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CANADA

# MEDICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

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*Pancreatic Abscess with Pyæmia.* Under the care of JOSEPH M. DRAKE, M.D. Reported by THOMAS G. RODDICK, M.D., Asst. House Surgeon, Montreal General Hospital.

Robert Clarke, æt., 30, baker by trade, was admitted into the Montreal General Hospital as a case of consecutive syphilis, under Dr. Drake, attending physician, on the 3rd February, 1869.

*Condition on Admission.*—His general appearance was not that of a strong man, and his features presented a peculiar pinched and shrivelled look. He ate comparatively well, however, and indeed requested more food the day after admission. He complained of no pain whatever, and when questioned declared he felt better than for some days previous. His ailment were two sores on the penis, one at the margin of the meatus and the other on the prepuce;—also too indolent dry-looking ulcers with no indication of granulation, oval in shape and situated, the one on the anterior fold of the axilla on the left side, the other on the outer side of the right thigh immediately over the trochanter. Neither of the latter had a drop of pus on the surface, and were very dry and puckered looking.

*History.*—His parents were very healthy people and died but a few years since at an advanced age. He has two brothers both of whom are in Scotland, and in the enjoyment of good health. He knows of no tendency to consumption in either branch of the family, and says his ancestors were noted for their longevity. While in England, fourteen years ago, he had intermittent fever and did not get thoroughly over it for more than a year, and he thinks he had a slight touch of it again seven years ago, but of the latter he was not very certain. He came to this country

twelve years ago, and soon after caught a severe cold which laid him up for a couple of months during which time he coughed incessantly and lost considerable flesh. His appetite was also during this illness much impaired, and he thinks his health has never since been as good, in fact he has ever since been more or less troubled with a cough. Seven months ago he contracted a chancre for which he was treated with a wash and some mixture internally, which he took regularly for weeks. He does not know whether or not there was any preparation of mercury in the medicine, but some little time before he came into hospital he noticed a peculiar taste in his mouth, and at that time he was taking the same medicine. Six weeks, or thereabouts after the first appearance of the chancre, he noticed two little lumps beneath the skin in the position of the ulcers before mentioned. These lumps had all the character of tubercles and before they broke had attained the size of small marbles. After ulcerating through the skin they became in a week as large as a quarter dollar and when he came into hospital were considerably larger than a half crown. As to his habits, he had of late years been addicted to occasional bouts of drinking, and had been especially intemperate during the past twelve months. He gave as a reason for his conduct latterly that he could eat little or nothing and was obliged to drink to sustain life. When intoxicated he would sleep in some exposed place for nights together, catching fresh cold and otherwise crippling his health. At this time also he was very much troubled with diarrhœa.

*February 4th, 1869.*—He was given full diet and put on Green's mixture made by the following prescription, ℞. Hyd. Bichl. gr. i, Potas. Iodid. ʒ ij, Ext. Sarzæ fld. ʒ i. Aquæ ad ʒ vi. A tablespoonful thrice a day.

Also for the sores, lotio acid carbolie and lotio nigra to be applied to the chancres. Bowels regular and tongue clean.

*February 6th.*—The sores have a somewhat more healthy appearance. The carbolie acid wash is discontinued and Ung Hyd. Biniodid substituted in the strength of gr. v. to ʒ i. lard.

*February 10th.*—Gives a good report of himself as to general health; and the ulcers are certainly much improved. No change in the treatment.

*February 13th.*—Continues to improve in every respect. His appetite is much better and he feels as though he might be better out of bed, but his clothes are denied for a couple of days.

*February 15th.*—He is very unwell to-day, having vomited several times during the night. From the exertion he is likewise much exhausted and his bowels have not been opened for two days. On the supposition that

constipation is the cause of the trouble he is ordered an injection of castor oil and turpentine, with a sinapism over the region of the stomach where slight pain is complained of. The bowels being unopened late in the evening, he got a seidlitz and a simple injection.

*February 16th.*—Bowels not yet acted. Ordered simple injections every two hours and ℞ Sodæ Bicarb ʒ ij, Ether Chlor ʒ iv, Aquæ ad ʒ vi. A tablespoonful every four hours. Has vomitted several times since last evening, pulse 110. Skin dry and hot, features drawn, no desire for food, but great thirst.

*February 17th.*—Bowels moved freely last night, condition somewhat improved, pulse 106, tongue furred and yellow. Has vomited only once in the past twenty hours.

*February 19th.*—The bowels have been moved twice since yesterday morning. He is much the same as on the 17th. Had a chill last evening followed by profuse perspiration. During the chill his teeth chattered, the bed shook and the surface and extremities became very cold showing every character of a severe rigor. The tongue is not so furred and yellow as for the past two days. He has vomitted only once since yesterday morning and the amount was very trifling. He is thought considerably better.

*February 20th.*—Pulse 115, temperature 101. Not so well to-day. Vomited frequently during the night and he complains of slight pain in the bowels. Has had three stools already this morning, and looks much worse than yesterday. Had a rigor yesterday afternoon at 4 o'clock and another this morning between 8 and 9 o'clock. The last was a very slight one. Tongue thickly furred and yellow, stools thin and green in colour. His appetite is gone and he cares for nothing but an acid drink.

*February 21st.*—No change for the better. Bowels have been very loose. Tongue same as yesterday pulse 120, temperature 101½. Had three rigors last evening and this morning, all followed as before with the most profuse perspirations, his eyes look wild and staring. He sleeps a great deal and can be roused with difficulty. Before he answers a question he must needs consider a few moments as though memory failed him or his ideas were scattered. Although he has no pain, still from the typhoid character of the disease it is thought advisable to apply hot stoups over the abdomen to be repeated often in the day. He is also ordered in place of the last: ℞ Acid Hydchlor ʒ i, Ether chlor ʒ ij, Aquæ ad ʒ vi. A tablespoonful every 4 hours.

*February 22nd.*—Had one rigor last evening and another at 8 o'clock this morning. Pulse 125—temp. 101¼. Diarrhæa very bad with dark green watery stools. No pain whatever in any part. Still has that wild appearance noticed yesterday. Tongue dry and brown with a yellow

streak in the centre. Skin slightly jaundiced. The stomach can tolerate no food. Has vomited two or three times since midnight. Is becoming very weak and prostrate. Two ounces of whiskey are ordered with as much beef tea as he can comfortably take.

*February 23rd.*—He is evidently failing. Pulse 145—temp. 102½. Tongue dry, brown and fissured. No pain whatever. Had a rigor about 3 o'clock this morning, and another at 10. Diarrhœa slightly checked by two powders containing each gr. x Pulv Doveri, which he got last night. Is ordered instead, Pulv Cretæ Co ̄ Opii gr xx, every fourth hour. From the intermittent character of the disease, and also from the obstinate diarrhœic character of the stools and jaundiced condition of the skin, some blood contamination is suspected. The liver is found of normal size, but the spleen is considerably enlarged, which may be explained from his having had ague. He complains of no pain whatever in any part. The eyes and expression have the same wild appearance, but there has never been pain in the head or the slightest sign of delirium. The chest was examined to-day, and slight dullness found in the upper part of the left lung, with small bubbling over the greater part of that side, and also at the right apex. Thought to be an intercurrent attack of bronchitis. A sinapism was ordered over the whole front of the chest; also the following mixture, the last to be discontinued: ℞ Quin Sulph gr xij, Acid Sulph q. s., Aquæ ʒ vi., a tablespoonful three times a day.

*February 24th.*—Urine examined this morning, but no albumen found; it is high-coloured, however, and has a strongly ammoniacal odour. He seems slightly better to-day. The powders have lessened the number of stools considerably, but they have now a most offensive odour and are still very thin and green-looking. Temp. 102—pulse 135. Tongue not so dry but very yellow. He has had only one rigor in the past twenty-four hours. Exactly the same condition of things exist in the chest. The skin is not quite so jaundiced.

*February 25th.*—Is so much weaker to-day that he needs to be lifted in and out of bed. Was at stool some half dozen times in the night, and passed the discharges in bed once or twice this morning. Is evidently failing rapidly. More whiskey ordered. He had two rigors at short intervals last evening, and indeed one was so severe that he was thought to be dying. Pulse down to 120, and very weak and compressible. His temperature was not taken, but the extremities have been cold all day. He sleeps almost continuously, and has the same wild appearance. The pupils, however, have never altered all through the disease. Urine contains no albumen.

*February 26th.*—Pulse 110—temp. 101½. Diarrhœa very profuse and stools passed involuntarily. No rigor since last evening. Tongue

dry, fissured and brownish yellow in colour. A cadaveric odour is very noticeable to-day. Same condition of things in chest as when first noticed, but it is difficult to hear anything owing to a quantity of mucus which is constantly rattling in the throat. Continued to sink rapidly all day, and died soon after midnight.

A diagnosis of pyæmia was made forty-eight hours before death.

*Autopsy*—Fourteen hours after death.

*Pæura*—Strongly adherent, but not much thickened. Adhesions old and thoroughly organized.

*Lungs*—*Right*—In apex well marked grey infiltration. A nodular looking mass in centre of upper lobe, raised above the surface with well defined limits, of a chocolate brown colour, size of a walnut, and from which on pressure, pus exuded at numerous points. The rest of the lung looked comparatively healthy and floated, all except the apex.

*Left*—In the apex three vomicae, the largest of which would contain a filbert or about 6 lines by 4, all possessed anfractuous walls with well marked living membrane, and on pressure a mixed purulent fluid exuded. Lung tissue in vicinity much condensed infiltrated with a slate coloured, and quantity of white fibrous looking material. Two nodules similar to the one in the other lung, one in the middle, the other in the lower lobe. The lung tissue elsewhere presented some minute tubercular granules, but chiefly in middle of lower lobe.

*Liver*, weighed 5lb 11ozs., dark and congested in appearance. Several abscesses, varying from the size of an egg to that of a large marble studded the right lobe, and on cutting into it pus exuded at a number of points. Capsule thickened and strongly adherent.

*Pancreas*—Firmly adherent to neighbouring parts, and the head so much altered in shape as to be almost unrecognizable. On cutting into the tumour an abscess was discovered containing about an ounce of pus. The abscess was evidently of some standing, judging from the thickness of the walls and the strong attachments on the exterior. The pancreatic duct at the greater end was dilated to fully half an inch. At the point where the duct opens into the duodenum a number of pancreatic concretions were found varying in size from that of a common white bean to very small fragments. Some were rough and presented a branched appearance as though corresponding to some of the ramifications of the duct. Others and more especially the largest in size presented several facets, circular, and oval, somewhat impressed and almost all of a deep greyish black colour, and metallic lustre. The latter quality was so strongly impressed on some as to be compared to the metallic crusts of arsenic or antimony.

*Spleen*—weighed  $11\frac{1}{2}$  ozs, contained no pus.

*Kidneys*—right, weighed 7 ozs, presented a pale mottled look, cortex much thickened, and encroaching on pyramids, latter very pale, no pus. *Left*, differed only in being  $\frac{1}{2}$  oz. heavier.

*Intestines*—no ulceration, looked sufficiently healthy. Might have been diseased in the rectum, as it was the only portion not examined.

*Brain*—very firm but healthy.

## REVIEWS AND NOTICES OF BOOKS.

*A Rational Treatise on the Trunkal Muscles, Elucidating the mechanical cause of Chronic Spinal, Pelvic, Abdominal, and Thoracic Affections, and of Bronchial and other derangements incident to the clerical, legal, and musical professions; with the rationale of their cure by mechanical support.* By E. P. BANNING, M.D., Published by W. A. Townsend & Adams, N. Y. Octavo, p. 352.

The main portion of this treatise appeared originally in the *Philadelphia Medical and Surgical Reporter*, where we enjoyed the reading, as portion after portion appeared, with more than ordinary relish. While we are not prepared to accept all of the deductions the author has arrived at, we must in justice say we are convinced of the truthfulness of many of the pathological and therapeutical statements advanced. To give our readers a correct knowledge of this original and we think valuable work, we cannot do better than insert his "Fundamental Propositions."

I. "Inasmuch as the human body is purely mechanical in the formation and arrangement of all its parts, from the grossest organs to the finest cells, it follows that any variation from the primitive arrangement of any one of these must involve corresponding morbid manifestations, both mechanical and vital, not only in the parts immediately concerned, but also in those which are associated with them, either by juxtaposition, continuity, or function.

II. The viscera are as much under the law of a specific orbit of being and bearing as the bones, and any departure from this, will constitute a practical dislocation, which may involve corresponding functional derangements by cancelling the primary relations between these organs and their vital forces.

III. The normal status of these weighty, lengthy, fragile, and irritable viscera, consists mainly in their being maintained in the ascendent

by their surrounding elastic abdominal walls, in opposition to a state of consecutive dependency from their ligamentous attachments.

IV. In proportion as the body is erect, and the abdominal and dorsal tissues energetic, will this primary ascendent position be steadily maintained, the support being commenced at the lowest intestine, and carried up by each successive viscus to the apex of the pile, each supported organ becomes the successive and aggressive support of its next superior neighbour.

V. In proportion as these supporting tissues relax from any cause, there must ensue a corresponding change in the visceral status, they must lose their attitude, compactness and support, and assume a loose, dangling, and elongated condition. In other words, a lineal dislocation is induced, involving a train of both physical and functional derangements, such as a solid common sense might clearly foretell."

From the propositions it will be understood that any deviation from the normal character of the spine will result in pathological conditions more or less important, both in the spine itself, and in those structures of the body depending upon the spinal column for support. The author classifies these affections into *Spinal Deformity*, *Uterine Displacements*, *Muscular Laxity of the Inferior Extremities*, *Muscular Laxity of the Urinary Organs*, *Muscular Laxity of the Intestinal Canal*. When we call to mind how many and varied are the affections embraced under these headings, we at once see the importance of the subjects with which the author deals. And we think the author has succeeded in showing that a deviation from the natural symmetry of the spinal column is a common cause of many visceral diseases, especially displacements.

The therapeutical part of Dr. Banning's work is interesting and novel. Interesting not because novel, but in consequence of the practical theories upon which his treatment of spinal affections is based. Of course his treatment, as would be inferred from his propositions, consists of mechanical support. We have used his "Abdominal and Spinal Shoulder Brace" in cases of antero-posterior deformity, attended with uterine displacement and with decided relief to the patient. With respect to the Uterine Balance recommended we have some doubts as to its essential benefit. We cannot imagine a patient comfortable in mind or body while employing it. But taking the book as a whole we must express our cordial approbation. The popular style adopted by the author may with some be objectionable, but we think it excusable from the fact that the public require to be educated upon a most important matter. We strongly advise every practitioner to read the work; it contains many valuable suggestions, and much food for thought.



*The Diagnosis, Pathology, and Treatment of Diseases of Woman, including the Diagnosis of Pregnancy.* By GRAILY HEWITT, M.D., F.R.C.S., Professor of Midwifery in the University College, London. Philadelphia: LINDSAY & BLAKISTON; Montreal: DAWSON BROTHERS.

The author of this volume is a most laborious student in the study of diseases peculiar to the female sex, and the present book is the result of many years patient research. Although this is the first edition that has been printed on this side the Atlantic, it is a reprint of the second London edition, which in some important respects differs from its predecessor. Dr. Hewitt evidently considers the first object of clinical observation to be diagnosis, and beyond question he is right. Without it no advance can be made, but on the improper basis of surmise and conjecture. In fact everything turns on the diagnosis, and once that has been made, it is tolerably clear sailing. In the words of Dr. Meigs, "Diagnosis is, in practice, like Captain Greatheart, in Bunyan, encountering and overthrowing all obstacles, so that even Apollyon himself could by no means oppose a bar to his habit in his practice of succeeding always." In no class of affections is its importance more fully verified than in the diseases of women—none, perhaps, where a wrong diagnosis is more disastrous to the patient or destructive to the reputation of the practitioner. The following extract from the preface will give an idea of the arrangement of the work :

"In regard to the mode in which the subject is considered, the first part of the work—that treating of diagnosis—differs from most other systematic treatises on the subject of diseases of women, symptoms, not pathology, having been made the basis of the arrangement. This arrangement and mode of considering the subject of the diagnosis has been found best adapted for carrying out the object of the work, inasmuch as it is the one actually followed at the bedside. The difficulties encountered by everyone in the first attempt to investigate disease clinically are considerable; the subject is not presented to us at the bedside pathologically, and to suit our convenience. It is the symptom, the sign, with which we have then to deal; and before a diagnosis can be made, we must know how to give to each of these signs its proper signification. Every practitioner who has acquired facility in diagnosis possesses, in his own mind, a sort of dictionary, to which he, from time to time, refers, in order to ascertain what diagnostic value a particular sign possesses, when present under such and such circumstances; while forming a conclusion in any particular case, he passes rapidly in review all the morbid conditions or diseases with which he has known the sign in question to

be associated; carefully bearing in mind the many exceptional cases to general rules which his predecessors left on record, or which have been observed by himself. To the student, however, the disease or morbid condition presented by the patient speaks in an unknown language—one which must be learned before a diagnosis can be arrived at; and thus it becomes an object of primary importance to the investigator of disease, that means should be available by which the value of symptoms and signs, as diagnostic of certain affections, may be duly estimated. The plan followed in the present work, will, it is believed, offer facilities for the kind of valuation required."

The pathology and treatment of diseases peculiar to the female receive considerable attention from Dr. Hewitt, more so in this than in the first edition. Many original views are expressed on uterine pathology, which he informs us, have been arrived at after a careful comparison with the views of others, corrected by cases which came under his own observation. It is a thoroughly practical volume, and *per se* much valuable information can be obtained from its perusal.

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*Atlas of Venereal Diseases.* By A. CULLERIER, Surgeon to the Hôpital du Midi. Translated from the French, with notes and additions, by FREEMAN J. BUMSTEAD, M.D., Professor of Venereal Diseases in the College of Physicians and Surgeons, New York. Philadelphia: HENRY C. LEA; Montreal: DAWSON BROTHERS.

In a recent number of the Journal we expressed our opinion of the very great value of this work in the study of Venereal Diseases, and we have now to acknowledge the receipt of Parts IV and V, the issue of which completes the Atlas. If it were possible, we would venture to assert, that the chromo-lithographs of the two last parts excel those previously issued; certainly they are admirable as works of art, and thoroughly correct in the colouring. Part IV opens with the concluding portion on chancre, and then follows the complication of chancre, phagedæna, one of the most troublesome, being fully discussed. Chapter III is on Buboës, and although perhaps one of the most annoying class of cases which fall under the eye of the surgeon, we confess to some disappointment in the description of the treatment, which the translator has not enlarged upon. In this chapter, the translator and editor endeavours to show that when doctrinal points are not under discussion, Mr. Cullerier, follows practically the deductions of "duality." Dr. Bumstead objects to the term the author uses to denote a non specific bubo, viz. Sympathetic, and suggests that it be styled the Simple, or

the Inflammatory Bubo. We confess we fail to appreciate the value of the alteration. Chapter IV opens that portion of the work devoted to Constitutional Syphilis. While it is not exhaustive, it contains matter calculated to give all who carefully study it much valuable information. Part V continues the subject of Constitutional Syphilis—the chapter on Infantile Syphilis being an admirable one. The concluding chapters are on the tertiary forms of the disease. We believe all who have purchased Dr. Bumstead's own volume should obtain this Atlas, which is certainly superior to anything of the kind ever before issued on this continent.

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*The Physicians Dose and Symptom Book, containing the doses and uses of all the principal articles of the Materia Medica, &c., &c.* By JOSEPH H. WYTHES, A.M., M.D. Eighth Edition. Philadelphia: Lindsay & Blakiston; Montreal: Dawson Bros.

This little volume is one which has met with much commendation from our friends in the United States, and which we understand is in general use among them. It certainly contains a very large amount of information, packed, so to speak, in a very small compass; the size of the book being such that it can be very conveniently carried in the pocket. The preface tells us that it was originally compiled for students, but in our judgment it is more suited for the country practitioner, who often tired and exhausted by long and tedious journeying is in no disposition to read complete treatises. To our country friends we can honestly recommend it.

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*Lectures on the Diagnosis and Treatment of Functional Nervous affections.* By C. E. BROWN SEQUARD. Part 1. Philadelphia: J. P. Lippincott, & Co.; Montreal: Dawson Bros.

Anything coming from the pen of such an able authority as Dr. Brown Sequard, will ever be welcomed by the profession; and the lectures of which this part is the first instalment, promise to be exceeding valuable. The treatment to be adopted receives ample attention, more we fancy than Dr. Sequard has usually given in former works. In cases of Epilepsy, we notice that he recommends a combination of the Bromide and Iodide of Potassium with Bromide of Ammonium, as in his experience the most efficient remedy. In chorea, he prefers Arsenic or Strychnia, and in Hysteria, he eulogised Opium and Sulphuric Ether, given in large doses.

## P E R I S C O P I C D E P A R T M E N T .

## Medicine.

## ON THE THERAPEUTIC USES OF BROMIDE OF POTASSIUM.

By J. RUSSELL REYNOLDS, M. D., F. R. C. P.

The therapeutic effects of bromide of potassium are seen with the greatest amount of certainty and clearness when it is given to those who are suffering from paroxysmal diseases. The uses of this drug are, however, not limited to those affections, but may be observed in many others of which obvious spasm forms no part. It became a "fashionable" medicine a few years ago; and, like some of its predecessors in the circle of fashion, was soon over-rated, and misapplied; it failed to do in all cases what it had been said to do in some; occasionally it appeared to be mischievous, and often it seemed inert; and so, within the last few months, there have arisen those who entertain doubts as to its possessing real value in the treatment. Being confident, however, that it is one of the most important medicines that we possess, it will be well to illustrate, at the outset of this paper—by a few cases, recorded as briefly as possible—the fact of its definite utility. Having done this, it will be sufficient to give only the general results of its employment in other classes of disease, where the action of the medicine may be defined with a somewhat inferior degree of precision.

It is purposed, therefore, first to speak of the use of the bromide in the treatment of the following groups of disease:—1. Those marked by spasmodic contraction of the muscles. 2. Those characterized by disturbances of sensation. 3. Diseases displaying themselves in mental change; and 4. Affections of the vaso-motor system of nerves. A few remarks will then be offered on 5. The mode of action of the medicine; and 6. On bromism.

I. Of those diseases which are characterized by *spasmodic movements*, the action of bromide of potassium is most conspicuous in epilepsy; and of this fact, the following cases will afford sufficient illustration:—

*Epilepsy*.—A man, epileptic for eighteen years, his fits having commenced at puberty, and having recurred with great severity and at a high rate of frequency during the whole period, took bromide of potassium for the first time in January 1864; and from that date until this has never had a single seizure. The dose prescribed in this case was ten grains, to be taken three times daily; it was continued for nearly twelve months, and was then abandoned. There was no other medicine employed, nor was there any change made in the place or mode of living of the patient.

A lady, epileptic for eight years, the fits being of most distinctive character, and of frequent but irregular occurrence; and who during the intervals of attack, suffered much from "nervous feeling," great depression of spirits, incapacity for mental occupation, and constant "dread," commenced taking the bromide four years ago. Ten-grain doses were prescribed, and with the effect of prolonging the intervals between the attacks; but as the seizures returned, the quantity was increased, and again the fits for a time disappeared. They returned, however, for the third time, and the dose was augmented further. Similar events happened until the quantity of bromide administered was thirty-five grains, three times daily. This dose was commenced a year and a half ago and since that period there has been no attack. The general health has been unimpaired, the nutrition of the body has been maintained, the menstrual functions have continued with perfect regularity, and almost the whole of the distressing feelings which formerly occupied the intervals of attack have disappeared.

A gentleman of middle age, overworked both mentally and physically, became epileptic, four years ago. His attacks were of the severest kind, but during the intervals of their occurrence he presented no signs whatever of disease in any organ of the body. His attacks had been frequent and uncontrolled by "change of air," freedom from toil, dietetic regulation, and medicine. He began to take the bromide, in ten-grain doses, two years and a half ago, and immediately the fits ceased, and they have not returned. Here there was no change in the mode of living, but the individual referred to continued to do the same kind and amount of work that he had done before. The medicine was gradually diminished at the end of twelve months, and was discontinued a year ago.

A young lady, epileptic from early childhood, and whose fits were of very frequent recurrence, it being rare for her to pass through twenty-four hours without a seizure, and who suffered on an average two fits a day, was first seen by myself several years ago, before the bromide of potassium had been employed in large doses. The drug was then given; but as it appeared to exert no influence upon the nature or number of the attacks, was discontinued, and other measures were employed without any beneficial effect. The intellectual faculties in this instance were most gravely injured. The patient could still read, but could not enter into anything even approximating sensible conversation. There was, however, no impairment of the "general health," and as, in spite of all treatment, the fits recurred with unaltered severity and frequency, all medicine was discontinued, and the patient was left to the care of her attendant nurse. She was lost sight of by me for nearly three years;

but eight months ago I was again called to see her, as she had been rather more "restless" than usual in the intervals of her attacks, and it was hoped that something might perhaps be done to lessen the labors of her attendant. I then learned that the fits were as frequent as they had been in previous years, and that they had never shown any tendency to lessen or to change. The bromide of potassium was given in scruple doses, every six hours, and, from that day to this, there has not been one single fit. There has been no change, while taking these doses, in the uterine, or general health; but there has been distinct although slight improvement in the mental powers.

A young man, epileptic for seven years since puberty, and having from five to seven attacks during the day, has taken the bromide of potassium for nearly four years, and with this result—that as the dose has been gradually increased the fits have diminished, and have now entirely subsided. Upon many occasions the attempts were made to lessen the dose; but within a few days of making such change in quantity, it was invariably observed that the fits recurred; and therefore, as no ill effects were recognized from its administration, it has been, and still is, taken in large quantity.

A lady, subject to frequent attacks of *le petit mal*, and to occasional seizures of *le haut mal*, gradually lost both forms of paroxysm when the dose of bromide had reached thirty grains, three times daily. During fourteen months there was no attack of any kind, but at the end of that time, having diminished the dose of the medicine, the fits returned; they have, however, again ceased upon reverting to the larger quantity.

The facts that I have now briefly stated are sufficient to show that the influence of bromide of potassium upon epilepsy is not to be referred to the "chapter of accidents," but that it is an agent possessing a very distinct and beneficial effect upon one of the most distressing and obstinate of diseases. These cases are by no means rare or exceptional; they are on the contrary, but a few specimens of what has been observed in very many others, and they are brought forward here in order to remove all doubt that might exist in the minds of some, who have not personally observed the action of the medicine in a large number of cases, as to its real efficiency. There is yet a further object in their citation, and it is this, to corroborate these general propositions—which it would be impossible to substantiate by details in this paper—viz., that in the vast majority of cases bromide of potassium is of signal service in the treatment of epilepsy; that it absolutely cures very many, and it rarely fails to diminish notably the number of attacks in those whom it does not cure.

As with other modes of treatment, not only of this disease but of all others, it is most successful in recent cases; but, as I have shown by examples, it does not fail to be of service in those of long standing; and it most certainly is as useful in those cases where the fits are frequent and severe, as it is in others where they are of rare occurrence and of milder type. In some persons it fails to exert any beneficial influence; but these instances form an exceedingly small minority; and in the present state of uncertainty with regard to the exact pathology of the large group of diseases constituting what we term "epilepsy," such instances should not be allowed to detract from the reputation of so useful a medicine, but should only stimulate inquiry as to the nature of their departure from the more ordinary type of the disease.

The cases of epilepsy which have proved the most amenable to the action of bromide of potassium are those in which the attacks have been exclusively or prevaillingly those of the severer type, *le haut mal*; in which the rate of recurrence has been rapid; and in which the fits have occurred mainly during the day; whereas, on the contrary, those that have resisted its action have been marked by a predominance of slight or abortive seizures, *le petit mal*; or have exhibited the severer attacks at rare intervals, or have suffered from them only during the night.

These statements, it must be remembered, are not absolute; they express only the general results of observation on many hundreds of cases; and particular exceptions occur to them in each direction.

*Epileptiform Convulsions*, occurring during the course of chronic or acute diseases of the brain, are often completely removed by bromide of potassium, the other symptoms of such diseases being in some cases relieved, in some removed, in others unaffected. Thus, a gentleman fifty-five years of age suffered an apoplectic seizure, was insensible for many days, hemiplegic on the right side, and frequently convulsed. Upon the return of consciousness the hemiplegia, gradually diminished, but he remained aphasic, of enfeebled intellect, irritable temper, and a constant sufferer from pain in the head. Occasionally he improved slightly for two or three days, but was again thrown back by epileptiform convulsions. This state of things lasted for six months, during which time he was treated actively with many drugs and other appliances. Nothing, however, influenced the course of the disease until bromide of potassium was administered, when the fits ceased entirely, and have shown not the least threatening to return. Besides the effect mentioned in this instance, there was distinct relief to the headache, and some slight diminution of the irritability of temper. This case is but one of very many illustrating a similar action of the medicine.

*Convulsions, not epileptiform* in type, have sometimes been reduced by bromide of potassium, but, so far as my experience extends, only to such degree and with such irregularity as to make me doubt whether or no the relief was other than accidental. For example, a gentleman who after an injury to the back suffered several violent convulsions of epileptic character, became subsequently affected with persistent clonic spasms of the limbs. These spasms were sometimes so violent as to keep the patient in bed for many consecutive days, preventing him also from sleeping at night. Bromide of potassium appeared upon several occasions to diminish, and upon two or three to remove the spasms; but upon other occasions it failed entirely and it happened to me more than once to witness the return of the spasmodic movements while the medicine was being continued, and that in large doses.

In very many instances of *general spasmodic jerkings*, occurring only at night, I have given bromide of potassium, but unfortunately without observing any distinct remedial effect. The cases to which reference is made are by no means rare; the patient exhibits no irregular or spasmodic movement in the daytime, and while awake, but the moment that sleep comes on there are violent spasms of the muscles of the back and limbs, which sometimes throw the body off the bed, but when not sufficient to do this are quite enough to cause alarm and prevent the return of sleep. In some such cases I have given the bromide to the extent of causing bromism, but without finding that it produced the smallest effect upon the symptoms, whereas in a few milder examples there was relief. A somewhat curious case may be mentioned here, for the double purpose of illustrating the above general statement, and of showing the great difference to be observed between the action of bromide of potassium and of iodide of potassium. A gentleman æt. thirty, had, five months after his marriage, suffered from the spasmodic movements above described; he then became epileptic, and continued so for three months. He was, when seen by me, intensely anæmic, but not weakened in limb, intellect, or appetite. He was prescribed iron, quinine, and cod liver oil, and never had another epileptic seizure. His health appeared quite restored after the lapse of six months, with one exception, viz., the persistence of nocturnal jerkings. These were sometimes very severe, sometimes slight; but bromide of potassium exerted not the smallest influence upon them; and the same may be said of belladonna, stramonium and opium. They were, however, reduced considerably by Indian hemp. Two years after the onset of symptoms this gentleman was exposed for a long time to cold and wet, his eyelids swelled very slightly, he suffered from severe headache, became again intensely anæmic, lost flesh, and was



found to be passing urine so heavily loaded with albumen, that it was rendered solid upon boiling. The nocturnal jerkings were worse than ever, and the general strength was greatly depressed. Treatment was adopted vigorously in this case, but without any effect upon the anæmia, the albuminuria, the headache, or the jerkings. After several weeks had passed in this condition, the patient directed my attention to a recent swelling on the front of his leg. I found a node upon the tibia, a few scurfy, copper-colored spots upon the chest, and at once ordered iodide of potassium in large doses. The headache, albumen, jerkings, and node disappeared together and within two months a healthy tint was observed on the face and lips. Two years have elapsed, and during that period his wife has become pregnant, he has been free from jerkings, has gained flesh, is now in good condition as to strength and color, and there is no trace of albumen in the urine. This case is only one among many which illustrate the difference in action between bromide and iodide of potassium; but one which it seems to me to be important to quote, inasmuch as I have often heard the two medicines spoken of as being closely analogous, if not almost identical in their mode of operation.

*Hysteric Convulsion* has been, in my experience, but very slightly influenced by the bromide; and the same may be said with regard to hysteric spasms. The nearer that a case of hysteria approximates one of epilepsy, both in its general features and in the characters of its attacks, so much the greater has been the utility of the drug. Those cases, on the other hand, in which there has been no distinct convulsions, but only an assemblage of so-called "hysterical symptoms," of which sundry spasmodic movements are among the most striking, have appeared to me to be often utterly unaffected by even very large doses of bromide of potassium.

*Chorea*.—In this disease there are two classes of motor disturbance which may be readily distinguished; the one is clonic spasms, more or less intense and persistent, which may be seen while the patient makes no attempt at voluntary movement; the other is a want of "co-ordination" of muscular action, seen only when such attempts are made. In all choreic cases both elements co-exist; but in some the first, and in others the second predominates. Where the principal failure has been the want of co-ordination, bromide of potassium has appeared to me to be absolutely inert; where on the contrary, there has been much clonic spasms, and but trifling disturbance of co-ordination, it has sometimes seemed that the spasms have been affected beneficially by the drug.

Chorea, however, speaking generally, has in my experience been uninfuenced by this medicine. It is one of those diseases which, as a rule,

yields so readily to simple hygienic treatment, that no safe conclusion as to the value of a drug can be obtained unless the patient be placed in circumstances which exclude that source of fallacy. Again and again I have taken choreic patients into hospital, for the express purpose of observing the effects of bromine; but have always carefully abstained from giving any medicine until the results of good nursing, good feeding, and the position in a large airy ward, could be distinctly recognized. It has invariably happened that all ordinary cases of chorea have begun to improve directly, and that they have recovered without any medicine; whereas in very severe cases, with or without complication, bromide of potassium has failed to exhibit the smallest remedial action.

In a marked case of congenital chorea, general in its distribution, and persistent for twenty-four years, the bromide was given in extremely large doses without producing any effects whatever except those of bromism. In another case of chorea, of three months' duration, the child being unable to sit up or speak, improvement commenced at once upon admission into hospital; but it proceeded tardily for a fortnight. At the end of that time bromide was given in full doses, but it appeared rather to retard than to expedite the process of recovery.

M. Gubler relates cases which appear to show that chorea could be much relieved, and even rapidly cured, by bromide, but my own experience is that stated above.

*Local Clonic Spasms.*—I have given bromide of potassium in many cases of "spasmodic wry-neck," of "writer's cramp," and of "histrionic spasm," without observing that in any instance it afforded relief. In some there was temporary and trifling abatement of the spasm, but in all these the symptoms returned to their original intensity, even while the drug was continued.

*Persistent Tonic Spasm.*—Bromide of potassium has, so far as I have seen, been utterly useless when administered in cases of this description.

Looking back then to the uses of this drug in the treatment of spasmodic affections, it would appear, 1. That its efficacy is most marked when the malady is "paroxysmal;" 2. That its value is high in proportion as the disease approximates the type of convulsion known as "epileptic;" and 3. That when spasmodic movements are "habitual," be they either tonic or clonic, local or general—its remedial influence is, at best, extremely doubtful.

II. Passing now to another group of diseases, those marked by occasional disturbances, there are facts enough to prove that bromide of potassium is of great utility.

*Vertigo* sometimes occurs paroxysmally without the co-existence

of any obvious spasms—without any obscuration of consciousness, any failure of muscular power, or anything indicative of coarse organic lesion of the brain. In such cases, even after many months and even years of duration, I have known immediate and permanent relief from the use of bromide of potassium. Such cases are probably, though not obviously, related to attacks of "epilepsy," and they exhibit one feature of that disease in their amenability to the influence of this drug. It must, however, be remembered, that granting the epileptoid character of such affections, they are on that side of the malady which, as I have already stated, is the least influenced by the medicine we are considering.

*Headache*, of a paroxysmal character, and especially that which is accompanied by heat of head, and flushing of the face, is often relieved with much rapidity by the bromide.

*Hyperæsthesia* of the mucous membrane of the fauces, œsophagus, air-passages, and urethra, would appear to be reduced by large doses of the bromide of potassium; but for facts illustrating this mode of action the reader is referred to the papers of M. Voisin in the *Bulletin Gén. de Thérapeutique*, and of M. Gubler, in *L'Union Médicale*. My own experience of its utility does not lead me to confirm the statements that have been made upon these points.

III. In the treatment of certain diseases affecting the cerebral centres in such manner as to prevent sleep, bromide of potassium has proved of great utility. Here it is necessary to give the drug in such large doses as thirty or forty grains, at the ordinary bed-time, and to repeat it frequently in smaller doses, of ten or fifteen grains, during the day.

In *Acute Mania*, and especially when there is much heat of head and redness of conjunctivæ, I have repeatedly seen refreshing sleep follow the administration of one full dose. The patient may not have recovered from his mania when he awakes, but he is calmer, and less exhausted; and after a few days of the treatment above suggested, is sometimes well. In others cases, however, I have found no good result from the exhibition of this medicine. In the wakefulness of *Melancholia*, bromide of potassium has, often, in my experience, proved worse than useless. It has apparently aggravated the feeling of distress. Not so, however, in all cases; I have known it to be eagerly sought for by the patient's friends as the one thing that seemed to give relief.

It holds a similarly doubtful position in regard to *Hypochondriasis*, having utterly failed to afford any relief in some cases, and having been highly prized by other patients. In both of these maladies it does but palliate symptoms. It must be remembered, however, that to relieve "symptoms" in the latter affection—hypochondriasis—is almost tantamount to cure.

*Acute Alcoholism*, with *insomnia*, is often beneficially treated by this medicine. It frequently induces sleep when opium has failed to do so; and there is no prejudicial effect produced by it upon the processes of secretion or exertion.

IV. There is yet another class of affections, to which I can make but a passing allusion here, viz., *disturbances of the vasomotor system* in other parts of the body than the head; and over these bromide of potassium exercises a most valuable control. When such derangements take place within the skull, their symptoms are those already described as epilepsy, epileptoid scizures, vertigo, and the like. But throughout the body, changes, analogous to those in the cerebral circulation, may occur; and the symptoms by which they display themselves differ with the regions affected. Such symptoms, are for example, sudden numbness, coldness, deadness, or pricking sensations in one or more limbs; sudden distressing, but indefinable feelings in the epigastrium, abdomen, or hypogastrium; or sensations akin to rigor, with much "anxiety," and palpitation or "fluttering" of the heart. In such cases it may be observed that the local circulation is interfered with; that, for example, the pulse in one arm becomes faltering, irregular in force and rythm, occasionally intermitting, while that in the other arm may remain unaltered, and the beat of the heart may maintain its normal character. These phenomena have now been observed by myself in a large number of cases, and I am quite sure that many of the symptoms mentioned, which have often been referred to some changes in the nervous centres—*i. e.*, to either the brain or spinal cord—are in reality due to the condition I have mentioned, viz. a derangement of the local circulation in consequence of a morbid state of the vaso-motor system of nerves. Nothing can far exceed the misery which some of these symptoms occasion; they often persist for years, or rather, occur paroxysmally for years, without finding any distinct or permanent relief from ordinary treatment of head, spine, and heart. They may, however, be diminished and entirely removed by the use of bromide of potassium, in such moderate doses as ten or five grains taken twice or three times daily.

V. As to the *mode of action* of bromide of potassium we are not yet in a position to speak with certainty. Of these negations, however, there is abundant proof—1st. That it does not lessen the force or frequency of the normal pulse. Upon this point I have made many scores of observations, and have failed to find any exception to the rule stated, when the dose has been such as to produce only therapeutic effects. 2dly. The syphygmographic tracing of the pulse is perfectly normal in patients who have taken bromide in large doses for many months; and I have

found it unchanged in the healthy adult by a dose of forty grains. 3dly. The temperature of the body has not under similar circumstances been reduced below the normal standard; but in some cases, where the medicine has been administered to those in whom there was slight pyrexia, a diminution of the abnormal temperature has been observed. 4thly. That bromide of potassium does not, in therapeutic doses, affect notably any of the secretions. Occasionally the amount of urinary water appears to be augmented, but there is no constancy in this result. 5thly. That it does not interfere with the reproductive functions of either sex.

The facts that I have witnessed would lead me to infer that the specific action of bromide of potassium is exercised upon the system of vaso-motor nerves, and that it acts upon that system as a "sedative,"—i. e., that it reduces such morbid activity as would lead to the spasmodic narrowing of vessels, and the consequent induction of irregularity in the supply of blood. Contraction of the vessels forms by far the most important link in the chain of causes and effects in epilepsy and all allied diseases; it is obviously present in the class of cases to which I have referred in Section VI.; it is to be observed in those alluded to in Section III.; and it may be frequently recognized in those disturbances of sensations which were included in Section II. Moreover it is quite clear that vascular contraction in one locality may be accompanied by, even if it does not cause, fullness of vessels in other situations, and that the symptoms most obvious to the patient may be those dependent upon the latter change. Thus, heat of head, and oppressive headache, are often found to co-exist with shivering and cold extremities. In such cases bromide of potassium may relieve, by controlling spasm of the vessels, and thus restoring the equilibrium of health. All theories, however, on the action of this drug are, at present, but of trifling value compared with that of the facts which demonstrate its practical utility.

VI. *Bromism* is induced in very rare cases by moderate doses; in a large number of cases by the administration of the drug in great quantities. Its symptoms are—acne on the face, redness of the palate, epigastric heat, œdema of the mucous membrane of the mouth, and salivation, or bronchial catarrh; heaviness, drowsiness, and confusion of ideas, with irritability of temper and weakness of muscles; there is occasionally an ataxic gait like that of commencing alcoholism. All the symptoms speedily disappear on the discontinuance of the drug.

Enough has been said to show that in the introduction of this comparatively new therapeutic agent into our Pharmacopœia, the profession and the public have received a great boon, inasmuch as they have met with a medicine, which, while absolutely devoid of all danger in its exhibi-

bition, yet exerts a most beneficial control over a large class of diseases confessedly among the most obscure and most obstinate of the ills to which humanity is subject.

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#### ON POISONING BY NITRATE OF BARYTA.

By CHARLES METMOTT TUDY, M.B., M.S. Joint Lecturer on Chemistry at the London Hospital.

I was requested by Charles C. Lewis, Esq., coroner for Essex, to examine and make an analysis of the stomach of a man who had died under the following circumstances:—

W. H., æt. 46, single, a carman in the employ of the Messrs. Volckman, living at Stratford, had always enjoyed good health, with the exception of occasional but slight attacks of rheumatism, which however had never been sufficiently severe to keep him from his work. Having complained of a slight pain in the shoulder, one of his fellow-workman recommended him to take some sulphur, and on the following day (Saturday), when his landlady was going into the village to make sundry purchases, he requested her to bring him in a quarter of a pound of sulphur. She did so, brought it back, and gave it to deceased. He then asked her to mix it for him in a little water. She thinks she mixed about a quarter of the powder with water in a mug. As he had complained during the day of a slight attack of diarrhœa, she recommended him to take the dose in the morning (Sunday), and not over-night as at first he had intended. About half-past six in the morning his landlady heard him cry out, "I am poisoned." She at once ran up to him and replied, "Nonsense, you cannot be poisoned with flowers of sulphur;" whereupon he opened his mouth and showed her it was covered with blisters. Mr. Kennedy, of Stratford, was sent for between nine and ten o'clock on the Sunday morning, and upon looking at the sulphur detected something of a chrySTALLINE nature in it. The man was then in a state of collapse, and died about twenty minutes past twelve, that is about six hours and a half after he had taken the mixture. There was a partial loss of voice, coldness in the extremities, intense pain in the bowels, a burning pain in the throat partial convulsions, with violent vomiting and purging.

On Monday evening Mr. Kennedy made a *post-mortem* examination, and reported as follows:—"Body well nourished, muscular rigidity well marked. The membranes of the brain were congested, the vessels being fully extended with dark colored blood. The left pleura was adherent, the left lung being very much congested, the right slightly so, especially at the edges. The heart was large and flabby, both sides full of black

blood. The duodenum was highly congested; there were several dark congested spots about the rectum."

I received the stomach from the constable, and upon opening it noticed that in some parts there was merely a slightly increased vascularity, the redness in other parts being of a very much deeper character. Ramifying over its entire surface I observed vessels filled with dark blood, which were more marked and in greater number near the pyloric end. This general florid appearance extended to that portion of the duodenum which I received attached to the stomach. The stomach contained about four and a half ounces of a reddish fluid, which had a neutral reaction. I also received the small intestines, which throughout their whole length presented a slightly, though very slightly congested appearance. The rectum was highly congested. The mug was also forwarded to me from which deceased had taken the mixture, containing some powder at the bottom; and likewise the packet from which the landlady had taken the powder she had mixed.

On examining the powder I found it had very much the appearance of ordinary sulphur, save being somewhat lighter in appearance. On igniting a small quantity on a piece of charcoal before the blow-pipe, it deflagrated most brilliantly, giving a distinctly green light. I then made an analysis of it, and found in every 100 grains 51.52 of barytic nitrate. There was also potassic chlorate present with sulphur in the powder. Upon examining the stomach for both mineral and organic poisons, I detected distinct traces of barytic nitrate, and also the potassic chlorate. Of course there was no doubt left in my mind that the man had taken the powder, and that death had resulted from the action of the nitrate of baryta.

There was some reason for suspicion how this baryta became mixed with sulphur, and I therefore requested that a sample should be sent me of the sulphur from the drawer of the chemist of whom it was said to have been purchased. Upon examining this I found it to contain 6.76 per cent. of barytic nitrate. I then examined fifteen different samples of sublimed sulphur bought from fifteen different chemists' shops, all of which, however, I found to be perfectly pure. Indeed, it would scarcely be worth while adulterating flowers of sulphur. How then, did the baryta get into the sulphur? It was plain that the mistake had originated in the chemist's shop, but at first it was not easy to account for the difference between the quantity of baryta found in the powder given deceased and that in the chemist's drawer. The chemist (who, by-the-by, was a woman) asserted that she had never had any baryta in her shop, but the after evidence proved this to be a mistake on her part. The expla-

nation was gathered from a late assistant, who knew of the presence of a packet of green fire in the shop, as he had sold some only a short time previously. There was no doubt, therefore, that this had been mistaken and sold by this lady chemist for sulphur, and that she threw the little remaining behind in the packet over and above the quarter of a pound that she was serving, into the sulphur drawer. And this fully explained the difference between the quantity of barytic nitrate in the two samples.

I was unable to find upon record a single case of poisoning by nitrate of baryta, nor yet of any experiments that had been made with it to determine the quantity that will destroy life. I made therefore the following experiments at the special request of the coroner. I must here acknowledge the assistance kindly rendered me by Dr. W. B. Woodman in watching the animals and assisting me in the *post-mortems*.

Experiment 1.—August 10th.—Gave a rabbit ten grains of nitrate of baryta as a powder, mixed with a little sugar. It was found dead in less than an hour.

*Post-mortem*, August 13th.—Rigor mortis persistent. Fur very rough. Pupils widely dilated. Brain and membranes congested. Lungs congested and very rotten. Heart—Both sides full of black blood. Pharynx natural. Liver: very rotten; in some parts deeply congested. Kidneys: slightly congested. Stomach full of food; broke down at once with the least touch; florid appearance over the whole inner surface. Duodenum slightly congested. Small intestines not congested, quite empty, and appeared transparent. Rectum deeply congested. Bladder empty. I found a trace of the poison in the liver, and in the stomach in considerable quantity.

Experiment 2.—August 10th, 7.30 p.m.—Gave a rabbit five grains of nitrate of baryta in the form of a bolus, with flour and sugar.

9.30 p.m.—Found it lying on its side slightly convulsed. Pupils widely dilated. Fur rough. Has been purged violently. Respiration 80, shallow and laboured. Aortic pulse 120, but hardly to be felt. Almost dead.

August 11th, 11.20 a.m.—Only just alive; insensible, and cannot be roused.

7 p.m.—Cardiac pulsations 160. Respiration 120. All but dead. Takes no notice, but apparently sees and hears. Is getting cold. Died at 10 p.m.

*Post-mortem*, August 13th.—Fur rough. Pupils widely dilated. Buttocks stained with fæces. A little frothy mucus about the mouth. Brain apparently normal. Heart.—Both sides contained black clots; the right side being most distended. A little staining of the endocardium. Lungs.



—The lower lobes deeply congested, in fact, in the stage of red hepatization, almost passing into apoplexy. Stomach so softened as to tear with the least touch; distended with greenish food, consisting apparently of bran and corn. Second stomach nothing unusual. Duodenum somewhat reddened as to its mucous membrane. Rectum much congested. The remaining intestines apparently normal, containing a little milky fluid and a little faecal matter. Urinary bladder full. Liver soft and congested. Kidneys apparently normal. I examined the urine and the liver for the poison, but was not able to detect any. Distinct traces, however, were to be found in the stomach.

Experiment 3.—Gave a small terrier (August 17th, 4.30 p.m.) thirty grains of nitrate of baryta on meat.

6.45 p.m.—Violent purging and vomiting. Insensible and appears dying. Convulsive twitchings.

8.15 p.m.—Died, after severe convulsions.

10.15 p.m.—Rigor mortis strong. Some thin light brown faecal matter about the anus.

*Post-mortem*, August 18th, 12.30 p.m.—Rigor mortis persists. Pupils widely dilated. Brain normal. Thorax.—Both sides of the heart contain black blood, the right side in greater quantity. Lungs considerably congested. Abdomen.—Stomach reddened, soft and distended with food. Duodenum slightly congested, which congestion did not extend to the other parts of the small intestines. The rectum was considerably inflamed. The kidneys were slightly congested. The liver was considerably congested and softened. I found the nitrate of baryta both in the stomach and in the liver.

Experiment 4.—August 13th, 5.30 p.m.—Gave a small terrier ten grains of nitrate of baryta on a piece of meat.

9 p.m.—Very lively.

August 14th, 11.45 a.m.—Very quiet. Does not take much notice. Has been considerably purged.

9.30 p.m.—Heart beats 160. Has passed a formed colorless stool.

August 15th, 11.30 a.m.—Seems much worse. Cardiac beats 128. Slightly convulsed. There has been considerable vomiting and purging. Respiration unequal and irregular.

9.35 p.m.—All but dead. Getting stiff. Hardly seems to feel. Reflex actions almost gone. Has dragged itself a foot during the last hour.

August 16th, 11 a.m.—Considerably better, but very shakey on his legs.

8.30 p.m.—Very little power in hind legs, but seems gaining power in the front ones. Fell on attempting to jump down two feet.

August 17th, 1 p.m.—Hungry. Has been violently purged. Looks thin, shabby, and spiritless. Has passed a great deal of urine.

August 19th.—Has quite recovered.

Experiment 5.—August 13th, 5.39 p.m.—Gave a large skye terrier twenty grains of nitrate of baryta on meat.

6.30 p.m.—Looks dull, and is dribbling from the mouth.

9 p.m.—Slight vomiting and purging, but otherwise seems tolerably well.

11 p.m.—Very quiet. Has slight convulsions.

August 14th, 11.45 a.m.—Restless, but appears recovering.

August 15th.—Fast getting well.

Experiment 6.—August 17th, 11.45 a.m.—Gave a large dog thirty grains of nitrate of baryta on meat.

August 18th, 9.35 a.m.—Convulsions; cannot stand. Violent purging. Fur rough. Looks very stupid and shakey on the legs.

12.30 p.m.—Seems to have quite revived.

August 19th.—Has eaten a good meal and is much better. Recovered in a few days.

Experiment 7.—August 17th, 4.30 p.m.—Gave a large dog sixty grains on meat and in powder.

6.45 p.m.—Able to stand, but seems tottering and very thirsty.

12 p.m.—Slightly convulsed. Looks dull and heavy.

August 18th, 10 a.m.—Better.

12.30 p.m.—Has passed a great deal of water and been much purged.

3 p.m.—Still passing a great deal of water. Slight convulsions, and paralysis of back legs. Takes but very little notice of anything going on about him.

8 p.m.—No use in his hind legs. Heart beats 100.

August 19th.—Is considerably better; gradually recovering use of his legs. Seems hungry and drinks enormously. The dog was quite well and running about after two days.

Experiment 8.—August 24th, 2.40 p.m.—Gave a big dog 120 grains of the nitrate on meat. Within an hour there were violent convulsions, with excessive purging and vomiting. Apparently was in considerable pain. Drinks everything put in its way, and passes an enormous quantity of urine. Died at 5.20 p.m.

*Post-mortem*, August 25th, 1.30 p.m.—Rigor mortis persistent. Brain normal. Thorax.—Æsophagus natural. Lungs deeply congested. Clots in both sides of the heart. Abdomen.—Stomach the seat of acute inflammation, spreading over its entire surface. No ulceration or perforation, but there were black spots of extravasated blood distinctly visible on the

mucous coat. The stomach contained some brown grumous matters. The inflammation extended to the duodenum, and affected more or less the whole length of the alimentary canal, but was most of all conspicuous in the rectum. The bladder was empty. The liver was deeply congested and the kidneys slightly so. I was able to detect the poison in the stomach, liver, brain and muscles.

I append the following tabular statement of the results of our experiments.

Experiment.	Animal.	Dose.	
1.	Rabbit.	10 grs.	Died in less than one hour.
2.	Do.	5 "	Died in 27 hours.
3.	Small Terrier	30 "	Died in $3\frac{3}{4}$ hours.
4.	Do.	10 "	Recovered in five days.
5.	Large Dog	20 "	Recovered in two days.
6.	Do.	60 "	Recovered in two days.
7.	Do.	120 "	Died in $2\frac{1}{2}$ hours.

—*Medical Press and Circular.*

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#### OULACHAN OIL AS A SUBSTITUTE FOR COD OIL

The distinguished naturalist Robert Brown, has recently contributed to the London *Pharmaceutical Journal*, a paper relating to a fish found in great abundance in the waters of the north-west coast, which furnishes an oil reported to be equal to the cod liver oil for medicinal effect, and devoid of its offensive qualities. If the estimate placed on it by that intelligent writer should be confirmed, the discovery will not only prove useful to humanity, but valuable to the American settlers of the Pacific Coast in a mercantile point of view. It belongs to the Salmon family, and is the *Osmerus pacificus* of authors. The subject is of sufficient importance to warrant us in transferring to the columns of the Journal the main portions of Mr. Brown's article.

The scientific description is as follows: Head, subconical and pointed. Mouth large; posterior extremity of maxillary bone extending to a vertical line drawn posteriorly to the orbit. Eye rather small. Adipose fin placed opposite the posterior portion of the anal, which is rather elongated. The insertion of the ventral fins is situated considerably in advance of the anterior margin of the dorsal. Scales moderate, subelliptical. Dorsal region greyish-olive; middle of flank yellowish-orange, dotted with black; belly yellowish, unicolor; upper sides and surface of head greyish, fins unicolor.

The *Oulachan* or *Eulachon*, is a small delicate-looking fish, about the size of a smelt, and not unlike it, semipellucid, and with fine scales. On or about the twenty-fourth of March—at nearly the same time each year—it enters the northern rivers, and the southern ones a little later. It was once abundant in the Columbia, but that stream being now disturbed by the traffic of steamers, it is only now in exceptional years that they are caught there in any quantity. In Fraser River, and in most of the rivers on the coast of British Columbia, they are still found at that season (March) in greater or smaller quantities, but it is in the Naas River, falling into the Pacific in lat.  $54^{\circ} 40'$  N., that the Eulachon is found in the greatest quantities, and it is to its capture in that stream that these notes chiefly relate. The fish comes up from the sea into the fresh water for the purpose of spawning, but, unlike most of its allies—the salmon proper—on that coast, returns to the sea again, and is not seen until the following year. During that season they swarm in inconceivable shoals, and I can well believe that the Indians indulge in no hyperbole when I have heard them say that their canoes have been lifted in the water by the countless swarms of fishes. Their arrival is at once heralded by flocks of *Laridæ* and other marine birds swooping down to seize upon them, and during the whole of the fishing season the screams of the gulls vie with the shouts of the Indian fishers.

By long custom made and provided for, northern tribes have a vested right of fishing the Eulachon on the banks of the Naas, and certain other equally numerous and powerful tribes are prohibited from enjoying this privilege, and are compelled to buy their oil from their more fortunate neighbours. Accordingly some days before the expected advent of the fish in the river, the Indians assemble from far and near to the number of several thousands, in order that they may take up their proper camping grounds on the banks. Men, women and children come,—it is the herring-fishing of the Indians, and all can be employed. A general holiday prevails, and tribes vie with tribes, families with families, in dress and feasting, and show their joyousness in a thousand different ways. Families who have not met for twelve months now meet, and the Eulachon, or *Yghuh* (almost unspellable and certainly unpronounceable) fishing is looked forward to from one year's end to the other as a time for gossiping, courting, and general merry-making. In a few days, however, the fish begin to make their appearance, and now all are on the alert, and all idling is at an end. The first shoal, as I have said, comes into the river, from the 24th to the 27th of March, and stays three days. These are so exceeding fat that they cannot be cooked in a pan, for they will "blase up" like a mass of oil. Out of these the best portion of the

oil is made. In about three days these begin to disappear, and are succeeded by a second shoal, not so large or so fat, and these again in a day or two by the third and last shoal, which is poorer and dried for winter use, being sufficiently free from oil to permit of this. So fat are these last even, that if lighted during the dry state they will burn like a candle, and are often used as such by the natives; hence they are sometimes called the "candle-fish." The river during the time of fishing presents a busy scene covered with canoes sweeping the fish in, while others filled are landing and being unloaded by the women and children, again wildly to rush back to share in the harvest. Ashore the scene is not less vivid. Fires are blazing and pots boiling, and boxes being filled with the oil, while in and around and over all, prevails an amount of unctuousness indescribable,—a greasiness of which it is impossible to conjure up the faintest idea! The fish are chiefly taken by nets (in the Naas) but myriads get washed ashore and are caught by the old women and children and kept as their perquisite. In Fraser River they are principally captured by means of a flattened cedar pole, the edges of which for a couple of feet or so near the end being set with sharp teeth or nails, which act like so many spear-points. The Indian, standing in his canoe, sweeps this through the water, and so numerous are they that there is no fear but that a number will be impaled on the points. These are swept behind him into the canoe as a mower uses a scythe, until the canoe is full. Herrings and shoals of all other small fishes are caught likewise in this ingenious mode. Besides those kept for drying or from which oil is made, vast quantities are used in the fresh state for food, and the sudden arrival of fish, occurring generally just at a time when the Indian's winter stores are nearly finished and they are rather pressed for food, the plethora often proves fatal by producing surfeit.

The oil is obtained by putting the fish into water in boxes—generally hollowed out of a solid block of cedar (*Thuja gigantea*, Nutt., *T. Menziesii*, Dougl.) or so closely made as to be water-tight—and then throwing in red hot stones. This ingenious method of boiling is practised by all the Indians on the north-west coast of America. The oil is then skimmed off the surface and set aside to cool. The oil is never made by suspending iron vessels (after the more familiar manner of the whites) over the fire, for in that case the fishes would be destroyed, and it would be difficult to separate the broken fragments from the oil. The quality, however, greatly depends upon the care employed, and the amount of heat used to extract the oil from the fatty tissues of the fish. An inferior description is also made by squeezing the fishes out of which the finer oil has already been extracted in the method described, in a cloth against

a board. Properly prepared, the oil, at a temperature of 60° Fahr., is amber-colored and liquid. At a lower temperature it becomes thick and opaque, increasing in solidity according to the degree of cold; in this state it is whitish in color and resembles soft lard. The northern tribes keep it in boxes of their own making, but the more southern Indians—such as the Quakwolths, at Fort Rupert (lat. 50° 42' 36" N., long 127° 25' 07" W.)—preserve it in bottles, made out of the stem of the giant seaweed, *Macrocystis pyrifera*, Ag., squeezing out a little when required, as a painter does his colors out of the tinfoil tubes.

The fish, cooked fresh, is most delicious, and, when salted, is also a very palatable article of food, and held in much request among the Hudson Bay Company's traders and other old residents on the coast. The Indians dry vast numbers for winter use, and carry them with them in strings, during their annual migrations south, and for sale to other tribes who come to purchase them as well as the oil. The *Tsimpsheans* say that the Naas river clothes them and the Skeena river feeds them, because the *Hydahs*, from the Queen Charlotte Islands, and other tribes who are prohibited from fishing for the *Oulachan* in the Naas, come and purchase the oil from them, paying blankets for it, while the salmon of the *Skeena* supplies them with abundant supplies of food. I cannot but think that these fish would form a most valuable and lucrative article of commerce either in the salt or dried condition, and that in either of these forms, or preserved in ice, or in their own or olive oil, like sardines, they would command a ready market, especially in the Roman Catholic countries along the Pacific coast, in China, and even in Europe and the Atlantic states of America. A small joint stock company was indeed formed in Victoria, in 1864, for that purpose, but failed for want of capital and ignorance of the habits of the fish. Before they could get their affairs settled to start north, the season was past, and nothing further was ever done. The Indians, no doubt, declare that no white man shall ever cast a net into the Naas, but independently of this futile threat, supplies could be purchased from the Indians to almost any amount, and, if sufficient inducement were held out to them, the present catch could very easily be increased tenfold.

The oil is of even greater value than the fish itself, as usually seen in the opaque lard-like condition, and after having undergone no other preparation than the rough *trying out* just described, its taste is not unpleasant, and the odour by no means disagreeable. Even in this condition it has been used by the whites for culinary purposes, and the Indians use it in all their meals, much after the same way as we do butter, using it also as a sauce to their dried salmon. So fond are they of it, and so

essential to their health is it (as I shall presently refer to) that the Hydahs and other tribes, as I have already said, come over to purchase it eagerly, and the Hydahs, Stekins, Tsimpsheans, and other northern tribes who winter in Victoria and Puget Sound, will come on board the Metlakathlah mission schooner to purchase it. They complain of the price, but still cannot do without it. An old Tsimpshean once said to me, "I can buy beef and bread cheaper but my heart never feels good until I have got this grease. There are just two sweet things in food—*rum* and *oulachan oil*!" However much we may be inclined, from a civilized stand-point of view, to doubt the soundness of this summation of a lifetime's experience, there is no doubt that this oil, both in an edible and *medicinal* light, is of the utmost value. It is the latter property which the readers of the present article will be most interested in, and which I desire most earnestly to press upon their attention. Its effects on phthical patients are most wonderful, and, from the moist climate of the northern portions of the Pacific Coast, the natives are very subject to phthisis, hæmoptysis, and other forms of pulmonary disease. As it is, many die annually of these complaints, and I believe that I only speak the opinion of all who know these people, or who have thought over the subject, that were it not for this Oulachan oil, these northern tribes, once so powerful, and still so courageous, intelligent, and physically fine, would be decimated, and already enfeebled in constitution through vices learned from the whites, their extermination would be *un fait accompli*. It relieves violent coughs in a most remarkable manner, and equally conduces to the accumulation of flesh. In a word, it has all the properties of cod-liver oil and other fish oils in an intensified degree, without their nauseous taste—a taste which is found even in the best and most carefully prepared oils, and prohibits many availing themselves of their valuable qualities. I have known delicate ladies who would have vomited at the smell of the ordinary cod-liver oil, put the bottle of oulachan oil (slightly heated, in order to liquify it) to their mouths, and drink it without the smallest nausea! If the oil thus rudely prepared by the natives be so little unpalatable, I doubt not but that if it underwent the usual refining process of the chemist, it might be produced perfectly tasteless. The old fur traders on the coast everywhere use it in pulmonary diseases, and even send supplies of it into the interior, for the use of friends residing there. It is looked upon almost as a specific, and the few boxes which the Hudson Bay Company's trading vessel brings down on her annual spring voyage (not as an article of commerce, but for the accommodation of friends) are generally bespoke long before. The medical officers of the Company have long preferred prescribing it to cod-liver oil, both in their own fam-

ilies and in general practice. One of these gentlemen, whose great intelligence and long experience entitle his opinions to every respect, entertains very similar views to those I have advocated, and I have, moreover, heard him attribute the health and even the existence of the Indians during their exposed life in a *hyperpluviose* climate like that of Fort Simpson and north to Sitka, to the use of oulachan oil. In the course of my journeys into the interior of Oregon and elsewhere, I had occasion to recommend and procure some for friends troubled with phthisical complaints, and in every instance I have heard its merits extolled in the highest degree.—*Pacific Medical and Surgical Journal*.

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### ATOMIZED MEDICATION FOR ASTHMA.

By M. F. BASSET, M. D., of Quincy, Ill.

Some experiments which I have recently made in the treatment of asthma, by means of the atomizer and the inhalation of medicated spray, have been so satisfactory to me and my patients, that I feel justified in asking the attention of the profession to this plan of treatment.

The hand atomizer of any manufacture, that throws a continuous and copious jet of spray, answers every purpose, and is more convenient in general practice than the more complicated and cumbersome "nephogene." With these instruments, as is generally known, any liquid or medicinal substance in solution, can be applied directly to all parts of the air passages or respiratory organs. Various medical agents by this method are appropriate to asthma, but I have gained the best results from a combination of antispasmodics and expectorants. In the four cases which I subjoin, the following formula was employed:

℞ Ext. hyosciami, fl.

    " lobeliæ, fl. aa f. ʒj.

    Aquæ dest. f. ʒj. M.

*Case 1st.* A merchant, æt 40, has suffered from childhood more or less—the past six years a great deal, seldom being able to lie in bed all night, especially in autumn. Was called to him at night of August 15th, '68. Found him in an unusually severe paroxysm and nearly unconscious from the effects of chloroform inhalation, having used four ounces of this anesthetic during the day and evening, with only slight and transient relief. The spray gave him perceptible relief in ten minutes. Leaving the atomizer with directions to use it for four or five minutes at a time every hour, or oftener if necessary, I returned next day to find my patient breathing easily, looking comfortable and feeling greatly refreshed from eight hours' sleep that he had enjoyed in the morning. The spray



was continued at intervals for the next three days and no other medication employed, except a cathartic at my second visit. No more sleep was lost nor distress endured, and when I discontinued the treatment he informed me that the last three days and nights had been passed more comfortably than the same length of time during the last six years. Have not seen the case or had any further report since.

*Case 2nd.* A young man of about 25 years of age came into my office August 20th, laboring under so severe an attack that he had walked three blocks with the greatest difficulty and could not speak for several moments. His respiration, cyanosed and distressed expression, gave a correct knowledge of his affection, and as soon as he was seated, without waiting for him to tell his story, I commenced to give him the spray. In less time than it requires to write it, he began to inspire easier and in half an hour was breathing and talking with ease. He informed me that he was a stranger, bound west to find a place where he could be exempt from the suffering he had endured on the sea shore from his childhood—that he had been detained here for a week on account of the present attack and that the night previous one of our most experienced medical men had been with him for several hours making fruitless efforts to relieve him. He came to my office morning and evening for several days and used the spray for an hour at intervals, suffering but little by night or day and then went on his way rejoicing.

*Case 3rd.* An old gentleman about 60 years of age, whom I have known as an asthmatic for several years, living on a farm three miles from town, despatched a messenger for me in haste late in the evening of August 24th. I found him in a frightful paroxysm, with all the symptoms of extreme distress and suffering. As speedily as possible the spray was administered, and in half an hour he fell into quite a and refreshing sleep, for the first time in nearly a week. I left him a chologogue cathartic with directions for him to take it when he should awake, also the atomizer and directions for its use. The next evening found him comfortable with the gratifying report that he had slept and rested quite comfortably, and had had no distressing paroxysm since the previous visit. Prescribed five grains of quinine to be taken every morning, and half a grain of podophyllin every evening, and to continue the spray at intervals for four days and then to report at my office. At the appointed time a neighbor returned the atomizer with the report that the old gentleman was perfectly relieved and at work as usual. I have seen the patient several times since, and he informs me he has been entirely free from asthma ever since, now nearly three months, and that he sleeps comfortably upon a feather bed.

*Case 4th.* A prominent citizen of this place, about 50 years of age, who has suffered more from asthma and obtained less benefit from the usual treatment, for the past eight years that I have been acquainted with him than any other asthmatic I ever knew, called on me Sept. 17th on account of an unusually severe paroxysm. The spray relieved him promptly, and instead of being confined to the house for several days as always heretofore with similar attacks, the next day he was able to go to his office and attend to ordinary business. He used the spray for several days occasionally, and experienced great benefit from it, and says nothing else has ever given him such prompt and decided relief, and thinks it has permanently improved his condition, as he has since been exempt from a severe paroxysm. He formerly lived in one of the Eastern States where he had suffered so much from this complaint that he came West hoping to find relief from change of climate. The change benefited him for a time but not permanently. Since residing here, in addition to your correspondent, several of our most experienced physicians have exhausted their skill upon him in vain. He smoked arsenic and saltpetre, inhaled chloroform and ether to an alarming extent, taken anodynes and stimulants, had hypodermic injections in great number and varieties, used every nostrum and measure ever conceived of for this malady, and never found even a reliable palliative till the spray was resorted to. I believe that a few months hence this case will afford still stronger evidence of the efficiency of the new plan of treatment.

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### Surgery.

#### THE REMOVAL OF CANCER BY CAUSTIC ARROWS AND CARBOLIC ACID.

By J. R. WOLFE, M.D., F.R.C.S. Edin., Ophthalmic Surgeon to the Aberdeen Royal Infirmary.

I wish to bring before the Association two cases of cancer treated by caustic arrows and carbolic acid, both of which terminated favorably.

**CASE I.** *Epithelial Cancer.*—J. B., aged 51, farm servant, applied for advice at the Royal Infirmary, Aberdeen, in May, 1867, on account of a tumor in the inner canthus of the left eye. The tumor was about the size of a large walnut, rounded in form, hard, inelastic, and nodulated to the touch; immovable, being firmly attached to, and involving part of both eyelids; affected every now and then with attacks of lancinating pain. He stated that it began about nine years ago, in the form

of a small wart at the inner angle; it remained nearly stationary for a considerable time, but some months ago it had begun to enlarge, and continued to progress rapidly.

On being told that it was malignant, and would require an operation for its removal, he left the hospital, and did not again present himself till July 3rd, at which time the tumour had begun to break up on the surface by ulceration; being covered with a crust, and having an ichorous discharge, of a slightly offensive smell, spreading and infiltrating the subintegumental tissue. Examined with the microscope, it presented the ordinary characters of epithelial cancer. The awkward situation in which it was placed rendering it difficult of removal by the knife, without producing cicatrices which would have given rise to considerable deformity of the eyelids, I had recourse to the following procedure.

Five openings were made with a broad lance, into which caustic arrows were inserted; one of these was in the centre of the tumor; the other four were in the healthy skin round its margin; and the neighboring parts were protected by a patch of leather, having an opening cut in its centre of sufficient size to embrace the tumor. The whole was covered with a compress of dry lint and bandage. As the patient complained of no pain, nor any irritation, he was allowed to move about the ward as usual.

On the third day the whole tumor came away, leaving a grey-colored slough, which was detached in the course of twenty-four hours by the use of linseed meal poultices. The surface now exposed was clean, and presented irregular elevations, which bled very readily. The gap left was so deep as to expose freely the inner wall of the orbit as far back as the middle of the eyeball. The surface was now painted with strong carbolic acid, and the whole covered by wadding dipped in glycerine. This treatment was continued for three days; by which time the bleeding elevation disappeared, and the whole presented an uniform granulating surface. It was then covered with carbolised wadding dipped in glycerine; the dressing being changed every second day, and the wound washed with a weak solution of carbolic acid. Under this treatment the gap filled up rapidly; and in a fortnight it was entirely healed.

In August I exhibited the case at the meeting of the North of Scotland Medical Association; when the skin about the inner canthus and eyelids presented its natural appearance, and scarcely a trace of cicatrix remained to show that loss of substance of such an extent had occurred.

I had an opportunity, quite recently, of examining the patient, and found the cure complete. The only traces (and these only to be observed on minute inspection) are: a slight elevation of the inner angle, as if the

periosteum there were thickened, and the obliteration of the tear duct, which, however, does not give rise to any inconvenience.

CASE II. *Cancerous Cyst*.—E. A., aged 68, domestic servant was admitted into the Royal Infirmary, October 12th, affected with a hard tumor of the left inner side of the lower eyelid and cheek, measuring two inches and one-eighth in its largest diameter; of an oval shape, irregular and nodulated on the surface, and presenting the appearance of small abnormal vessels ramifying on its cutaneous surface, which was completely adhering. On puncturing it, there escaped a quantity of bloody serum and air-globules, which evacuation, however, did not diminish the size and hardness of the tumor. This fluid, when examined under the microscope, presented a mixture of cells and granules, but of so undecided a character as not to make it clear whether these were cancerous or merely the products of an inflamed cyst; but the bulk of the tumor, etc., showed unmistakable characters of malignancy. The tumor was removed by caustic arrows, as in the last case, and dressed with carbolic acid. The patient was discharged in eighteen days, scarcely any appreciable cicatrix being left, and still continues well.

REMARKS.—The advantage of this mode of treatment appears, as far as two cases prove anything, to be the following:

1. It is painless. Patients walked about the wards as if nothing had been done, and complained of no feeling of pain or discomfort whatever.
2. The tumour is completely eradicated; and, under the action of the antiseptic, which acts in the first instance as a caustic to the diseased tissue, healthy granulations are produced, which completely fill the gap, and leave little or no trace of a cicatrix.

This method appears exceedingly valuable for removing tumors from regions where no skin can be obtained from the neighborhood; and is also applicable to erectile tumors, naevi, cancer of the breast, etc., occurring in patients, places, or seasons of the year, when the use of the knife is to be dreaded.

On my mentioning the result of my cases to Professor Gosselin, he told me that for the last few years he had rarely used the knife for the removal of cancer of the breast in the Hôpital la Pitié, but regularly resorts to the use of the caustic arrows. The result is, that he does not now meet with cases of erysipelas, which used to be very common in his wards. He showed me several cases under treatment; but they were not sufficiently far advanced to enable me to judge of the appearance of the cicatrices, or to decide how much of the beautiful result above detailed is due to the carbolic acid, and how much to the arrows: in short to determine whether the same result might not be obtained by the use of the knife and carbolic acid.

The arrows employed I obtained from the Pharmacien of Hôtel-Dieu, Paris, who prepares them by dissolving chloride of zinc in a little water, making a saturated solution, and mixing it with sufficient starch to make a stiff paste, which is rolled into a thin cake, cut into shape, and dried at 212 deg. Fahr. Although elsewhere I have claimed priority in the use in this country of carbolic acid as a dressing for wounds, yet I by no means wish to undervalue the great service rendered by Professor Lister to surgery in the systematic employment of it. Having seen its employment in Professor Lister's wards in the Glasgow Infirmary, I may be allowed to bear testimony to the skill, care, and originality, with which his experiments have been carried out.

Although not strictly belonging to the subject of this section, I may be permitted briefly to draw attention to a point alluded to in Case I. I have there stated that the obliteration of the lachrymal passage gave rise to no material inconvenience; and, adopting the ordinarily received doctrine that the tears are secreted by the lachrymal gland and removed by the lachrymal canals, sac, etc., one naturally asks why, in such a case, troublesome epiphora did not follow? But this view of the functions of these parts has been shown to be erroneous by repeated experiments and clinical observations. Magendi and Martini removed the lachrymal gland in animals, but found that the secretion of tears still continued. Cases where, in man, the lachrymal gland has been removed on account of disease, have been reported by Daniel O'Brien, Sir W. Lawrence, Graefe, and Paul Bernard; in all of which the conjunctiva remained moist, and in some even tears were secreted in such quantity, under irritation as to flow down the cheek. It would appear, therefore, that the ordinary secretion is derived from the conjunctiva, and is not formed in larger quantity than can be got rid of by evaporation; while the lachrymal gland, like the salivary gland, to which it approaches in structure, secretes only periodically, and is intended to afford a large supply of fluid under the influence of irritation, when required to rid the ball of foreign bodies, as in cases of mental excitement. Hence, xerosis is not the result of the removal of the lachrymal gland, but is produced when the conjunctiva is extensively destroyed by granulation, removal of the eyelid, and the like.

EXPERIMENTS.—In 1863, I repeated in my class the experiments of Magendi, Martini, and Donders, by removing in the right eyes of two rabbits, both the lachrymal gland and the gland of Harder, connected with the membrana nictitans. In both cases, the right conjunctiva remained as moist as the left, and, when dried by everting the eyelids and applying a dried cloth, became again moist in a few seconds. The ap-

plication or irritants, such as ammonia, to the nostrils, produced precisely the same effect on the eye operated on as on the sound eye.

On two other rabbits I removed part of both eyelids and of the *membrana nictitans*; and, in both, although the eye was protected, in the one by drawing the ear over it and securing it in that position, and in the other by a screen of wire-gauze, the cornea became opaque in the part thus left unprotected.

These experiments I have recently repeated, and obtained the same result. My special reason for touching on this subject is, the recent publication Mr. Z. Laurence, of some papers in which he recommends the extirpation of the lachrymal gland for the radical cure of obstinate epiphora. The results of these experiments show, that the performance of such a formidable operation for that purpose, would, in all probability prove of little value; and, therefore, I take the liberty of suggesting the propriety of making further investigations on this point before adopting such a procedure.—*British Medical Journal* 1868.

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#### OPIUM IN WOUNDS OF THE ABDOMEN.

BY CHARLES C. LEE, M.D., NEW YORK.

I am induced to offer the following record as an additional testimony to the great value of opium in the treatment of penetrating wounds of the abdomen. The case occurred during my service as House Surgeon to the Pennsylvania Hospital in Philadelphia.

*Case.*—Andrew S., a large muscular man, aged thirty-three, was admitted to the Hospital on the evening of October 22nd. In a fight with another man he had received two stabs—one in the back, the other in the abdomen. The former was an incised wound below the left scapula, three inches in length, extending through the skin into the *latissimus dorsi*, and filled with clotted blood; this was at once turned out, and the wound closed by sutures and compresses. The other wound was more serious. It extended a distance of five inches along the epigastric and right hypochondric regions, from an inch above the umbilicus to the edges of the false ribs. Through this opening protruded the *gastro-hepatic omentum*, a knuckle of the *duodenum*, the entire gall bladder and about two inches of the right lobe of the liver. Hemorrhage was profuse from the small cutaneous arteries, but none of the intestinal vessels were wounded. The viscera were carefully examined, and, as soon as it was ascertained that none of them were injured, they were replaced in the reverse order to that in which they protruded. The

wound was cleansed, and brought together by the interrupted lead wire suture, over which were placed a pad of dry lint, compresses, and a firm circular bandage. There was little or no shock, and, although the amount of hemorrhage must have been large, the man's pulse was full and slow—beating only seventy to the minute. Three quarters of a grain of sulphate of morphia were given, perfect rest on his back enjoined and in an hour the patient was sleeping.

October 23rd.—As no bleeding occurred during the night, and the wound was easy, the bandage was not removed, nor was the back examined. The morphia was continued in one half-grain doses every four hours, and the patient was confined to the most rigid diet—barley water, rice water, and thin gruel.

October 24th.—Bandage and dressings removed, wound looks well, but at two points discharges a few drops of pus; considerable tympanitis in right hypochondriac region above wound; the parts were gently bathed with tepid water and the same dressings reapplied; the wound in the back is partly healing by first intention; the morphia was continued in the same quantities, and no change made in the diet.

October 26th.—Patient still doing well; dressings not disturbed; the morphia was continued in the same doses every sixth hour, day and night; no change in diet; the man passes his water freely, but has no desire to evacuate his bowels.

November 2nd.—General condition still excellent; as the wound has suppurated more freely, all the sutures but two were removed and replaced by adhesive strips, over which the wound was dressed with simple cerate and the bandage as before; wound in back almost well; no change made in the diet, which still consists of barley water twice a day, and oat meal gruel at dinner; recumbent position maintained, and the morphia continued in same amount.

November 5th.—Granulations are extending rapidly along the wound same dressing reapplied; the wound in the back is well, having chiefly closed by first intention, the patient is urgent to have his bowels open, and, as it is now a fortnight since the accident occurred, the morphia is stopped, and an opening enema given; this brought away a copious stool and greatly relieved him; recumbent position maintained, but diet changed to milk morning and evening, with chicken soup and bread at dinner.

November 10th.—Wound almost closed, and sufficiently firm to remove the adhesive strips; patient placed on common house diet.

November 12th.—Wound quite closed and union firm; patient allowed

to rise and walk about, which causes no pain or weakness. Health good and strength returning.

November 19th.—Discharged from the Hospital cured, although still a little weak from rigid dieting and long confinement to bed.

No recent authority upon abdominal wounds has failed to emphasize the value of opium in their treatment, especially if the viscera be wounded; but, in the class which the foregoing case illustrates, sufficient stress has not, I think, been laid upon its use. It is to be observed that peritonitis supervening upon these injuries is generally of the most fatal character, the traumatic loss of blood having often been so great that heroic treatment cannot be employed. Nothing can be more important, therefore, than the adoption of such measures as may ward off this complication; and the observation of a large number of cases, of which that detailed is a type, convinces me that of these agents opium, pushed to the verge of narcotism, properly holds the first place.—*Cal. Medical Gazette.*

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#### INSPISSATED CERUMEN:

By D. B. ST. JOHN ROOSA, M. D., Prof. in the University Medical College.

It is intended, in the papers which are proposed under the above title, to present some of the practical results of an experience in ear diseases, reaching over quite a large number of cases, in such a way that they may be useful as a guide to those who see comparatively little of the diseases of this organ.

Among the laity, and even in the profession, hardening of the ear-wax is regarded as quite a common and harmless affection. All forms of deafness are ascribed to this cause, and the first treatment that many ear patients receive, is a vigorous syringing to see "if the wax be not hardened," and this often without any preliminary examination. Impacted cerumen is indeed quite a common occurrence, but it is by no means as simple an affair as has been generally supposed. I do not mean by this, that it is anything more, as a general thing, than a local affection, but as such, it may produce results very detrimental to the function of hearing. It hardly seems to occur more frequently in persons with a soft skin than others, as has been suggested by some authors, for among the patients whom I have seen, careful examination has failed to detect any such origin. Persons with a dry and harsh skin have as often come to me with impacted cerumen, as the opposite class. A frequent cause is the too careful washing of the auditory canals with soap and water, which some overclean persons delight in doing. This rinsing out the canal plugs the natural yellow wax, which is on its way out, down to



the bottom of the canal, and being continued morning after morning, at last fills up the ear, and when the drum is once fairly covered, and pressed upon, and *not till then*, deafness results. It is somewhat remarkable how long persons may have the ears plugged up with hard wax without being aware of it. On examining persons who present themselves with impacted wax, only causing deafness on one side, we will nearly always find the same condition of things as to the wax, in the other ear. If the cerumen be very black and hard, and if it comes out in one large plug, we may conclude that it has been there for years. I recall two cases in which, from definite accounts, we could safely conclude that five years had elapsed since the deafness occurred. In both of these cases, the hearing became normal after the wax was removed. Impacted wax sometimes causes serious inflammation of the canal and drum. In one case, that of a young lady, suppuration of the drum resulted from hardened wax pressing upon it, and the wax was removed spontaneously like a shot from a pistol, and, as was stated, with almost as loud a report. This evacuation was preceded by the most intense pain. The removal of a plug three fourths of an inch long from the other auditory canal, and which was wedged in very tightly, saved the patient from the inflammation which was so troublesome on the other side. In another case, still under treatment, what was supposed to be on first examination a plain case of inspissated cerumen, was found, after removal of the wax, to be one of inflammation of the integument which lines the canal. The removal of the hardened wax was, as it were, only the removal of a huge scab from an ulcerating surface. I have seen other cases like this.

Inspissated cerumen causes many symptoms. The prominent ones are:

1.—Sudden deafness. 2.—Tinnitus aurium. 3. Vertigo. 4.—Earache.

Of course an examination is the only method of clearing up the diagnosis. This examination should be undertaken with the ear mirror, (or otoscope, properly called,) and not with the syringe. In other words, it should be ocular, and not tactile. The trouble can hardly be confounded with any other affection. Wax which presses upon the drum is almost always black, not yellow, and nearly fills the canal. No decided prognosis can be given from seeing the wax, as to whether its removal will restore the hearing. Hardened cerumen very often forms over a perforated or ulcerated membrana tympani, and is then of course only a small part of the disease. It often results, also, from the dropping of oils into the ear for some therapeutical end seldom attained. The original disease for which the oils were used was then probably an affection of the cavity of the tympanum.

The habit of examining the ear in all cases with head symptoms, will sometimes assist materially in clearing up a diagnosis. I once cured a man from the effects of a supposed sun-stroke, by removing inspissated cerumen, who had been treated for two months in a hospital for cerebral disease.

Patients who have once had impacted wax, are apt to suffer again from the same cause, at least I have seen quite a large proportion of cases in persons who have been affected in the same way before. Such may be advised to have their ears syringed with a solution of bicarbonate of soda and water, about once in two months. The removal of the hardened mass is very often a tedious affair. I once spent an hour a day for a week in removing a mass from the ear of a lady patient. In the interim, the best solvents, such as soda, were used. With previous soaking the canal with a warm solution of soda, say a drachm to the half pint, ten minutes will generally suffice to remove the mass. A good india rubber syringe, holding at least four ounces, should be used, and the auditory canal well straightened by holding up the auricle with the left hand, at the same time syringing with the right. The glass syringes are of no use. The stream sent in should be vigorous but steady, and care taken not to eject it with such force as to cause pain or dizziness. There should never be any pain caused in syringing the ear for any purpose. Where pain is produced, syringing will do harm. A thin bowl is held under the ear by the patient. No assistant is needed. No towel need be placed on the patient's neck, for, with careful manipulation, no water will be spilled.

The ear may contain an astonishingly great quantity of hardened ear wax, and an examination should be made very frequently during the course of the syringing to determine when it is all removed. No after-treatment is necessary. If, however, sounds are oppressive, as they often are, after the removal of large quantities of ear wax, a little cotton may be worn in the meatus for a day or two. The membrana tympani always appears reddened immediately after the removal of the cerumen, and then dull. It will be some days before it regains its normal translucency. If the hearing be not improved immediately on removing the wax, the middle ear should be inflated by Politzer's method. The drum is sometimes sunken in temporarily, and one or two passages of air through the Eustachian tube will restore its position as well as the hearing.

Professor Gross recommends the use of a pick for the removal of impacted wax. This does very well as an aid where the wax is very hard. If it be used, the surgeon should have a mirror on his forehead, and never

put the pick in the canal, unless he can see just what he is doing. Painful and even destructive inflammation may be caused by this mining out process. The general practitioner, to whom ear cases come in only a small proportion in his daily rounds, had much better rely on the use of a syringe and warm water where possible, having previously moistened the canal with a warmed solution of soda, zinc-sulph, or with glycerine and water, sweet oil, etc. Inspissated cerumen rarely occurs in children. I suppose there is no difference in the liability of the sexes, and I know of no well-established proximate cause, except the one given in the beginning of this article, *i. e.*, packing the meatus by the frequent pouring in of water. Yet, we might say that it is common for hardened wax to collect about a foreign body in the ear, such as a raisin, introduced originally to relieve earache, a cherrypit, etc., but here the inspissated cerumen is only a concomitant. It is hardly to be credited, although formerly generally believed, that a diathesis has anything to do with it, or that there is any disease of the ceruminous glands. The cause is probably in one way or another mechanical—that is, there is some interference with the normal and daily removal of the secretion.—*Medical Record.*—*Chicago Medical Examiner.*

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## Midwifery and Diseases of Women and Children.

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### THE BEST METHODS OF EXPEDITING NATURAL LABOURS.

BY W. H. DAVIES, M. D.

I do not propose in this paper to allude to those cases where, from want of pelvic space or undue development of the foetal head, it becomes necessary to resort to instrumental delivery; but to a class of cases at all times trying to the patience and demanding the nicest judgment and discrimination on the part of the accoucheur—cases where, from inertia-uteri, rigidity of the os, or want of frequency and force in the uterine contractions, labour may be indefinitely delayed. The agencies at our command are so numerous and varied, that we are often in great perplexity as to the choice we shall make in each particular case. They may be classed as remedial and operative. Of the former, ergot, opium, tartar emetic and borax are highly esteemed; while of the latter, mechanical dilatation, the warm water douche, scarification of the cervix, venesection, etc., are each applicable under certain circumstances. First among the remedial agents that has long been held in high repute, stands ergot; which although usually effective in producing the requisite

amount of uterine contraction, and generally a safe agent as far as the mother is concerned, provided there be sufficient pelvic space, yet we must bear in mind that more children are lost by it than by any other method, and that the nicest judgment is necessary in the selection of cases for its administration; and it must not be forgotten that it is to a large extent an uncontrollable remedy. Borax has been found in Germany of great use, and when combined with ergot is sometimes satisfactory in its action. Opium in many cases is a powerful uterine stimulant, and has the merit of being a safe one; but the best effects in the majority of cases will be obtained from the judicious use of tartar emetic. This remedy will always be found of the greatest service when the os is dry, hot and rigid, while at the same time the pains are severe and regular, but producing no advance of the head. Given in doses of from one-sixth to one-eighth every fifteen minutes until nausea and vomiting are procured, it will rarely be found to fail in producing free dilatation of the os, copious mucous discharge, and regular effective pains. Of course cases will sometimes occur where its use is contra-indicated, but for general service we possess no remedial agent so steadily reliable. Patients will constantly be met with who have strong objections to the use of any medicinal agent; in fact, where any or all of them would be unsuitable, and where operative interference becomes necessary. When we have any suspicion that the inefficiency of the pains depends on intestinal disturbance, a copious enema must be administered, which alone often suffices to procure effective pains; venesection has often been resorted to with marked good, and scarification of the cervix has its earnest advocates. Of all the operative methods, none so recommend themselves to my mind as most generally safe and effective as the warm cervical douche and Dr. Barnes' water bags. The cervical douche is a remedy always at hand, easy of application, pleasant to the patient, while at the same time it is never attended with any untoward results, and when perseveringly applied to the os and cervix will seldom disappoint. In Dr. Barnes' bags we possess a much more powerful dilating agent, one requiring considerable tact in its application, but ever reliable. A small sized bag should be first used, carefully introduced within the os, dilated with water until it becomes fairly wedged, and there allowed to remain until it drops out, when a larger size may be substituted if necessary, and it will seldom be necessary to use a third. The os, under this process, becomes thick, soft and dilatable, and a profuse mucous discharge bathes the surrounding parts, while the pains increase in strength, regularity and expulsive power. The careful accoucheur, if possessed of nice discriminating judgment, will never be at a

loss in the bed-chamber if he is armed with tartar emetic, a syringe and Dr. Barnes' bags, and it will be found that the termination of most cases can be so nicely arranged as to reflect great credit on the attendant and afford vast satisfaction to the patient.—*California Medical Gazette.*

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## MEDICAL NEWS.

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### CURE FOR OBESITY.

Dr. Gibb of London, recommends the use of the Bromide of Ammonium to those who suffer from an excess of fat. When taken in small doses for a length of time it will absorb fat, and diminish the weight of the body with greater certainty than any other known remedy.

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### THE ETHER SPRAY IN "POPLITEAL ANEURISM."

Dr. HENRY HARRISON reports a case of popliteal aneurism in the *Med. Times and Gazette* in the treatment of which the ether spray was applied, in addition to digital and instrumental compression. He inclines to the opinion that this had much to do with the rapid solidification of the rather large tumor.

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### LACTATION BY A WOMAN SIXTY YEARS OLD.

Dr. WM. A. GILLESPIE, of Virginia, records in the *Boston Medical and Surgical Journal*, the case of a widow lady, aged about sixty, whose daughter having died, leaving a child two months old, took the child and tried to raise it by feeding. The child's bowels became deranged, and being unable to procure a nurse, and her breasts being large and full, he advised her to apply the child, in hopes milk would come. She followed his advice perseveringly, and to her astonishment, a plentiful secretion of milk was the result, with which she nourished the child, which afterward became strong and healthy.

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### PEROXIDE OF HYDROGEN IN DIABETES.

There are few diseases in which every form of treatment has so signally failed, as in Diabetes. Dr. Day of Geelong, Australia, claims however, to have obtained very considerable success in treating this disease by the etherial solution of peroxide of hydrogen, given two or three times a day, in doses of from half a drachm to two drachms in a wine glass full of water. Several other observers in Australia have confirmed Dr. Day's views, and unless the cases published are exceptional ones, the discovery promises to be a very important one.

# Canada Medical Journal.

MONTREAL, MARCH, 1869.

## THE MONTREAL HOSPITAL FOR SICK CHILDREN.

This is the title of an institution for which application has been made for an Act of Incorporation, and which we hope and have every reason to believe will be in active operation within the next few months. Several meetings have been held, of friends interested in the movement, and a committee named, upon which we notice the names of many active and philanthropic gentlemen. Without at all detracting from the numerous medical charities of which Montreal can with pride boast, we know of none so capable of enlisting the sympathy of the public, as an Hospital specially devoted to the treatment of sufferers of tender years. Their very helplessness appeals loudly on their behalf. It has for years been a reproach to us, that while the mortality among children under five years of age, has attained the frightful rate of 66 per cent, no united effort has been made to give relief and succor to the many hundreds who yearly perish in our city, simply from the want of proper care and attention. Such an institution is therefore loudly called for, and we commend its claims to the wealthy and philanthropic of our city.

*(To the Editor of the Canada Medical Journal.)*

SIR,—I notice in your February number a paragraph containing a most unjustifiable attack on me by the Editor, who takes upon himself to judge and ridicule a petition for a charitable institution, designed solely for the suffering poor, and which was largely signed by the most influential gentlemen of this city, as well as by most of the medical practitioners in Montreal, among whom are the greater number of the physicians of the Hotel-Dieu Hospital, and cordially endorsed by them, as an institution, which, if reestablished here, would be the means of doing good to many.

The public must be allowed to have their choice in such a matter of life and death to them, as to whether they prefer to be treated where the knowledge of diseases of the eye and ear must of necessity be only of a general character, or in an institution where such diseases have been specially attended to for many years past.

There is no possible cause I can assign for such a tirade against me

and the infirmary in the Journal, one of the Editors having signed the petition.

If the writer of the article takes the trouble to inquire of my standing as a surgeon among my confrères, both English and French, he would find that they are not only so satisfied with my skill, as to have placed members of their own families in my hands to undergo most delicate and dangerous operations, but have also recommended their own patients, when suffering from those diseases which I treat, to come to me.

As to my advertising, following two of the most intricate branches of my profession, a specialty which can only be brought before the public by such means, no surgeon of respectability could find fault with it, as it does not clash with any of the interests of, nor does it detract from the high standing of our noble profession. I remain yours,

L. O. THAYER, M.D.

REMARKS.—In the article referred to, we did not judge nor ridicule the petition for aid to a charitable institution “designed solely for the suffering poor.” We exercised the right of every public journalist of criticizing a public petition.

We do not think that the writer of the above has any reason for asserting that the knowledge possessed by the medical staff of our hospitals is of so ordinary a character that the best interests of those afflicted with eye or ear diseases, would in any way suffer at their hands. This is more especially the case, as it was at one of these institutions where “the knowledge of diseases of the eye and ear, must of necessity be only of a general character,” that Dr. Thayer, laid the ground work, of whatever practical skill he may possess. Furthermore, it is rather ungenerous on his part to the members of the medical staff of the Hotel Dieu, the greater number of whom, he declares, signed his petition.

The doctor need not seek for a cause, as there was no desire on our part to injure him personally; but inasmuch as the petition contained an assertion that there was no institution in this city where diseases of the eye and ear could be treated, we were bound to make a contrary statement in view of the fact, that the governors of the Montreal General Hospital, at the suggestion of the medical staff, had made alterations in, and allotted three wards specially for diseases of this class.

With regard to one of the editors of this journal having signed the petition, the Journal has nothing whatever to do. We presume he exercised his right as a private individual to do as he pleased in the matter; that he did not in any way commit the journal by his act, is self evident from the article which appeared in the last number.

As to the question of advertising, we need only refer Dr. Thayer to the Code of Medical Ethics, adopted by the Canadian Medical Association in September last.

The Board of Trinity College, Dublin, have received a patent creating a Regius Professorship of Surgery, and in it Dr. Robert Adams, is nominated the first Professor. The venerable Surgeon's numerous friends in Canada, will rejoice at this recognition of his merits.

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AMERICAN MEDICAL ASSOCIATION.

The Twentieth Annual Session will be held in New Orleans, La., May 4, 1869, at 11 A.M.

The following Committees are expected to report:—

On Diseases of the Cornea.—Dr. Jos. S. Hildreth, Illinois, Chairman.

On Cultivation of the Cinchona Tree.—Dr. Lemuel J. Deal, Pennsylvania, Chairman.

On Excision of Joints for Injuries.—Dr. J. B. Reed, Georgia, Chairman.

On Alcohol and its Relations to Medicine.—Dr. John Bell, Pennsylvania, Chairman.

On the Cryptogamic Origin of Disease with special reference to recent microscopic investigations on that subject.—Dr. Edward Curtis, U. S. A., Chairman.

On Operations for Hare-lip.—Dr. A. Hammer, Missouri, Chairman.

On Clinical Thermometry in Diphtheria.—Dr. Jos. G. Richardson, New York, Chairman.

On Prophylastics in Zymotic Diseases.—Dr. Nelson L. North, New York, Chairman.

On Inebriate Asylums.—Dr. C. H. Nichols, D. C., Chairman.

On the Influence of the Pneumogastric Nerve on Spasmodic and Rhythmical Movements of the Lungs.—Dr. Thomas Antisell, D. C., Chairman.

To Examine into the Present Plan of Organization and Management of the United States Marine Hospitals.—Dr. D. W. Bliss, D. C., Chairman.

On the Utilization of Sewerage.—Dr. Stephen Smith, New York, Chairman.

On the Influence of Quarantine in Preventing the Introduction of Disease into the ports of the United States.—Dr. Elisha Harris, N. Y., Chairman.

On Nurse Training Institutions.—Dr. Samuel D. Gross, Pennsylvania, Chairman.

On Commissioners to aid in Trials involving Scientific Testimony.—Dr. John Ordronaux, N. Y., Chairman.



On Annual Medical Register.—Dr. John H. Packard, Pennsylvania, Chairman.

On Devising a Plan for the Relief of Widows and Orphans of Medical Men.—Dr. John H. Griscom, N. Y., Chairman.

On Veterinary Colleges.—Dr. Thomas Antisell, D. C., Chairman.

On Specialties in Medicine, and the Propriety of Specialists Advertising.—Dr. E. Lloyd Howard, Maryland, Chairman.

On Library of American Medical Works.—Dr. J. M. Toner, D. C., Chairman.

On Vaccination.—Dr. Henry A. Martin, Massachusetts, Chairman.

On the Decomposition of Urea in Uræmic Poisoning.—Dr. H. R. Noel, Maryland, Chairman.

On the best method of Treatment for the different forms of Cleft Palate.—Dr. J. R. Whitehead, N. Y., Chairman.

On Rank of Medical Men in the Navy.—Dr. N. S. Davis, Illinois, Chairman.

On Medical Ethics.—Dr. D. Francis Condie, Pennsylvania, Chairman.

On American Medical Necrology.—Dr. C. C. Cox, Maryland, Chairman.

On Medical Education.—Dr. J. C. Reeve, Ohio, Chairman.

On Medical Literature.—Dr. E. Warden, Maryland, Chairman.

On Prize Essays.—Dr. S. M. Bemiss, Louisiana, Chairman.

On the Climatology and Epidemics of—Maine, Dr. J. C. Weston; New Hampshire, Dr. P. A. Stackpole; Vermont, Dr. Henry Janes; Massachusetts, Dr. H. I. Bowditch; Rhode Island, Dr. C. W. Parsons; Connecticut, Dr. E. K. Hunt; New York, Dr. W. F. Thoms; New Jersey, Dr. Ezra M. Hunt; Pennsylvania, Dr. D. F. Condie; Maryland, Dr. O. S. Mahon; Georgia, Dr. Juriah Harris; Missouri, Dr. Geo. Engelman; Alabama, Dr. R. F. Mitchel; Texas, Dr. T. J. Heard; Illinois, Dr. R. C. Hamil; Indiana, Dr. J. F. Hibberd; District of Columbia, Dr. T. Antisell; Iowa, Dr. J. C. Hughes; Michigan, Dr. Abm. Sager; Ohio, Dr. T. L. Neal; California, Dr. F. W. Hatch; Tennessee, Dr. B. W. Avent; West Virginia, Dr. E. A. Hildreth; Minnesota, Dr. Samuel Willey; Virginia, Dr. W. O. Owen; Delaware, Dr. L. B. Bush; Arkansas, Dr. G. W. Lawrence; Mississippi, Dr. —Compton; Louisiana, Dr. L. T. Pimm.

Secretaries of all medical organizations are requested to forward lists of their Delegates as soon as elected, to the Permanent Secretary.

Any respectable physician who may desire to attend, but cannot do so as a delegate, may be made a *member by invitation*, upon the recommendation of the Committee of Arrangements.—W. B. ATKINSON.