

Vol 3

MEDICAL SCIENCE

ISSUED MONTHLY

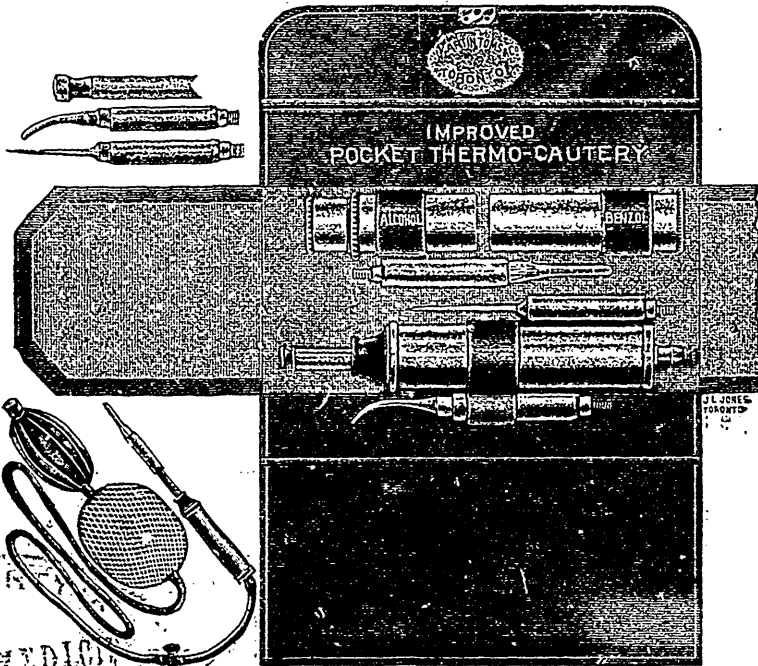
VIDEO MELIORA PROBOQUE

TORONTO, JAN. 1, 1888

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VIDEO MELIORA PROBOQUE

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ISSUED MONTHLY
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ORIGINAL ARTICLES.

THE DANGERS AND ACCIDENTS OF LOCAL TREATMENT IN PUERPERAL CASES.

BY JAMES C. CAMERON, M.D., MONTREAL, PROFESSOR OF OBSTETRICS, M'GILL UNIVERSITY.

DR. Matthews Duncan has somewhere remarked that the subject of antiseptics in midwifery is by far the most important obstetrical question of the day, being of even greater moment to the public than the prevention of epidemics: for while epidemics come at intervals, puerperal septicaemia is a constant menace to the lives of a most valuable portion of the community. Antiseptics may justly be said to have revolutionized the practice of midwifery, so that results impossible a few years ago, are now everywhere obtainable. Antiseptic midwifery, in some form or other, is practised almost universally; but unfortunately general use is apt to run speedily into abuse, and the antiseptic system is no exception to the rule. Uterine and vaginal douches, when properly administered in suitable cases and at suitable times, are invaluable; but otherwise they may prove dangerous. To point out some of the dangers and shew how they may be avoided is the object of this paper.

The opinion seems to be prevalent among the profession that, while the intra-uterine douche is *generally* safe, the vaginal douche is *perfectly* so. No particular skill is considered necessary. Impressed with its harmlessness, some recommend the antiseptic vaginal douche as a prophylactic against infection during the puerperal state, and advise its use in all cases. Not unfrequently we find the operation entrusted to the nurse, or some incompetent person, without direction or supervision, as if douching was a trivial matter, out of the province of the physician, or perhaps beneath

his dignity. With such doctrines and practice I cannot agree, for in my opinion prophylactic douching during the puerperal state is not only unnecessary, but frequently also the cause of serious harm. Though believing in thorough antisepticism during labor and the puerperal period, and admitting the value of vaginal and uterine douching in certain conditions, I am nevertheless convinced that the douche is not perfectly harmless, and that it should be used only when clearly indicated, and then with caution.

Liability to absorption through tears, fissures, abrasions, and other traumatisms constitute the chief danger of the vaginal douche. The contraction of the constrictor muscles narrows the orifice of the vagina, and favors sacculation of its canal; consequently part of the injection is apt to be retained, perhaps for a considerable time. Indeed absorption is more liable to take place through the vagina than through the uterus; because the latter usually contracts firmly, and empties its cavity, especially if the injection be hot.

For various reasons the intra-uterine douche is more dangerous than the vaginal, especially if the current be too strong, or the outflow insufficient. Fluid may be forced through the fallopian tubes into the abdominal cavity, causing acute peritonitis, or even death as in Vuhtz's case; or a thrombus may be dislodged from the placental site, and hæmorrhage take place; or air may find its way directly through the uterine sinuses into the veins; or some of the injection fluid may enter the veins. In Stadfeld's case, symptoms of poisoning appeared while a large sublimate douche (1-5000) was being administered, proving that the mercuric solution entered the circulation directly. The uterine sin-

uses, firmly attached to the muscular wall of the uterus, are closed during muscular contraction, but gape open during relaxation: therefore in relaxed conditions of the uterus, fluid or air may readily penetrate into the veins. I have seen sudden death produced in this way during an intra-uterine injection of perchloride of iron for postpartum hæmorrhage.

The fluids most commonly used for injection are plain water, or solutions of permanganate of potash, carbolic acid, or corrosive sublimate. Plain hot water is the safest, and is quite sufficient when debris is to be washed away, and a simple mechanical effect is the only one desired. But in septic cases, where germicide action is also required, corrosive sublimate is by far the most effective but at the same time it is the most dangerous. Death has occurred in sixty hours from the effects of an intra-uterine sublimate douche (1 2000). Patients suffering from anæmia or kidney troubles are very susceptible to the action of mercury: so, too, are those who have recently been under mercurial treatment, or in whom there is marked atony of the uterus, or extensive traumatism, of the genital tract. It may be taken as a general rule that sublimate injections are contra-indicated in all such cases, or should at least be given with the greatest caution.

Frequently an intra-uterine douche is followed by a chill and rapid rise of temperature (104° or over), accompanied sometimes with colic and abdominal tenderness. As a rule these symptoms are of nervous origin, though exceptionally they may be due to absorption. In men, the passage of a catheter or sound is occasionally followed by a sharp rigor and high fever. Surgeons call this urethral fever, and attribute it to nervous influences. Similar symptoms may be caused by the passage of a uterine sound, or by artificial dilatation of the cervix, without any evidence of inflammatory mischief; nervous influences are undoubtedly the cause. So, in like manner, the passage of a foreign body (irrigation nozzle) into the uterus, and the distention of the uterine cavity with fluid, especially if the outflow be insufficient, may produce similar nervous symptoms, sometimes of an alarming nature.

What precautions are to be taken for the avoidance of these dangers and accidents?

1st. The patient should always be placed across the bed in a *dorsal* position, with hips well raised,

and thighs everted. The operator has then better control over the direction and force of the injection, as well as over the outflow. In intra-uterine douching the anterior lip can be more easily seized and the uterine cavity straightened, if the patient is lying in the dorsal position.

2nd. The vaginal or uterine nozzle should be *inflexible* (glass or hard rubber), without a central orifice in the bulb (to avoid injecting fluid through the fallopian tubes, or dislodging thrombi from the placental site). The openings in the bulb should be directed slightly backwards, so that the injection stream may flow away from the fundus, not towards it.

3rd. A sufficient outflow should be secured. The vaginal orifice should be kept open. Before an intra-uterine douche is given, the anterior lip should be seized with a vulsellum, or tenaculum, and drawn gently downwards till the uterine cavity is straightened. The nozzle can then be more easily introduced, and a good outflow is secured. After the operation it should always be ascertained that there is no pouching of the vagina, or retention of fluid.

4th. The quantity of fluid injected should be small; from one to two litres is quite sufficient. Large and long continued injections are not more effectual, while they greatly increase the risks.

5th. Antiseptic injections should be weak, unless powerful germicide action is required in acute septic cases. For an ordinary vaginal douche a sublimate solution of 1-7000 or 1-5000 is quite strong enough. The strong solutions (1-2000, or 1-1000, or even 1-500) should be used only in urgent septic cases, and then with the greatest caution. After a sublimate injection, a pint or two of plain hot water should be run through to wash away any retained sublimate, thus lessening the risks of absorption.

6th. The injection should always be used hot (108°-112° F.). Hot water is a powerful stimulant, causing the uterus to contract firmly, thus closing up the sinuses and tubes, and expelling the injection fluid from its cavity.

7th. To prevent nervous chill and rise of temperature, a glass of brandy, or some diffusible stimulant should be given fifteen minutes before operating. The stimulant acts primarily by bracing up the vascular system, and secondarily by increasing the resisting power of the nervous system. If this precaution be taken, and the injection be given

rapidly and without undue exposure or chilling of the surface, rigors and fever will rarely follow. In very nervous, excitable patients, or where there is likely to be pain, ether may be advisable.

8th. During the more severe methods of intra-uterine treatment, such as curetting or brushing (Écon-villonnage of Doléris), the placental site is apt to be disturbed; some of the little plugs may be scraped or brushed away from the mouths of vessels, permitting the entrance of air, fluid or septic matter. Curetting or brushing should be followed at once by a small douche of very hot water, given very slowly and carefully; a bæillus of iodoform should then be passed into the uterine cavity, and the vagina loosely packed with a strip of iodoform gauze.

ACUTE PERIOSTITIS OF FEMUR IN AN INFANT.

BY MR. EDMUND OWEN, F.R.C.S.

(From notes of a case under his care in the Hospital for Sick Children, Great Ormond Street, London, Eng., by Dr. Penrose, Registrar.)

THE following case of acute periostitis of femur and separation of lower epiphysis with subsequent pyæmia, and death occurred in an infant of three and a half weeks, admitted 12th November, 1887, on account of a tender swelling above the right knee, the skin over that region being red and glazed.

History.—The infant was born at full time, and in a perfectly natural way, in a neighbouring work-house, and was vaccinated on the fourth day. The vaccinia ran its course quietly, and at the time of admission the three sores had coalesced into a slight superficial ulceration. The mother attributed the swelling of the thigh to the nurse having lifted the infant by the legs when it was four days old; the limb began to grow tender about six days after that occurrence. There was a fluctuating swelling at the back of the left wrist.

Under chloroform, Dr. Lewis, the House Surgeon, detected fluctuation in the depths of the brawny swelling of the thigh; and he also made out clearly that the lower femoral epiphysis was detached. With a tenotomy-knife he then freely evacuated an abscess from beneath the periosteum, and, passing his finger into the cavity, felt the upper and posterior edge of the epiphysis tilted back into the popliteal space—possibly by the

traction of the gastrocnemius. He could not rectify the position of the epiphysis; so, having washed and drained the cavity, he had to put up the limb in a bent position in a Bavarian splint. Two days later a soft swelling was noticed over the inner end of the right collar-bone; the skin over the wrist-swelling was reddening. During the next two days the infant had several convulsions—the rigors of childhood—and he died jaundiced, and with a temperature of 102° F., on the fourth day after his admission, the knee looking at the time of death in a satisfactory condition.

Remarks.—Separation of the lower epiphysis of femur is not a common lesion. Injury, even, to that region of the limb is more likely to expend itself in fracturing the femur, or setting up inflammation of the knee-joint than in detaching the epiphysis. Injury, however, is the most common cause of separation; sometimes it happens at birth, by an officious midwife or an over-zealous obstetrician dragging too eagerly at the knee.

Congenital syphilis may be associated with dissolution of the connecting medium; but in this case the infant was too young for such a manifestation—and a very rare one it is—of the disease. Moreover, there was neither evidence or history of congenital taint.

Periostitis and superiosteal abscess sometimes causes the epiphysis to be cast adrift, and probably this was the explanation in this case.

Pyæmia may determine, though it is far more likely to succeed the detachment. That this child was pyæmic is evident:—He had secondary abscesses at wrist and over clavicle; he was convulsed, and he had jaundice. The question arose, did the early vaccination possibly start a pyæmia which ended in the femoral lesion? This is not likely, as there was no axillary bubo, whilst the chief and earliest trouble seemed to be in the thigh.

Post-mortem examination showed the femur to be bared of periosteum in its lower half, and bathed in a considerable quantity of pus. The knee-joint was not implicated. On opening the abscess on the left wrist the lowest inch of the back of the radius was found to be denuded. The tumour over the collar-bone was an abscess containing unhealthy pus which had laid bare the epiphyseal cartilage at the sternal end of the clavicle. There was some suppuration at

the base of the brain, and on both temporo-sphenoidal lobes, but there was no disease of the middle ear—that common cause of pyæmia in childhood.

PROVINCE OF MEDICAL SCIENCE.

BY DR. BEAUMONT SMALL, OTTAWA.

WITH the appearance of a journal, the name of which implies a special interest in the scientific work of Medicine, attention is naturally directed to the extent of this science in Canada and what the members of the profession are doing for its development. At once there will be recalled the names of several who have done, and are still doing, good work in physiology, pathology and other branches, but for the present it will be sufficient to turn to the profession at large and search for what has been contributed by the general practitioner. It is to be feared the result will not be encouraging. A miscellaneous collection of papers and reports will be found, some bearing the stamp of originality and talent and of undoubted value, but medical science has been advanced but little, if at all, by these voluminous publications. The work of the past as at the present has had no thought for the future. There is no history of disease in this country, no record of epidemics that have occurred, no information regarding the types of disease that have affected the successive generations. To-day we are not doing much better. Epidemics come and go without provoking any scientific enquiry; our epidemic diseases are but little known and the influence of locality on general diseases has not been studied as it should be. There is no information of this character sufficiently tabulated for study or comparison ten or twenty years hence. The same barrenness is noticeable in our medical corporations and associations. They are busy active bodies, perform a great deal of work and do much good in their way, but accomplish little that is permanent or of benefit to their successors. The hospitals are without value when viewed in this light. The least that may be expected of them is an annual record of observations on some class of disease, or the report of even a single remedy applied in a scientific manner. Our gatherings recur monthly or annually as the case may be, and furnish an invaluable opportunity for interchange of ideas. All who attend

them are benefitted, but no systematic work is carried on from one meeting to another—no collection of facts added to year by year. Our medical schools are not fulfilling their duty to the profession. At present they are simply teaching bodies when they should be centres of learning. They train the mind and should not close their intercourse with the examinations: if they would retain their grasp, a power of inestimable value is in their possession. Each professor should expect some return in kind, and maintain a directing influence over his handiwork. Perhaps the only body whose energies are directed to this systematic work is the Provincial Board of Health of Ontario. It is laboring constantly and perseveringly to this end, gathering information in a scientific manner and storing it, not for the present, but for all time. Such a system is wanted in all the Provinces, new as well as old, unsettled as well as those settled for years.

The blame of all this cannot be placed on the individual practitioner. Our cities and villages furnish keen, industrious members, well trained and proud of their profession. The attendance at medical meetings and the papers read and prepared for publication, indicate a desire to aid the progress of Medicine and add to the general fund of knowledge. It is easy to trace the fault, not to the workers, but to the manner in which their work is performed.

All is being done without system or method. Every one is working independently and aimlessly. What is wanted is a powerful directing mind to control the wasting energy and direct the spasmodic efforts into the proper channel. The country is full of ripened experience ready to be gathered and active minds prepared for work.

While it is impossible to command this power to organize our work, we can readily turn to the centre whence it should come. The Canada Medical Association is the one organization that reaches throughout the country. It has a greater work to perform than the mere reading and discussing of papers. It should arrange for reports from every medical society with an account of the papers read and the work they have done; the same should be expected from all hospitals and boards of health. The report of each section should review the special work of its section throughout the country, and not as at present consist of a paper on some

one subject. Each year the Association should formulate questions and gather the opinions of members on some set subject.

All this may appear chimerical, but there is an abundance of splendid work to be done and let us hope that in time the proper person will appear to utilize the force that now lies dormant, and fulfil a very important mission.

AN UNUSUAL CASE OF INTESTINAL OBSTRUCTION: OPERATION AND RECOVERY.

BY HENRY HOWITT, M.D., M.R.C.S., ENG.: GUELPH.

LATE in the evening of the 23rd of April last, per telephone, I was requested by Dr. Savage, of Elora, to see with him, in consultation, George, aged 11 years, son of Captain P—, an American recently from Michigan. The message briefly stated the nature of the case and asked me to come prepared to perform laparotomy. On reaching Elora my confrère gave me the following history of the case:—About the middle of March the boy had peritonitis and was only convalescing when the family came to Elora. After this attack and until Dr. Savage was called to attend him, he had not been able to walk without stooping. The doctor first visited him on the 4th of April, he then complained of severe pain in the abdomen and troublesome vomiting; the pain was not limited to any particular part and was aggravated by pressure: some tympanitis; bowels constipated; temperature normal; pulse 120 and of poor volume. The general appearance of the boy was not suggestive of a vigorous constitution. An enema, hot fomentation to the abdomen and an appropriate anodyne were prescribed. Next day patient was perfectly easy, and in every respect much improved. Saw no more of him till near midnight of the 22nd. The family had that day moved to a farm house about a mile from the village. The boy had walked erect that distance without any difficulty. I was informed by parents that since last attendance he frequently suffered from griping pains in the bowels which had been, as usual, very costive but moved by oil two days ago.

When the doctor examined his patient he found him suffering from severe pain in abdomen especially in the lower and left part which was intensified by frequent desire to go to stool causing painful attacks of tenesmus. No fecal matter, blood,

nor flatus was passed, merely mucus. Temperature 99°; pulse 120; considerable tympanitis; frequent attacks of retching; offensive odor of breath, and extremities flexed. Finding it impossible to give an enema the finger was inserted into rectum, when a large, somewhat rounded and exquisitely painful mass was discovered completely filling the upper part of pelvic cavity and pressing the rectum backwards and to the left, thereby obliterating its lumen. Owing to the pain, its mobility and other characteristics could not be ascertained. External palpation showed that it extended into the abdomen filling the left inguinal and the greater part of the hypogastric regions. Morphia was prescribed, hot poultices applied to the part and appropriate nutriment advised. Next day (23rd) symptoms were more severe, pulse 130, temperature 101.6, pain excruciating and abdominal distension increasing. When I arrived that night his pulse had risen to 135, temperature 102.6 and although he had taken sufficient morphia to render the pupils in size little better than pin-holes, yet every few minutes he cried with pain caused by tenesmus. The abdomen was distended and painful; and the markings of some of the intestinal convolutions could be seen on the abdominal wall. No fluctuation nor other indication of fluid was obtained by us either in rectum or over abdomen. The nature of the trouble was obscure; we supposed it to be caused by inflammatory adhesions, or other similar acute obstruction giving rise to fecal accumulation and peritonitis. The superficial thoracic breathing, the pinched and anxious expression of face, the pain in abdomen, aggravated by movement and pressure, and the rigidity of the walls pointed plainly to peritonitis. The vomiting, tenesmus, odor of breath, constipation and result of rectal examination indicated more—intestinal obstruction; while pulse, temperature, history and general appearance were sure tokens that no ordinary measure would give relief. Our verdict was that abdominal section afforded the only ray of hope; we even feared this was now too late and we decided not to urge an operation lest the boy should die in our hands. The father, however, begged us to proceed, stating in answer to our objections that he would be responsible for the result. The place and surroundings were very unsuitable for such an operation. The house, in consequence of the moving the previous day, was in confusion, and the

sanitary arrangements anything but good we decided to operate. By daylight next morning our preparations were completed: all antiseptic precautions, known to us, and possible under the circumstances, were taken.

Ether having been administered, the abdominal surface washed thoroughly, first with ether, and afterwards with Bichlor (1%) solution: an incision was made from the umbilicus to near the pubes through the linea-alba. On opening the cavity the congested omentum came into view: finding this adherent below, and on the left to the abdominal wall it was pulled over from the right and the fingers were introduced under it and passed to the lump which I ascertained consisted externally of omentum, coils of intestines, and mesentery, bound together and to the adjacent walls by firm adhesions. Unable to gain further information through this incision, another was made at right angles to the first, commencing about two inches below the umbilicus and extending to the anterior superior spine of the ilium. This incision passed immediately above where the omentum was adherent to the anterior wall. I could now with the hand reach the upper third of the descending colon: but the lower part became involved in the mass and could not be traced. At this time the prospect was exceedingly dark. After various attempts to gain some knowledge as to the true nature of the case I determined to reach the left internal abdominal ring with my finger. Commencing at the transverse incision above the ring, with some difficulty I forced a way down between the mass and the abdominal wall external to the omentum. On reaching the ring I found no coil of intestine engaged, but finding the adhesions less difficult I passed the finger downward and backward into the pelvis when it slipped into a pus cavity. Fortunately my finger acted as a stopper and prevented the pus from flowing upwards into the general abdominal cavity. With the other hand I cut down to the finger over the part where it dipped back into the pelvis, merely making an opening sufficient to allow the introduction of a short drainage tube through which flowed fully thirty ounces of offensive pus, and through which the cavity was repeatedly washed. In spite of all I could do a little pus oozed out along the side of the finger and reached the outer surface of the omentum above the adhesions. This was carefully sponged off and washed

repeatedly by irrigation. A rubber drainage tube was inserted into the outer angle of the transverse incision, extending into the track made by the finger and lying between the omentum and the abdominal wall. After carefully washing the peritoneal cavity the wound was closed in the usual manner, for the deep sutures prepared Silk-worm gut was used and for the superficial, fine iron-dyed silk. Notwithstanding the extent of wound and the fact that the epigastric artery was divided no ligature was applied. The glass tube was supplied with a rubber dam and a sponge to absorb any discharge and prevent it reaching the wound: and the parts were covered with wet Bichlor-dressing, over which absorbent cotton and a bandage were applied.

Two grs. of calomel were advised to be given, followed by small but repeated doses of magnesia-sulph. in hot water till the bowels moved.

The following day I again saw the boy, found the pulse much improved: the bowels had moved; temperature normal: no pain; and the boy crying for food which had been forbidden lest it should cause retching. Dr. Savage has informed me that after this, until the removal of the glass drainage tube, the cavity was washed out two or three times a day with carbolyzed water. On the third day the glass tube was removed and a rubber one inserted which was gradually withdrawn till at the end of three weeks it was entirely removed. The tube in transverse incision was accidentally removed on the second day. Excepting a small superficial abscess that formed at the junction of the wounds nothing marred the recovery in any way. Now, seven months after the operation, the boy is strong and well and has since the summer holidays attended the public school without a break.

PHYSICS OF HEARING.

BY JAMES F. BROWN, B.A., TORONTO UNIVERSITY

THE auditory nerve is unendowed with general sensibility, but it is not yet determined whether simple stimulation produces subjective sound sensations.

The external ear appears to play a part in collecting sound waves for transmission towards the external meatus. However great its use may be in this respect, its main function seems to be one of interception of waves, as of those from behind,

leaving relatively a greater intensity from before, and we are thus enabled to distinguish, after experience, the direction of sound emanation.

With regard to the external meatus, its general function of conduction is sufficiently apparent, but it is supposed also that its curves and obliquity affect in some way the sound waves—perhaps in lessening the incident force.

The membrana tympani preserves the intensity of vibration, transmitting it to the chain of bones in a most perfect manner, and by means of the tensor and laxator muscles its tension is altered to correspond more nearly with different tones. The membrane, as has been experimented, shews lines and nodes when vibrated, as in Chladni's experiments with plates, and its office is thus conclusively proven. If the tension remained constant, at certain times, on listening to some melody, the ear would appreciate certain tones corresponding to the fundamental of the membrane—a change in intensity and quality—but this does not apparently occur, and we are therefore justified in concluding that the tension changes, and, according as one person, compared with another, has more power over the muscles, so much the more finely will he distinguish a rise or fall of pitch. As regards, too, the obliquity of the membrane, the more at right angles to the direction of wave incidence, the more intense the vibration; and so, as one would expect, it has been shewn that the position in musicians is decidedly vertical, and in those with imperfect musical ears, oblique, thus accounting for the inheritance of this peculiarity. The membrane, however, is not necessarily essential to hearing. It vibrates by influence, and probably has its own sound appreciated by the ear; it sustains the intensity, and assists largely in the differentiation of pitch. Notice how by closing the mouth and nostrils, then expanding the chest, the air pressure is lessened from within, the membrane is rendered tense, and we become sensitive to high notes, then, by the act of swallowing to release the tension, become again sensible to the lower.

The ossicles act as a single solid body in conducting the vibrations to the labyrinth; their own notes are too high to be appreciated by the ear. The tensor also acts by bringing the bones into closer contact, and thus they serve to transmit with the least possible loss of intensity; thence con-

veyed to the liquid in the labyrinth the vibrations are transmitted through the cochlea to the rods of Corti, bathed in the endolymph of the quadrilateral canal.

These rods, numbering somewhere between eight and ten thousand, arranged in two rows, have been supposed by many to act simply as a pianoforte, each one or pair tuned to a certain note, and that these, vibrating in unison with the incident wave, decomposing the mixed sound, transmit them in some peculiar way to the final nerve terminations, either directly, or by means of the surrounding cells. Supposing an average ear capable of appreciating from 30 to 30,000 vibrations per second, including say about 10 octaves; of the 4,000 pairs, 400 would belong to an octave, if equally distributed, which would allow of say 30 to each musical interval; a good musician then should be able to distinguish the 1-30 of an interval; and some, at least, have been proved to be capable of distinguishing the 1-20.

The hypothesis that the rods are actually vibrating strings might be stated somewhat as follows:

A simple note would cause to vibrate not only that fibre of Corti which is in unison with it, but also those adjoining, higher and lower, and on this point Hensen's main argument against the Theory of Helmholtz would seem to be the very one required to prove it, viz.: that it is an impossibility for one rod to vibrate separately.

We have then a *series* of fibres which vibrate with every simple sound. Suppose, now, the incidence of two vibrations. If they be of quite different pitch two different sets of fibres respond, and we recognise the sounds as thus different. But on the other hand, if they be very close, some fibres in common responding, the ear does not so recognise them as separate sounds. The fibres also receive at different times the sums and differences of the two velocities, and as a result we have the phenomena of "beats," which is purely subjective. Whenever, then, the tones are sufficiently distant so that the sets of fibres do not overlap, the beats are lost, and such, in the study of Physics, is found to be the case. These sums and differences form "resultant" sounds when sufficiently distant (100 or so vibrations per second), but are disagreeable when lower (about 30 or 40 per second); when much less they are simply appreciated as intensifications. The disagreeableness of the sensation, or dissonance

would then be a result of a rod affected by more than one neighboring tone.

The function of the semi-circular canals is undetermined. That they exert an influence on equilibration, as in Menière's disease, seems true, as in all experiments the effects have apparently been

produced by fluid or other irritant reaching the brain (restiform body) through the aqueductus cochleæ, and acting directly thence. It has been held that they are concerned in analysing the direction of vibration, but this is purely hypothetical.

EDITORIALS.

SANTA CLAUS, THE PHYSICIAN.

"The Holy Supper is kept indeed,
In whatso we share with another's need,
Not what we give, but what we share,
For the gift without the giver is bare.
Who gives himself, with his alms feeds three,
Himself, his hungering neighbour, and me."
—*Lowell's 'Sir Launfal'*

SWEETLY rang in the Christmas morning, and many were the expectant faces of those throughout the wide realm of Christendom who, fondly dreaming in their fevered sleep and stretching out wasted hands to accept the gift of Santa Claus, awaked to find him present in the good Samaritan, watching the hectic on the wan cheek, while taking the rapid pulse. To how many during this Christmas season has the physician come as the good Samaritan, bringing with him the kindly-offered dose of professional skill and cheering words, the sweetest of all gifts, to the sufferer whose only wish is life; and to how many of our physicians, worn, weary, and often ill-rewarded

"An old bent man, worn out and frail,
He came back from a seeking the Holy Grail"

have the words come in the closing years of their lives of self-denying labors, as to Sir Launfal in search of the Holy Grail.

"Behold, it is here—this cup which thou
Didst fill at the supper table, for me but now!"

But the physician as Santa Claus may claim to such saintship not more for what he is than for what legend has always held him to be, the giver of good gifts received from the All Giver. From early times to recent years, to him and his work have been given a mysterious reverence, sometimes that of the astrologer, at other of the alchemist, but always of one dealing with the spiritual essence lying behind or immanent to the seeming dead and lifeless things of earth. From the herbs, the metals, the air, he distills the life-giving balm; and to-day to the many he comes as the life-bestower,

the Santa Claus; for with "Father Pumpkin" of the Arabian tale they still say, "Allah is Allah" in matters physical.

While all this, and much more may be said of the physician, yet, we take it, that to many of us, at this the beginning of 1888 *Anno Domini*, the intensely physical characters, which pure science is giving to Medicine, seem to be overlaying it with filmy coverings, in part sufficient to hide our profession as peculiarly one of charity. Some one says that wars are necessary to the development and maintenance of the highest qualities of manhood and virtue; and we gladly welcome the Yule-tide, if it but serve only to recall us from the dry, hard routine of experiment and practice, lest "pars n Holmes" and "Everard Hall" will have reason to talk.

"And there we held a talk
How all the old honor had from Christmas gone."

On this, the first New Year that MEDICAL SCIENCE has had the opportunity of wishing its readers the compliments of the season, we feel that they will excuse us for making use of the mellowing influences of the sentiments which yet linger around the opening of a new year, to bring before them the possibilities which the year has for us. If it be true that

"Never morning were
To evening, but some heart did break."

it is just as true that the profession has touched but the threshold of those powers for good which everywhere are a part of nature and which shall, yet more than in the past, make physicians benefactors of their kind. From the teachings and the labors of Science in the past, in the amelioration of the woes of mankind, in lessening the sufferings which sickness and the unfortunate conditions of life have brought upon society, and in the decrease of death-rates by sanitary improvements and advanced medical skill.

"We may discern, unseen before
A path to higher destinies."

One would wish, were it possible, to review the advances of the past year in the field of medical science, but a few illustrations are sufficient to show us that "The old order changeth, giving place to new." Of necessity we see most prominently the increased intensity exhibited on all sides in enquiries into the origin of disease. Bacteriology has made the origin of yellow fever a practical certainty, and to Freire belongs much credit. Klein has pushed still further his enquiries regarding the *micrococcus scarlatinae*, and has been upheld by other workers of prominence. Salmon has cultivated with success the bacterium of hog cholera, and numerous workers attest the permanency of Koch's experiments regarding the origin of tuberculosis. The lecture of Sir James Paget, elsewhere summarized, still further indicates the scientific direction toward which the clinician is looking for aid, both as to the origin of, and remedies for that terrible class of diseases. Similarly in the treatment of disease we witness the unwearied endeavors to find in germicides and antiseptics the potent elixir of life. In the knowledge of electricity and its practical uses in Medicine, the past year has shown a very marked advance which gives every indication of wider development in 1888. The direction of much useful work is very admirably outlined in the article by Dr. Small, in this number. When we see the splendid results in sanitary work attained by the systematic work of the Local Government Board of England, we look, and we trust not vainly, to the time when a systematic collation of the many clinical facts relating to disease in Canada, shall bring strong support to the experimental work, carried on elsewhere, and still more to the prosecution here, alongside of such collation, of experimental enquiry into the causation of disease. The experience of Montreal two years ago, of Ottawa within the past three months, and of many more limited municipalities, tells us that epidemic diseases are not dead, but in a fitful slumber; and to our noble profession, filled in so large a measure with the scientific spirit as well as of charity, we commend as aptly illustrating the position of the true worker, Longfellow's words:

"We have not wings, we cannot soar;
But we have feet to scale and climb,
By slow degrees, by more and more,
The cloudy summits of our time!"

CANCER AND CANCEROUS DISEASES.

ON November 11th, at the Royal College of Surgeons, England, the Mortonian lecture on the above subject was delivered by Sir James Paget; and, were more than the name of the illustrious lecturer necessary in order to interest us, it would be the fact that the much-disputed question of the origin of cancer was discussed from a standpoint which compared with that of even fifteen years ago, marks in sharpest outline the influence which bacteriological research has had upon the previous mode of medical thought as regards the origin of diseases. How crude have been the views regarding cancer can well be illustrated by its etymology, due, we are told, to the resemblance of the spreading veins, often seen in the cancerous breast, to the extended claws of the crab (*cancer*). That existing views regarding its origin are hazy, is seen in the discussions which from time to time appear, as to whether it has a local or general origin, the former believed in by a class who with bacteriological evidence complete, still dispute the constitutional character of diphtheria.

Referring at the outset to the hope, which he thinks is not a vain one, of finding the means, perhaps both for preventing and even curing cancer, Paget believes it will most probably be realized by the constant careful study of the likeness of these diseases to others of which we already have means of useful treatment. We may be the more hopeful because the nearest likeness of cancer and cancerous diseases is to two other groups of diseases concerning which there have been in recent times very useful additions to our knowledge. "In one direction we have their likeness to the simple or innocent tumors, in the surgical removal of which the risk to life has been diminished . . . and in the other direction we have their likeness, which I believe to be much more intimate, to some of the specific and micro-parasitic diseases, a group in which there has been progress towards preventive and remedial treatment."

At the outset he states that we can only accurately talk of cancerous diseases as a *group* with no definite limiting boundaries for its individuals. All tumors, he says, grow with some likeness to various natural structures of the body, but seem to grow "as with a self-possessed power of maintaining and increasing themselves." This "purposeless

and, we may say, selfish" method of growth similarly characterizes some specific diseases. After indicating some likeness between innocent and cancerous tumors and stating that they have every degree of intermediate relationships, he states as his belief that the term *malignant* is the first and permanent essential difference. "In the qualities which the name 'malignant' indicates are those far more distinctive, more surely diagnostic, of this group of diseases than are the minute structure and chemical composition of the diseased parts, or even than the method of their growing." The breaking from the hard and fast lines laid down by the old cellular pathology is here evident; and it will not be surprising if in a few years carcinomata, sarcomata, gliomata, epitheliomata are relegated to the limbo where have passed *pannus*, *noma*, *chancre*, *cancer aquaticus*, etc., as applied to cancers.

He states that by the term *specific diseases* we usually mean those in each of which the phenomena of common diseases, that is, of such as might be produced by various injuries or external irritations in any healthy person are modified in some definite and constant manner, which gives them what we call specific characters. Hence, "each specific disease is due to the influence of a distinct morbid substance on some part or parts at which the characteristic signs of the disease can be and are manifested. Two conditions must coincide in each; the one general or diffused in a morbid material in the blood; the other local, in some part with which this material produces disease." With these considerations and their evident relations to the *microbe* theory in view, Paget boldly announces his belief "that micro-parasites or substances produced by them will some day be found in essential relation with cancers and cancerous diseases." To-day the term *specific disease* has become greatly extended beyond *eruptions*; and along side of the zymotics, syphilis, tuberculosis, glanders, leprosy, malaria, Paget would place in their affinities cancerous diseases. Certainly a tuberculous mass such as one may find in the brain, a syphilitic gumma in a muscle, or still more, an actinomycosis in the jaw, has more of the characteristics of a tumor than any rodent ulcer has, or many cancers of the lip or tongue. All of these vary in their modes of growth and appearance but not more than many so-called cancers.

Both these and cancers tend to degeneration of tissue and subsequent ulceration, and also produce

secondary infection by extension and transmission of abnormal products. Creighton well illustrates this by stating after his study of the cells products of secondary tumors of the liver, that they stand related to primary tumors as offspring to a parent. "The extraneous influence, therefore, which is necessary to explain the origin of the secondary tumors, is to be compared to a spermatoc influence produced in some unknown manner by the parent tumors."

We may with reason assume the origin of the cancerous diseases to be conditioned by the degree of that vital resistance, referred to in a recent article in MEDICAL SCIENCE on "The Theory of Immunity from Contagious Diseases." We are aware that glandular tumors in the scrofulous, begin or return when the vital powers have been reduced by any cause; and in treatment we direct our energies to restore vigor of constitution. Similarly, cancerous disease of the breasts is most common when their vital energy is low, or as has been said, when, relatively for them, senile decay at climacteric has begun, or, as in unmarried women, at even earlier periods. As Salmon has suggested, cells in normal activity may keep oxygen so completely removed from blood that microbes cannot live in it; but as noted by Zuelzyer, Hiller, etc., let this vitality or normal activity be lessened by a poison (e.g. atropia or a ptomaine) then microbes, as has been proved, overcome a local resistance by multiplication, and infection becomes general.

The lecturer made a most ingenious and apt illustration of the origin of tumors by a reference to vegetable pathology. He indicated how from aborted buds local tumors arise in the trunks of trees, and how numerous varieties of galls occur, through insects, on the leaves of trees. Always is there a local irritating influence creating abnormal products.

The point that each locality of the body has special susceptibilities is well illustrated by the writer by tetanus, in which the cause, undoubtedly a bacillus, appears harmless for a length of time until it invades some portion of the spinal marrow. Similarly with the specially affected parts in scarlatina, typhoid, diphtheria, etc. Regarding the possibility of cancer lying dormant in the system, or of its hereditary character, we have the illustrations of syphilis lying dormant in the system for years,

as also tuberculous taint, till with some accidental disturbance of the health its specific characteristics may become developed. Localized irritations as from pressure (tobacco-smokers' cancer) or presence of tissue of low organization (cicatrical) are well-known seats of cancer, due apparently to their low vitality or lack of resistance to some morbid agent.

Summing up the various conditions of irritability, low vitality, hereditary tendency, etc., Paget says: "We are apt to speak of potentiality, tendency and predisposition as if they were forces independent of matter as of structure; but when we try to think of the very things on which they depend, we find ourselves in a cloud-land of mystery where the difficulty of discovering truth is as great as the facility of guessing."

The main interest, he says, is in the biology of primary cancer, and this being so, we may justly hope that by careful study, both chemical and experimental, we may find the morbid material, microbe, or ptomaine, or one or more of their products to which cancer is due. And if this be attained then may we hope to be much nearer to a remedy, preventive or curative. While cancer may be attacked locally, yet he asks: If syphilis, ague, etc., may be cured by special remedies, why not cancer, even as other specific diseases?

EXPERIMENTAL WORK IN STATE MEDICINE.

UNDER the caption of "Practical Work in Public Health," was discussed in *MEDICAL SCIENCE* for December, the scope of Hygiene in its general aspects, as well as the position assigned to Public Hygiene in Ontario, the machinery by which the Public Health Acts are to be carried out, and some of the defects evident to this system, as at present existing, owing to the want of opportunities by both central and local health authorities for obtaining practical knowledge of the many difficult problems which Boards of Health are constantly encountering. In the present article we propose to indicate what is being done elsewhere, and how an advance in this department of work in Ontario is both desirable and possible.

Until recent years Institutes of Hygiene have existed nowhere except in England and France, where the work of Burdon Sanderson, Thudicum, Klein etc., under the directions of the Local Gov-

ernment Board in the one case, and of Pasteur, Duclaux, Chamberland, Chauveau, etc., under the direction of the Department of Agriculture in the other, may fairly be said to have been public health work. Since, however, the remarkable distinction gained by Prof. Koch, by means of his bacteriological researches, State Medicine has been greatly advanced in Germany, and in the United States.

The real advances made, however, until quite recently have been due in most instances to the self-sacrificing labors of the few teachers of Hygiene in connection with some Faculty of Medicine, and the examples of practical instruction in such institutions have been almost as varied as the energy, and abilities of the different professors. Until now the State has done comparatively little anywhere, and to the medical profession, to its credit, has been due most that has been done in the field of preventive Medicine. To Chemistry first, and next Biology, have we to look for those faint streaks of dawn, now grown into the full light of day, which are shed upon this department of scientific work, widening so greatly in every direction that in the study of it as Proust says, "there is truly enough to frighten the spirit the most intrepid, the most athirst for knowledge."

To indicate the character of work which has led us to our present position of practical knowledge in Hygiene, we need but indicate the work done. In 1875 Burdon Sanderson reported to the Local Government Board on "An Experimental Study of Infective Inflammations," Klein reported on the "Intimate Anatomical Changes in Typhoid Fever," and Baxter reported on "An Experimental Study of certain Disinfectants." In 1876 the chemical, geologic and meteorological conditions of the questions were discussed in a large report to the same Board on "Modes of Treating Town Sewage." Pasteur's experiments, started originally from the chemical standpoint, on the "Phylloxera, the Silk-worm Disease," and on Anthrax, and the generous appreciation of his work by the French government are equally well known. To-day we have Koch established in the Institute and Museum of Hygiene in Berlin, doing independent work, and directing practical courses of instruction to students, increasing year by year, while coincidentally with his bacteriological researches, chemical researches are carried on with disinfectants; while similarly the ven-

tilation of hospitals, prisons, public and private buildings is made the subject of special study. At Munich again the illustrious Pettenkofer, the Coryphaeus of Hygiene in Germany, teaches public and general Hygiene on the most extended scale, and has established an Institute of Hygiene, on which those of Leipsig and of Holland are modelled. Throughout the year five students (physicians and architects) are engaged in carrying on experimental work under the direction of the *chef*. Sanitary Police Administration and Health Law have similarly each its professor. At Leipsig is similarly the professoriate and Institute of Hygiene, under the direction of Hoffman, an old pupil of Pettenkofer. Liege, in Belgium has a special laboratory of Hygiene, and one is in course of formation at Copenhagen, while at Grenada, in Spain, a bacteriological laboratory is making rapid progress in practical work.

In France are six Faculties of Medicine. At Bordeaux, M. Leyet, has a teaching laboratory of practical Hygiene. Arnold has one at Lille, as also one at Nancy. Holland has Institutes of Hygiene at Amsterdam, Grotingen, Leyden, and Utrecht. In Hungary the subject of State Medicine is probably more advanced than in any other country. The Hungarian Minister of Education, M. de Trefort, has pushed instruction in the subject to its logical conclusions. He considers that instruction in Hygiene should be taught in all Secondary or High schools, and that it can only be properly done by physician-hygienists (medicine-hygienists). He has, therefore, created in the Medical Faculties special instruction for physicians aspiring to the position of Professors of Hygiene for Secondary schools. His argument for this is that inasmuch as school attendance is obligatory, he is in duty bound to actively watch over the healthfulness of schools, and these teachers of Hygiene become at the same time medical inspectors of schools. Diplomas, after complete courses, are issued. In Italy a course in State Medicine is required of all students of Medicine. At Pavia there is a laboratory of Hygiene as also one at Turin. Russian Schools of Medicine are prominent in the attention given to practical Hygiene. Charcow has a working laboratory, while Moscow has a large laboratory for practical work conducted by Erismann. At Stockholm a complete Institute of Hygiene has been established at a cost of 20,000 fr.

Such in brief is a *resumé* of the practical work in State Medicine carried on in the principal countries of Europe; and we naturally turn to America and enquire what advances have been made here. In the United States political disputes have in large measure checked the splendid practical work inaugurated with the formation of the National Board of Health in 1878. Then began the researches of Sternberg, Remsen, Wood and Formad, Smart and others, which, had they been continued up to the present, would have placed them high in the ranks of experimentalists. Little since then of real good work has been done. Shakspear, in his laboratory of Bacteriology in connection with University of Pennsylvania will be expected to do good work, in his special field; and similarly Sternberg at John Hopkins; but the honor is due to Michigan as having been the first to establish at a cost of \$30,000 an Institute of Hygiene at Ann Arbor, to be equipped at a further cost of \$5,000, and in which a complete course of practical instruction in all pertaining to Public Health Hygiene will be given. The staff will consist of one professor of Hygiene and an assistant professor; a course by the Professor of Mechanical Engineering on heating and Ventilation, a course by the Prof. of Civil Engineering on Sewerage Systems; and a course by the Prof. of Law, on Public Health Laws. The Hygienic laboratory proper will have a large working room, a room for microscopy, a special room for gas, water and air analyses, a room for bacteriological work, a disinfecting chamber, lecture rooms, library and private rooms. The main object of the laboratory as stated in the memorial asking for its establishment is to conduct original investigations into the causation of disease. The studies will embrace food, air, water, soil, clothing, etc. In the field of investigation of the contagious diseases of animals much more is being done by the Bureau of Industries under the Agricultural Department of the Federal Government. Some brilliant experimental investigations and discoveries as to the nature and causes of those diseases, have been made. When we turn to our own Province we find State Medicine, as mentioned in a preceding article, far advanced, in so far as organization, and well defined powers and duties of both Provincial and Local Boards are concerned; but in the work of experimental investigation, nothing practically has yet been done, and no facilities yet exist for its

performance. The marked advance in legislation in dissemination of knowledge of public needs and public dangers, is evident to every one, and in no instance has there been heard any remonstrance from municipalities; while on the other hand, demands are constantly being made for positive knowledge on many points regarding which there

is uncertainty. We recommend the facts herein contained to the careful consideration of those whose special duty it is to deal with these matters; and trust that facilities will be given for supplementing existing public health work in the direction which our practical needs indicate.

INDEX OF PROGRESS.

SURGERY.

The Treatment of Scoliosis by Massage.

The following interesting article on the above subject, by Dr. Douglas Graham, appears in the *Annals of Surgery*, for December:

"The results obtained from the employment of massage in carefully selected cases of lateral curvature of the spine seem to have been so successful that they deserve more than a passing notice. Dr. Landerer's paper on this subject, together with the discussion of the same at the Congress of the German Society for Surgeons, are worthy of our consideration. Our author regards habitual scoliosis as that arising from superincumbent weight as genu valgum sometimes does, the weight pressing bones and joints in wrong directions and ultimately causing anomalous growth. It is in the earlier stages of this form of scoliosis that he has found massage to speedily bring about recovery, and in the latter stages when the deformity has become fixed, intercostal neuralgia and painful tension of the muscles are relieved, and the patient made comfortable by the same means. This form of scoliosis is to be kept separate from the static, rheumatic, traumatic, empyematic and other kinds, in which it would be well to include that arising from disturbance in the central nervous system.

The production of the natural curves in the spinal column is clearly explained. In early childhood the spinal column is straight. The normal S curve arises from the combined effect of gravity and muscular action, the former alone would cause a simple backward curve, a total cyphosis; the latter modifies this and forces it into a serpentine curve. The action of both is to shorten the spinal column. While our observation would agree with that of the author, that marked serpentine curves, especially deep lordoses in the lumbar regions are frequently found in those of great muscular strength

and in stout people of medium stature, we would beg to differ from him in his statement that those who are tall and slim spare their muscles by throwing the centre of gravity of the upper part of their body as far back as possible. More often the latter stoop or are round-shouldered, and when they maintain an erect attitude the absence of marked curves may be owing to the muscles not being sufficiently strong to curve and shorten the spinal column.

The upper and lower extremities of the cervical portion of the spinal column are approximated by means of the muscles at the back of the neck, the contraction of which changes the former convex backward curve of infancy to a concavity. This result is aided by the effort to maintain the centre of gravity, for the middle and lower parts of the cervical region carry the most of the weight of the chest. The thoracic organs and even part of the weight of the abdominal organs are suspended from the first and second ribs and from the region of the sternum to which these are attached, and these again are held by means of the scaleni muscles and by them raised during inspiration, so that the weight of the thorax is transferred to the middle and lower cervical vertebrae where these muscles are attached.

As the dorsal region of the spinal column has but little strain upon it in either direction it remains convex posteriorly as in infancy. But it is otherwise with the lumbar region which becomes convex anteriorly, owing to the action of the large muscles on its posterior aspect which changes the previous backward convexity into a concavity. The lumbar region carries the major part of the weight of the intestines; it is here that the mesentery is attached and also the psoas muscles. These muscles, when the thighs are fixed as in standing or still more in assuming the erect position, make a downward pull upon the lumbar vertebrae in the same manner as

the scalm muscles do upon the cervical portion, thus necessitating a strong counterbalancing action from the muscles on the posterior aspect.

The explanation of lateral curvature is not so easy. Slight lateral deviations are frequently found in otherwise well formed people, and according to our author it is not agreed whether this should be called physiological scoliosis or not. We would at once anticipate his conclusion by inferring that this gives no trouble so long as the muscles are strong and active, and that, therefore, measures to prevent or restore their strength and activity should be employed. Amongst classical statues in the Louvre and British Museum Dr. Landerer has not been able to find any examples of the physiological scoliosis. The spinal column being freely balanced perpendicularly upon the pelvis, and thus held by the muscles on each side of it, as a freely balanced mast would be by ropes, it follows that when deviation occurred to one side or to the other it must be on account of muscular relaxation, as the mast would deviate if one of the ropes were slack. Increased weight in the perpendicular direction alone does not cause lateral deviation. The effect of gravity upon superincumbent or suspended weight will not produce scoliosis so long as the muscular structure is normal.

In Swabia, where the home of our author is, he tells us that women and girls carry heavy loads upon their heads up high mountains, but in spite of this, scoliosis amongst the laboring classes is seldom met with. On the contrary, very prettily formed figures are almost exclusively found due in great part to this exercise. The maidens of Capri also carry heavy weights upon their heads and are remarkable for their faultless development. The muscles are thus made powerful to oppose strong lateral resistance.

In incipient scoliosis the spinal column is exceedingly flexible and this great mobility should be regarded as the first sign of lateral curvature, especially when accompanied with flat back.

Autopsy of scoliotics reveals atrophy and fatty degeneration of the muscles of the back, especially of the concave side. We would have supposed that it would be greater upon the convex side where the relaxation would be.

We are all more or less critical in observing any slight obliquity of the shoulders and lateral deviation of the spinal column, but somewhat different

towards the antero-posterior direction of the median curve. Only in the most recent ladies' fashions does our author find that a well developed median curve is necessary and that a deep concavity in the lumbar region—lordosis—is pretty. The latter is formed artificially by the bustle or *tournure*.

In health the antagonistic muscles keep the vertebræ at proper distance from each other. If there be muscular weakness they will sink down upon one another, and in sitting or standing if the muscles act obliquely the spinal column will deviate from its natural position and the vertebræ will be pressed together causing disturbances of their circulation and nutrition until they finally become deformed. In brief, for the *preservation of the spinal column in a natural position healthy muscles are necessary. Habitual Scoliosis arises from superincumbent weight, the original cause of which is weakness of the muscles and therefore the treatment has to be directed to them.*

The results of treatment proved to our author that his views were correct. Massage goes further than gymnastics, and what these accomplish slowly massage does in direct manner by the hands of the surgeon. With cases of scoliosis in the first stage which permanently increased in a few months, the children felt stronger and steadier in the back and held themselves more erectly even after a few *seances*. Though the immediate effect of massage was quite evident, yet part of the improvement disappeared within a short time, but the gain gradually became lasting. The method employed by Dr. Landerer is the following: The child is laid upon the abdomen, the trunk bare to the lower half of the crests of the ilia, the arms stretched forwards. The extensors on both sides of the back are percussed with the balls of the little fingers from their origin on the pelvis upwards to the neck; at first gently, and then more vigorously. The concave side is percussed more strongly than the convex. The muscles on the side of the trunk so far as they are connected with the spinal column come in for a share of the same. Then the extensors of the trunk are stroked with the fingers held in a perpendicular manner.

We do not see why percussion should be used more energetically on the concave side, unless it be carried to an extreme degree so as to tire out the contracted muscles, and thus cause them to relax. Percussion has much the same effects as faradization

and can be used in moderation to stimulate muscular contractility. Our method of percussion in such cases differs somewhat from our author's, for, seeing that lateral curvature may not only be favored, but actually produced in those predisposed thereto by persistently sleeping on one side, with high pillows under the head, a great part of the treatment should consist in having the patient lie upon the opposite side so as to reverse the curves. And it is better that most of the massage should be administered with the patient in this position, for massage helps to relax contracted muscles when they are stretched, and it stimulates the contractility of relaxed muscles. The insertion of muscles implies their attachment to the more movable parts, and as their returning circulation almost always follows the course from their insertion to their origin, it would seem much better to proceed with the massage from the neck to the pelvis. Deep manipulation, rapid pinching and rolling of the muscles have much greater influence in stimulating their nutrition and contractility than the stroking of our author, which acts more upon the superficial circulation.

Dr. Landerer next uses manœuvres which act more especially upon the skeleton, the spinal column and the framework of the chest—the *redressment*. These resemble the rotation and torsion movements which have hitherto played an important rôle in the treatment of scoliosis. After this the spinous processes are acted upon by stroking from behind upwards, and by pushing them directly towards the concave side so as to equalize the curves. The immediate effect of all this is quite perceptible. Then the depressed parts of the thorax are raised by one hand gliding from the anterior aspect of the chest backwards, raising the concave side, whilst the other presses down the projecting parts on the convex side by stroking with pressure from the spinal column forwards around the chest, at the same time pressing downwards the prominent side, and thus literally remodelling the youngster. Prominences elsewhere, as under the scapula, receive special pressure. Sometimes these operations can be done better while the patient stands or bends forwards. Precise rules cannot be given, as no one case of scoliosis exactly resembles another. A well-schooled anatomical eye, therapeutical instinct, inclination to treat such cases, together with experience, will lead to accurate treatment and good results.

For special exercise of the extensors of the back the patient is placed and fixed upon the anterior aspect of the legs on a table, the body projecting beyond the edge and sufficiently supported. Then the patient elevates the trunk from the horizontal position backwards to a right angle, if possible, by energetic contraction of the extensors. We think the patient should often be assisted in elevating the trunk.

To wind up the *seance* Landerer allows the patients to suspend themselves five or ten times by means of Sayre's apparatus, the hand corresponding to the higher shoulder should then be the lower. When treatment has been continued for a few weeks active exercise is allowed by means of a basket carried upon the head with a weight of three to five kilos in it, which is supported by the hand of the depressed side.

Whilst the patient is suspended we have found it advantageous to manipulate, roll and percuss the muscles of the back; well known beneficial aids, not spoken of by our author, are rowing, sitting on an inclined plane with the higher shoulder towards the higher end so that the patient must bend in this direction and make a constant effort to keep from sliding off. Placing the arm of the side that corresponds to the convex dorsal curve across the front of the chest in an upward direction so as to relax the serratus and rhomboidei muscles, whilst the arm of the opposite side is placed obliquely downwards across the back so as to make the same muscles on this side tense, form a useful exercise by literally unscrewing the patient. With the arms in like position, the patient sitting on an inclined plane can pull the elastic bands and get still more effect as recommended by Professor Sayre.

This treatment is usually given once daily, but in difficult cases or where a speedy result is desired, it may be used twice a day.

Our author gives details of the treatment and results in eighteen cases. Seven of these he places little importance upon, as they were mild and would probably have recovered perfectly, if not so soon, under the usual orthopædic exercises. But it was quite otherwise with five of the cases, which were much worse. In these treatment was begun without any hope of improvement, only at the request of the patients. In from twelve days to five weeks there was marked improvement, they

were soon able to do without their supports, the deviation in the spinal column decreased, the shoulder became more horizontal, and pain and tension disappeared. Of the remaining six cases, four were improved and two got well. At the time of writing several were under treatment, so that the results may be still more favorable. At a time of life when the skeleton was so consolidated as it was in the case of an 18-year old girl, it was not thought possible to produce any remodelling, but after two month's treatment it was hardly possible to observe any deformity. Landerer finds an analogy to this last case in several of severe so-called inflammatory flat-foot, or *tarsalgia adolescentium*, in which he succeeded in obtaining "perfect reformation" of the foot by means of massage of the plantar surface and of the leg, even at 20 years of age.

We think that another analogy can be found in the relief that massage affords in cases of rheumatic gout. It relieves the tenseness of the soft tissues and makes them more supple, so that they adapt themselves much easier to the fixed nodosities.

Our author believes in the use of supports and corsets for alleviating and correcting the position of advanced scoliosis; but when there is any prospect of improvement he considers them contra-indicated, for the little work that the muscles of the back may be capable of performing is taken away by supports and atrophy speedily results so that the muscles can no longer be used. After two or three massages he found that most of his patients could do without supports and rejoiced once more in free and lively motion.

In the discussion which followed Herr Volkman deprecated the wearing of a plastic jacket or felt corset by day and night. He has the corset removed at night, and in the morning the patient is bathed, douched and *massaged*, and practises movements, as advised by Sayre, and about 11 o'clock the corset is again applied.

Herr Loebker stated that he believed in the energetic treatment by means of massage of those muscles which contribute to the support of the spinal column. He does not apply any supports, and improvement takes place from the time that these are laid aside.

Herr Koning, of Gottingen, said that Landerer's method was in advance of that hitherto employed by him; yet he would not renounce altogether the corset treatment in favor of massage. He would

limit the use of the corset to school time. Experience had taught him that the complete removal of the corset all at once hindered improvement.

Herr Kolliker, of Wurzburg, remarked that the most essential difference between Landerer's treatment of scoliosis from that hitherto employed consisted in energetic percussion of the muscles. He mentioned a very severe case of scoliosis with three curves which he had treated daily for three months by means of massage and percussion for several minutes night and morning, and thereby obtained a brilliant result never before equalled in his experience. With scoliosis of the second degree the corsets should be applied in the intervals between massage.

MEDICINE.

Lavage in the Treatment of Gastric Affections.

We see in the *Weekly Medical Review* of St. Louis an exceedingly interesting article on lavage (washing) in the treatment of gastric affections, by Dr. S. Solis Cohen, where he says that any therapeutical measure which promises assistance in the treatment of those most obstinate cases of gastric catarrh, functional dyspepsia, etc., which are such a source of annoyance to the patient and profit to the peptic and patent medicine manufacturers deserves great attention.

He then proceeds to give a *resumé* of the history of the method up to the present time which we might call the *era of siphonage*.

"The manner of performing lavage, recommended by the latter observer, (Dujardin-Beaumez,) is that which I have followed in the few cases in which I could induce private patients to submit to it. The results obtained in these cases have been sufficiently encouraging to induce me to continue to recommend it, whenever it seems applicable.

The apparatus and its employment are sufficiently simple. An œsophageal tube with blunt, double-eyed extremity, of flexible rubber, about twenty-eight inches long, and from one quarter of an inch to a little less than half an inch in diameter—practically an enlarged catheter, and made of similar material, is attached by a small section glass tubing to a soft rubber tube about one yard in length into the free extremity of which a glass or rubber funnel of from six ounces to eight ounces capacity, is inserted. Sometimes the free extremity of the œsophageal tube is slightly stiffened.

The patient sits, or stands, facing the physician. The œsophageal tube having been dipped into warm water or warm milk, is placed within the entrance of the œsophagus, and then is propelled by successive pushes into the stomach; the process being facilitated by efforts at deglutition on the part of the patient.

Many patients quickly learn to introduce and swallow the tube without assistance. A mark on the tube shows when a sufficient length has been introduced (say eighteen or nineteen inches). The funnel is then elevated to the level of the patient's forehead, and from a pint to a quart or more of the lavage solution is slowly poured in; the glass junction tube permitting its passage to be watched, and obstruction or attempted regurgitation to be detected. The patient's sensations will usually inform us when a sufficient quantity of the solution has entered the stomach. As the last portion of liquid disappears from the funnel, the soft-rubber tube is pinched near the extremity, the funnel is rapidly inverted over a receptacle placed upon the floor; and the contents of the stomach are thus removed by siphonage. These manœuvres are repeated until the returned fluid is clear.

The first introduction of the tube, and possibly the second and third, will occasion more or less dyspnœa, often nausea and retching, rarely vomiting. The effects, though partly physical, are largely psychical; and will disappear with tolerance. The dyspnœa may be immediately checked by insisting on full inspirations. Nausea is overcome as soon as the water enters the stomach, floating the tube away from immediate contact with the mucous membrane. In highly neurotic subjects, it may be well to prepare for the operation, at first, by administering full doses of bromides. I have tried anointing the end of the tube with a solution of cocaine in glycerine, but cannot claim any striking benefit from the procedure. Firm but skilful handling of the tube is the best sedative.

Sometimes during the withdrawal of the solution, solid particles of food (grains of corn in one of my cases) may become impacted in the eyes of the tube, and the flow of liquid will cease. A little more of the solution must then be introduced, both to wash away the obstruction and to re-establish the siphon current. If the tube should be pushed too far into the cavity of the stomach, it may curve upon itself and the siphon will not work. With-

drawal of the tube for a few inches, will remedy this; if the flow is not readily established, it is said that it may be favored by manipulation of the stomach, and efforts at coughing may be made by the patient. I have not had occasion to resort to these devices.

When lavation (washing) alone is the object of the procedure, a weak alkaline solution is employed; a drachm or two of sodium sulphate, sodium chloride, sodium borate, or sodium bicarbonate, in a quart of warm water, at about 110° F.

Should it be considered necessary, however, various sedative and antiseptic medicaments may be added to the lavage solution. Those most highly recommended are resorcin (one per cent.), boric acid (one per cent.), creasote (one per cent.), carbon disulphide water (one part of a solution containing fifteen minims to the quart, to two parts of water), charcoal powder (two to four tablespoonfuls), chloroform water (saturated), bismuth subnitrate (two tablespoonfuls to the pint).

In the use of agents like resorcin, carbolic acid, etc., the liability to absorption if the solution be not all removed, must not be forgotten. In using what we term "milk of bismuth," Dujardin-Beaumez advises that the solution be allowed to remain a few minutes in the stomach, so as to allow the bismuth to be deposited; after which the supernatant liquid may be withdrawn.

Lavage should be performed when the stomach is empty; therefore, some authors recommend the hour of rising in the morning. I have found noon—say four or five hours after a light breakfast—or the same interval after lunch or dinner to be more convenient for myself, and to answer as well in most instances.

One lavation daily is usually enough. After a while the intervals may gradually be lengthened, until the process is discontinued.

The therapy is sufficiently obvious. The effects are said to be most marked in cases of dilatation of the stomach, in which delayed digestion, retention and putrid fermentation of the contents of the stomach, give rise to distressing symptoms. In all cases, where the gastric mucous membrane is in a catarrhal condition, coated with the glairy mucus which is seen amid vomited matters, or bathed in the sour liquid ejected as "water-brash;" where the production of the gastric juice is impeded, or the secretion altered in quality by an abnormal condi-

tion of the membrane, extending perhaps into the tubules; or by the presence of irritative matters, where fermentation of ingested and retained materials takes place: in short, in the typical case of chronic gastric catarrh or acid dyspepsia, lavage will be found highly useful. It removes any undigested matters remaining in the viscus, cleanses it from products of desquamation and morbid secretion, and gently stimulates the glands and absorbents to healthy action. In gastralgia, dependent upon the presence of irritating matters, and sometimes in cases apparently idiopathic, lavage with the employment of chloroform or bismuth as sedative, is said to be productive of cure. I have had no opportunity to test the statement personally.

In the chronic gastritis of drunkards, the measure is said to be an excellent palliative, nor is hæmatemesis considered a counter-indication, unless actual ulceration exists. In cancer of the stomach it is useful as a palliative measure; and my first practical acquaintance with this method of treatment was made during student days, in two cases of gastric carcinoma treated after the method of Kussmaul, with doubly-acting stomach-pump, at the hospital of the Jefferson Medical College, in the clinic of Prof. DaCosta.

Within the past few years two new applications of the lavage method have been found. In 1885, at Kussmaul's clinic, and subsequently by Senator, Rosenthal, and other observers, it has been successfully employed in the treatment of ileus. Kussmaul explains this result by the theory of relief to the tension above the point of constriction, caused by gases and accumulated feces; with concomitant restoration of normal peristaltic action. Since 1884, Leube and other observers have made chemical and microscopical examinations of the gastric secretions and other matters removed from the stomach at various periods of digestion, and claim to have thus obtained valuable diagnostic indications. This subject, however, is beyond the scope of the present communication.

While the practice is usually confined to chronic cases, I have had occasion to resort to it in one case of acute indigestion with obstinate vomiting, in a phthisical, slightly hysterical, female, with gratifying result—in that the vomiting, rebellious alike to diet and medication, yielded to two applications by the stomach tube. In this case, before withdrawing

the tube, warm milk was introduced into the stomach: a measure advocated by French writers. Indeed, there can be little doubt, but that in connection with *garage*, or forced feeding, irrigation of the stomach assists in maintaining nutrition in phthisis and other wasting diseases.

[We have had one case of atonic dyspepsia in which lavage was of great benefit. The stomach was treated as above, a dilute alkaline wash being used. After being thoroughly washed, some food, (milk) which had been digested artificially with Fairchild's pancreatine for two hours at 100° F., was introduced. In connection with introduction the greater portion of the difficulty was overcome by tickling the fauces with a pencil for two or three days previous to the first attempt and then spraying the pharynx with 4% cocaine solution.—ED.]

A Simple Method to secure Deglutition in Ulceration of Epiglottis.

Dr. R. Norris Wolfenden, in *Lancet*, says:—
 “One of the most distressing circumstances accompanying laryngeal phthisis with ulceration of epiglottis is the difficulty patients experience in swallowing. Especially is this the case in advanced conditions where the epiglottis is more or less completely destroyed. In such circumstances the swallowing of even a teaspoonful of water, or liquid of any kind, is all but impossible, from the violent cough that is excited in consequence of the passage of some of the fluid into the larynx and trachea. Such persons are generally tormented with a thirst which they cannot satisfy, and the painful efforts they make to get down a few drops of liquid, and the terrible spasms of coughing and pain thereby produced, are truly pitiable to observe. One of my patients in the last stage of laryngeal phthisis, and in whom the epiglottis had more than half disappeared from ulceration, lately taught me a “wrinkle” which others may find of service. He informed me that he had discovered a method of drinking even large quantities of fluid with ease, and (in as nearly as possible his own words) said, “I thought of how we used to drink when we were boys, out of a running brook, by lying down upon the bank and putting our mouths to the water, and I resolved to try the plan. I sent for a piece of India-rubber tubing, and found that, by adopting the same position, I could drink off the whole of a

tumblerful of water with ease and comfort." I asked him to give me a demonstration of the feat, and lying downward upon the couch in my consulting room, with the head and arms hanging free over the end, and with the feet higher than the rest of the body, he took a large tumblerful of water in both hands, and placing the open end of a piece of India-rubber tubing (about six inches in length, and with a vulcanite mouthpiece) in the fluid, and the mouthpiece between the lips, drained off the contents without stopping, and with the greatest ease and comfort. Not the slightest pain or cough accompanied the act, showing that none of the fluid entered the larynx. The feat was the more remarkable to me, who had often seen him making great efforts to swallow fluids, but unsuccessfully, in the sitting position. In the ordinary position a teaspoonful of fluid was as much as he could manage to get down, and this was accomplished only at the cost of much pain and terrible paroxysms of coughing. The plan is simple enough and is one which will procure relief for other patients afflicted with the same terrible laryngeal conditions; as I have never seen it applied before, I venture to mention it to those who have to treat similar conditions, and I am sure they will find it an excellent method of alleviating one of the most distressing sufferings of patients of this class."

THERAPEUTICS.

Electro-Therapeutics.

In connection with the polar theory it was stated that the freed H atom combined with the adjacent chlorine atom which left another free atom of H, but it must be remembered that while the positively electrified H atom is travelling towards the platinum plate a fresh supply of chlorine is being formed which is passing in an opposite direction continuously to the zinc plate and with the transfer of electricity from particle to particle of the liquid there is at the same time a transfer of the chemical constituents of the liquid in opposite directions; said transfers occurring simultaneously in all parts of the liquid, and when these changes are produced uninterruptedly we have a *Voltaic current* produced; the term current, signifying merely the continuous transmission of electrical action and not of a material substance. It is always assumed that in a Voltaic current that equal amounts of

negative and positive electricity are proceeding along the conductor at the same time but in opposite directions, therefore, to avoid confusion, when the direction of the current is spoken of, only the direction of the positive current is considered.

The platinum and zinc plates have been constantly referred to as the negative and positive plates. This relation of the metals has been found to depend solely on the relative oxidisability of the metals concerned, the more oxidisable metal being positive to the less; thus zinc is positive to platinum but negative to potassium; it is also found that the direction of the positive current through the liquid, mentioned above, depends upon the oxidisability of the metals as the positive electricity always sets out from the more oxidisable which may be called the positive element towards the less oxidisable or negative and this explains what might otherwise be considered an anomaly, as the insulated wire or *reophore* which is attached to the connection of the platinum or *negative* plate is said to be attached to the *positive pole* or *anode* and the one to the zinc to the *negative pole* or *cathode*, but as has been seen, the positive current upon leaving the battery to traverse the conductor in its circuit starts from the platinum, and as the direction of the current, outside of the cells, is alone dealt with, the platinum connection is the positive starting point or *pole*.

It has already been stated that without chemical action there can be no electrical action, and it may further be said that the amount of the electricity developed is directly proportionate to chemical activity; also, in order that a current shall be produced, it is necessary that the exciting liquid shall act more readily upon one of the elements than the other, and the *electro-motive force* or amount of voltaic energy produced by a combination, is dependent upon the difference of attraction for the radicle of the acid by the two metals. The electro-motor force is measured by the amount of chemical decomposition which occurs in a given time. The unit for electro-motor force is called a *volt*, and the ordinary Daniel's cell so nearly approximates this, that it is usually taken as the standard; and the strength of other cells, as regards electro-motor force, is compared with it. The measure of electro-motor force of a cell does not, however, represent the amount of active current, as the initial energy of the cell is modified by certain obstruc-

tions to the free passage of the current—these are classed under the name of *Resistance*, usually divided into two, *internal* and *external*. *Internal resistance* is that offered by the liquid between the plates, i.e. such resistances as occur in the cell; whereas, *external resistance* is that which occurs without the cell, i.e. in the conductors, electrodes, body, etc.

It has been experimentally determined that the quantity of electricity developed by any combination is *directly proportioned* to the electro-motor force and *inversely proportioned* to the resistances to be overcome. As these quantities were always constant for the same combination Ohm expressed the mutual action of the electro-motor forces and resistances of any circuit in the form of a fraction thus:

$$\frac{E}{R+r} = A, \text{ where } E = \text{electro-motor force, } R =$$

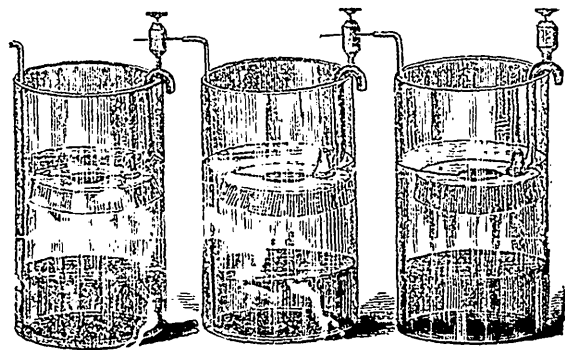
internal resistance, and $r =$ external resistance. The unit of electro-motor force as stated above is one volt, the unit of resistance named after Ohm is one *Ohm*, which is equal to the resistance a current encounters in traversing 100 metres of telegraph wire of a certain standard size. The A indicated above is evidently what remains of the current after it has overcome all resistance, and this is taken as the measure of *intensity* (i. e., capacity to overcome resistance), of the current. Using the units *volt*, and *ohm* for numerator and denominator respectively of the fraction, A becomes the unit of intensity or *ampère*.* To state this as clearly as possible, the ampère represents the electricity generated by the unit of electro-motor force, the volt, working through a unit of resistance, the ohm, for a unit of time: this has been experimentally determined to be practically the amount generated by Daniel's cell, with poles connected with 100 metres of wire, working for one second.

Thus it is seen that the current measure indicates the amount of electricity after all resistances have been overcome, and this explains how, in using the milliampère metre* (1 1000th of an ampère) which measures the intensity, we are always able to give the same dose, as the metre does not begin to register until all resistance has been overcome; therefore, if in one case there are three inches of tissue interposed and 15 milliampères be

given, and in another, with two inches of tissue, 15 be given, there is the same amount of acting current passing in both instances; and, this, also explains the manner in which the amount of current can be so easily regulated by a *rheostat*,* as by it varying amounts of resistance can be readily interposed, and the amount of working current augmented or decreased at will. When everything is best arranged for the production of a current, the exciting fluid is decomposed and its component parts are separated either to combine with one of the plates, or to be freed at the other: now if one of the parts which should usually be freed, e.g. H, was to collect at the negative plate it would produce a local action giving a counteracting current which would interfere with the main current. Any such interference, by the collection of components of the liquid at the negative plates, such as H in some batteries, chrome alum in zinc carbon batteries, etc., is known by the inappropriate term of *polarisation*.

Having considered some of the more theoretical portions of the subject and having always in view in speaking of a cell the simple zinc and platinum plates in some dilute acid, it is necessary now to consider those forms of cells which are most used in practice.

The Gravity Cell.—This cell is a modification of the old Daniel cell. Instead of having a porous cap to prevent mixing of the solutions, the zinc plate is superposed over the copper, and



Martin, Tom, & Co.

the solution of zinc sulphate which forms around the zinc plate remains above the copper sulphate solution from difference in specific gravity. The exciting fluid is a solution of sulphate of copper; this is decomposed, liberating sulphuric acid, which

*The asterisks above refer to Dr. Rosobrough's article in *MEDICAL SCIENCE*, Vol. 1, No. 2, Pg. 31.

acts on the zinc, and free copper, which is deposited on the copper plate. In all batteries for medical use the cells are arranged for intensity, the zinc of one being connected with the copper of the next, as in the cut. The electromotor force of the gravity cell is 1 volt. This cell is much used for the so-called constant batteries, the name being given because they will run for several months with very little, or, practically, no attention.

The Use of Galvanism in the Treatment of Insanity.

We take this and the following note from the *New York Medical Journal* for Dec. 10th:

Winglesworth (in the *Journal of Mental Science*) has employed galvanism to a considerable extent in certain phases of insanity. Flexible plate electrodes were employed, the cathode being placed on the forehead, and the anode on the nape of the neck. From his own observations he concludes that, while the use of galvanism to the head is a procedure which is certainly not going to revolutionize the treatment of insanity, this agent is nevertheless capable of doing much good in certain selected cases, and by its judicious employment we may every now and then cure cases which would otherwise drift into hopeless chronicity. The class of cases which offers the best field for the employment of this agent is that which includes examples of mental stupor and torpor—cases that are grouped under the specific designations of *melancholia attonita* and so-called acute dementia.

The Therapeutic Value of Currents of Great Intensity.

("Franklinization").—Eulenburg (*Neurologisches Centralblatt*) has employed the static current in seventy-four selected cases, including different neuroses. Six of these were permanently cured, thirty-three much improved, while in thirty-five cases other varieties of treatment were called into requisition. The most favorable effects were observed in neurasthenic conditions, complicated with cerebral symptoms (insomnie), as well as in various forms of headache. Neuralgias of the trigeminus and occipital nerves were also benefitted. In sciatica and intercostal neuralgia the application of the static current was found not only of a certain amount of benefit, but specially convenient for the operator, as the removal of the patient's

clothes is unnecessary. Eulenburg is inclined to doubt the statements regarding the effectiveness of the static current in hysterical and hystero-epileptic cases, feeling confident that the favorable phenomena observed are largely due to physical causes. Finally, Eulenburg expresses the opinion that static electricity as a factor in neurotherapeutics is destined to maintain itself. To be sure, its field is somewhat narrow, but, when employed by those experienced in its manipulation, results may be obtained with reasonable precision.

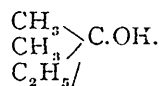
Pharmaceutical Notes on some Synthetical Compounds recently introduced into Medicine.

We take the following notes on new synthetical drugs from the paper read by Mr. H. Helling before the British Pharmaceutical Conference and reported in the *Pharmaceutical Journal and Transactions* for September per *Therapeutic Gazette*:

Acetphenetidin, paracetphenetidin, $\text{NH}(\text{COH}_3)\text{C}_6\text{H}_4.\text{OC}_2\text{H}_5$. This antipyretic has only been in use for a short time, but the results hereto obtained with it are described as excellent. Hinsberg and Kast have shown that a dose of 3 to 8 grains is able to reduce the temperature of the human body by 3.6°F ., and the experiments carried out in the clinic of Professor von Bamberger, of Vienna, have only tended to confirm the favorable accounts of the discoveries. It appears to be perfectly devoid of secondary effects and fully able to bear comparison with all other febrifuges.

It is a greyish-white crystalline powder, without smell, producing a slightly pungent after-taste; it is practically insoluble in water, but dissolves readily in alcohol. It is advantageously prescribed in the form of powders containing the above-mentioned dose, since from its tastelessness it is readily taken by patients.

Amylene hydrate, tertiary amylic alcohol, dimethyl ethylcarbinol,



Only a few weeks ago this compound was recommended by Professor Jolly and Von Mehring as a soporific, in which class of remedies it appears to have taken a prominent place. Before applying it to patients numerous experiments on animals had been carefully carried out. A dose of one drachm is sufficient to produce sleep for six or

eight hours. No unpleasant secondary effects are recorded.

The remedy is given in water (in which it is soluble in the proportion of 1 to 12), with a little juice of liquorice.

Amylene hydrate,
Liq. glycyrrhizæ aa ʒi;
Aq., ad ʒi.

S. —To be shaken before use.

It is also administered in capsules of gelatin.

It is a clear fluid, with an odor reminding one slightly of camphor: it is soluble also in alcohol. Specific gravity, 0.812 at 53.6° F.; boiling-point, at 216° F.

Antifebrin, acetanilide, phenylacetamide, C_6H_5N
 $H.C.H_3CO$.—Since the first experiments with this valuable remedy, performed by Drs. Cahn and Hepp in Strasburg, antifebrin has been carefully studied by others, and with the most satisfactory results. It possesses the advantages over other remedies of this class of being low in price, and, moreover, the dose is small, 2 to 10 grains once, twice, or at most, three times a day, sufficing to produce a considerable reduction of temperature in cases of typhoid, pneumonia, also in erysipelas and acute rheumatic gout. It is given in powders as well as in solution: for the latter mode of administration it will be found most advisable to dissolve it in brandy, subsequently adding a little water and syrup. The following formula is given as an example:

Antifebrin, ʒi;
Brandy, ʒivss.
Dissolve, and add
Distilled water.
Simple syrup, aa ʒvi.

One tablespoonful, to be taken as directed.

The remedy is thus rendered very pleasant to take, and the patients express no aversion to it.

A good preparation should be of pure white color, and form moderately large crystals, which are but very sparingly soluble in cold water, rather more readily in hot, and easily in alcohol. Antifebrin melts at 233.9°, and boils at 563°.

Antipyrin, oxydimethylchinizine, $C_{10}H_9CH_3$
 N_2O .—Antipyrin may fairly be considered the most popular of modern antipyretics. The dose varies from 15 to 30 grains twice, three or more times a day. For children, 3 to 13 grains will be found to be sufficient. It is of great value in all

febrile diseases, reducing temperature very promptly. Of late it has also been applied in subcutaneous injection as a local anæsthetic. In some cases a bright pink rash, like nettle-rash, will suddenly appear during treatment; this is considered to be of no importance, as it causes no inconvenience and soon disappears.

Antipyrin is readily soluble in water and alcohol; it possesses but little flavor, and that not unpleasant, and is, therefore, adapted for administration in solution. It thus possesses great advantages over quinine, especially in treating children, who take it very readily if mixed with a little syrup. Thus:

Antipyrin, gr. lxxx;
Simple syrup, ʒi;
Water, add to ʒiv.

Two teaspoonfuls for a dose.

This mixture is almost free from bitterness, and children do not at all object to it.

It crystallizes in colorless laminae, which melt at a temperature between 230° and 254.4° F.

Antithermin, phenylhydrazinlevulinic acid, C
 $H_3C(C_6H_5N-NH)CH_2COOH$, has been recommended as a febrifuge, but, although it is now obtainable in the market, details are still wanting as to dose and effect. It forms large colorless crystals of a slightly bitter taste, which cause an unpleasant grating when ground between the teeth. It is soluble in water, and but sparingly soluble in alcohol. The most suitable form for administering antithermin is the pilular.

Aseptol, acidum solozicum, orthophenolsulphonic acid, $C_6H_4(OHSO_2OH)$.—By aseptol we understand a thirty-three and one-third per cent solution of orthophenolsulphonic acid. It is almost odorless, but faintly suggests carbolic acid, and is reported to possess the antiseptic properties of the latter, and of salicylic acid, standing, as regards strength, midway between them. Its superiority lies in the possession of antiseptic with poisonous or irritating properties, so that it is especially adapted for abdominal surgery, and for ophthalmological operations. Solozic acid is readily soluble in water, alcohol, and glycerine. It is applied in a solution of three, five or ten per cent., to which strength the stronger solution can be reduced by dilution with water.

Betol, salicylate of naphthol ether, $C_6H_4OH.C$
 $OO.C_{10}H_7$.—This remedy is one of the very newest

and analogous to salol. It is applicable, therefore, in all those cases in which the latter is found to be of use,—viz.: rheumatism, cystitis, etc. The dose is given as 5 to 8 grains in some cases of intestinal catarrh. As it is not a phenol compound, betol possesses the advantage of being freer from detrimental properties than salol.

It forms small, white, resplendent crystals, is almost devoid of taste, and, being insoluble in water, is best dispensed as a powder or in compressed tablets, or in pills made up with liquorice-juice and powder, each containing two and one-half grains of betol. It is soluble in alcohols, as also in fatty oils, and is, therefore, well adapted for being worked up with butter of cacao into pencils for the treatment of gonorrhœa. These may be prepared by melting four parts of ol. theobromæ, and adding to the warm liquid one part of betol. This readily dissolves in the fat, and the mixture is allowed to partially cool, when it is poured into moulds. The finished product contains, of course, twenty per cent of betol. The melting heat of betol is 203°.

Hypnone, acetophenone, $C_6H_5COCH_3$.—By means of 3 to 8-grain doses of this very powerful soporific a profounder sleep is produced than that caused by chloral hydrate. Hypnone possesses an agreeable aroma, somewhat resembling a mixture of oil of bitter almonds and neroli, but its action on the mucous membrane of the mouth is almost caustic. It is dispensed, therefore, in capsules of gelatin, each of which contains one grain of the remedy, combined with one of almond oil, to prevent any risk of unpleasant effects.

It is a colorless fluid, sparingly soluble in water, more readily so in alcohol, of the specific gravity 1.032 at 59° F., the boiling point being 410° F.

Methylal, dimethylether of methylene, $CH_2(OCH_3)_2$.—Methylal is a soporific of very recent date. It is administered in doses of 20 to 25 grains in water, with a little syrup.

Thus:

Methylal, ʒi;
Syr. orange-flower, ʒss;
Water, ʒi.

One tablespoonful for a dose.

It has been applied externally as a local anæsthetic dissolved in oil, or as an ointment, with lard as a base. Both forms are made to contain fifteen per cent methylal.

It is a colorless, ethereal fluid, which smells like a mixture of chloroform and acetic ether, and tastes pungent and aromatic; it is readily soluble in water as well as in alcohol; the specific gravity at 50° F. is 0.855; it boils at 106.6°.

Naphthalin, $C_{10}H_8$.—To most fungi, naphthalin has been found to be a powerful poison, and has proved very valuable as an antiseptic, being applied in the same manner as chloroform. Professor Rossbach, of Jena, first administered it internally in cases of acute and chronic enteric catarrh, in typhoid fever, and acute gastro-intestinal catarrh. It has since been extensively applied, but not with absolutely uniform results. It is given as a powder in doses of 2 to 8 grains, to which a drop of oil of bergamot is added to obliterate the peculiar smell of tar belonging to it, which makes it otherwise impossible for some patients to take it. For example, the following formula may be adopted:

Naphthalin, gr. xxx;
Sacch. alb., gr. xxx;
Ol. bergam., gr. i.

Make a powder and divide into ten doses, one to be taken three times a day.

Naphthalin is a crystalline body, forming colorless, resplendent scales; it tastes pungent, is insoluble in water, but sparingly soluble in cold alcohol and fatty oil, but readily if these agents are heated. The solution in oil and the ointments should be made to contain ten per cent. of naphthalin, which must be added to the warm fatty matter. Melting-point, 176° F.; boiling-point, 424.4°.

Naphthol, naphthol, isonaphthol, $C_{10}H_7OH$.—As a substitute for tar preparations, naphthol has been applied to the skin with very good results, especially in psoriasis and other chronic affections. A two to five per cent. solution in alcohol is the usual form of application, but it can also be made up into ointment containing three to twenty-five per cent. Internal administration of this compound was attended with toxic effects, and has, therefore, been discontinued.

It crystallizes in resplendent scales, has an aromatic odor, is slightly soluble in hot water, readily so in alcohol and fatty oil. A very good ointment can be made by adding one part of naphthol to ten of melted lard, and well stirring. The sub-

stance dissolves without much difficulty, and forms a white, smooth product.

Naphthol melts at 253, and boils at 546.8°.

It should not be confounded with naphthalin.

Salol, phenylether of salicylic acid, $C_6H_4OH.COO.C_6H_5$.—This remedy appears to give the greatest promise of future importance, for, in the short time that it has been known, it has done very good service as a febrifuge and an antirheumatic, being administered in doses of 15 to 30 grains, two or three times a day; also as a gargle, \mathfrak{v} ii. Thus:

Salol, \mathfrak{v} ii;
Spirit, vin., \mathfrak{v} iv.

A teaspoonful to a glass of warm water for stomatitis and ulcerations of the mouth and pharynx.

A salol mouth-wash is also very much recommended, and may be prepared as follows:

Take salol, gr. xl; dissolve in \mathfrak{v} iv of a suitable spirituous dentifrice liquid. Half a teaspoonful to be used in a glass of water, with which it forms a milky emulsion.

For chronic forms of diphtheria it is reported to have more powerful effect than solutions of chlorate of potassium or salicylic acid. It is also applied, worked up with butter of cacao into pencils, as an antiseptic. These are prepared in a similar manner to those of betol, before mentioned.

Salol is a white, crystalline powder, of a mild aromatic odor; it is insoluble in water, but soluble in alcohol. The melting point is 108°F.

Thallin, $C_6H_{10}N(OCH_3)$.—Thallin is employed either as a sulphate or tartrate. It is rapidly obtaining a recognized position in the materia medica, for it is a reliable and powerful antipyretic, applicable in all kinds of febrile conditions. 3 to 8 grains in pill are considered a suitable dose. It is also applied externally, especially lately, with great success for injections in cases of acute and chronic gonorrhœa, for which it is prescribed in aqueous solutions containing one drachm of thallin salt in \mathfrak{v} vi.

Salts of thallin are crystalline powders, not quite pure white in color, of a bitter and intensely aromatic taste, and of a peculiarly persistent odor, which is similar to that of coumarin; they are readily soluble in water, but far less so in alcohol.

Urethan, ethyl of urethan, $CO(NH_2).OC_2H_5$.—As a mild hypnotic, urethan is very useful, being administered in doses of from 15 to 40 grains,

either as a powder or in solution, with a little syrup as a corrective. Thus:

Urethan, \mathfrak{v} ii;
Syr. simpl., \mathfrak{v} i;
Aqua, \mathfrak{v} iii.

Two teaspoonfuls for a dose.

It does not produce a comatose condition like chloral hydrate, but tends to induce a healthy natural sleep in cases where this is impeded by other causes.

It is a crystalline body, of a mild ethereal odor, tastes somewhat like saltpetre, is soluble in water and alcohol, and melts at about 120° F.

On the Antitubercular Action of Iodoform.

Prof. P. Bruns (Tubingen) communicates the results of clinical observation and histological examination in *Centbl. f. Chirg.* These results speak decidedly for the specific antitubercular action of iodoform. His data were derived from the treatment of cold tubercular abscesses by puncture and injection of iodoform—10% mixture of iodoform in equal parts of glycerine and alcohol. Here and there the abscess would gradually diminish after even one injection, commonly after two or three, and presently disappear entirely. Of 54 abscesses treated in this way, 40 were cured, including numerous voluminous ones with $\frac{1}{2}$ to 1 lb. pus, especially a number of large sinking abscesses of pelvis and thigh from spondylitis. As the major part of the cured abscesses were certainly tubercular the constant results of the treatment with iodoform can only be explained by its continuous contact with the cavity-lining causing degeneration of the tubercles and the tubercular layer of the abscess-wall. This action was directly proven on a number of patients by excision of the wall some time after the injections. Exact histological examination of Prof. Nauwerck showed that the bacilli had always disappeared and tubercles ceased to proliferate. The tubercular layer of the abscess-wall yields to necrosis and fatty disintegration, and is displaced by normal vascular granulations, until they mix with the fluid contents. Hence the antitubercular action of iodoform is specific, antibacillary.

[Our readers will recall a short note in the November number of *MEDICAL SCIENCE*, alluding to two noted German investigators who deny for iodoform any antiseptic power whatever. Inoculat-

ing with tubercle they found that iodoformized tubercles produced miliary tuberculosis more readily than the untreated virus. It is interesting to observe in the present article how other noted (German investigators by introducing iodoform into cold tubercular abscesses believe they have proved the antitubercular action of iodoform.—ED.]

NEUROLOGY.

Social Dangers of Hypnotism.

Apropos of the aids to therapy of hypnotism, we have Burot de Rochefort, speaking recently at Toulouse before the French Academy for the Advancement of Science, in strong language: *de l'auto-suggestion en médecine légale et des dangers sociaux de l'hypnotisme*. He said, "Many persons, in disturbing themselves regarding the social dangers of hypnotism, forget that every medallion has its reverse side; and it is not well to see only the evils without also considering the advantages. M. Bérillon says it would be puerile to deny the dangers from the evil use to be made of hypnotism, but they are not greater than those which would result from the use of poisonous drugs."

Physicians who made use of hypnotism as a therapeutic measure against certain neuroses make a use of it which is not blame-worthy. On the contrary when they make experiments in hypnotizing with the sole end of satisfying public curiosity, they commit a reprehensible act.

M. Drouineau referred to a number of accidents which had supervened in villages after professional mesmerists had gone through them, and concluded with the remark, "It is time to punish this immoral employment."

Rochefort considers that educating the public against the abuse of hypnotism will be the best means of preventing these untoward results.

Increase of Insanity in the United States.

Dr. Andrews, in a paper before the Washington Medical Congress, stated that the prevalence of insanity bears a close relationship to the duration of the social and governmental life of the people. Passing westward from the east coast of the United States there is an almost proportionate decrease of lunacy till the western slope is reached. In the New England States there is one insane person for every three hundred and fifty-nine inhabitants. In

the newer States this decreases to one in every one thousand two hundred and sixty-three inhabitants. In the seaboard Southern States there is one in every six hundred and ten inhabitants. (In Ontario, according to Dr. Daniel Clark, there is one to every six hundred and twenty inhabitants).

The increase of insanity amongst the negro race has been much more rapid than in any other portion of the population. Between 1870--80 the rate of increase in this class was more than 20% over the previous rate. The causes are given as freedom running into license, excessive use of stimulants, excessive emotional excitement, and the now necessary but to them unaccustomed struggle for existence. There has been but slight increase amongst the Chinese, owing to there being no great struggle for place and power.

In the treatment of the insane, oophorectomy, and castration in appropriate cases have able advocates amongst alienists, while electricity is now being used with a more intelligent knowledge of its power. Similarly massage has gained a position of prominence in treatment in many institutions. Hypnotism has become a means of investigating more closely the relationships between mind and body, with the result that expectant attention has become a valuable and legitimate help in the treatment of mental diseases.

BACTERIOLOGY.

Diphtheria Outbreaks by means of Milk Supplies.

The Sixteenth Annual Report of the Local Government Board, England, has just been issued, and is a volume of 450 pages, replete with a large amount of practical and experimental work, carried on by the different officers of the Board. From amongst these we propose to indicate the principal points contained in the exhaustive report by Mr. W. H. Power on an *Outbreak of Diphtheria at York Town and Camberley*.

The disease, which had appeared here and there during several past years, became suddenly epidemic in October, 1886, in both of these places, in the same parish (their population being about 3,000). Between the 13th and 24th the Sanitary Inspector reported more than seventy cases, with thirteen deaths. Very early in the outbreak it was noticed that the houses invaded almost exclusively got their milk from one dairy farm. Later observation by

the Medical Health Officer confirmed this, and further, that the first houses invaded were widely scattered, and had no connection in common other than this. As usual, however, his statements were disputed; some attributing the cause to water, others to sewers, etc. Under these circumstances the Local Government Board undertook a thorough investigation of the whole question, Dr. Power conducting it.

The whole dairy arrangements had to be investigated, and a similarly minute examination of all the houses wherein cases had occurred, as also houses adjoining these. In all 176 houses were dealt with. Enquiry was made of the number of cases occurring each day during October, and it was found that the outbreak was remarkably sudden, there being but two houses on the 9th having cases, and on the 10th there were fourteen houses invaded, with seventeen cases; on the 11th there were nine houses, with nineteen cases; and on the 12th there were eleven houses, with seventeen cases. From this the number of new outbreaks decreased daily until the 18th, when no new houses were invaded, and only one afterward during the month. Thus, of the fifty-seven houses and one hundred and forty persons invaded, 90% suffered attack in the eleven days, 8th to 18th of the month.

Minute enquiry showed that there was no relation whatever between the outbreak and house sewage; as 31% had drain connections with the public sewer system; 20% with the military college system; and 36% had private cesspool drainage.

Similarly it was shown to have no connection with the public water supply, as of the houses supplied from wells, 33 per cent. were invaded; 28 per cent. who got water from college water-works; and 55 per cent. of those who got water from springs and rain tanks.

Mud recently dredged from the Blackwater, and thrown out on the banks, was by some asserted as a cause of the outbreak; but while Dr. Power admitted this to be a possible cause, yet the fact remained that the incidence was not specially upon those contiguous to the deposits.

The 176 households divided into 94 taking a particular milk, and 82 not taking it. It must be remembered that these houses were such as not only contained cases of diphtheria, but such others as were likely to be subject to conditions similar to those in which the disease was.

It happens that all the houses (94 in number) receiving milk from the particular dairy were comprised in the 176 under investigation; but the 82 others investigated are by no means all which do not take this particular milk.

The following are the totals of the tabulated results of the enquiry:

Of the 176 houses enquired about (these including all in which cases were known to have occurred) 57 were invaded in October; now 48 (54.2 per cent) of the 57 were houses getting their milk from the suspected dairy, and every one of them became invaded in the 10 days, 8th to 17th of October. So, too, as regards persons attacked; of 140 persons suffering from throat illness during October, no less than 124 (88.5 per cent) were members of families taking this milk, and 116 of these (93.6 of the 124) were attacked in the 10 days, 8th to 17th of October. What makes this incidence yet more remarkable is that the 82 remaining houses enquired about are a part of some hundreds of houses, which derived milk from sources other than the suspected dairy; so that although the disease occurred in 9 of these yet it ought to be said that the 9 occurred in these several hundred houses; in other words that the incidence of the disease on houses not taking from this dairy was not more than a twentieth part of that on houses taking from this particular dairy.

Other interesting questions attached to the enquiry, as, why did not all drinking the milk take diphtheria? While the theory of resistance to disease becomes a factor, yet Power notes that it depended somewhat on the *quantity* of milk consumed. The consumers divided roughly into two classes, the so-called better class, and the class of cottagers and trades-folk. It was found the two classes had suffered very differently. Thus, in the 1st class 44 families took milk, and 37 were invaded or eighty-four per cent. Of the 2nd class 50 took milk, and 11 were invaded or twenty-two per cent. The same incidence extended to the individuals of the families. Thus of the 1st class with 317 individuals thirty-three per cent were attacked, while of the second class with 287 persons only six per cent. were attacked. But still more noticeably of the 1st class of the total children, 48, fifty-four per cent. were attacked, while in the other class with 94 children, but 6 or 6.4 per cent. were attacked. It was found that the milk was of uniform quality, it being the product of six cows, and had been

mixed twice daily before distribution on four milk routes. The interest alludes to the fact that the percentage of incidence on each milk walk was practically the same except when there was a difference in the relative members of 1st and 2nd classes. Further, on every walk the better class households were invaded to a four-fold extent as compared with the 2nd class. Amongst the 1st class the milk averaged daily 5.2 pints per household, while for the 2nd class it averaged only 0.8 pints daily per household. Escapes from the disease amongst all ages of the 1st class were but 3 to 1 attacked. The results were to be expected, if milk were the cause inasmuch as in the one case it was largely a diet of children, while in the other cases it was mostly used in small amounts with tea.

It is stated that only ten children in eight households are recorded as not consuming milk and of these but one was attacked, while of thirty-three other children in eighteen households who did consume milk twenty-three (or seventy per cent.) were attacked. A very difficult part of the problem was to trace the original infection to the dairy. Dr. Power failed to find any local conditions which seemed to explain it; indeed the farmer had taken most minute pains to protect himself and customers against disaster. The only cause which seemed to have any probable basis of fact was that the milk of two cows which had calved some three weeks before the outbreak began, was about this time added to the other milk. As, however, no positive evidence of infectiveness derivable from this cause has yet been demonstrated, the point must still remain *subjudice*. The extreme interest attaching to the whole question is of much importance to our Medical Health Officers and Local Boards who have recently been urged by the Pro-

vincial Board to take definite action to secure a uniform and thorough inspection of public milk supplies.

On the Germs contained in Soaps and Dressing Materials.

By Dr. A. von Eiselberg (Billroth's clinic), *Wien. Med. Woch.* The investigation covered a variety of soaps (surface as well as centre of the samples examined), almond paste, white (hydrophile) gauze, both fresh and such as had been cut up and distributed for use, sterilized gauze-compresses, iodoform and carbolic gauze, iodoform wicking, absorbent cotton, the centre of dressings already used, calico, wood wool, plughawar Djambi (a styptic) and contents of sponge, tupelo, and laminaria.

The almond, glycerine, potash and sublimate soaps are in general free from bacteria so that their immediate use for washing the surgeon's hands and the operative field is admissible.

Other cheaper soaps are not so free from germs, but may be used, preferably after longer heating to 100° or soaking for ¼ to ½ hour in 1-10% sublimate.

Almond paste is so rich in germs that it ought to be sterilized by drying in cotton-plugged glass receptacles. White gauze should be boiled just before impregnation with iodoform mixture. This latter procedure and the subsequent drying ought not to be carried on in sick rooms, but in pure, dust free air. For the various dressing materials he advises sterilization by drying at 100° C. and preservation in air-tight glass receptacles. It is advisable to treat the different tents, especially those of sponge, in like manner. Laminaria sometimes splits longitudinally on heating the requisite 10 minutes.

MEETINGS OF SOCIETIES.

Ottawa Medico-Chirurgical Society.

At the regular meeting, held on Friday 16th December, the question of the epidemic prevailing in this city was brought under discussion. Doctor Baptie introduced the subject by a paper on "Courses of Fever." He reviewed the several theories as to the course of the phenomena of fever and the external influences that originated the several forms. Applying these facts to the epi-

demic, he at some length discussed the possibility of malaria being present, and excluding this, concluded that it was purely typhoid and due to specific contamination of the water-supply.

Doctor Kobillard congratulated the reader of the paper on its excellence. The subject was one of great importance to the city. In October the place was suddenly overrun with the fever, the majority of the cases were undoubtedly typhoid but others were more of a malarial type.

The majority of epidemics were traceable to the water supply and he was inclined to look upon that furnished the city, as the medium by which the poison was carried.

Doctor Rogers said we had first to learn the nature of the fever and then search for its cause. He did not consider that malaria was a factor. It had never been in the city before this autumn, the conditions of moisture and heat were wanting, and in his experience the course of the fever had shown no intermission. He looked upon it as typhoid only. As to the cause it could not be the water

supply as other places were similarly affected. The whole explanation was to be sought for in the sewers. Owing to the dry season the gases were excessive, the drains were badly constructed and the traps very defective.

Dr. Prevost viewing his cases clinically, decided that malaria did influence the present fever. The majority were typhoid but some cases were clearly of an intermittent character. He exhibited the temperature chart of one case of this type.

The meeting adjourned, the discussion to be continued at the next meeting.

STATE MEDICINE.

Quarantine at the Public Health Association.

(Correspondence.)

BY W. OLDRIGHT, M.A., M.D., TORONTO. DELEGATE FROM
PROVINCIAL BOARD OF HEALTH, ONTARIO.

To the Editor:

SIR,—In compliance with your request I send a brief sketch of some points connected with my ramble through "the land of cotton," a name which one finds most appropriate as he gazes upon the landings of the Mississippi at any portion of the eight hundred and fifty miles which that mighty river traverses between St. Louis and Vicksburg. Do not imagine that I was in command of sufficient leisure to take in the whole of this sketch with its hundreds of landings and loadings and unloadings; but I saw the upper end of it at St. Louis and after attending to the business of the Board at Memphis I took a run down the river for two hundred and forty miles on my own account, and would heartily recommend the trip to any one who wants a rest for a day or two and who happens to be "away down south in Dixie," or thereabouts.

Cotton.—We met many steamboats so laden with it that the water was running over the lower deck; but the river was low and our larger boat, the "Kate Adams," was obliged to content herself with about half her usual load, and even then the sounding line had to be called into frequent requisition, and so often did we hear "mark twain" heralded that it made me wish I could bring back that day of "Old Times on the Mississippi" on which the mirthful individual who sports that *nomme de plume* tells us he was laboring so hard in the pilot-house and calling, "Oh, Ben, if you love me, back her!" whilst Mr. Bixby hidden

behind the smoke-stack, was enjoying the fun with the rest of the conspirators; but alas for the glory of the Mississippi in this age of rush! It has been sadly diminished by the ruthless rivalry of the iron horse.

But this is not "medical science" and although I know your poetic soul will pardon this kind of an introduction, I must leave the Mississippi after reminding you by way of apology that it is the home of malaria. The delta of the Yazoo lies to the east of the portion of "the River" which I traversed on this occasion and though its fertility can hardly be surpassed anywhere—consisting as it does of rich alluvial deposits—the presence of malaria, together with race antagonism and the consequent difficulty of obtaining reliable help kept it from progressing as it otherwise would. I was informed that persons living there, whether native or imported, suffer from a great lack of energy, and I suppose this is largely due to malarial influences. Now, however, greater attention is being paid to leaving abundant air space beneath the houses and to other sanitary precautions.

You will no doubt be chiefly interested in hearing the results of the cholera battle which we sniffed from afar before I left Toronto. As I approached nearer to the supposed scene of conflict I heard occasional indications—such as that Dr. Bell had come to confront Dr. Rauch, armed for the defence of New York Quarantine, but when the day of battle arrived, behold the New York Quarantine station was surrendered not only readily, but with apparent gusto. Dr. Bell said that the quarantine equipment had been allowed to fall into disgraceful

decay, and hoped the Association would be strong in condemnation; but he held that Dr. Smith had done all that could be done with the resources at his command. On the evening before (the evening of the first day), our gentle Dr. Sternberg had intimated that he did not want to hurt anybody's feelings, but that he would like to give an account, (which he did), of how a New York quarantine officer "with a jug," came on board a ship on which he (Dr. Sternberg) was a passenger, in order to disinfect it, and that the "disinfection" had consisted of lowering "into the vast space" between the decks a bucket which "contained two or three pounds of some powder which had been wet, probably with an acid solution." "The only object that I could conceive of," said Dr. Sternberg, regarding this procedure, "depends upon the fact that there is a fee for disinfecting, which must be paid by the agents of the ship."

Hardly less ridiculous was the description given by Dr. Bell of the method pursued by Dr. Smith and himself of disinfecting the contents of an ocean steamer in a box the size of a respectable dry-goods packing-case. It was a little less ridiculous inasmuch as the disinfection of each boxful was thorough; and a little more ridiculous inasmuch as it was a semi-official account of the picayune mode of quarantine disinfection of the commercial metropolis of the Western Hemisphere.

Some merriment was caused by the answer to a question, the purport of which was to ascertain if the State Board of New York had taken any action in view of the recent occurrences in New York city. Dr. Bell began to reply, "Yes, they passed a resolution in 1884." There appeared to be some misunderstanding between questioner and respondent, but the meeting seemed to take the answer as in ludicrous harmony with the rest of the proceedings of the health authorities of New York. The discussion was opened by a paper on "Cholera and Quarantine," by Dr. Rauch, in which he gave an account of the kind of quarantine, disinfection and inspection in vogue in New York, and also of his telegraphic correspondence and of the circulars issued by him to the New York quarantine commissioners and to the railway officials, and of the proceedings of the Philadelphia Committee of Enquiry. His account of the dilatoriness and want of straightforward confidence on the part of the New York Health officer,

gave me an opportunity of asking—after I presented the resolutions of our Board—whether the agreement made in Toronto, regarding immediate inter-state notification had been observed. Dr. McCormack replied that it had been observed by all states except New York. He subsequently introduced a pretty strong resolution which was extended and modified by the Executive Committee as follows:—

"Whereas this association has heard with regret that after four years of warning, Asiatic cholera found the authorities at the port of New York very inadequately prepared to deal with it; and,

"Whereas the faithful administration of the quarantine regulations of all ports, and especially of the port of New York, is at this time of the highest importance to the whole country; therefore, be it

"RESOLVED, that the quarantine authorities of our maritime ports be urged to exercise the greatest possible caution in admitting ships from infected parts to free pratique.

"RESOLVED, that these quarantine authorities be requested to co-operate with state and municipal boards of health in the effort to prevent the spread of contagious and infectious diseases from ports at which they may exist by furnishing to the health authorities of communities having relations with such ports, prompt information as to all real or suspected cases, and if immigrants, their destination and routes of travel."

During the meeting the several plans of dealing with infection from abroad by means of a National Bureau, by means of the U. S. Marine Hospital Service, and by increased State vigilance were urged by their respective advocates, and each received helpful resolutions (how helpful remains to be seen). There was one speech and suggestion which loses something of its *vim* on paper: it is a pity the universal telephone could not have been at the ear of all interested, when Dr. C. N. Hewitt, of Red Wing, Minnesota, in thundering and fist-hammering tones intimated that the interior States would have to "put the screws on New York" by demanding lists and destinations of immigrants and cutting off at their respective borders all railway lines from New York until the necessary precautions are complied with. On my way home I was informed by Dr. De Wolf of Chicago that he had been obliged to undertake a thorough disin-

fection of the baggage of immigrants from the "Independent," a vessel from a cholera-infected district. Dr. Smith had informed him that this baggage had been disinfected, but the immigrants informed him that their keys had not been out of their possession, and some of the valuables regarding which the immigrants gave directions were found undisturbed just as they had originally been packed.

One assurance I can give you as the result of my observations: health officers do not intend to be humbugged in this matter. It is too bad that the lives of a continent should be imperilled by political rottenness—the revenue derived from quarantine fees being used to buy people over to support a healthy (?) form of government!

The description of the efforts of Drs. Holt and Montizambert at two extreme points of the continent, and the results of these efforts, showed up in fine contrast with the state of affairs at New York.

I thought this a most opportune time to bring in the following resolution (alluded to in the last number of *MEDICAL SCIENCE*) which was referred to the Executive Committee and adopted:—

"That this association would press upon the attention of railroad, national, state, provincial and local health authorities the absolute necessity of abolishing the present system of scattering excreta along the railroad tracks and of substituting therefor some method whereby the excreta can be completely and frequently moved from the trains and tracks and safely and properly disposed of on sanitary principles." No advocacy of mine is required in regard to a resolution the necessity for which is so self-evident; and I merely refer to it in order to ask the readers of your journal to use their influence in forwarding its objects, by pointing out to others the danger now incurred by the probability of infection being carried in the dust of railway tracks or in streams of water crossed by them.

I had intended to tell you of an old-new system of medication which I saw in Memphis: the administration of "pills" to sewers in order to clean them out; also to have said a little about Pullman City and sewage farm, but I fear my article is already too long and rambling.

[We can only express our regret that Dr. Oldright did not give us the withheld information regarding *sewer treatment* and the *sewage farm*, as it possesses much local interest.—Ed.]

Contagious Diseases in Frontier Settlements.

(Correspondence.)

BY C. S. ELLIOTT, M.D., LATE MEDICAL HEALTH OFFICER, ORILLIA.

To the Editor of *MEDICAL SCIENCE*:

SIR: The advantages which we enjoy under the Public Health Act are often undervalued, and few of the citizens of the older portions of Ontario realize the security insured to them by our well organized Boards of Health, and well-informed health officers, armed and equipped with all the means which modern science has placed within our reach to arrest the spread of contagious diseases, in view of the possible outbreak of an epidemic at any time; but we are forcibly reminded of this, and our position of security is brought out in striking contrast with that of some of our less fortunate countrymen when we hear of the ravages of disease in the newly settled districts upon the confines of our civilization. It is at all times a painful thing to be obliged to record the presence of disease and death, but it is more particularly so when these make their appearance among those who are comparatively helpless to relieve the one or stay the other. In many of our frontier settlements, during the past season, both diphtheria and typhoid fever have been unusually prevalent, and in many instances fatal, and it is safe to say that in some of these instances, at least, had it been possible to carry out the requirements of the Health Act, lives would have been saved. It is impossible for those living in the older towns of this Province to understand the sufferings and hardships which the pioneer settler has to undergo. Situated many miles from medical aid, widely scattered neighbors, impassable roads, limited knowledge and limited stores, and with limited means, his condition, in the event of an outbreak of contagious disease in his family is, to say the least, pitiable. In the unorganized townships in the neighborhood of Lake Nipissing there have recently been two or three outbreaks of diphtheria, which, in the absence of medical aid, and any systematic means of preventing its spread, caused a general panic in the several communities in which it appeared. One or two of these outbreaks are interesting as showing the very marked contagious character of diphtheria, and the effect of isolation in preventing its spread. During the month of November a settler living near Powasson, a small village on the south side of Lake Nipissing, while working from home, became ill of diphtheria, and returning to his home, communi-

cated it to his family; one after the other of his four children fell victims and succumbed to the disease before any help could be secured; the inhabitants of the village near by became panic-stricken, and none could be found to approach the house, consequently no cases occurred beyond his family. A similar occurrence took place a few miles further south, in the neighborhood of Sundridge, on the line of the Muskoka Junction Railway. A member of a family, residing temporarily some distance from home, contracted diphtheria, and returning home, communicated the disease to the other members of the family, eight persons in all, in two of whom it proved fatal. No communication from outside was carried on, and no other cases occurred in the neighborhood. Some of the organized municipalities in the Nipissing and Parry Sound Districts have complied with the requirements of the Public Health Act so far as to appoint Boards of Health, but up to the present these have remained inactive, never having met or taken any steps to prevent the spread of contagious diseases. The village of North Bay, in the township of Widdafield, a place already of considerable importance, and which aspires shortly to become incorporated as an independent municipality, has never, as yet, taken the first step in regard to sanitary matters. It is understood that the Reeve is now moving in the direction of the appointment of a Board of Health, but not before it was much needed, for all the conditions exist which would favor the development and spread of zymotic diseases. The water supply of this rapidly growing village is absolutely bad, and unfit for human consumption; no provision whatever has been made for drainage, and as far as can be learned no attempt has been made, even by private individuals, to introduce so essential a requisite to the maintenance of either public or private health. This is the more surprising in view of the fact that the most important part of the village is built over a substratum of solid gneissoid rock, which prevents anything like natural drainage, and in many places the surface water is held in basin-like depressions, which are mere open cesspools. It is earnestly to be hoped that the intelligence of those in authority, as well as of the inhabitants in general, will not allow this state of things to continue much longer.

OUTBREAKS IN FOREIGN COUNTRIES.

Scarlatina in England.

This disease, as prognosticated, has increased steadily for five months preceding November, during which, in the twenty-eight largest towns it reached a death-rate of 0.65 per 1000, and exceeded the death-rate of any of the three preceding years.

Smallpox in Dublin.

This disease has broken out in a lower part of the city, and ten cases were in the hospital at last accounts. In 1871-2 there were 1647 deaths there from this disease.

OUTBREAKS IN THE UNITED STATES.

Diphtheria in Cleveland and Detroit.

This disease may fairly be called epidemic there, it having caused 40 deaths in November. We trust that railroad companies will be more careful in the future than in the past, as we have knowledge that in several instances, one with fatal results, they have carried bodies from the United States into Canada, and from Cleveland, from which fatal results were contracted. Detroit had last month 18 deaths from the same disease. The express companies have promised compliance with the law preventing the transportation of corpses, dead from this disease.

Typhoid in Pittsburg.

This disease has been very prevalent, and is stated to have caused over 2000 cases. There seems to be a suspicion that the water supply is at fault; but as the disease has been allowed to spread, there are so many possible causes of the trouble, that there will be a disposition there as elsewhere to "drag a herring over the trail."

Smallpox at Morganville, Ala.

This disease has appeared at this place, near Montgomery, and is creating a stir in the south. Doubtless recent experience in the north will prevent carelessness in the far south.

OUTBREAKS IN CANADA.

Diphtheria in Canada.

This disease, endemic at all times, has been noticeably variable in its incidence during the past month. It is prevalent in parts of the flat lands, in the south-western parts of the Province. Brantford has had a considerable number of cases, while

Hamilton has reported but a small number. In Toronto, much less prevalent than a year ago, its incidence seems greater in the eastern part of the City, while a year ago it was very prevalent in the west.

Typhoid at Ottawa.

This disease, stated to have caused 1000 cases since October, has greatly decreased, and with the winter may be expected to further decline. The local press and citizens generally have become greatly alarmed, and have been searching for the

cause. After examining into the probabilities of milk, sewer-gas, the atmosphere being the cause of the disease, public opinion is strongly inclining to suspect the water supply. As it is pumped from the Ottawa at a point, safe at one time, but now dangerous from villages built higher up on the river, they have with all modern evidence reason to conclude that all is not *well* with the water. The Provincial Board of Health has been recently associated with the Local Health Committee in investigating the cause, and its report will be looked forward to with interest.

PARAGRAPHS IN GENERAL.

The Physicians' Visiting List of P. Blakiston, Son & Co., appears for '88, the 37th year of its publication, with many improvements and time-saving tables, especially the table for calculating the period of utero-gestation; we find it in the words of their announcement: "compact, strong, most convenient, durable, light, low in price." Interleaved and uninterleaved editions, also perpetual edition to be started at any time, may be had. Prices, \$1 to \$3. Phila., P. Blakiston Son & Co.; Toronto, Williamson & Co.

Dr. P. P. Burrows, Medical Health Officer, attended the meeting of the American Public Health Association, at Memphis, 8th, 9th, 10th and 11th November last, as accredited representative of the town of Lindsay. Dr. Burrows devotes his time largely to the consideration of sanitary improvement and progress, with a view to its practical application, especially in the town in which he resides. He is now an old sanitarian, being 1st Vice-President of the Ontario Executive Association of Health Officers, and a member of the Advisory Board of the American Public Health Association. This last honor was given him at its last meeting. His name appears on this Board as Ontario's representative, an honor certainly to Dr. Burrows, and the town in which he resides.

Lindsay is just now considering systems of water supply and sewage. It is proposed to make an exploratory well, and if the supply proves good, to adopt the "drive well" system. We can hardly hope for sufficient supply from Artesian wells proper. The sewerage system proposed is the "Waring" or

"separate system," with latest improvements. The town is in need of both, as the well water generally used is subject to contamination, and the old-fashioned drains, into which sewage with excreta enters, are very objectionable. The town, like others similarly situated with regard to water supply and sewerage, is subject to endemic and epidemic diseases. We may hope for an improved general health rate with their introduction.

We are pleased to hear of the success of the Weir Mitchell Sanatorium, established by Dr. A. Holford Walker, of Hamilton. It deserves the support of the profession in Canada, as medical men can here procure for their neurasthenic cases the treatment advocated by Dr. Weir Mitchell, in all its details. We understand Dr. Walker's head nurse was with Dr. Weir Mitchell for two years as masseuse, and is also a graduate of the General Hospital in Boston.

It will no doubt please our many readers to find that their confidence in FAIRCHILD'S most reliable preparations has not been misplaced. At the American Exhibition, London, Eng., the gold medal was awarded to Fairchild Bros. & Foster for "digestive ferments, extractum pancreatis, peptonising powders, pepsine, in scales, etc."

Dr. H. P. Yeomans, B.A., Mount Forest, has returned from New York, where he has been taking a course at the Post Graduate. Dr. Yeomans during his stay, examined into the various sanitary problems of New York, and made enquiries regarding education in Public Hygiene.