occur from the moment of conception up to the birth of the off-spring. In part three, is discussed the subject of natural labour, and we notice that the author devotes much space in pointing out the duties of a practitioner to careful attention to both mother and child. These are minor points, or at least considered as such, and seldom touched upon in works on obstetrics. In part four is considered the Pathology of Pregnancy. In this section will be found a full description of the various lesions to which the pregnant woman is liable.

Under the general heading, Dystocia, will be found in part five, a full description of the various complications which render labour difficult, or which delay the passage of the child into the outer world. In part six, will be found two chapters on the influence of ergot on the child and mother; also, a chapter on the effect of bleeding and debilitating regimen on the development of the child.

Part seven, contains a full and perfect description of the various surgical operations which the obstetrician is sometimes called upon to perform; and, in part eight, will be found some excellent hints on the hygiene of children, from birth to the period of weaning.

We cannot close this notice, without giving full credit to the publishers, who have done their part in the highest style of art. The type is clear, and the paper superior. The engravings are very well executed. It would be fulsome to say more in praise of this edition of this standard work, save alone to recommend it highly to all who desire a good practical guide—and an interesting work for a leisure moment.

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*The Laryngoscope in Diseases of the Throat; with a chapter on Rhinoscopy. A manual for the Student and Practitioner.* By SIR GEORGE DUNCAN GIBB, Bart., M.D., L.L.D., Assistant-Physician and Lecturer on Forensic Medicine, Westminster Hospital. Third Edition, pp. 158. London: Churchill & Sons, 1868.

The Laryngoscope in diseases of the throat has become of such general use that no practical man can be without it. Sir Duncan Gibb has

devoted much of his attention during the last five years to the subject of throat diseases. He was the first man in England who instituted investigations into the use of the Laryngal mirror, and followed up the subject with assiduity. The result of his labours was the production of a manual on throat diseases which was well received by the profession at the time, since then he has produced the present *brochure* which is in every way worthy of its author, and has done much to call public attention to the use of the Laryngoscope, so that it has become at the present day a necessity in the hands of the practitioner. For this alone he deserves the thanks, if not the support of his fellow workers in the field of science. Being personally acquainted with the worthy Baronet and knowing his habits of industry and system, we were much disappointed at seeing so little change in this the third edition of his work on the Laryngoscope; as we feel convinced there are many practical hints with which any worker with that instrument must become familiar and which would be advantageously embodied in the work before us. Knowing full well the limited time that a practical man has at his disposal, we can make every allowance for this neglect, if so harsh a term can be with justice applied, for we regard this third edition as quite up to the times, and as offering to the physician a good practical guide to the employment of this very useful instrument in affections of the throat. We notice in the preface that the author says "the time has been so short since the publication of the second edition—a little over a year—that it has afforded scarcely any opportunity for the introduction of additional matter into the present edition, bearing upon the subject of which the volume professes to treat." We think the author would have rendered the book more attractive had there been embodied in it a few illustrative cases which are always well received and of which we feel certain he has an abundant supply. We can confidently recommend this book to the practitioner and student as a safe guide to the use of the Laryngoscope.

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## PERISCOPIC DEPARTMENT.

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### Surgery.

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#### ON REMOVAL OF THE ENTIRE TONGUE.

By SAMPSON GAMGEE, F.R.S. (Edin.), Surgeon to the Queen's Hospital, Birmingham.

Little more than twenty years have elapsed since a surgeon so bold and skilful as Mr. Liston spoke and wrote of ovariologists as "belly-

rippers," who deserves to be criminally indicted whenever they again attempted the operation of ovarian extraction; which he regarded as a hopeless, nay barbarous, procedure. On the experience of several hundred cases, ovariectomy is now established as one of the most legitimate operations of surgery.

Removal of the entire tongue for cancer has been frequently attempted, and several times accomplished; but the result has been so generally unfortunate, that Mr. Gross can scarcely be said to have exaggerated the verdict of judicious surgeons when he concluded a brief survey of methods for the removal of the tongue with these words:—I have certainly not alluded to this operation with a view of recommending its adoption; on the contrary, it cannot be too strongly condemned. If there is any operation in surgery that deserves to be stigmatised as cruel and unnecessary, it is this."\*

With this opinion before me, supported as it was by such experience as Mr. Syme's, I did not, as I do not still, accept as conclusive the evidence on which the great majority of surgeons condemn removal of the entire tongue as an unjustifiable operation; I deem their reasons insufficient, since the researches on which they are based, pathologically and bibliographically, are scanty, superficial, and inadequate. As a rule, matters are little studied which do not offer a prospect of speedy profitable return. When ovariectomists were, in the graphic language of Mr. Liston, styled "belly-rippers," the anatomy, diagnosis, and clinical history of ovarian disease were little studied: for the prospect had no allurements.

Without further introduction, I shall condense from the copious notes of our resident surgeon, my friend Dr. Robert Jolly, the history of a case in which I lately removed the tongue—with no better result, I hasten to avow, than most of my predecessors; but, I hope the event may prove with this difference: that the case will become the starting point and basis of an inquiry which may, at no distant date, result in a definitive settlement, after comprehensive inquiry, of the merits and demerits of the different methods of removing the tongue, wholly or in part.

*History of case.*—Henry S.—, aged fifty two, a labourer, was admitted into the Queen's Hospital, from Stratford-on-Avon, on the 25th of August last. The patient, a spare-built but florid-looking man, was married, and the father of seven living children. He had always enjoyed excellent health up to twelve months last past, when he began to experience shooting pains in the ear and down the neck. Shortly afterwards his tongue became sore, and on examining it he found a small, well-defined, roundish lump with ulcerated surface, on the left side of the tongue. It has continued to extend ever since, and has occasioned great

pain and difficulty in swallowing. About three months after its first appearance he applied to a medical man, who extracted two sound teeth in the lower jaw because they hurt the tongue. Five months later (four months before admission) the disease began to spread with considerable rapidity, and bled very much. When first seen by me, the patient had a deep excavated ulcer, of oval shape, involving the anterior two-thirds of the left side of the tongue. The edges of the ulcer were thick, raised, everted, and irregularly notched; its floor was foul, and studded with pea-shaped, tuberos granulations, discharging a thin, ichorous fluid. There was great fetor of breath, and profuse salivation. No implication of structures at the floor of the mouth, or apparently of neighbouring glands. General health much impaired, in consequence of inability to take solid food.

A great variety of means were employed with a view to improve the general health and the character of the ulcer, but as they all failed, I operated on the 3rd of October. The patient having been previously shaved, was placed upon a table, and rendered completely insensible with chloroform administered by Mr. Snow and Dr. James Hind. The shoulders being raised and the head well thrown back, standing on the right side of the patient I made a semilunar incision along the base of the lower jaw, commencing at the symphysis, and extending it outwards on either side to a point just anterior to the facial artery. A second incision was carried vertically downwards from the centre of the jaw to the hyoid bone, at right angles to the first. The triangular flaps thus marked out (consisting of skin, areolar tissue, and the anterior fibres of the platysma myoides) were directed down. A narrow-bladed knife was then thrust in the mesian line close behind the bone, from below into the mouth, and swept along the inner surface of the lower jaw, as far as the posterior limits of the first incision, to divide the attachments of the muscles and the buccal membrane. An opening of sufficient extent being thus effected into the floor of the mouth, the tongue was drawn down upon the anterior part of the neck, and secured by my friend and colleague, Mr. J. F. West. The tongue being raised, I thrust a narrow bladed knife through the raphé from below, just in front of the hyoid bone, into the mouth. Withdrawing the blade, I passed one by one two *écraseurs* through the wound, fixing one on the right half of the tongue, the other on the left, just in front of the anterior pillars of the fauces; the left one was tightened clearly, though only a couple of lines, behind the posterior limits of the disease. My colleagues, Mr. Furneaux Jordan and Mr. J. St. S. Wilders, took respective charge of the left and right *écraseurs*, tightening each alternately, at intervals varying from half a

minute to a minute. Though the process of division was slow, no sooner did the éraseurs become detached than a large quantity of blood welled out of the wound, and the patient became very pale. I introduced my thumbs into the fauces, bringing forward the mucous membrane and grasping it together with the flaps which had been dissected down from the submental region. I thus attained two objects: compressing the bleeding surfaces and bringing the tongue well forward; the flapping epiglottis was in full view, and the risk of blood entering the trachea was averted. The surface of the wound and the stump of the tongue were immediately mopped with styptic colloid, a triangular lump of ice held in the mouth with a pair of forceps, long hot flannel stocking slipped on the arms, a hot blanket wrapped round the legs, and a brandy injection at once administered per rectum. After all oozing had ceased, the patient was carried from the theatre to the ward, where another brandy and beef-tea injection was given at once.—3 P.M. (three hours after operation): Reaction fully established; skin hot and moist; pulse 120, full; temperature  $102\frac{1}{5}^{\circ}$  respiration 36. Injection of beef-tea and brandy to be continued every two hours.—7 P.M.: Pulse 134; temperature  $104^{\circ}$ ; respiration 28. The glazed flaps were gently brought together and made to meet by silver sutures in the transverse line; the vertical incisions was likewise approximated above, the lower angle being left open for free escape of secretions.

Oct. 4th.—9 A.M.: Passed a comfortable night; slept at intervals; no bleeding. Pulse 104; temperature  $100\frac{3}{5}^{\circ}$ ; respiration 32. Injections to be continued every fourth hour.—10 P.M.: Hæmorrhage rapid and profuse from the mouth. The quantity lost must have been considerable, for not only was the pillow saturated with blood, but a good deal was spilt on the floor. Dr. Jolly stanchied the flow by steady pressure on both carotids for about two minutes, which produced instant syncope. A short time after a warm water and brandy injection the circulation became more developed, and there was no recurrence of the bleeding.

5th.—Free from pain; wound looks well, and is for the most part healed. Thirst relieved by moistening his lips with ice; drank a cup of milk this morning. Pulse 110; temperature  $101\frac{2}{5}^{\circ}$ ; respiration 28.

6th.—Had an opiate last evening; nevertheless the night has been somewhat restless. Pulse 124; temperature  $102\frac{2}{5}^{\circ}$ ; respiration 24. Injections discontinued. The patient takes a cupful and a half of milk every four hours. To correct fetor of breath the following gargle was ordered (and to be kept iced): Chlorate of potash, one drachm and a half; borax and honey, one ounce; rose water, two ounces; to eight ounces of water.

7th.—Wound looks perfectly healed, except at lower angle of vertical incision, where the secretions from the mouth escape. Pulse 118, temperature  $100\frac{2}{3}^{\circ}$ ; respiration 32. Altogether the patient is going on most favourably. To have two or three eggs daily, to be beaten up with milk which is taken freely.

8th.—Was frequently disturbed during the night by cough, which was relieved by mustard plasters to the chest. At times the man wanders, but speaks collectedly when aroused. Pulse 116; temperature  $100\frac{2}{3}^{\circ}$ ; respiration 28. Takes milk, arrowroot, and calf's-foot jelly freely.

9th.—Passed a restless night. Faced flushed; expression of countenance anxious. Wound has opened up again along the base of the jaw, stitches removed, and strapping applied. There is a considerable swelling below and behind the angle of the jaw on the left side. Pulse 128; temperature  $101\frac{1}{3}^{\circ}$ ; respiration 24.

10th.—Was restless during the night, and the stomach became exceedingly irritable, event to frequent vomiting. Ordered a draught, containing two drops of hydrocyanic acid, in a little mint water, which remained on the stomach; in an hour afterwards also to take some warm brandy and water. Feels very low. Pulse 128, soft and feeble temperature  $101^{\circ}$ ; respiration 30.

11th.—Worse: debility increasing; features sunken; pulse 138, scarcely perceptible. Temperature  $100\frac{3}{4}^{\circ}$ ; respiration 38.

12th.—The patient gradually sank and died at 2 A.M. this morning.

*Examination of the tongue.*—As I had the pleasure of seeing Mr. T. H. Bartloet at the operation, I directed the tongue to be sent to him for examination. From the note with which he subsequently favoured me I take these facts: that, on looking down on to the dorsum of the tongue, the right side appeared perfectly healthy while the left side presented a foul excavated sore, reaching posteriorly to within one-eighth of an inch of the line of incision, on the under surface to within two lines of the raphé, on the upper surface to within three lines of the middle line. The disease extends nearly to the tip. The left side of the tongue is greatly thickened, being an inch and a half in depth, while the healthy side is barely three quarters of an inch. Nearly the whole surface of the left of the tongue consists of an ulcer, with the edges sinuous and undermined, foul and sloughy. The diseased part was horny on section. On cutting horizontally through the tongue, tubercular nodules were seen extending from the deeper parts of the ulcer towards the median line, and apparently resting in healthy tissue. These nodules were firm, and of a yellowish-grey colour. On microscopic examination of the juice obtained from a surface of the section, it was found to contain nucleated



cells of the size of blood-cells, and free nuclei; also large epithelial cells of various shapes, with two or three nuclei each, some of the cells being spherical, others ovoid, fusiform, or polygonal. A thin section showed irregular nucleated cells, lying side by side, and held together by fine fibres. Some of the cells contained oil-globules, and appeared shrunken. There were no distinct broad cells filled with large nuclei, and no laminated corpuscles.

*Autopsy*, Oct. 15th.—Stump of tongue in a healthy state; but the soft parts forming the floor of the mouth were in a very sloughy condition. Corresponding to the swelling behind and under left angle of jaw was an indurated lymphatic gland, a section of which presented characteristic cancer cells. Thoracic and abdominal organs perfectly healthy. Lungs crepitant throughout, sections from both bases floating well on water.

The rapid enlargement of the gland beneath the jaw after the removal of the tongue was a striking fact, though not noticed during life, the gland must have been slowly on the increase some time; and the malignant deposit with which it was infiltrated somewhat lessens regret at the poor man's speedy death, for he could not have survived the glandular disease many months. Such a complication militates against the operation, but, even if suspected, would not necessarily be a bar to it. Most surgeons have amputated limbs and removed other parts where the neighbouring lymphatic glands have been enlarged, but they have regained normal dimensions on the subtraction of the irritating cause. We can never be certain that such will be the case but the risk must often be taken, in the absence of special indications to the contrary.

With the incisions for the submental aperture according to Regnoli's directions I am quite satisfied, for they fulfil the great indication of giving plenty of room without involving considerable vessels or important structures; they permit of the safe administration of chloroform throughout the operation, bring into view the whole extent of disease, and place under command the possible sources of hæmorrhage. Prof. Regnoli ligatured the stump of the tongue in several portions before he excised, and his case made an excellent recovery; it was not until four years later that cancer returned in the tonsils and proved fatal. At the foot of my copy of Regnoli's pamphlet I find this note, made in Florence the 15th of April, 1852: "The author told me the day before yesterday that he has performed the operation six times; only one of the patients, an old woman, died after a few days. He does not know what became of the other four cases that survived."

With the *écraseur* I was not satisfied, and should not employ it again

in a similar case. The bruising it inflicts is an evil only tolerable if the use of the instrument guarantees safety from hæmorrhage. The patient lost a good deal of blood during the operation, and would have died from secondary hæmorrhage the next day but for Dr. Jolly's prompt compression of the carotids. The *écraseurs* were certainly not tightened quite so slowly as M. Chassaignac directs: but Foacher has recorded a case\* of partial removal of the tongue by two *écraseurs* worked at intervals of one minute, so that fifty minutes were required to effect the section; nevertheless, hæmorrhage was so profuse as to necessitate ligature of the external carotid.

The merit of the operative method followed in this case, and of that which Professor Syme, Mr. Fiddes, and Dr. George Buchanan† have practised, after the examples of Maisonneuve,‡ Huguier,§ Sédillot,|| and Rizzoli,¶ is a question for experimental solution. These surgeons have all divided the soft parts in the middle line through the lip to the hyoid bone, commanding the tongue by sawing through the symphyses of the jaw. In order not to interfere with voluntary deglutition, Mr. Syme divided the hyoglossi, but kept intact the genio-hyoidei and the mylo-hyoidei—an economical provision very deserving of notice.

Notwithstanding Mr. Nunneley's successful case\*\* of removal of the entire tongue by ligature passed from the under chin, and his advocacy of the *écraseur* introduced through a submental opening—a suggestion to which the cases of Arnott, Mirault, and others give countenance,—I incline to the opinion that, if the entire tongue is to be excised at all, it must be brought into full view, so as to command efficiently the limits of the disease and the sources of hæmorrhage. Cancer of the tongue is a disease so painful and fatal, the application of caustics and partial excisions offer so little promise, that the radical procedure merits further consideration with a view to judicial settlement of its propriety and plan. No cases remind one more than these do of the wise saying of the old Paris academicians: "L'opération n'est qu'un point dans l'exercice de la chirurgie." No cases stand in need of more precise pathological investigation, wider bibliographical research, and closer statistical scrutiny.—

*Lancet.*

\* Quoted in THE LANCET, 1863, vol. i., p. 79.

† THE LANCET, 1860 to 1866.

‡ Gazette des Hôpitaux, 1862, p. 568.

§ Abeille Médicale, N. 31, Novembre 5, 1851.

|| Traité de Médecine Opératoire, tome second, p. 35. Paris, 1855.

¶ Processo per la Demolizione della Lingua. Memoria del Professore Francesco Rizzoli. Bologna: Tipidi S. Tommaso d'Aquino, 1854.

\*\* THE LANCET, vol. ii, 1861.

## FRACTURE OF THE PUBES, ETC.

BY J. WARING CURRAN, L.R.C.S.I., L.K.Q.C.P.I., ETC, SPALDING, LINCOLNSHIRE.

On the 20th ult. I was summoned as one of the medical officers of the Great Northern Railway Company, to visit one of the men who was injured near the Spalding junction. I found him lying by the side of the metals, supported by some of our officials. He was pale and shivering, quite conscious, but suffering the most agonising pain, which he particularly referred to the lower and right half of the abdomen; the stocking covering the right leg and foot was saturated with blood, which coagulated in its texture, and from the amount of deformity presented by the thigh of same side, together with other unequivocal symptoms, easily determined the existence of fracture of right femur at junction of lower with middle third. After the administration of a restorative, I had him carefully conveyed on a stretcher to his lodgings, when I was enabled to make a more exact examination. On the removal of his trowsers, &c., I observed a large lacerated wound fracturing the inner malleolus, and extending over the dorsum of the foot, exposing the bones of the tarsus; the posterior tibial was divided, but the crushing nature of the injury, produced by a truck-wheel passing over the foot, prevented much hæmorrhage. The fracture of the femur was at once apparent, the upper fragment being tilted upwards and forwards, the inferior backwards and outwards. The upper part of the thigh and lower of abdomen was ecchymosed and grazed. At this stage I was met by Dr. Ancell Ball, the other medical officer of the Company, with whose assistance I reduced the fracture and dressed the foot. Our chief anxiety was concentrated on the abdomen, over which the wheel passed. The bladder I relieved by catheter, the introduction of which required some little ingenuity, as there seemed a pouch in front of the prostrate, giving the feeling that the instrument was in the bladder. To find the passage at the posterior part of this manœuvring and patience were necessary. On the fourth day after the accident gangrene of the foot set in; and at a consultation held with Dr. Cammack, J.P. (the eminent surgeon), and Dr. Ancell Ball, we came to the conclusion that operation was out of the question, owing to the extensive abdominal injuries. The poor fellow died on Sunday morning last, and, in company with the above gentlemen, I made a *post-mortem* examination. The tissues over the pubes and right iliac region were infiltrated with effused blood: the pubes were fractured on both sides,—on the left side the horizontal ramus three-quarters of an inch *from* the symphysis, and on the right side the descending ramus was broken half-an-inch above its junction with the ascending ramus of the ischium. This is the most interesting feature

in the case, and attracted the attention of all three, that in an individual not quite twenty-one years of age the pubes should not have yielded at the line of articulation, as the cartilages were not ossified. Instead of fracturing in the strongest part of the bone I removed and made a preparation of the bones, which shows the cartilages uninjured. The triangular ligament was torn, and the anterior surface of the walls of the sigmoid flexure of the colon and upper-third of the rectum was infiltrated with blood, and presented a bruised appearance, but no laceration existed. We never were able to set up a satisfactory reaction, or rally him from the shock which he sustained.—*Med. Press and Circular.*

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#### CARBOLIC ACID IN CUTANEOUS DISEASE.

My object in citing the following cases, is to call the attention of the profession to the efficacy of carbolic acid in the treatment of diseases of the skin, particularly those which are known to depend upon, or are accompanied by, the development of any of the forms of fungi. I am not aware that this hydro-carbon has been used before, in the treatment of disease, except as a disinfectant.

CASE I.—*Chronic Eczema.* The patient, a child six months old, nursed by its mother, a young and apparently healthy woman. Eruption first appeared upon the scalp, when the infant was two and a half months old. The nurse applied olive oil, cleansing the head daily with Castile soap and tepid water; the eruptions, however, progressed rapidly, and when I first saw the child, namely three and a half months from the time the disease commenced, not only the head but the entire trunk and extremities presented a most pitiable appearance. The thin, soft incrustations, more broad than prominent, of eczema impetiginodes, occupied the head, back, chest, and limbs, while here and there a fresh group of vesicles of eczema simplex pointed out most pathognomonically, the true nature of the eruption. The evacuations were variable, sometimes of natural colour, at others persistently green, and always very acid, as shown by litmus; on examination by microscope, they were found to contain milk corpuscles in abundance, mixed with casein, that separated by the lactic acid of the stomach, had passed into the duodenum undigested, and mingling with the bile, had drifted through the intestinal canal. The urine was examined chemically, and by microscope; it was highly acid, depositing urates freely; a few drops evaporated on a glass slide gave glomeruli and isolated crystals of uric acid. The serous exudation beneath the incrustations was also highly acid. The milk from the mother of the child was also carefully examined; it contained an

abnormal quantity of lactic acid, though the corpuscles did not coalesce, it gave an acid reaction to neutral litmus. Under the influence of thoroughly alkaline treatment, namely, baths with bicarb. soda, and bicarb. potass. internally, three times per day, in quantities sufficient to completely neutralize the acid reactions of the dejections, urine, and serum from the eruption, (an alkali was also given to the mother,) so rapid was the improvement, that within ten days, the scalp was free from disease, and the irritation of the surface everywhere much abated.

Fresh groups of eczema simplex, however, continued to be reproduced upon body and limbs. I then determined to try the effects of carbolic acid as a parasiticide, having recently tested its power in the destruction of the penicillium glaucum, and torula cerevisiæ; accordingly, a solution containing half a drachm of carbolic acid in four ounces of water, was applied three times per day, to the eruption. The effect was immediate; the vesicles disappeared promptly, producing a slight exfoliation, and did not return, except a few groups about the neck, which two or three applications of the solution removed.

CASE II.—*Impetigo*. The patient was a child of ten months old, of strongly strumous diathesis; the psudracious pustules were developed upon the upper lip, and about the mouth, while from the nares issued a sanious and very acrid discharge. The carbolic, same strength as before, was used freely upon the eruption, and the nares were also injected with the solution; the effect was quite as marked as in the former case, the pustules withered, and soon altogether disappeared, leaving the skin free from irritation.

CASE III.—*Psoriasis inveterata*. Two years standing; the patient a stout girl fifteen years of age, body and limbs covered with the eruption. Ordered Donovan's sol. Carbolic acid to be applied every morning in proportion of one part of the acid to four of water, body to be sponged with Castile soap and warm water, prior to its application. In three weeks from the date of the first application, not a vestige of the eruption remained. How far the Donovan's solution assisted in producing this rapid convalescence from one of the most obstinate of all cutaneous diseases, I leave others to judge.—*N. Y. Med. Jour.*

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#### ACUTE SYNOVITIS OF KNEE-JOINT; SUPPURATION. TREATMENT BY CARBOLIC ACID.

By T. HAMILTON, M.D., F.R.C.S.E.

On Monday, the 22nd of June last, I was called to see I. M.—, a young woman aged twenty-two. She told me that whilst at work three

days before she was seized suddenly with pain in her left knee, which swelled soon afterwards. Since then the pain and swelling had increased. I found the joint much swollen and red, with distinct fluctuation on each side. Ordered hot fomentations and rest. During the next three days she continued in much the same state.

On Friday, June 26th, as suppuration had evidently taken place, having previously dipped the knife in a strong solution of carbolic acid, I evacuated between six and eight ounces of pus, by incisions about an inch and a half long, on each side of the joint. I allowed the matter to escape under what Mr. Lister has termed the antiseptic veil. A paste of carbolic acid, linseed oil, one part to three, and whiting, was applied to the wounds on lead paper. (I could not obtain tin-foil.) Slight pressure was placed on the sac of the abscess, by two pads of lint on each side of the joint, with a bandage.

Next day I found the patient free of all pain. Pulse 80. Had slept well. On removing the dressing, a little bloody serum escaped, but no pus, and since then none has come from the wounds.

For the next four days I applied the carbolic paste, but each day weaker.

July 1st.—Swelling entirely gone. No pain. No discharge. Wounds superficial, and nearly healed. Slight excoriation of the neighboring cuticle, from the action of the carbolic acid, for which I applied water dressing.

This case requires no comment. The rapid cure was, without doubt, due entirely to my having adopted the plan of treatment suggested by Professor Lister: and I would venture to say, that under no other form of treatment, at present employed, would so satisfactory a result have been obtained in six days from laying open the joint.

To-day (July 2nd), though I still keep the joint comparatively at rest, the patient can move it freely without the least pain.—*Lancet*.

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## Medicine.

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### A CASE OF APHASIA, WITH REMARKS.

By CHARLES C. LEE, M. D., Attending Physician to the Charity Hospital, etc.

In the January and April numbers of the *Psychological Journal* for the present year, appeared two highly interesting articles on the pathology of aphasia. In the first of these especially, which was an able and exhaustive *résumé* of the subject by Dr. E. C. Seguin, of this city, an

appeal was made to the profession to place on record additional cases, that, by the comparison of a more extended series of observations, a nearer approach to solving the vexed question of aphasia might be reached. With this object I offer the following case, which occurred during my service last summer at the Charity Hospital :

Case.—John W—, aged 52, was admitted to the Hospital for herpes zoster, August 16th. Upon examining him the following day, I was at once struck by his inability to articulate, which was the more striking in contrast with his intelligent expression and the readiness with which the tongue was extended. He understood perfectly all the questions put to him, and, on being asked how long he had been speechless, he counted on his fingers "one, two, three," etc., up to ten years, naming the numerals in succession; but no effort on his part could compass the expression "ten years" without counting on his fingers. He said "Yes" and "no" without difficulty, and answered correctly by those monosyllables all simply affirmative or negative questions. The reading and writing power was quite lost, although he could formerly write with ease; but there was not the slightest hemiplegia either of motion or sensation. The case was, therefore, apparently one of the second grade of aphasia, according to Trousseau's classification, viz., amnesia of speech and of written language, without loss of gesture. With some difficulty the following history was elicited, partly from the patient himself and partly from his wife.

Ten years ago, while in seemingly good health, he was seized with convulsions during sleep; these lasted for two hours, and were epileptiform (as described), being followed by stertorous breathing and partial coma for three days. There was also retention of urine during these three days, after which the patient gradually regained his normal health, with the exception of defective vision of the *right* eye and entire loss of speech. His memory was also for a long time impaired, but now seems restored. He has never been able to read or write since the date referred to, and can now only say "yes" and "no," and count up to ten. The right eye is sightless, and presents the sequelæ of general ophthalmitis: the globe is "boggy" upon pressure, which produces no scintillations, and no sympathetic irritation has existed in the left.

No cardiac disease or fatty degeneration could be detected, nor were the arteries atheromatous—no *arcus senilis* in either eye; the patient's appetite was good, and his habits moderately active. His gait was erect and steady, and, as above stated, not the faintest evidence of hemiplegia existed. These points were verified by repeated examinations, and the record is transcribed from notes taken at the time.

The patient soon recovered from his attack of herpes, which was treated in the usual manner, and was then placed on the use of bromide of potassium, more for the purpose of keeping him under observation than with the expectation of any therapeutic result.

In a short time, however, he became dissatisfied—alarmed, doubtless, by the amount of attention he received from his physicians—and insisted on leaving the hospital, whence he was discharged September 2, 1868. The case is still under my observation, and exhibits at the present date no change from the condition described.

The most noticeable feature in the above case is the length of time (ten years) the aphasic condition has lasted. Both the patient and his wife are positive in fixing the date of his seizure in 1858, which makes the duration ten years without such an advance of the cerebral diseases to cause hemiplegia. This, however, is not without precedent; for one of the two cases, upon which M. Broca ventured to propound his remarkable localization of the faculty of language, was a patient of Dr. Auburtin who had been speechless for twenty years. At the autopsy of this case the lesion was found in the left frontal lobe, but was not limited to the third frontal convolution.

It is no part of the object of this paper to discuss the literature of Aphasia. This has been thoroughly done by Dr. Seguin, whose record includes all that has been published on the subject from the time when Bouillaud located the faculty of speech in the two anterior lobes of the brain (1825), to the present date, with one exception. We allude to the essay of Dr. Albert Carrier,\* which contains an excellent historical sketch of the subject, with an analysis of the cases of Fabret, Hughlings Jackson, Vulpian and Charcot, Lancereau, etc., and details some heretofore unpublished. Dr. Carrier is a strong partisan of Broca's doctrine, in spite of Trousseau's and Gratiolet's able arguments to the contrary, and seems to throw some grave doubts upon the priority of Dr. Marc Dax's essay. The author also makes an elaborate and ingenious effort to explain the frequent association of aphasia with disease of the left cerebral hemisphere, based upon Gratiolet's observations of the more rapid development of the left frontal convolutions than those of the right side; but he seems so warm an advocate of M. Broca's views as to be unable to judge the question impartially. *New York Medical Journal*.

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\*Etude sur la Localisation dans le Cerveau de la Faculté de la Langue articulée. Par le Dr. Albert Carrier. 1867. Paris: Baillière.



## ON THE PATHOLOGY AND TREATMENT OF ACUTE RHEUMATISM

BY JOHN C. PETERS, M.D.

Acute rheumatism is attended with profuse *acid* secretions from the skin; by the excretion, in some cases, of large quantities of lactic, uric, and sulphuric acids through the kidneys; and by a highly fibrinous condition of the blood.

Dr. Prout was the first to suggest that all the phenomena of rheumatism might be referred to the presence of *lactic acid*, developed too abundantly in the system; but Dr. W. B. Richardson has absolutely proved that an excess of this acid induces all the pathological phenomena of the disease. He injected strong solutions of lactic acid into the cavity of the peritoneum of animals, and found them to excite well marked endocarditis, with inflammation of the cardiac valves, and copious deposits of fibrin upon them, attended with affection of various joints and metastasis, so that first one joint suffered, then another, and again the heart. Distinct sclerotitis was also observed several times.

The questions naturally arise how does lactic acid originate in the system, or how is it introduced, and how is an excess of it brought about?

Lactic acid, both in its free and combined state, occurs very frequently, and perhaps invariably, in the gastric juice, as a component part of that secretion; and its physiological value in aiding in the digestion of nitrogenous food is by no means inconsiderable. In fact, in association with free hydrochloric acid, it so essentially contributes to the digestive power of the gastric juice, that no other acid, mineral or organic can replace it.

Again, the acid reaction which the contents of the small intestines always present, depends mainly on the presence of lactic acid; and crystals of lactate of lime have repeatedly been obtained by Lehman. It has been found that the free lactic acid in the small bowels materially assists in promoting absorption of the digested food into the alkaline blood, in accordance with the well known laws of endosmosis.

The fluid secreted by the large intestine and lower portion of the ileum is always alkaline, except in disease, and neutralizes any ordinary excess of acid which reaches it.

The lactates are also constantly present in the chyle, especially during the digestion of amylaceous food; and a large portion of the lactic acid found in the stomach, bowels, and chyle, owes its formation to the starchy and saccharine part of the food undergoing a change similar to that which takes place in the fermentation of milk. The sugar which is formed in the liver is also converted into lactic acid. In fact, before

the sugar and starch of the food can be applied to the maintenance of animal heat, they have first to be converted into lactic acid, which then combines, in the blood, with oxygen, to form carbonic acid and water. Whatever interferes with the latter part of this series of normal changes leads to the accumulation of lactic and other allied acids in the system, and may develop rheumatism.

But the blood is always *alkaline* in the healthy state, and the immense amount of acid, which is conveyed to it from the stomach and bowels, through the lacteals, must be disposed of almost immediately. How this is done is proven by the experiments of Lehman. He repeatedly injected lactate of soda into the jugular veins of dogs, and found that in five, or at the latest, in twelve minutes, the urine became alkaline, showing that the lactate had been oxidized and converted into a carbonate in that short time. Day also tells us that it is well known that lactic acid may collect abnormally in the blood in such quantities as to be detected chemically, when the normal oxidation in that fluid is prevented.

But free lactic acid re-appears again in the muscles, and in fact exists normally in the muscular fluid in such large quantities that Liebig believes that they are more than sufficient to saturate the alkali of all the the alkaline fluids of the body. Some believe that combined lactic acid is separated from the blood and becomes free in the muscles; others think that the major part of the muscle lactic acid must be considered as a product of the metamorphosis of the muscular fibre, a view somewhat confirmed by the fact that the amount of free acid in the muscles is proportioned to the extent to which they have previously been exercised.

The lactic acid which so abundantly formed in the muscles can be carried off by no other channel than by the lymphatics. But the lymph, like the blood, is alkaline; and when incinerated, its ashes have been found to yield much carbonated alkali. Hence the lactates should become combined, oxidized, or converted in the lymph as rapidly as is the case in the blood. If they do not do this, an excess of lactic acid will arise in this direction, and some or all the phenomena of rheumatism may ensue.

Schottin and Lehman deny that lactic acid ever occurs in normal or even in morbid perspiration, although other chemists maintain that it does. However this may be, it is well known that large quantities both of *acetic* and *formic* acids are always found in ordinary sweat, and that a chill of the surface or a check of perspiration throws back into the circulation a large quantity of acid which should have been eliminated from the skin. It is equally well known that acetic and formic acids are closely allied to lactic acid, and Fuller has long maintained that the poison of rheumatism is identical with some natural excretion of the skin.

Until these views of the nature of rheumatism are disproven *alkalies* must form the basis of its treatment. Other remedies may prove more or less useful, and occasionally successful, but never very reliable. The alkaline treatment, which was originally suggested by Brocklesby in 1764, has always had its advocates, and never more than at the present time. When alkalies are wisely and freely given, rheumatic patients soon lose their pains and proceed rapidly towards convalescence; the pulse is generally tranquillized in forty-eight hours, and the pains are lulled in twenty-four more, especially if the excess of acid has been so thoroughly neutralized that the urine becomes alkaline.

In the earlier stages of the disease, before the patient becomes utterly helpless, the bowels should be freely moved and the liver well acted upon. All refuse of food should be purged away, and every gross contamination of the stomach and bowels should be obviated. When the disease is at its height, purging is cruel, if not injurious; for then the patient presents a pitiable spectacle of helpless suffering. He lies on his back often, unable to raise a hand or move a foot without excessive suffering, he is generally obliged to be fed and assisted in every operation of nature. The best preliminary  $\frac{1}{2}$  purge is one or several of White's pills, composed each of hydrarg. submur., gr.j; ext. colchici, gr.ss-j; ext. aloes, gr.j; pulv. ipecac, gr.ss; to be taken at night, and followed by several drachms of Rochelle salts in solution. Then Rochelle salts, which are made by adding cream of tartar to a solution of carbonate of soda, should be given in drachm or half drachm doses, night and day until the urine becomes alkaline. When thus given they rarely purge, but merely neutralize the excess of acid in the system and act upon the kidneys. At first they may be given in simple solution in water; if they become distasteful, and cause flatulence or debility, some aromatic water or alkaline stimulant may be added, thus:

Sodæ potassio tartratis, oz.j, aquæ menthæ viridis, *vel* cinnamoni, oz.viiij. Dose: 1 or two tablespoonfuls every four hours.

Sodæ potassio tartratis, oz.j; aquæ, oz.vi-vij; syrupi zinziberis, oz.ij. Dose: as above.

Sodæ potassio tartratis, oz.j; aquæ, oz.vj-vij; liquor ammoniæ anisatæ, *vel* spiritus ammon. ar. dat., oz.ij. Dose: as above.

Sodæ potassio tartratis, oz.j; sodæ sesquicarb., *vel* magnesiæ carb., oz.j; aquæ, oz.vj; tinct. lupulini, oz.ij. Dose: as above.

The *phosphate of soda* is almost as useful as the potassio-tartrate, and perhaps more so in debilitated and scrofulous subjects. It has very little taste, and is one of the best solvents of *lithic acid*, and may be given to rheumatic patients whenever there is an evident excess of lithates. The

dose is the same as for Rochelle salts, or one ounce may be put in a pound of beef tea and consumed in the course of the day.

When there is an excess of *uric acid*, *colchicum* is one of the most important remedies. It promotes evacuation by the kidneys, prevents the formation and increases the excretion of uric acid, and exercises a specific influence whereby the formation of the rheumatic poison is checked. It is, however, far less efficacious in the weak and nervous than in the robust and plethoric, and of much more value when synovial rheumatism predominates than in the purely fibrinous variety. It should be given in non-purgative doses of from 5 to 15 drops, from two to four times a day.

*Aconite* is a most useful remedy when the perspiration is deficient, or of a non-specific character. If perspiration does not occur the pains are always excessively severe; if it ceases unexpectedly the constitutional symptoms are all increased. The perspiration in rheumatism should be acid, reddening litmus paper, and of a disagreeable sour odour. The *materies morbi* is obviously got rid of by this kind of sweating, and the natural cure of the disease is effected in part by these profuse sour-smell-perspirations. This, says Aitken, is nature's cure of the disease. It may be somewhat wasting and enfeebling, as excessive perspiration always is, but it is highly sanative also; and is only useless when it is not of this characteristic sour description. *Aconite* acts upon the skin as specifically as *colchicum* does upon the liver and kidneys, and often relieves rheumatic fever and pain far better than opium. Like *colchicum* it has some peculiar curative relation to the rheumatic process, and it is exceedingly doubtful whether it ever relieves fever, inflammation, or neuralgia which is not based upon or connected with a rheumatic taint. From three to five drops may be given three times a day, in combination with the Rochelle salts and *colchicum*.

In those cases in which opium must be given to allay the severity of the suffering, it will often aid in producing perspiration, and thus help the elimination of the disease. The acetate of morphine is a convenient preparation and may be given in combination with the acetate of potash, omitting the other alkaline remedies.

Morphice acetatis, gr.ij-iv; potassæ acetatis, oz.j; aquæ, oz.vj; solve, and add syrapi limonis, oz.ij. Dose: 1 or 2 tablespoonfuls every two or three hours.

When the fever is excessive, potassæ nitratis, dr.ij; tinct. aconit acid, dr.j; spts. nit. dulc., oz.ij; aquæ, oz.iv; syrapi limonis, oz.ij. Dose: 1 or 2 tablespoonfuls, every two or four hours.

Lemon juice is a citrate of potash, and may be used freely. Even the

citric acid tends to the formation of urea and carbonic acid in place of uric acid.

When the disease is located in the feet or hands, they can be soaked frequently in a warm alkaline foot or hand bath.

A mixed alkaline and anodyne solution applied as a fomentation is the most certain and useful in allaying the pain and inflammation. One ounce of carbonate of potash may be dissolved in twelve ounces of water, to which one ounce each of tincture of opium and aconite root should be added, and four ounces of Cologne water.

Vichy water should be used freely as a common drink.

Sleeping in blankets, according to Chambers, reduces by three-fourths the risk of inflammation of the heart in rheumatism, diminishes the intensity of the fever, greatly lessens the danger from any other complication and does not protract convalescence.—*Medical Gazette*.

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#### ON THE DETECTION OF LUNG-TISSUE IN THE EXPECTORATION OF PERSONS AFFECTED WITH PHTHISIS.

By SAMUEL FENWICK, M.D., Assistant-Physician to the London Hospital, late Assistant-Physician to the City of London Hospital for Diseases of the Chest.

Upwards of twenty years ago Schroeder van der Kolk discovered that the sputa of persons affected with phthisis frequently contained particles of lung. Some time afterwards Dr. Andrew Clark also observed and published the same fact. The method of examination adopted by each of those pathologists was nearly the same. The expectoration was poured upon a flat surface, and any particles that seemed likely to contain the elastic fibre were picked out with needles and placed beneath the microscope. Considerable care and experience were, however, required for this procedure, and the physician could never be certain that some portions of the lung-structures had not been overlooked. Whilst engaged in experiments on this subject, it occurred to me that if the mucus of the expectorated matters could be liquefied, any fragments of pulmonary tissue enveloped therein would be deposited, as the salts of lithic and oxalic acids are, in the urine. This anticipation proved to be correct; for I found that, when the sputa of persons suffering from consumption were boiled with soda and allowed to stand for a short time, particles of the elastic fibre of the lung were precipitated. The results obtained by the examination of the expectorations of one hundred real or suspected cases of phthisis were published in the forty-ninth volume of the Transactions of the Royal Medical and Chirurgical Society, and it was proved that fragments of pulmonary elastic fibre can easily be detect-

ed in the sputa whenever ulceration of the lungs is progressing. I have during the last three years had constant opportunities of testing the value of this means of diagnosis, and I trust that the conclusions at which I have arrived may prove interesting and useful to the profession.

It will be readily understood that some alteration in the appearance of the lung-tissue is produced by both the disease and the alkalinesolution; nevertheless recognition of the various tissue-elements is a simple matter. In some instances the particles are so small that they seem like a few fine fibres disposed in a circular or semi-circular manner; in others, whole pulmonary vesicles can be recognised, or a number of such cells may be seen united as an irregular fragment. The larger bronchial tubes undergoing disintegration are occasionally represented by a simple layer of membrane; but the smaller tubes yield portions of considerable length, exhibiting their branching arrangement. In the majority of cases we meet with all these different forms of lung structure in a single specimen of expectoration; and we may estimate the rate at which the disease is progressing by counting the particles.

The number of cases analysed in the present paper is 141. In all of them I have recorded, in my notes, the history, general symptoms, physical examination of the chest, and the microscopical examination of the sputa. As the cases are taken without selection, they fairly show what amount of assistance the physician may expect to derive from this method of diagnosis.

There are no cases of phthisis more difficult of diagnosis than those in which that disease is associated with inflammatory affections of the air-passages. In such the microscopical examination of the sputa has often proved of the greatest value, and in a few minutes has decided the diagnosis.

I have notes of 23 cases of bronchitis in which phthisis was suspected either from the general symptoms or from the examination of the chest. In 11, lung-tissue was found in the sputa. Three of these ceased to attend the hospital shortly after the date of examination, but the subsequent history of the remainder proved that consumption was present. Of the 12 in which pulmonary elastic fibre was not found, 6 shortly ceased to attend, and the remaining 6 proved to be cases of uncomplicated bronchitis. As far therefore as can be ascertained, although the general symptoms and the examination of the chest gave uncertain results, the microscope had distinctly indicated the nature of the disease in all.

When phthisis occurs in persons who have for many years suffered from chronic catarrh the diagnosis is often very difficult. The reason-

ance on percussion in the upper parts of the chest may be abnormally clear from the existence of emphysema, and auscultation frequently fails to reveal positive signs of the presence of tubercle. The following case is an example of this form of disease, and shows the value of microscopical examination of the sputa.

A man, thirty-two years of age, had been subject to cough for six years, and had suffered from hæmoptysis two years before his admission as an out-patient at the Victoria-park Hospital. There was no dulness on percussion; dry rhonchus could be heard over the whole of the anterior part of the chest, and moist râles were present at the bases of the lungs. The expectoration in twelve hours amounted to seven drachms of thin, watery fluid; but when examined microscopically a considerable amount of pulmonary elastic fibre was found.

I have notes of a number of cases of this description, in which the use of the microscope has been of value, and whose subsequent histories have confirmed the truth of the diagnosis. In the following no lung-tissue could be discovered in the expectoration, although the general symptoms seem to indicate phthisis more clearly than in the case I have just quoted.

A woman, five months pregnant, had suffered from winter cough for eight years, but for a few months had rapidly lost flesh and strength, the cough being very severe and the expectoration copious. I believed I could detect a slight deficiency in the resonance on percussion in the right subclavicular region. There were mucous râles in the anterior parts of the chest, with harsh inspiration at the base of each lung. I could find no lung-tissue, but the symptoms were of so suspicious a nature that I examined the sputa again after a fortnight, but with the same result. She steadily improved under treatment, and at her last visit she reported that her cough had disappeared.

In the next cases phthisis was suspected chiefly from the appearance of the patient and the severity of her symptoms.

A woman, forty-one years of age, had been subject to bronchitis for five years; but had been much worse than usual during the four months preceeding her visit to me. There was rapid loss of flesh and strength, severe sweatings, and profuse expectoration. Pulse 120. I could discover no dulness; but there were mucous râles at the base of each lung. No lung-tissue could be found in the sputa. She remained for some time under treatment, with but little improvement; and when she ceased to attend, I suspected that she suffered from phthisis, although the microscope, as well as the auscultation, had failed to detect ulceration of the lung. Two years afterwards she returned with a similar attack, having in the meanwhile been healthy.

It is often difficult to diagnose phthisis at an early stage, when, along with the physical signs of bronchitis, the larynx is diseased. The indications presented by the vocal resonance are not to be obtained; and, if there be no distinct dulness on percussion, one is left in doubt as to the nature of the case. The difficulty is still further increased if the occupation of the patient has exposed him to the action of dust, or to the prolonged use of the voice.

An omnibus conductor, thirty-seven years of age, came under my care in July, 1866. He had loss of voice, with cough and little expectoration, for two months. Pulse 85. I fancied I could detect a slight diminution in the percussion note below the right clavicle; but of this I could not satisfy myself. The only sign on auscultation was a dry rhonchus diffused over both sides of the chest. He brought to me the expectoration of three mornings, which only amounted to seven drachms of thin mucus. The microscope showed forty-one pieces of lung-tissue in it. Hæmoptysis occurred two weeks afterwards, and his pulse rose to 96. In December, 1866, he had lost in weight 7 lb., and the dulness below the clavicle was distinct. He remained under observation until, the following May, but was greatly emaciated when I last saw him.

A carman, twenty-seven years of age, complained of cough and expectoration for six months, with a loss of voice of three months duration. There had been no hæmoptysis; pulse 108. There was no dulness on percussion, and no sign on auscultation, except some mucous râles at the lower and posterior part of the lungs. There was therefore no evidence of phthisis; but in five hours he expectorated five drachms of brown-coloured opaque, tenacious mucus, in which the microscope detected fifty-eight fragments of lung-tissue.

Phthisis is often ushered in with an attack of pleurisy. In such cases the development of the signs of consumption is frequently very gradual, and it is only by careful attention to the history of the patient that a correct conclusion can be arrived at. I have notes of some cases of pleurisy in which the slowness of convalescence led to the suspicion of tubercle, but no lung-tissue could be found in the sputa; in all, the subsequent histories proved the disease to have been of a simply inflammatory nature. The following case, however, will show in a positive manner how valuable the microscope may be in the detection of ulceration of the lung.

A man, aged thirty-three years, had been subject to cough for fifteen years, and for six weeks had suffered from pleurisy. The microscope detected twenty-seven particles of pulmonary tissue in the sputa. The effusion slowly disappeared. Four months afterwards mucous râles were



detected below the left clavicle. He remained under observation thirteen months, and during the latter part of that time presented all the ordinary symptoms of phthisis.

A striking case of this kind occurred, in which particles of lung-tissue were found in the expectoration. The patient recovered from the pleurisy, the cough disappeared, and he ceased to attend the hospital. Many months afterwards he reappeared, with well-marked signs of phthisis.

I have never detected any pulmonary structure in the sputa of persons affected with uncomplicated pneumonia, although we might imagine that minute portions of lung might be thrown off in this disease. In the following case the microscope enabled me to predict the approach of consumption before any evidence of the presence of tubercle could be obtained by auscultation.

A lady had been suffering from pneumonia of the left lung for three weeks before I saw her. She had been losing flesh and strength, but had no cough before the attack. Neither of the medical gentlemen in charge of the case nor myself could detect any evidence of tubercular deposit in the opposite lung. The expectoration was profuse, but no lung-tissue could be discovered in it. Three weeks afterwards, hearing that she was recovering very slowly, I requested that another specimen of her sputa might be sent to me, and in this numerous particles of pulmonary elastic fibre were found. Some time afterwards physical signs of consolidation were detected at the apex of the right lung, and she died of phthisis eighteen months after the commencement of her illness.

This case shows that we ought not to trust to a single examination of the sputa when the results are of a negative character, but should repeat it from time to time if the symptoms be of a nature to cause a suspicion of phthisis.

From the above facts, there can be no doubt that microscopical examination of the sputa is of great value in all cases where phthisis supervenes on, or is connected with, inflammatory affections of the lung or pleura. But the question may occur to some who have not practised this means of diagnosis—How can the microscope detect pulmonary ulceration so long before its presence is revealed by the stethoscope? The following experiment will give some idea of the delicacy of the test:—

One-tenth of a grain of lung-tissue was divided by needles into ten parts and one-hundredth part of a grain thus obtained was placed in the expectoration of a person affected with bronchitis, which had been proved by previous examination not to contain elastic fibre. The mucus was

liquefied by boiling with a solution of pure soda, and the mixture was then poured into a conical vessel. The particle of lung was easily removed and examined with the microscope. But as this fragment of lung consisted of from twenty to thirty air-cells, and as the presence of elastic fibre can be determined by means of the microscope in half or in even a smaller part of a single air-cell, it is evident that it may be possible in this way to detect from the four-thousandth to the six-thousandth part of a grain of pulmonary structure in the sputa of persons suffering from phthisis.

Practically, we never have to seek for so minute a quantity of elastic fibre in a specimen of expectoration. I only quote this experiment to show that, as we have the means of detecting pulmonary tissue in such minute quantities, we may reasonably assume that we will be able to obtain evidence of ulceration of the lung long before the destruction of the organ has advanced far enough to produce signs that can be recognised by the stethoscope.—*Lancet*.

## VENTILATION.

By HENRY MACCORMAC, M.D.

The question of ventilation is far from being exhausted. In ventilating, the great object to aim at, is to render the house air, particularly the night house air, pure as is the air outside the house. I say by night in especial, because by day the nose and other organs of apprehension are awake, whereas by night they are asleep. By day the waking man can more or less take care of himself, while by night he is helpless and defenceless comparatively. If he go to bed in tainted air, he breathes this tainted air, the long night through. If it be tainted when he lies down, it is tainted tenfold when he gets up. People, some people, say that night air is unwholesome. What do they mean. Can they exclude night air? Is not all air by night, night air. Oh, but say these people, we sleep in a big room, we have plenty of air. But what signifies how much air you have if it be bad air, unwholesome air; will the mere bigness of the enclosure make it good. Can any air prove wholesome that is not renewed. Will the air in the remoter parts of the room, the unbreathed air, come over of its own accord to your lungs and suffer itself to be breathed. It will not do so any more than the loaf will come to be eaten or the book to be read when it lies there. You just breathe more or less the same stagnant air which subsists about you, let the room be never so large. It needs movement, constant movement, to renew the atmosphere and render it effectively safe and wholesome. It needs the window to be pulled

down by night, and nothing less in these regions, at least as houses are at present constructed, will suffice.

Two expedients may be resorted to in order to promote ventilation. By the first expedient there is the ordinary chimney opening below. But above this is a dwarf wall, or septum if you will, composed of six inch majolica or other tiles set in a suitable bronze or iron frame, and secured with ornamental bolts and nuts at the intersections. This frame, the top of it, should rise four or six feet above the grate. Above, there is a second opening regulated by a concealed valve covered by a handsome mantel piece. This arrangement, or something similar, minus the valve, subsists in a rude but effective fashion in many of the farmers' houses in the north of Ireland; and it is pleasant on going into these farmhouses to find how well the ventilation, so far as the kitchens and dairy ventilation are concerned, is promoted. A person may stand or sit before the fire and feel that the ventilation is satisfactory above the height of his head in either case.

The second procedure which may be conjoined with the first, has never in its entirety been set forth before. And should it ever come to secure general adoption, I trust that those who in this case are to benefit by it will not omit to connect the arrangement with the originator. Imagine then a good, plain, low, straight-barred grate, with or without splayed sides, and an iron, copper, tin or terra cotta back. Behind this back is a hot-air chamber communicating by one or more openings of—say two feet—joint section, with the open air. This chamber should otherwise be of sufficiently large dimensions, and communicate by other openings with the living room,—for example: the back of the room, the joint sections of the warm-air openings or outlets being equal to the joint sections of the cold-air inlets, the whole in every case being under the control of slide valves. In the fire-front there is an ornamental bronze or metal screen (electro-plate would look well,) in two valves or slide doors running on rollers, one to one side, the other to the other side behind the chimney jambs, the ornamental apertures of the screen being fitted with thin green or other glass, or Russian tale. In the thick of the wall on each side of the fireplace a duct or ducts are to run to the ceiling, terminating behind the perforated cornice above and below, one on each side of the fireplace, in grated openings so arranged, the screen in front of the fire for the time being closed, as to supply the fire with the foul air of the apartment as drawn down from the ceiling and, *pari passu*, to fill the room with tempered air, that is to say, air tempered to 50° or 60° of Fahrenheit. It would not be needful to keep the screen or screens constantly closed, but only sufficiently so, and sufficiently open to cheer up the fire.

and effectively ventilate the apartment with tempered air. A cheerful fire I say would result with more or less complete ventilation, as well as perfect safety. Our sitting and bedrooms might thus be provided with renewed and tempered air at once by night and day, coupled with every beautiful, artistic, and healthful appliance besides.—*Medical Press and Circular*.

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#### COMMENTARY ON FIVE CASES OF PROGRESSIVE LOCOMOTOR ATAXIA.

By ROBERT BARTHOLOW, M.D., Prof. of Materia Medica and Therapeutics in the Medical College of Ohio.

Two years ago I reported in this Journal an interesting and instructive case of Progressive Locomotor Ataxia. Four other cases have come under my observation since that time. I propose now to analyse these cases, to show in what respect they differ amongst themselves, the points of agreement, and the significance of the phenomena which they present.

I am the more induced to make these observations, for the reason that this disease is frequently confounded with paralysis, by those who ought to know better. "Is progressive locomotor ataxy a distinct disease from general paralysis?" was a question recently proposed for discussion by a State Medical Society. Such a question indicates a want of acquaintance with the essential phenomena of this disease. Progressive locomotor ataxia, consists in the loss of the power to coördinate muscular movements, the muscular force being in the main preserved. This definition is exceedingly unlike that of paralysis.

Duchesne's division of progressive locomotor ataxia into periods, is a natural one, and has been followed by the most influential writers, except Lockhart Clarke. He divides the disease into three periods: "the first is characterized by three symptoms—pains, ocular derangements, and anaphrodisia; the second, by disorders of locomotion and of sensibility in the inferior extremities; and the third, by the extension of the same disorders to the upper extremities." It will be convenient, in the analysis of these cases, to follow this arrangement.

Two of these cases are citizens of Cincinnati; one resides in Cleveland, O.; one in Boston, Mass., and one in Covington, Ky. To avoid repetition and to prevent confusion, I propose to designate them by numerals.

PROFESSION. No. 1, is a gilder and looking-glass frame maker. No. 2 is a retired merchant, but is yet engaged in the supervision of large property interests; No. 3 was for many years employed as railroad con-

ductor, but was compelled to relinquish this employment two years ago; No. 4 is a merchant in the leather trade, as manufacturer and wholesale dealer; No. 5 is a manufacturer and dealer in tobacco.

*Age at which the Disease manifested itself. Temperament and constitutional Peculiarities.* The disease commenced in No. 1, at 35. He is 5 feet 5 in. in height; has a light complexion, light auburn hair, blue eyes and the lymphatic temperament. The first symptoms manifested themselves in No. 2, at 40 years of age; he is now 65. He is 5 feet 8 in. in height, of nervous temperament; has blue eyes, and his hair now gray, was originally auburn. No. 3 experienced the first symptoms at 43; he is now 46. He has also a fair complexion, blue eyes, and light auburn hair. No. 4 was 42 years of age when he began to experience the pains; he is now 45. He is 5 feet 10 in. in height, and has a dark complexion, dark eyes and black hair. No. 5 experienced his first symptoms at 37, ten years ago. He has reddish hair and beard, blue eyes, and a strongly marked nervous temperament.

There is no history of constitutional disease in any of these cases. No hereditary tendency to nervous diseases appears to have existed in the direct or collateral branches of any of their families. The father of No. 4, was rheumatic and gouty—the only instance of an apparent predisposition to this disease in this collection of cases. Topinard\* concludes, as the result of his investigations, that the only diathesis which can be considered as having any relation to this disease, is the rheumatic.

**SEXUAL DISORDERS.** It has been frequently affirmed, that sexual excesses are causative. It is difficult to obtain exact information on this point. So far as I have been able to learn, these patients were not different in this respect from other men in the same position in life. Trousseau† has made an observation which illustrates this question. He has shown that in some of these cases, the first symptom has been an extraordinary increase in the sexual appetite. This fact has probably given rise to the belief that the ataxia and other phenomena, were produced by the sexual excesses. More or less decided increase in the sexual appetite, occurred in these five cases, in the very beginning. This was especially the case with No. 1, in whom this symptom more conclusively than in the others, marked the origin of the disease. He was and is now, I believe, unmarried. The others are married, but it is a notable fact, that they ceased to *beget children* when the first symptoms commenced.

\**De L'Ataxie Locomotrice et en particulier de la Maladie appelé Ataxie Locomotrice Progressive.* Paris, 1864, p. 371.

†*Clinique Medicale de L'Hotel Dieu de Paris.* Tome Deuxieme, p. 534, et seq.

**SYMPTOMATOLOGY AND DURATION OF THE FIRST PERIOD.** No. 1, had satyriasis, spermatorrhœa, tingling and numbness of the feet and legs, and amaurosis and double vision. The satyriasis was soon succeeded by anaphrodisia and impotence. The dimness of vision and the double vision, suddenly disappeared at the commencement of the second period. He did not experience those peculiar pains so commonly present in this disease. The whole duration of the first period, commencing with the satyriasis, was only three months. The symptoms of the first period in No. 2, were similar in character, but extended over a much longer period. The state of the sexual appetite in the beginning, could not be accurately ascertained, but anaphrodisia soon occurred, and absolute impotence was the final result. Violent pains, supposed to be rheumatic, preceded the other symptoms. These pains are localized in the inferior extremities, and especially in the left hip, so that disease of this articulation was suspected. No derangement of vision occurred at any period. No. 3 experienced, for more than a year, sharp pains in the extremities, and also deep-seated pains in the trunk, before the ataxia manifested itself. These pains, being sudden in onset, fugitive in character, and irregular in their recurrence, were supposed to be neuralgic. A decided decrease in sexual desire, and imperfect sexual congress were observed, but complete anaphrodisia did not occur. Dimness of sight, but no other ocular trouble, has thus far been present in this case. In No. 4, two years of neuralgic pains preceded the other symptoms. The pains had the two characters so frequently noticed in this disease: the first, deep-seated, dull, and heavy, pretty nearly constant; the second, sharp and sudden, temporary. The dull and heavy pains experienced in the lumbar region, in the thighs, and certain parts of the trunk, preceded the others, which attacked the legs and thighs. No ocular derangement occurred in this case. Spermatorrhœa, anaphrodisia and impotence, however, were experienced early. No. 5 began to have pains in the lumbar region in 1857, and soon after severe attacks of neuralgia along the course of the sciatic. These were succeeded by sharp, sudden, and fugitive pains in both inferior extremities.

The patient compares these pains to electric shocks. Anaphrodisia and spermatorrhœa did not occur until two years after the pains had been experienced. He admits that at the present time he is completely impotent. Derangements of vision manifested themselves in two years after the commencement of his malady. These consisted in amblyopia and double vision. They disappeared suddenly—in a night, he says—after continuing for several months.

SUMMARY. Pains, present in.....	4
"    absent in.....	1
Ocular troubles, present in.....	3
"    "    absent in.....	2
Anaphrodisia, etc., present in.....	5

**SYMPTOMATOLOGY OF THE SECOND PERIOD.** In No. 1, difficulty of locomotion and abolition of sensibility in the inferior extremities, quickly followed symptoms of the first period. Numbness and tingling of the feet were coincident with the ataxia. Almost immediately after the occurrence of these sensations in the feet, the distribution of both ulnar nerves became similarly affected. Loss of cutaneous sensibility and ataxia commenced in No. 2, in two years after the first symptoms declared themselves. They have not, after a lapse of twenty-five years, extended to the upper extremities. The first period in No. 3, was one year in duration. Ataxia and alterations of sensibility occurred in both extremities simultaneously, but were much more marked in the inferior. No. 4 has experienced muscular and cutaneous anæsthesia in the legs and thighs for two years, but ataxic phenomena are just beginning to appear. In No. 5, ataxia commenced in the third year of his malady, about the same time that cutaneous anæsthesia was observed.

Considerable variations are thus shown to exist in the duration of the several periods, and in the order of succession of the phenomena; but the phenomena themselves are remarkably uniform in character and manifestations. It will be unnecessary, therefore, to particularize the symptomatology of the second period as exhibited in each case.

As the most striking and obvious symptom is the *ataxia*, we may consider this first, without sacrificing the unity of the subject. It is a curious fact that when the disorders of locomotion began in each case, the patient was suspected of drunkenness. The peculiar oscillating gait of those afflicted with this disease, is well calculated to make this impression. The ataxia consists, of course, in a loss of the power, or in a difficulty to combine the muscles necessary to execute a given movement, but the muscular force is not lost. In each of my cases the muscular force was preserved. This is the case in the patient in whom ataxia of the inferior extremities, had existed twenty-five years. When he walks, supported on each side, his toes are pointed upwards, his legs describe a semicircle, and the heels strike the floor with great violence. When the leg is flexed on the thigh in either of my cases, considerable force—the patient exerting his will—is necessary to extend it. In other words, there is no paralysis of motion, but a disorder of voluntary movement—a loss of coördinating power.

The disorders of sensation are amongst the most curious phenomena of this disease. The sense of pain is abolished; the sense of touch and of temperature abolished or perverted. These points are well exhibited in No. 3. Pinching of the skin with the points of the æsthiometer, excited in him a sense of coldness, but not of pain. The others may be pinched or pricked in the affected parts, without occasioning the least pain. A very peculiar sensation is described by No. 4. The brushing of his legs by a lady's dress, produces a sensation of pain, whilst a pin may be thrust in deeply without occasioning the least uneasiness. In addition to the anæsthesia, and the singular aberrations of sensibility, various referred sensations are experienced, of which, numbness, tingling, "fidgets," and sudden shocks of a painful character, are the most notable.

The sensibility of the muscles to pain and to the electrical current, is also abolished. These patients are deprived of the "muscular sense," and hence are unconscious of the position of the feet, unless they have them under observation. An exception to this statement must be made, however, in the case of No. 4, in whom the ataxia is just beginning to develop itself. The others are unable to stand with the eyes closed, but when they make the effort, oscillate from side to side, and finally fall.

SUMMARY.	Tactile sensibility abolished in.....	5
	"    "    present in.....	0
	Sensibility to temperature present in.....	2
	"    "    abolished in.....	3
	Sensibility to pain, perverted in.....	1
	"    "    abolished in.....	4
	Ataxia developed in.....	4
	"    appearing, but not developed, in.....	1
	Muscular sense abolished in.....	4
	"    "    not abolished in.....	1

THIRD PERIOD. Two only of these patients have passed into the third period—No. 1 and No. 3. N. 1 became unable to tie his cravat, or use a knife and fork, and No. 3 has now great difficulty in accomplishing these movements. There is no difference in the character of the phenomena in the different situations in which they are exhibited.

RESULTS. A result has been reached in one case only—in No. 1, who may be considered cured, after five months of treatment. The next are illustrating the long continued and progressive character of this singular affection.—*The Western Journal of Medicine.*

PHOSPHORUS IN LOCOMOTOR ATAXIA.

Dr. Dujardin Beaumetz has given phosphorus in the manner above described in four well-marked cases of loco-motor ataxia. In all the



cases a decided improvement took place; the step taken became less uncertain, the power of co-ordination was improved, and the patients were enabled to take long walks and to go up and down stairs.

The general sensibility was not affected by the treatment, except in one case, in that it was improved.

The eyes, which were more or less affected in all the cases, were not benefited by the treatment.

In addition, it was curious to observe, as one of the effects of phosphorus, in all the patients, a general contentment, a peculiar feeling of well-being, which made them desire the continuation of the treatment after they had once been submitted to it.—*N. Y. Medical Journal.*

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## MEDICAL NEWS.

### ANECDOTES OF MALGAIGNE.

A good tale or two is told of Malgaigne in the *Gazette Medicale de Lyon*. "How do you proceed," he asked a candidate, "in performing the operation of extraction of cataract?" "I—I," hesitatingly replied the youth, "empty the anterior chamber." "Very well; and next?" The candidate, seeing himself thus encouraged, and believing himself to be on the right road; "And then I empty the posterior chamber!" "Capital; and then?" "I—I—I—" Why, you stick up a bill, *chambre à louer.*" In the next the candidate was evidently a sharper fellow than this noodle. Malgaigne, interrogating him upon the rotation of the stomach in its conditions of vacuity and repletion, and on the relative gravity of the organ in these two different conditions, in order to put the question more precisely, said, "Now, sir, if you were called out to fight a duel, would you think it more prudent to breakfast before or not?" "By my faith, sir," replied the other, "I would breakfast before, because I could by no means be sure of being able to do so afterward." The last we give in the original. Examining a would-be *officier de santé*, he asked him how he would proceed for the extraction of the placenta. "Je tirerais sur le cordon." "Et après?" "Je tirerais sur le cordon." "Bien, mais si rien ne venait?" "Je tirerais plus fort sur le cordon!" "Eh! Monsieur, une portière en ferait autant que vous."—*N. Y. Med. Journal.*

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### HOW TO UTILIZE LEECHES.

The German doctors have lately been playing their leeches a droll trick—making one worm do the work of many. When the little blood-sucker has taken his fill and is about to release his bite, he is tapped; a small

incision is made in his side, that serves as an outlet for the blood, and he goes on sucking, in happy ignorance of the cause of his abnormal appetite, as long as the doctor pleases. Bdellotomy is the name given to the practice, and it is urged that it is not cruel, but contrarywise, since it does the leech a good turn by enabling him to enjoy his rich feast indefinitely. He does not die under the operation, but with proper treatment is soon healed, and may be incised over and over again. There was once an alderman who wished he had been a camel, that he might have been blessed with the seven stomachs vouchsafed by nature to that animal. If such a gourmand still exists, let him seek surgical aid in some such treatment as that practised on the leeches, that he may eat and drink *ad libitum*, and feel no worse.—*Once a Week*.

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#### CASE OF POISONING BY CYANIDE OF POTASSIUM—RECOVERY.

Professor Taylor relates a case in *Guy's Hospital Reports*, for 1868. It occurred, as these cases usually do, to a photographer. The amount taken was estimated to be about three to five grains, dissolved in about two drachms of water. Immediately after swallowing it, he discovered his mistake, and had the presence of mind to follow it with about a half ounce of saturated solution of protosulphate of iron, and then hastened to a chemist's, in the neighbourhood, and took a mustard-emetic, which latter produced a tardy and incomplete emesis; so that it is altogether probable that he owed his life to the prompt administration of the sulphate of iron, which converted the cyanide and free hydrocyanic acid into insoluble Prussian blue. Three grains of cyanide have been known to produce death, especially when dissolved in water, where the conditions for rapid absorption are extremely favorable.—*Exchange*.

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#### POISONING BY THE ABSORPTION OF CARBOLIC ACID.

E. S. Machin, Esq., communicates a case in the *British Medical Journal*, for March 7th, where three persons in the workhouse had been dressed with carbolic acid instead of sulphur lotion for the itch. The patients were women aged respectively 23, 60, and 68 years.

The acid had been applied to the entire surface. A few moments afterward they complained of smarting pain and headache, after which they were taken with giddiness, and rapidly became insensible. The girl aged 23, and her mother aged 60, died in the course of forty hours. The third patient rallied in about four hours, and recovered in a few days. No post-mortem was made. The acid used was Calvert's carbolic acid for disinfecting purposes, and was, in appearance, dark and oily. About 6 ounces were used in "dressing" the three cases.—*Exchange*.

# Canada Medical Journal.

MONTREAL, JANUARY, 1869.

## THE ONTARIO MEDICAL BILL.

The *Dominion Medical Journal* in an article published in its December number, advocates the establishment of a central medical board of examiners. Laying aside every other consideration we regard this bill as unjust, and interfering with the vested rights of old and well established institutions. These institutions could have no reasonable ground of complaint, if an act were passed giving the General Council of Medical Education powers of supervision. The right of being present at the examinations is already accorded by McGill University, if not by other institutions, to parties interested in those exercises. These examinations are not with us conducted in a corner, and the University has every reasonable ground for opposing the degradation of its status. There can be little doubt that depriving the teaching bodies of examining their students is wrong in principle, and will lead to laxity, if not the admission into the ranks of the profession of a number of indifferently educated men.

With all due deference to the five members of the committee who "belong to no clique, but are simply gentlemen in country practice in the Province of Ontario," we hold that even they although earnest and good men, are not as capable of searching out the knowledge or deficiency of a candidate for medical honours, as any five men taken from the teaching body of the profession. They may think so of themselves, for it is a characteristic of most men to have an unbounded good opinion of their own abilities. The Local Parliament in Ontario have no power to legislate in any way against the vested rights of the Colleges and Universities in Great Britain. These vested rights are secured to them by the amended imperial medical act of last session, so that any bill passed by the Local Legislature of Ontario interfering with that Act, will have to be reserved for Her Majesty's sanction before it becomes law.

In alluding to an article which appeared in the November number of this journal, in which we stated that the mass of the profession in Ontario is opposed to the formation of a central medical board of examiners,

the *Dominion Medical Journal* remarks, "we say advisedly, in reference to such statements, that the great mass of our profession in Ontario, with the exception of a few connected with the schools, are in favour of a central board of examiners." This narrows itself down to a question of assertion as it is in direct contradiction to the statements made by us and from which we do not depart. We have means of knowing the sentiments of many of the leading men of the profession in Ontario and furthermore are personally known to a large number of men throughout that Province, men with whom we have come in contact professionally during the last twenty-five years, and we repeat that the assertion of the *Dominion Medical Journal* is simply incorrect. We do not wish to hint that the editor of the *Dominion Medical Journal* has willfully hazarded a mis-statement, but simply that he is not aware of the feelings and opinions of the Profession in Ontario on this question of a central board.

In our last number we stated that the members of the Medical Council had surreptitiously introduced the bill and we have good cause of complaint against them in having endeavoured to introduce into the House and pass through its several stages a bill having such serious influence for good or evil, without having followed the usual course of making public by advertisement their intention so to do—and why, we would ask, this secrecy? If it is a good thing, the profession in Ontario could have no objection to its introduction, but if, as it will, as surely as it becomes law, lower and degrade the profession in that Province, the right thinking members of the profession would oppose its introduction. This was well known to the framers of that bill and they could not afford to allow the terms of the bill to leak out, until after its sanction. Indeed so secretly and jesuitically was this managed, that it was by mere accident it came out at all; even the corresponding Editor of this journal, who resides in Toronto, was not aware of its existence in the early part of the month of November, and the writer could not procure a copy in Toronto, a friend of his informed him that there were no copies of the bill printed. This we know to be an error, as we had seen a printed copy, but they were so few and far between, that one could not be procured for us as public journalists. But we have done with the matter, and all we can say is, pass the Bill gentlemen and welcome, but as a graduate of a Canadian University we could not do less than utter a warning cry of shame at the five members of the Medical Council, some of whom are graduates, but who do not shrink from seeking to degrade their Alma Mater, and in doing so depreciate the value of their own diploma.

## THE "GOODENOUGH" METHOD OF SHOEING HORSES.

We have selected the following important article from the columns of the London *Times* and we fully endorse the views herein contained, as we have always regarded horse-shoeing as practiced generally, to be a species of torture of a dumb animal :

Among the stir and bustle of an age of progress, the art of shoeing horses may be said to have remained in its infancy, little noticed by the general public and the despair of those whose duties or interests rendered them familiar with the evils consequent upon the accepted methods. Cavalry officers and veterinary surgeons have been well aware that the shoes of a horse are the sources of many, if not of most, of his maladies, and have sought to diminish the ill effects of shoeing by various modifications of pattern and of nailing. The inventors of such modifications have generally been compelled to admit that the successful application of them was dependent upon the careful observation of many minute particulars, and have been unanimous in placing the blame of failure upon the shoulders of the farrier, whom they described as a man too ignorant, or too prejudiced, or too careless, or too awkward for the proper performance of a task which their instructions would render one of extreme delicacy. Unfortunately, the farrier was indispensable; and the manifest nature of his calling was such as to require qualities with which more or less of ignorance and prejudice is usually found to be associated. Hence the comparative ill success of the methods of Coleman and others was supposed to be due to the want of the skilled labour required for their proper application, and horsemen, especially in the provinces, have generally been content to put their trust in the practical tact of the farrier reputed to be the most skillful in his district. The result is not only that unsoundness is lamentably frequent, but that the natural action of a horse is almost unknown. The London hack or the brougham horse of second quality, goes over the stones with a gait like that of a man in tight boots, and with very imperfect security of foothold, until, while still in the vigour and prime of his natural life, he is degraded, by artificially-produced unsoundness, to the tradesman's cart or the cab-rank. In the omnibus-horses of the metropolis, called upon as they are for moderate speed with heavy loads, the effects of bad shoeing are even more readily apparent. The horses of the London General Omnibus Company are always less than seven years old at the time of purchase. They are well fed and well cared for, and their work is a journey of twelve miles daily, with, in any case, one day's rest in every three weeks, and more if their condition seems to require it. The average duration of their fitness for work is only four years, and seven per cent. of them are always upon the sick list. It is not too much to say that they can

never assume a natural position. Their hind shoes are generally furnished with large heel calks, which elevate the heels an inch or more, and place the bearing upon a tripod, formed by those calks and by the point of the toe. The frog, intended by nature to be an elastic organ, and to be the medium through which the foot feels the ground, is so lifted up that it can never exercise its functions. It becomes hard, dry, and useless, and is pared away by the farrier at each renewal of the shoes. On a declivity, or when checked, the horses slip and stagger; and when at rest their bent knees and quivering limbs testify to the pain and weariness produced by the unnatural attitudes in which they are forced to stand.

For some few years past evils of this kind have attracted particular attention in America, and in 1843 and 1857 patents for certain improvements, and especially for machine-made shoes, were taken out by Mr. Burden. In 1860 Mr. Goodenough (well known in this country by his association with Mr. Rarey) invented and patented the shoe we are now about to describe, and has succeeded, we think, in securing all necessary protection to the hoof, and in removing, or reducing to a *minimum*, the bad effects of earlier methods. The principle laid down by Mr. Goodenough is that the shoe should resemble and preserve as far as possible, the natural shape of the hoof of which it is a continuation. The unshod horse has the under surface of his foot on a generally level plane, the frog and the whole margin of the hoof in contact with the ground, and the surface of the sole, between the frog and the margin, somewhat raised by its own concavity. The Goodenough shoe is made precisely to follow the outline of the hoof for which it is intended, and to reach exactly to the bars, never projecting at all, beyond the heel. Its upper surface is perfectly plane and true; its under surface is generally concave from the outer to the inner margin, the outer margin having, however, a narrow flat bearing upon the ground, and this bearing is interrupted by portions of the margin being cut away, so as to leave a central toe calk, and two smaller calks on either side. The elevation of these calks is considerable, and their general level is the same, so that they may be compared to a series of short claws on the under surface of the shoe. In the notches, or spaces between the calks, the nail-holes are bored, and counter-sunk, so that the nail-heads are completely buried in the shoe. For frost shoes are made in which the calks have no flat bearing, but are brought up to a feather edge. The inner margin of the shoe is thin, so that its outline passes insensibly into that of the sole, and presents no projections by which stones or snow can be retained. The method of preparing the foot and of applying the shoe is as follows: In the first place, a shoe which precisely fits the outline of the hoof is selected from the stock. If a proper fit cannot be found, any slight

alteration is made by a few blows on the cold iron, or, if heating be necessary, the shoe is made cold again before it is applied, and care is taken that it remains perfectly level and true. The farrier then prepares the hoof by cutting or rasping away the surface of that portion of the crust on which the iron will rest, leaving the centre of the sole and the frog and bars untouched. Having given what he judges to be a true level to this marginal seating for the shoe, the shoe is applied cold, and the hoof is rasped again and again until horn and iron come into perfect contact in every part. As a guide to the use of the rasp, the surface of the shoe is ruddled, so that any portions of horn not touched by it remain uncoloured. The adjustment being correct, the shoe is nailed on in the ordinary way and the process is complete.

When the shoes are put on for the first time it will often happen that the frog, dwarfed and deformed by previous ill-treatment, does not reach the ground at once, and for some hours, or even for a day or two, the horse may experience the same kind of inconvenience that would be felt by a man who was taken out of very high-heeled boots, to which he was accustomed, and made to walk on level soles. But a very short time restores the muscles of the legs to their natural equilibrium and relieves the latter discomfort, while, after a few shoeings, the frog reaches the ground fairly and fully, forming an elastic wedge which gives the horse a conscious and safe foothold upon every surface. The sole also grows somewhat within the circle of the shoe and forms a shoulder by which the firmness and security of the latter are greatly increased, so that fewer and smaller nails are required. At first, too, it is necessary to have a considerable thickness of iron, in order to supply the place of the horn usually removed by the excessive cutting of the ordinary farrier; but when the hoof has grown to its natural proportions, smaller and lighter shoes will be sufficient.

Mr. Goodenough's system has only very lately been introduced into this country, and the arrangements for its general application are not yet complete. It has been in use for two months upon 200 horses belonging to the London General Omnibus Company, and employed in drawing those Chelsea Omnibuses that stand at the Chelsea end of their journey. It has quite recently been tried upon a few horses in the Royal stables. It has been in use in America for about seven years, and comes recommended by a singular concurrence of testimony from large and small employers of horse labour, from omnibus and railway companies, from cavalry officers, from surgeons, human and veterinary. The surer foothold is said so much to diminish labour that horses are kept in condition on an appreciably smaller quantity of food; and diseases of parts from the knee or hock downwards are said almost to have disappeared.

from the stables. Apart from this testimony we will relate what we have ourselves seen.

A number of horses of the London General Omnibus Company, some that had been shod for two months on the Goodenough system, and some shod in the old method with high heel calks, were brought together for inspection. Of the latter horses, all stood resting one hind foot, or first one and then the other. Of the former, all, without exception, stood still and quietly on all four feet at once, without a sign of restlessness or discomfort. A hind shoe with heel calks, that had been worn for some little time, was removed, and a new Goodenough shoe to fit the same foot was selected. The Goodenough shoe was lighter by  $1\frac{1}{4}$  lb. than the one removed to make way for it. At omnibus pace, a horse lifts each foot about six inches, and takes, with all four, about 60 steps in a minute. A set of Goodenough shoes would, therefore, save this particular horse, every hour, the labour required to lift a ton weight to the height of one foot. A fine old white horse condemned by his owners as hopelessly lame, useless, and worn out, was bought by Messrs. Robinson and Cottam, the manufacturers in England of the Goodenough shoe, for £3. With no other treatment than the shoeing, he speedily and perfectly recovered, and now trots cheerfully along with a ton and a half behind him or stands quietly on all four feet when at rest. Another somewhat similar purchase by the same gentlemen, a horse with one fore hoof completely split, has recovered in a manner no less remarkable. But, in order to form an estimate of the obvious merits of the system, there can be no better course than to take a post of observation a little to the west of Hyde Park-corner and to watch the horses of the Chelsea omnibuses trot down the declivity and pull their loads up. It must be borne in mind that only a portion of these omnibuses have horses shod in the new manner, but these are distinguishable at a glance by the absence of heel calks on their hind shoes.

Mr. Goodenough claims for his system the negative merit that the shoe, being applied cold, does not injure and weaken the horn by burning, as in the common method. He claims the positive merits that "it prevents slipping, over-reaching, and interfering, cutting, or picking up stones, balling snow or mud, contracted feet, corns, sand cracks, thrush, springing of the knees, shrinking of the shoulders. It also prevents the nails striking the ground while the foot is sensitive from shoeing. A horse will draw with it a greater weight and travel further." From careful examination of the method, and, so far as they are yet to be seen in this country, of the results of its employment, we are of opinion that these claims are scarcely, if at all, overstated, and that Mr. Goodenough will confer the greatest benefits alike upon horses and upon those who



own or use them. Another advantage of the system is one that will be greatly felt in the hunting field. The hoof, having its natural form and surface preserved, draws out of clay or mud without the suction by which so many ordinary shoes are loosened, and so much extra labour is entailed upon the horse. It has been calculated that this suction may be nearly 11lb. per lift to each foot, in addition to the weight of the shoe; and its total amount at the end of a day's work would be such as to seem scarcely credible.

We have yet to speak of the manner in which the Goodenough shoe is produced, and this to many persons will not be the least interesting portion of the subject. It is manifest that a shoe with a perfectly true and level surface, and of a regular pattern, can only be made economically by machinery. Accordingly, machinery has all along been employed in America, and Messrs. Robinson and Cottam, the engineers, of Cannon-street and Battersea, who have undertaken to make the shoes for this country, found it necessary to follow the American example. Mr. Cottam, however, designed original machines of his own, and a plant consisting of five parts will be able to turn out 8,000 pairs of shoes in a week. Iron is sent from the North in long straight bars, rolled to the general outline of the shoe, with the interrupted margin for the calks, and the hollows for the nail heads. These bars contain, in width, the material for two shoes. The first machine cuts the bars into lengths; the second punches the nail-holes at the proper degree of obliquity, so that the nails cannot be driven into any sensitive part of the foot, the third splits the lengths so as to separate each into the two shoes that it is intended to form. The separate portions are then heated, bent round a kind of mould to the proper shape, and, lastly, pressed to the required level. The size of the shoe is determined by the length of the bar, the shape by that of the mould around which it is bent. In the bending machine this mould can be changed at pleasure, and Messrs. Robinson and Cottam will eventually have a sufficient number of moulds to enable them to fit any hoof. At present they have only the more common sizes and forms, and hence it is sometimes necessary to alter the shape of a shoe upon the anvil. But the ultimate result will be that the factory at Battersea will become a gigantic ready-made shoe shop for horses, and that any horse will be fitted there by sending a cast or tracing of the outlines of his hoofs. Gentlemen will then be able to keep a stock of shoes for their horses at their own stables, and to have them put on there by the farrier, who will need no forge. The work of the farrier will indeed, be so much simplified that in large stables it will probably be desirable to have a groom instructed, and to make the renewal of the shoes a portion of the ordinary routine of the establishment.—*London Times.*