

# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLII.

TORONTO, MARCH, 1914

No. 3

## Original Articles

### FOREIGN BODIES IN THE AIR PASSAGES\*

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In responding to the request that I should make a communication to your Society, I must apologize for not being able at comparatively short notice to offer you much, if anything, that is new, and ask your excuse for bringing before you a subject on which I have already written. It seemed best to take one from that part of the borderland to which I have directed some attention, especially as it is one that is of interest to all branches of our profession.

The practical dealing with foreign bodies in the air passages has in large measure passed into the hands of the laryngologists, but it will return into the domain of the surgeons as they become more habituated to the use of the bronchoscope which, though a dangerous weapon in the hand of the unwary, is not really a very difficult instrument to use.

But the whole question is of great importance to all, to the pure physician on account of the changes which are set up in the lungs, and above all to the general practitioner, on whose shoulders rests the heavy responsibility of making an early diagnosis and insisting on the removal of these causes of offence with the least possible delay, as must be done when it is recognized that incalculable mischief may result from the presence of some of them even for a short time in the air passages.

As the radiographer must always be called in aid, if one is available, this interesting skiagram may well form my text. But, though the radiographer may be a good friend, it must be remembered that there are many foreign bodies which give no shadow,

\* Delivered before the Academy of Medicine, Toronto, November 4th, 1913.

and others, like pieces of bone, whose shadows are no darker than those of the ribs. If the skiagram is to be a single one it is essential that it should be taken instantaneously, as the complicated movements of the lung make the shadow blurred and faint and almost certainly indistinguishable from the rib shadows, or the opacities caused by glands, inflammatory products, or those streaks called by the Germans *Hilus Zeichnungen*. These stripes, as seen in an instantaneous skiagram, follow the lines of the bronchi; but in those taken by long exposure are shapeless blotches. They are not, of course, the bronchi, as healthy bronchi are transparent to X-rays, but they are shadows of the accompanying vessels. I strongly urge stéréoscopic skiagrams. The pair should be taken each at full inspiration, so that the healthy lung may be as transparent as possible. The shadow of a piece of bone, if seen in the stereoscope, will take its proper place in relation to the bones of the chest wall. It requires, however, a very instantaneous skiagram indeed to elude the heart-movements, which are well indicated in the shadow of this pin, and you see how much it has been moved by them.

The pin was inspired in this way. A young woman was playing with some friends, while holding a pin  $2\frac{1}{2}$  inches long with a glass bead head, in her mouth. She laughed, and it passed head foremost through the larynx and stuck in the left main bronchus. It ought to have gone into the right bronchus, because, as Aeby showed, this is not only the larger one of the two, but follows almost exactly the direction of the lower part of the trachea. But many foreign bodies go into the left side, notwithstanding. The dyspnea was not great, and soon passed off; so she ceased to trouble about the pin; but, as a cough persisted, she went to her doctor some months afterwards. He found only a few crackles along the left border of the sternum, and referred her to Sir Thomas Barlow, with the note that there was a history of foreign body, but he supposed it was the old story—incipient phthisis. This skiagram made at the hospital by Mr. Higham Cooper revealed the nature of the case. Sir Thomas asked me to see the patient, and I was reluctantly obliged to hand her over to my colleague, Mr. Tilley, for treatment.

Several considerations, both general and particular, are suggested by the picture.

At first sight it seemed impossible that the pin could lie, as it does, almost horizontally in the left main bronchus, and it was discussed whether it could have escaped from the air passages in part or altogether. But reference to a metal cast explained that.

if the head entered a secondary bronchus and stuck there, it is the only position it could possibly occupy.

The most important lesson to be learned is from the fact that so few symptoms were caused by the presence of the pin. I have often observed this in similar cases. For example, a vulcanite tracheotomy tube, broken from the shield, which had entered the right bronchus of a child, for several days, only caused imperfect entry of air into the right lung, and a piece of bone in the right bronchus, which did certainly cause a troublesome cough and some rise in temperature, gave as the only physical signs deficient entry of air, impaired movement, and a few moist râles at the right base. So it is not right to wait for signs or symptoms, because mischief may be set up in their absence. It must not be forgotten that, although, fortunately, the removal of foreign bodies, even after a long time, has effected a cure, there are many cases on record where, even a short residence in a bronchus of such unirritating smooth body as a collar-stud, has set up chronic bronchitis and bronchiectasis, from which the patient has never recovered. This is what prolonged residence of a foreign body commonly does, and I have pointed out that it is one of the commonest causes of unilateral bronchiectasis in children. The *modus operandi* is that the bronchi beyond the obstruction are never cleared of the secretions, which then become septic, and produce, first bronchitis, and then inflammation of lung of one sort or another—a matter to which I will return later.

Another very important point is that the doctor was inclined to discredit the story. Long experience has convinced me that it is much more common for the patient or his guardians to forget the occurrence of such an accident than for the tale to be invented. I have often had to drag the history out of the parents, and will here again mention a case I have often referred to that is much to the point. It was that of the small four-year-old son of a doctor, who was brought to me with what was thought to be empyema following whooping cough, in 1888. It was really bronchiectasis, caused by a rabbit's vertebra, which had been inspired whilst the father himself was feeding the child with mulligatawny soup seven months previously. The bone was coughed up ten months after my operation. The child is grown into a man twenty-nine years old; he is married, but still had a cavity at his right base when last heard of. The moral of all which is, never neglect the story of a foreign body; be rather credulous than sceptical, see that no pains are spared to remove the object at the earliest possible moment, and lastly, remember that a person may live a great

many years with such a bronchiectasis, even although it be accompanied, as it often is, with severe, not to say alarming, hemorrhage.

The pin was a strange object to pass through the glottis; but not nearly so strange as many that have made the journey: large plum stones, great masses of meat or vegetable completely plugging the trachea and causing almost instant death (especially in lunatics), screws, the peg of a pegtop, needles and thread, tracheotomy tubes, a whistle, the tail of a herring, and countless others; besides living animals, such as leeches and round worms—a truly horrible thought!

This has led to many classifications, such as into hard and soft, rough and smooth, indestructible or perishable. They are not really of much value. Probably the most important distinction is into those that are, or can become, septic in their own right, and those that are not, in view of the sort of danger they may cause. It would be right, under the former, to include such bodies as may carry with them the germ of actinomycosis or moulds, which can grow in the human tissues.

One interesting distinction is into bodies which stop wherever they happen to stick, and those which at once start on their migrations; ears of corn and grass always do this. I once found part of an ear of wheat in an acute bronchiectatic abscess at the thin lower border of the right lung, extending through the diaphragm into the liver; and we had in our museum at University College Hospital an ear of grass which a baby put into its mouth and which came out through the skin of the back near the angle of the left scapula. The cough it set up was taken for whooping cough, and the emerging ear of grass for the core of a boil.

It might be wondered why these migrations occur if we did not recognize the constant and forcible movements which are going on in our insides. I think the amount of these movements is not really appreciated by those who have not handled a lung or a heart or had their fingers in the anterior mediastinum, or seen the mediastinum in the course of an extensive thoracoplasty, or looked with the physiological rather than the pathological eye down the bronchoscope. In a normal chest, with every act of respiration, every part of its visceral contents is moved except, perhaps, the extreme apices of the lungs at the necks of the first ribs. During inspiration the thorax expands and the diaphragm descends. Let us analyze just a few of the resulting movements. The sternum in full inspiration in an adult man is considerably further from the spine than in deep expiration at the lower end.

perhaps  $1\frac{1}{2}$  inches, though not so much above. The central tendon of the diaphragm again is not, as we used to think, stationary, but moves downward 30 m.m. ( $1\frac{1}{4}$  inches), it also moves forwards nearly to the same extent as the lower part of the sternum because the muscular fibres in front of it are much shorter than the posterior ones. These movements are accompanied by corresponding movements of the heart and the roots of the lungs; but as the shape and position of the heart vary and the pericardium is not a rigid sac, the upward and downward movements of the roots of the lungs are not nearly so extensive as are those of the central tendon of the diaphragm. The antero-posterior movements of the roots of the lungs are also less than those of the sternum, because the two pleuræ always touch one another in front of the heart and often do so behind. There are, as it were, both an anterior and a posterior mesopericardium to allow of the thickening of the thin anterior borders of the lungs and the inflation of their thick posterior parts during inspiration. In a direct side to side skiagram of the chest taken during full inspiration (but more easily in an oblique view) you may see a wide band of light between the shadow of the spine and that of the heart. This is a striking demonstration of what has been said above, and also of the amount of these movements. It incidentally reminds us of the explanation of the ease with which one pleura is affected from the other and of the danger of producing double pneumothorax in operations on the lower part of the posterior mediastinum.

As the upper part of the lung is more fixed than the lower, it might be thought that the act of inspiration would, by drawing down the distal portions of the air tubes, diminish the angle between the two main bronchi. But there is another force at work, namely, the inflation of the mass of lung that occupies this space, which would tend to increase this angle. I have made a number of experiments to elucidate this point with the help of my colleague, Mr. Hugh Morrision Davies, who is devoting, with much energy and originality, his attention to thoracic surgery.

Our method was to tracheotomize a monkey and insert through the opening two copper wires, one into each bronchus, and observe the movements through the screen. It was quite clear that the wire in the right bronchus was drawn inwards during inspiration, but we could not see the movement of the wire in the left bronchus. There is no reason to doubt that the movement was similar, viz., downwards and inwards.

Afterwards we blew bismuth powder into the bronchi, but the shadow was not dark enough to show upon the screen. The animal was then killed, and I will show you the skiagrams taken in extreme inspiration, and also after inflating the lungs with bellows. I show them because they illustrate how such investigations may be carried out, but it is difficult to measure accurately the angle between the two bronchi in so small an animal. Moreover, it is necessary to remember that artificial inflation of the lungs is not like natural inspiration; it is unlikely that the diaphragm will distend so far as in the normal process.

In case there are any anatomists present, may I remind them that the anatomy of the thorax of the text-books is the *anatomy of aspiration*. The measurements, the pouches of pleura between the aorta and esophagus and other matters need, I think, some reconsideration.

But there are yet other movements of the bronchi. At each act of inspiration they are lengthened by traction; for, speaking generally, each individual part of the lung expands and contracts in the direction of the bronchial tubes contained in it; that is, it moves mostly downwards and backwards below, mostly horizontally in the middle, and so on. During expiration the bronchi are shortened, partly by their own elasticity and partly by the contraction of their muscles. At each beat of the heart a very considerable movement is given to them which is easily seen through the bronchoscope, the left main bronchus being principally moved upwards and downwards, the right inwards and outwards. When we think of all these movements occurring during quiet breathing, and remember also that the calibre of the tubes is diminished to an almost incredible extent during coughing, sneezing and vomiting, partly by muscular contraction, partly by the pressure of surrounding solid bodies, there is no difficulty in understanding how it is that ears of corn wander about from place to place in the manner I have already referred to; and that the consideration of this interesting question, even superficially, has led me so far from the subject of my paper.

I wish now to enter a little more in detail into the results of the lodgment of foreign bodies in the air passages. Curiously enough a body may pass through the narrow chink of the glottis and lodge just beyond. I have seen this happen with a cowrie shell and also with a grain of corn, which gave rise to an abscess by the side of the cricoid cartilage, thought to be tuberculous.

A large piece of meat or other soft material, if it becomes impacted in the trachea, rapidly causes death.

Any solid body that becomes impacted in a main bronchus and completely obstructs it, causes the whole lung to collapse and pass into a state of septic disintegration, exactly like the condition, first described by Pearson Irvine, which results from the pressure of aneurysms or other tumors. The more septic the foreign body the more rapidly does the process go on.

A smooth solid body like a tooth, or a stud, straddling across the bifurcation of secondary or smaller bronchi, first sets up bronchiectasis in the part from which these bronchi came; but the process may gradually extend to the whole base, first, of the affected lung, and then of the other. These cases do not differ from what may be called ordinary cases of bronchiectasis, they are equally liable to pneumonias, or even hemorrhages, amyloid disease, and so on; and, like them, they may last on for many years; and, like them, they may any time terminate in cerebral abscess.

The changes are different if the foreign body is either putrid at the time or one that can decompose or become the seat of decomposition, because the changes in the portion of lung involved are much more acute; and, although dilatation of the bronchi is generally marked, a definite abscess often forms. This very important class includes not only pieces of bone and fragments of teeth, but smaller particles which are easily set free in operations about the mouth and nasopharynx, such as bits of mucous membrane or shreds of cotton wool, to which the name of foreign bodies seems scarcely applicable. But they are potent for mischief. I have seen so many acute stinking pulmonary abscesses following shortly after nose and throat operations that I cannot doubt that they are causally connected, and I therefore urge that every possible precaution should be taken to prevent this accident happening, whether by suitable arrangement of the patient's position or such special methods of administering anesthetics as I am hoping to see more of in the course of this expedition than I have done at home.

In connection with this part of the subject it must be remembered that it is not uncommon for these cases, if unrelieved, to end in pulmonary tuberculosis, which reminds one of those still smaller, almost imperceptible, foreign bodies, such as iron filings, minute fragments of stone, coal-dust and floating particles from infected hides, which may start many forms of serious pulmonary disease, but are not properly included in our subject.

The important question of treatment remains for consideration, and I will briefly refer to what was until ten or fifteen years ago the only available practice, because that is the line that in

remote districts will still have to be adopted. First, it was essential to do tracheotomy, by preference a low tracheotomy, because this offered the only chance of instrumental extraction, and without tracheotomy it was unsafe to attempt inversion of the patient or wait for the possible expulsion of the foreign body by coughing. The favorable result in Brunel's celebrated case is not a thing to trust to. After opening the windpipe various forms of catcher were used, the simplest and one of the most effectual being a twisted piece of stout silver wire. Many kinds of forceps were devised, amongst which, I think, one of the most useful was made for me on the plan of Lister's forceps for extracting calculi from the membranous or prostatic urethra. Many a foreign body has, in the past, been removed in this way, and I doubt not many will be so removed in the future.

But a revolution in the treatment has followed the invention by Kilian and Brüning of a practical straight bronchoscope. Their labors crowned those of other workers in the same field, starting more than thirty years ago with those of Kussmaul and Mikulicz, and carried on by Gottstein and others. It is now possible to introduce straight tubes not only into the primary, but into secondary and even smaller bronchi—a feat which seemed impossible before we knew about the normal movements which occur in the roots of the lungs.

Let us return to the case which forms our text. With the patient recumbent and the head thrown well back, the instrument was passed with apparent ease through the glottis down the trachea and into the left bronchus, and at once Mr. Tilley saw the pin, and so did I. He seized it with a pair of Kilian's forceps and pulled. It was an anxious moment, for the point was fixed in the mucous membrane, and it was doubtful in the first place whether the forceps would hold, and in the second whether it was right to pull hard. However, he persisted, and the pin broke across, and only the part with the head attached came out. By this time there was a good deal of bleeding and a spasmodic cough and consequent contraction of the bronchus, and, in spite of mopping with cocaine, it was impossible to extract the pointed end. He, therefore, decided to send the patient back to the ward, and by great good fortune the other portion was coughed out during an attack of vomiting a few hours afterwards, but we agree that the safe thing would have been to do a tracheotomy, as there was a risk of suffocation if the pin had been become impacted in the glottis. It would certainly not be wise to leave a patient un-



tracheotomized unless, as in this case, there was someone on the spot prepared to do tracheotomy at a moment's notice.

It is literally true that hundreds of foreign bodies have been removed in this way. But, if it be found impossible to extract them, Killian advises that a low tracheotomy should be performed and the bronchoscope introduced through the wound, and it is pointed out that through such a wound the bifurcation of the trachea can be seen with a very simple form of speculum.

There is one very troublesome and dangerous class of foreign bodies, for the removal of which it is sometimes said a preliminary tracheotomy is almost essential. I refer to soft objects, like peas or seeds of Indian corn, which have swelled after being inspired. Mr. Tilley kindly allows me to mention a case which occurred during the session of the last Congress in London, which shows that this need not be necessary and is, I think, the first time that such a dodge, if I may call it so, was adopted.

*The Removal of a Pea from the Right Bronchus by a New Method.*

J. O'M., male, age 65, was admitted into the University College Hospital, August 6th, 1913, because of a severe cough which was said to have been caused by the inhalation of a green pea three days previously.

On admission the patient looked ill and exhausted, a condition which he attributed to loss of sleep caused by violent fits of coughing accompanied by profuse expectoration.

Examination of the chest elicited defective air entry and slight dullness on percussion over the right lower lobe posteriorly.

A twenty per cent. solution of cocaine was applied to the lower pharynx, larynx and upper portion of the trachea.

With the patient sitting upright, the bronchoscope was easily passed into the right bronchus. The mucous membrane was very congested, and it was necessary to remove an excess of mucous secretion with gauze mops. The pea was then easily discernible, and was apparently firmly impacted in the bronchus.

Knowing that after a three days' sojourn in the bronchus a green pea would be very friable, I dared not attempt to seize it in forceps, for it would almost certainly have disintegrated and probably septic pneumonia would have followed the deeper penetration of the fragments into the smaller bronchi.

I, therefore, passed the end of the bronchoscope tube firmly onto the pea, and then improvised a piston of compressed wool

moistened with liquid paraffin, passed this slowly down the tube till it abutted against the pea, and then made a sudden but slight motion of withdrawal of the piston. This had the desired effect of sucking the pea into the lower end of the tube, so that piston, pea and bronchoscope were withdrawn together.

The patient left the hospital next morning, entirely relieved of his symptoms except for a little loose expectoration.

The pea and its method of removal were demonstrated at the first meeting of the Laryngological Section of the recent International Congress of Medicine in London, and as far as I could gather no similar method had hitherto been recorded, for it had been the almost universal custom, in view of the dangerous nature of such soft foreign bodies, to perform a low tracheotomy and approach the obstruction through the wound, either by a short tube (bronchoscope) or by means of hooks, sharp spoons or other similar contrivances.

I suggest to him that something in the nature of an idealized stylographic pen-filler will have to form a part of his armamentarium.

The briefest mention can only be made of the various forms of intrathoracic bronchotomy, which are difficult and dangerous operations, which have, however, sometimes proved successful when simpler methods have failed. Occasionally it may be advisable to open the pleura and feel the lung, if the body has passed into its substance. I have done this myself, not, however, successfully in the old days. It is now a much simpler procedure if one of the methods of securing ultimate inflation of the lung—high pressure or low pressure—is at hand. If the body is felt the lung must be fixed to the chest wall, and after this is done the lung must be incised and the foreign body extracted.

In conclusion, I must again apologize for my paper, not because the matter of it is uninteresting, but because I fear that most of what I have said will appear to you in the light of household words. I shall be fortunate if I have succeeded in placing it before you in a somewhat new light.

**THE ROLE OF THE PREPUCE IN DISEASE**

*(The American Practitioner.)*

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An old topic, but one which is of great importance, is the question of the relationship to bodily health of that much operated upon portion of the male anatomy, the prepuce. To it have been attributed a legion of nervous disorders; it is accused of being an accomplice to the Neisserian diplococcus, the Ducrey organism, and that doughty warrior, the treponema pallida; gastroenteric conditions are laid at its door; in fact, if the literature be carefully gone over, one marvels at the malignant powers of this little fold of skin and mucous membrane. The surgeon and the obstetrician, the pediatricist and the neurologist, and, last but not least, the general practitioner seize upon it as the cause of a myriad of bodily ills. Theology, too, has for centuries attacked it, both for ceremonial as well as hygienic reasons.

It is the purpose of this paper to attempt to reach some fair conclusions as to what part this mucocutaneous fold really plays in the pathogenesis of disease, and to call for more conservative methods of treatment than circumcision.

In preputial conditions the sole considerations seem to be (1) too long a prepuce, (2) too narrow a preputial orifice, and (3) other malformations. These are the usual anomalies for which operation is advised. The hygienist then steps in and claims that for cleanliness (?) sake, and to prevent (?) venereal disease, it must be removed. The neurologist demands its removal, because it causes (?) chorea, epilepsy, mental conditions, etc., in which cry he is ably assisted by the pediatricist.

The subject will be approached in the following manner:

1. The normal anatomy and histology of the prepuce and glans.
2. The physiology of the prepuce.
3. Pathological preputial conditions classified.
4. The bearing of the prepuce on local and systemic conditions.

5. The rational treatment of the prepuce.

1. The normal anatomy of the prepuce.

The prepuce is a more or less cylindrical fold of mucocutaneous membrane which surrounds the glans penis. Its outer surface is composed of epidermis similar to the outer covering of the penis. Its inner surface is still composed of epithelium, but of a type less ceratinized, and is moist at all times, because of the secretion of its glands and of the presence of a certain amount of smegma. Its deeper structure is composed of connective tissue and some involuntary muscle fibres. It is markedly elastic and extensile, and readily adapts itself to the various conditions of the copulative organ.

The blood supply in the young is scanty, but in later life is abundant. The nerve supply is free, and here comes the first difference of the prepuce from skin elsewhere. Throughout its whole surface are distributed numerous sensory end organs, so highly specialized that they have been aptly called "the genital corpuscles" by Krause. Besides these there are a considerable number of Paccinian corpuscles to be found.

Nor is this the only point where these special end organs are to be found. They are present over the entire surface of the glans penis.

2. The physiology of the prepuce and glans penis.

Nature, as a rule, makes few errors—and for a certainty she did not err in providing man with a prepuce. The ultimate object of all animal existence is, after all, procreation, the propagation of its own species. True, we may do other things; but, after all, the primal law of man is to "be fruitful," to which civilization has added the duty of educating his offspring to better standards than his own. And in procreation the prepuce plays an executive part.

We have seen that the prepuce forms a covering for the glans; we have seen that its inner surface is moist, as is the glans; that its inner surface is studded with special sensory end organs, as is the glans. If we analyze these factors we will find (1) that the prepuce is a protector of the glans, and (2) that it heightens the sensibilities during the act of coition, and thus assists in the sexual act.

During the flaccid state of the organ the glans is completely covered by the prepuce. It protects the delicate epidermis of the glans from injury; it prevents continual irritation of the genital corpuscles.

In the erectile state of the penis the glans is entirely exposed, the foreskin vanishes, but in such a way that an area of mucous membrane, equal in size to the depth of the prepuce, with its numerous specialized nerve endings, is added directly to the surface of the glans. The physiological result is heightened sexual stimulation. Remove this surface, and just so much specialized tissue is removed from taking part in the act.

Physiologically, then, the prepuce has definite functions—protective and sexual—and these should not be forgotten when one deals with it as a factor in disease.

### 3. Pathological preputial conditions.

These can be classified as follows:

- (a) Excessive length of prepuce.
- (b) Short, or absent, prepuce.
- (c) Phimosis.
- (d) Preputial adhesions.
- (e) New growths.
- (f) Venereal disease.
  - (1) Verrucae (gonorrhoeal).
  - (2) Chancroids.
  - (3) Chancre.

It is not the purpose of this paper to enter into the discussion of venereal or dermatological conditions. They and new growths will only be spoken of here as part of the general topic.

### 4. The bearing of the prepuce on local and systemic conditions.

#### (a) Local conditions.

A spasm of public interest in the prepuce has during the last five or ten years had its sway. Because the medical profession has laid so much stress upon its importance, parents have come to think that its removal is essential to the welfare of the child—and in many instances the profession has not been loath to cry “operation” on the slightest pretext.

And not the least of these has been “local hygiene.” The story is almost invariably the same. Remove the prepuce, and smegma, etc., will not gather, disease is prevented. Absolute absurdity! In the first place, the ordinary human being should take an occasional bath—and a parent should teach a child that the foreskin is to be retracted during the bath and excess smegma removed. The average mother teaches her daughter proper vaginal hygiene to prevent vaginitis, etc. The father can do a similar thing for his son by instructing him in his personal hygiene.

Again, the removal of the prepuce prevents, or helps prevent, venereal disease. This is a constant tale on the part of young

libertines who enter our offices. We did not know that the prepuce normally harbored the gonococcus after infected intercourse. Of course, it is present here, as part of the surface exposed; but as most gonorrheas in the male seem to be in the urethra, it would appear that they find their way there during the act of coition.

Luetic infection must have an atrium, a point of entrance; and surely an unbroken mucous membrane of a prepuce is no better point for entrance than an unbroken mucous membrane of a glans unprotected by its covering.

This, then, disposes of the hygienic myth which advocates circumcision for local prophylaxis.

The remaining local processes will be considered under the general treatment.

#### Systemic conditions:

The pediatricist, the neurologist and the general practitioner have pointed out the value of circumcision in certain nervous and mental conditions, but have too frequently argued *ergo hoc, propter hoc*. The gamut of neurological diseases said to be due to the prepuce runs from chorea to insanity, from epilepsy to homicidal mania.

The sole effect the preputial adhesions or phimosis can have is a reflex one—and to be of great effect the nervous system of the individual affected must be below par. True, choreiform movements, epileptiform convulsions, masturbation and other symptoms of disease may be aggravated by an adherent prepuce or a phimosis, but only if the patient be of a psychopathic constitution. One frequently sees cases in which, with marked malformation, the patient is not aware of his abnormalities, and never has a disturbance at all simulating nervous disease.

In children it is not unusual to see masturbatory movements. If the prepuce be at all redundant, or if there be a tendency to phimosis present, they are at once declared to be due to these conditions. Atwood and Clark have described movements, rocking, finger sucking, leg friction, etc., and have called attention to their significance as an evidence of nervous disease, or psychopathic constitution. Must, therefore, similar movements, convulsions, etc., be attributed to preputial abnormalities? It would seem wisest to investigate carefully the reflex causes for these seizures, it is true; but the practitioner should not forget that the true underlying cause, the insufficient or abnormal psychic makeup, must also be investigated.

Nocturnal enuresis is often attributed to abnormalities of the prepuce. Modern investigations into the field of the psychopathic

point out well that this condition is frequently due to hysteria, to epilepsy, etc., and not to the too frequently assigned cause. After investigating all other causes than preputial conditions for this annoying symptom, one will find that it can but rarely be attributed thereto.

One can investigate other instances of the detrimental effect of these preputial conditions, and one is astonished to find, on analysis, how small a part it really plays in disease processes and how complacently they have been attributed to it.

#### *The Rational Treatment of the Prepuce.*

Three words suffice for the treatment of the normal prepuce—"Leave it alone." It has its purpose to fulfil; it causes no trouble; here "judicious neglect" is to be the treatment. Cleanliness, of course, should be taught. If illicit intercourse is part of the routine of our patient's life, he should be cautioned or instructed in prophylaxis against venereal disease.

Preputial adhesions should be broken up according to approved methods. Circumcision is unnecessary. Again the advice, so far as the prepuce is concerned, is "Leave it alone."

For the remaining abnormalities the operator should employ conservative methods. The glans should be liberated from the prepuce. Remove only as much prepuce as is essential to secure complete retractibility from the glans, and no more.

If these methods be followed out the physiologic mean will be the result, and, as a fact, the reflex irritation of an unprotected glans will be avoided.

#### *Conclusions.*

1. The prepuce has a definite, physiologic purpose.
2. It is not the cause of all the ills to which its abnormalities are attributed.
3. It should not be removed for so-called prophylactic or hygienic reasons.
4. When necessary to operate upon it, do so conservatively.

## THE TREATMENT OF THE PNEUMONIAS

BY ROBERT L. WILSON, M.D., PHILADELPHIA.

The total number of cases of pneumonia (*J.A.M.A.*, Jan. 24th, 1914) in the medical wards of the Philadelphia General Hospital in 1911-13, was 596. Hypostatic pneumonia cases, those in the surgical wards, and in the children's branch, are not included. Practically every case of the 596 was treated in cold fresh air, outdoors, on balconies or specially constructed bridges. Perhaps the majority of the cases occurred in alcoholic subjects, a few in acute alcoholism. The recoveries were 232; deaths 364.

Under various methods of treatment the recoveries were 38.5; deaths, 61.5 per cent.

The cases not over 100° F. were 393; above 100° F., 203, the latter frankly suggestive of croupous pneumonia.

The need of determining very early just which form of involvement the physician has in hand is pointed out.

*Fresh air:* This is essential in both forms. Every air vesicle must or should receive its full quota of pure, fresh air. An ample supply is even more essential to the pneumonia patient.

The patient, if possible, should be placed bodily outdoors, *provided, and only provided, the case is of a febrile type of fibrinous pneumonia.* In fibrinous pneumonia free rein should be given to the use of fresh air, cold if possible, warm when there is no other supply. He cannot "take cold." The patient must be kept comfortable by a mackintosh over the mattress, the bed-clothes surrounding the body, folded up under the feet and legs; hot-water bags or bricks to the feet—the nose and mouth only exposed. But not cold air in broncho-pneumonia, where body heat and vital energy are already low. Unnecessary deaths result from cold fresh air in broncho-pneumonia.

In suitable cases of febrile, sthenic type of fibrous pneumonia, outdoor air will hasten easy respiration, less labored heart action, peaceful sleep, and a decided relish for food. Cerebral symptoms and occasional intestinal paresis are less likely to occur.

In the asthenic cases with broncho-pneumonia the symptoms are all exaggerated. The fresh air must be warm. Cold does harm.



*Food:* This is an important item. In fibrinous inflammation as little as possible should be administered. This must be most nourishing and easily digestible. It should be given at infrequent intervals. Milk is the ideal diet, so long as tympanitis remains absent. Other simple soft foods are junket, custard, one-minute boiled eggs, soft milk-toast. If the patient be very hungry, feed more liberally.

In broncho-catarrhal pneumonia the patient requires a supporting diet from the very first.

*Water:* An adequate supply is essential to ward off the toxic state. Not less than three pints in twenty-four hours by the average adult patient. Eight glasses a day should be written down.

The gastro-intestinal tract: There should be a thorough initial sweeping out with castor oil, and every second day. Most patients will need no other drug from start to finish.

*Mechanical and Local Measures:* One of the most important measures is the care of the skin. It should be free to perform its functions. It should be kept clean. There should be sponging of the skin with warm water night and morning, and any clothing worn next the skin should be changed daily. Especially will this be found restful in the high temperatures of febrile fibrinous pneumonia. Stupes in the form of turpentine or hot-water applications often relieve pain and lessen the tendency to further congestion, especially when there is an area of pleurisy present. Dry cupping and hot stupes is a favorite method of the writer. Bleeding may be beneficial in selected cases of fibrinous pneumonia; not much used now-a-days. Hot foot-baths used under the bedclothes have a place in distributing the circulation. The ice-bag is of doubtful value, but it can quiet an irritable, overworked heart.

*Drugs:* Many patients are better without any drug treatment, except there is a definite indication for so doing. Atropine is valuable as a cardiac tonic and respiratory stimulant; or probably morphia for cough, sleep and restlessness—hypodermically.

*The Crisis:* The sudden fall of temperature, the tremendous expenditure of energy, nervous and chemical, in the final overthrow of the disease, the instantaneous relaxation of the tired heart, must be met by artificial warmth—hot blankets, hot-water bottles, etc.—hot water or hot lemonade internally, absolute rest and cardiac stimulants, especially atropine.

### RESUSCITATION OF THE DROWNED

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The most recent method advocated for the resuscitation of the drowned was introduced in 1903 by Prof. E. A. Schäfer, and this is pronounced by the Johns Hopkins Bulletin, from which we quote what follows, "one of the most important contributions ever made to the literature of resuscitation."

Schäfer found the amount of water sucked in during the complete or partial submersion had no relation to the weight or size of the animal, and the amount was also found to vary greatly—varying from 75cc. to 690cc. Nor was there any relationship found between the possibility of recovery by artificial respiration and the amount of water taken in. If the animal was removed immediately after drowning, very little water was found in the lungs—it was found to be absorbed into the blood nearly as fast as it was taken in.

Schäfer observed that "the physiological phenomena of drowning are a form of the phenomena exhibited in all cases of asphyxia. They are modified, however, by the reflex effects of the contact of the water with the sentient surfaces of the skin, larynx and air passages; and these show themselves most markedly by a primary inhibition of respiration, which commonly occurs, as well as by an early and persistent tendency to cardiac inhibition. Contact of the water with the air-passages leads also to an increased secretion of mucus, and may offer an insuperable obstacle to the passage of air into or out of the alveoli and render futile any attempt at artificial respiration."

The tracings made by Schäfer show that the most common phenomena relating to the respiration are the following:

(1) An initial cessation (holding of the breath), which may last some 20 seconds.

(2) When resumed, the respirations are slow and may be irregular, but are deeper than normal and tend to increase in depth and slowness as asphyxia progresses. They are sometimes moderately slow and regular for a minute or two, and then become much slower; usually they cease somewhat abruptly.

(3) The total cessation of respiration takes place a variable time after immersion—sometimes in less than two minutes, sometimes not until five or six minutes, but usually in about three or four minutes; during these times water is being passed in and cut of the air-passages.

With regard to the circulation, the most prominent features were found to be:

(1) A preliminary fall of arterial pressure, mainly due to cardiac inhibition, but vaso-dilatation was also a factor.

(2) An arrest of this fall, followed, in spite of greatly increased inhibition, sometimes by an actual rise of pressure, the arterioles constricting.

(3) A final fall of pressure, with increased slowing of the heart-beat. Sometimes this was accompanied by a gradual weakening of the beat; in these cases the blood pressure fell steadily, coming down nearly to zero; the heart continuing to beat, with less and less force, for one or two minutes, in one case for as long as four and a half minutes, after cessation of respiration.

Schäfer found that the most effective method of resuscitating animals after drowning was the compression of the thorax and abdomen either in the supine or in the prone position. In the former, occasionally he observed post mortem that the liver had been ruptured, with extravasation of blood into the abdominal cavity. In fact, this accident has been known to happen in the human subject after employment of artificial respiration in the supine posture.

There was great variability of the results of artificial respiration after drowning in the dog, even when the method employed was calculated to exchange a normal amount of air. As a general rule, if respiration had just ceased and the heart was still beating steadily, artificial respiration would restore life. But if the heart stopped simultaneously with the respiration or suddenly ceased soon after, the prospect of recovery was smaller.

Another point which was accentuated in these experiments was the limited time, after cessation of natural respiration, within which artificial respiration was likely to be effective. If more than two minutes were allowed to elapse after the natural respirations had ceased, failure to recover the animal was nearly always the result, even if the heart was still beating. The time, therefore, at one's disposal for the resuscitation of a drowned subject is measured out in small fractions of a minute; and it is no exaggeration to say that every second is of importance, and that no time should be employed in loosening clothing or in any preliminary operation, but that in all cases artificial respiration should be commenced without one instant's delay.

Schäfer and his assistants measured the gaseous exchange which occurred in the live human subject during artificial respira-

tion by the methods of Silvester, Hall and Howard, and found that by none of these methods could they produce as large amount as by a new method which Schäfer suggested.

In this method, which he calls the "Prone Pressure Method of Artificial Respiration," the subject is allowed to lie prone, i.e., face downwards. The operator kneels on one side of the subject, facing the head, and places his hands, close together, flat upon the back of the subject over the loins, the fingers extending over the lowest ribs. By now leaning forward upon the hands, keeping the elbows extended, the weight of the operator's body is brought to bear upon the subject, and this not only compresses the lower part of the thorax but also the abdomen against the ground, the pressure being fairly equally distributed. The result of this is that not only the thorax diminished in extent from before back, but, owing to the pressure which is communicated to the abdomen, the viscera are compressed and tend to force the diaphragm up, so that the thorax is diminished in capacity from above down. This is no doubt the reason why the pressure method, when applied in the prone position, is more effective than when applied in the supine position as in Howard's method. The pressure is applied not violently, but gradually, during about three seconds, and is then released by the operator swinging his body back, but without removing his hands. The elasticity of the chest and abdomen causes these to resume their original dimensions, and air passes in through the trachea. After two seconds the process is again commenced, and is continued in the same way, the operator swinging his body forwards and backwards once every five seconds, or about twelve times a minute, without any violent effort and with the least possible exertion.

Experience has shown that a single person can employ this method without becoming fatigued or exhausted, which is not true of some of the other methods; and further, it is a very simple method and needs hardly to be taught. The reason why this method of Prof. Schäfer's is to be recommended in preference to any other method thus far described lies in its many obvious advantages, chief among these being the following:

- (1) Ease of carrying out the method.
- (2) Efficiency of gaseous exchange.
- (3) Extreme simplicity of the procedure.
- (4) Impossibility of the air-passages being blocked.
- (5) No risk to organs (liver, etc.)—*Medical Standard*.

## THERAPEUTIC NOTES

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**Alcoholism.** — B. L. Spitzig, Cleveland (*Journal A.M.A.*, January 17), offers a physico-chemical theory of alcoholism. He has observed that many tipplers begin at an age when boyish habits and tastes yield to those of a man. At maturity the demand for carbohydrates is materially lessened and the appetite for alcohol replaces it in the tippler. There is sometimes a positive aversion to sugar. "The chemical relation of carbohydrates to alcohol is significant. Dextrose is convertible to carbon dioxide and ethyl alcohol. The combination of carbon, hydrogen and oxygen makes for increased nutrition whether it be derived from alcohol or indirectly from sugars and starches. The human organism when deprived of sufficient sugar seems of necessity to demand an increased supply of alcohol. Conversely, when the body is satiated with alcohol it has little need for carbohydrates." Based on this theory his treatment for chronic alcoholism consists in gradually withdrawing alcohol and replacing it in the diet with sugar. When there is a strong distaste for this he uses lactose, a dram every two hours, given in powder for the psychic effect. The gastric and nervous disturbances are appropriately treated, and, after self-confidence is gained, all medication ceases and sugar is gradually reduced. With care, glycosuria can usually be avoided.

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**Rheumatic Endocarditis.** — W. P. Lucas and M. H. Wentworth (*Am. Jour. Diseases of Children*), believe prolonged rest the best part of the treatment in first attacks. Permanent cure lessens with successive attacks. Rest can be procured in the home or in hospital if the hospital is alive to the importance of long continued rest. Most do not wish to keep these cases too long in the institution. The infection needs to be properly treated in the first attack, otherwise permanent cure is not likely. Months of rest rather than weeks are essential to cure. None should be treated less than six weeks. Fresh air plays an important, and medical treatment a minor, part as compared with rest. Fresh air, rest, good food, and a calm, cheerful mind are the essentials in treatment. The medicinal treatment is purely symptomatic. Cardiac

stimulants are not needed in primary attacks. Salicylates, especially in the form of aspirine with sodium bicarbonate, are of considerable value in the acute febrile stage. Special attention should be given to constipation. The patient should be advised to complain if fatigue, pain, loss of appetite or dyspnea present themselves. In broken compensation—rest.

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**Treatment of Tabes and Paresis.** — W. H. Hough, Washington, D.C. (*Journal A.M.A.*, January 17), after remarking on the importance of early diagnosis of nervous syphilis and the difficulties which it presents, says that authorities are now well agreed that it is best met by the mercury-salvarsan treatment as with syphilis in general. In the later manifestations, however, such as paresis and tabes, which have been shown to be active syphilitic conditions, treatment has not been so generally successful. Salvarsan seems to have a greater predilection for most of the other tissues of the body than it has for nerve-tissue, which may explain some of the non-success. It has been shown that the blood-serum of recently treated or cured syphilitics has a marked trophic action on the specific spirochete, and the following technic has been devised by Swift and Ellis for bringing an effective medical agent into immediate contact with the diseased process without incurring the danger of direct injection of salvarsan into the subarachnoid space. "A dose (generally the maximum) of salvarsan or neosalvarsan is given intravenously in the usual manner. At the end of an hour from 50 to 60 c.c. of the patient's blood are drawn by means of venous puncture, clear serum is separated, diluted to 40 per cent., with normal salt solution, heated to 56 c. (132.8 F.) for half an hour, kept cool until the following day, then warmed to body temperature and injected into the subarachnoid space by means of lumbar puncture after the withdrawal of about 15 c.c. of spinal fluid, the amount of diluted serum injected being 30 c.c. (After the first few injections, if well tolerated, I usually inject 40 c.c. of a 50 per cent. serum.) It must be injected slowly without much pressure. After the injection the patient is kept in bed for about twenty-four hours with head lowered." The number of treatments varies with the case, but the general rule is to give eight or ten treatments, one every second week, and then discontinue them for a while, repeating, if necessary, and using as indices the Wassermann test, with the blood and spinal fluid and

the cell and protein estimations of the latter. Thus far the treatment has been tried by but few. Hough gives a brief summary of the cases in which he has himself tried it in tabes. Others have obtained about the same results in this disease. In paresis improvement has been noted by many in the treatment, especially by Cotton, Myerson and Asper. The problem here is more difficult than with tabes, and early treatment is important. His own experience includes six cases, of which four are reported, one at some length. In all four there was pronounced improvement in the four reactions, which is more than he has observed in other methods. If we are able to arrest the progress of paresis and tabes by this method, it is the most marked advance that has yet been made in the treatment of these hitherto incurable conditions. The general opinion of those who have tried the method is that it is the most promising one for tabes and paresis that has yet been devised. The article is illustrated by charts.

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**Dysmenorrhea.**—J. Novak (*Weiner Klin. Woch.*), having found a history of painful menstruation in his puerperal bradycardiac and arrhythmia cases, considers this suggested the dysmenorrhea was caused in the same way. As atropine exercises a prompt action on bradycardia it was thought atropine would be beneficial in dysmenorrhea. The treatment was applied in large numbers of cases, and thirty-eight were followed up. It was found thirty of the women were materially benefited by atropine. There was no pain at all during menstruation, or, if any, negligible.

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**Epilepsy.**—A. Gordon (*N.Y.M.J.*) selected two grave cases of epilepsy. From each he withdrew 30 c.c. of cerebro-spinal fluid and then immediately injected 3 c.c. into each other's arm. The headache following withdrawal of the fluid disappeared in twenty-four to forty-eight hours. Bromides were continued as usual in the two cases. In three days—no attacks. Then four injections in two weeks—not a single attack. The promising results in these two cases led to further experiments on two other cases. In one, a little girl, no fluid was withdrawn. The four cases were considerably benefited, the severity of attacks and frequency being diminished.

**Varices.**—G. D'Oria (*Riforma Medica, Naples*), followed Bondi's argument of lessening the supply of blood to varicose veins through operation on the artery. By this means the veins could more easily take care of the blood which reached them. In two cases a small segment was cut from the superficial femoral, between two ligatures, just below the point where the deep femoral branches off. One patient was a man of 39 years, the other a woman of 34 years. Both had suffered for years from varicose veins and edema of the left leg. After the small operative wound healed all disturbances gradually subsided. Both patients became entirely free from the varices and edema. The cure has persisted three years in both persons. The trouble in both was of thrombotic origin.

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**Petrol as a Therapeutic Agent.** — G. A. Stephens (*Dublin Jour. Med. Sc.*) has used petrol or gasoline in the following: As a scalp cleanser in excessive dandruff, in alopecia areata, pediculi capitis, wounds of the scalp for removing surgical "dirt," pustular eruptions of the beard, barbers' rash, scabies, cracked nipples, soft corns, burns of all kinds, in operations, before incision for cleansing skin, after stitches, then a dry dressing. It should never be handled near a light or fire.

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**Cholelithiasis.** — H. B. Anderson (*Can. Med. Assn. Jour.*) claims medical treatment is indicated in many cases preliminary to operation. It is also indicated in all cases after operation to allow complete subsidence of infection. The Karlsbad cure or home modification thereof is advised—copious use of hot Karlsbad water or Karlsbad salts dissolved in hot water. Rectal injections of hot water may be used. The diet is to be plain and non-irritating, the intervals between meals not being too long. Bile salts and salicylates and hexamethylenamine are considered of value.

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**Gastric Crises of Tabes.** — J. Tinel (*Arch. des Maladies de l'App. Dig.*) refers to the anatomic basis for gastric crises, the inflammatory processes in the dorsal roots, the responsibility of the splanchnic nerves, the operative treatment. Foerster's opera-



tion has a record of 31 per cent. mortality in sixty cases. Twenty-seven patients were partially or completely cured, and six much improved. The failures in eight cases were due to insufficient roots severed. The operation is too serious except for desperate cases.

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**The Comatose State.** — Grober (*Deut. Med. Wochen.*) states the first step should be to avert immediate danger from the heart or respiration. Then seek to discover the cause of the coma. If due to a poison, an antidote, venesection, stomach pump, vomiting, stimulating kidneys and purging as indicated. These failing, then the treatment can only be expectant and symptomatic. Close supervision must be kept upon circulation and respiration. Where there is paralysis from a poison atropine sometimes restores the muscular tone.

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**Pulmonary Tuberculosis.** — B. Alexander (*Med. Klin.*) since 1889 has advocated systematic injections of camphor in pulmonary tuberculosis to sustain the heart. The dose is 0.1 gm., repeated every day for a month, then dropping to 0.03 or 0.05 gm., keeping this up for months without interruption. Even with a tendency to hemoptysis this answers without morphine. No drugs are required in the first stage of tuberculosis, but where fever keeps up and there is a tendency to hemoptysis and emaciation camphor benefits in every case, no matter how far the case is advanced.

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**Mucous Colitis.** — Alfred Mantle (*Med. Press and Circular*) describes the treatment of mucous colitis as carried out at Harrogate and Plombières: Treatment by irrigation has been carried out for several years at these places. The object is to wash away any old fecal matter and mucus, and so getting a healthier condition of the mucous membrane. At Harrogate an alkaline sulphur water is used with excellent results. The complete bath is carried out in the following way: It consists of two parts—first, irrigation of the bowel by a hydrostatic douche, given through a long rubber tube which is attached to a long rectal tube. The latter is sterilized by boiling and passed into the rectum. The colon is washed out with 20 to 30 ounces of alkaline sulphur water

at a pressure of two feet, and at a prescribed temperature, usually 105° F., the patient lying for two minutes first on the right side, then on the back, and finally on the left side during the operation. This is repeated, and the ejecta after each douche are carefully examined and reported upon by the skilled attendant. After the internal douche follows a warm immersion bath of sulphur water. When in the bath a hot douche plays upon the wall of the abdomen from a large nozzle with fine perforations, and is chiefly directed over the site of the colon. This bath not only opens out the peripheral circulation, and thus relieves the congested viscera, but is beneficial to the arthritic and nervous manifestations, the result of toxic absorption. Attention on the patient's part to moderate exercise, warm clothing. The use of a hot-water bottle to the cold extremities will give the greatest comfort, and by attracting blood from the splanchnic area to the periphery relieve the affected bowel; great care in diet, avoiding all articles of food which may irritate the mucous membrane, must be strictly enforced. It is only left to say that the treatment of chronic constipation and mucous colitis by this method has been most successful, as well as educational to the patient.

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**Pneumonia.** — H. Leo (*Mün. Med. Wochen.*) experimenting on mice against pneumococcus infection by subcutaneous injections of a saturated aqueous solution of camphor, found that they were protected against infection; in rabbits the results were not so constant. These experiments suggest that camphor should be given from the onset of symptoms in pneumonia. He suggests about 150 to 200 c.c. for a weight of 145 pounds; and he prefers Ringer's fluid to plain water as the vehicle. Seventy-five c.c., corresponding to 0.1 gm. camphor, can be injected intravenously without disturbance. This is supported by Lenzman, who is shortly to publish his experience in this line. Boehncke has already reported favorably on camphor plus pneumococcus serum.

## Reviews

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*A Text-Book of Physiology: for Medical Students and Physicians.*

By WILLIAM H. HOWELL, Ph.D., M.D., Professor of Physiology, Johns Hopkins University, Baltimore. Fifth Edition Thoroughly Revised. Octavo of 1,020 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$4.00 net; Half Morocco, \$5.50 net. Canadian Agents, The J. F. Hartz Co., Toronto.

The prosecution of active work in physiology and physiological chemistry necessitates up-to-date text-books. Hence the fifth edition of this excellent book is called for. It is one of the best text-books before the student at the present time. Remarkably clear and compact, no significant advance has been overlooked. Medical students will find this book a good one.

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*The Intervertebral Foramen.* An Atlas and Histologic Description of the Intervertebral Foramen and its Adjacent Parts. By HAROLD SWANBERG, Member of the American Association for the advancement of Science. With an Introductory Note by Harris E. Santee, A.M., Ph.D., M.D. Illustrated by sixteen beautiful full page plates from the highest price half-tone engravings, printed on the most expensive engraver's proving paper. None of these plates have ever before appeared in print, having been especially prepared for this work. The text is printed on the best book paper and contains over 100 pages, size 6 x 9, and is elegantly bound in silk cloth. A splendid product of the printer's art. Chicago Scientific Publishing Co., S.W. Cor. Grace and Osgoode Streets, Chicago, Ill. Price \$3.00 postpaid to any address.

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*Dorland's American Illustrated Medical Dictionary.* A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Seventh revised edition. Edited by W. A. NEWMAN DORLAND, M.D. Large octavo of 1,107 pages, with 331 illustrations, 119 in colors. Containing over 5,000 more terms

than the previous edition. Philadelphia and London: W. B. Saunders Company, 1913. Sole Canadian Agents: J. F. Hartz Co., Toronto. Flexible leather, \$4.50 net; thumb indexed, \$5.00 net.

The rapid advancement in medicine, surgery, pathology and pathologic chemistry during the past few years has brought into being a vast amount of new facts, the result of much investigation and experimentation. As a natural sequence an equally large number of terms and words have been and are constantly being made to describe these. To keep abreast of the records of scientific research, and to make them available to the medical reader, has been no slight task; yet it would seem to have been pretty well accomplished by the editor and his staff in this excellent and exhaustive work. The text and illustrations are clear, and that the work has been published by the W. B. Saunders Co. is a guarantee of its satisfactory craftsmanship. Sole Canadian agents: The J. F. Hartz Co., Ltd., Toronto.

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*Principles of Surgery.* By W. A. BRYAN, A.M., M.D., Professor of Surgery and Clinical Surgery at Vanderbilt University, Nashville, Tennessee. Octavo of 677 pages, with 224 original illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Sole Canadian Agents: The J. F. Hartz Co., Ltd., Toronto. Cloth, \$4.00 net.

In this work the author's aim, as stated, is to propound the principles of surgery. To our way of thinking, this is the proper procedure to adopt in teaching, more especially junior students of the science. That his teaching, as expressed in this work, will be accepted by all readers without question, is doubtful. Thus, for illustration, the statement that inflammation is essentially a process of repair on the part of nature, and that the "irritant" is the real disease, can scarcely go unchallenged. While from the standpoint of advanced pathology it may be deemed inadequate, Burdon Sanderson's definition can at least claim to serve as an excellent working hypothesis. The staphylococcus aureus may exist as a normal, healthy and virulent organism in a proper culture medium in a test tube, but as such could scarcely be regarded as "a disease"; yet it is an "irritant." And, too, inflammation does not always tend toward spontaneous resolution. It would seem more simple to recognize two processes, destruction (inflammation) and repair (resolution).

# Dominion Medical Monthly

And Ontario Medical Journal

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## GEORGE ELLIOTT, MANAGING EDITOR.

Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

Vol. XLII.

TORONTO, MARCH, 1914

No. 3

## COMMENT FROM MONTH TO MONTH

The Insanitary Moving Picture Theatre and its effects upon people in different ways should receive attention at the hands of medical officers of health, medical inspectors of school children, physicians and oculists.

"The sins of the cinema" are set out by Mr. H. Johnson, the chief sanitary inspector at Wimbledon, as follows: 1. Risk to health through overcrowding and inadequate ventilation. 2. Risk of infection. 3. Risks through insufficient or obstructed exits. 4. Injury to eyesight. To these may be added a fifth—risk to moral cleanliness.

Medical officers of health should satisfy themselves and thus reassure the public as to the proper ventilation of these places. These buildings are filled and refilled time after time. There should be every opportunity of renewing the atmosphere and for cleansing the floors. Their construction should be under vigilant supervision. It should not be lost sight of that physical evils arise through prolonged sessions in rooms, dark or dimly lighted. They are often overheated, and the amount of organic matter in the

atmosphere must be considerable. And what about the increase of CO<sub>2</sub>? Does the light of day ever enter; the health-giving properties of sunshine even filter in?

That the risk of infection has ideal conditions seems all too true. Colds and infectious diseases may be easily and readily contracted—there is close contact and very often close and heated atmosphere. One can conceive of a variety of diseases likely to arise in these places if not properly supervised.

It is hoped in our cities and towns the danger to life and serious calamity is minimized through sufficient and unobstructed exits.

There is a long list of objectionable features in a moral sense, demanding constant and unremitting surveillance on the part of a wideawake censor; stealing, murder, drunkenness, indecent suggestions, house-breaking, loose ideas of marriage, domestic infelicity, vicious mischief, kidnapping, etc.

The best side of these cinema theatres is their value in the service of education. Where they can exemplify and depict loftier ideals, they can be made advantage of in the education of true citizenship. In this respect they are now beyond the experimental stage. Certainly they should not be allowed to appeal to the base and sordid.

Aching eyes, headaches, squint, are apt to come in the train of regular attendance, through gazing at quickly moving and flickering films. This, however, is not so marked as formerly. Oculists have issued warnings in regard to these; and this part of the subject alone is one of sufficient seriousness to demand scientific investigation.

If it can be named an industry, it is one which has become strong and powerful in the last decade. There is, therefore, necessity for its proper regulation, as the health of the people must be safeguarded.

## Editorial Notes

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### MOSAIC CIRCUMCISION

(DOUGLAS H. STEWART, M.D., *The American Practitioner.*)

*The American Practitioner* has been giving much space to the question of circumcision. Probably the majority of the profession approves of it as a sanitary measure. What is the matter, then? Why, simply look at the finger nails of the average mohel and both finger nails and teeth of the old-fashioned mohel and the wonder will become purely a question of how do any children escape infection. My investigation in past years leads me to think that the Jewish race must be very resistant indeed to certain mixed cultures. Perhaps the miseries of Ghetto life may have brought an unlooked for but hard earned compensation.

Many medical friends, both Hebrew and Gentile, seem to be impressed with the idea that circumcision is a Mosaic rite. This is not true, for Moses opposed it even at the risk of his life, and would not circumcise anyone. It was derived from Abraham, and Moses omitted and neglected its performance.

I have had this statement questioned by rabbi, priest and doctor, but have always made good upon it by reference to the records as they stand in the Hebrew and Greek scriptures.

This is what the records say: Christ states—Ye have not circumcision from Moses, but from the Fathers (Abraham). Moses refused to circumcise his own son, did not circumcise any of the hundreds of thousands of children born during the forty years in the desert, and Joshua circumcised them all with stone knives. Stupid persons invariably jump to the conclusion that the rite was omitted because the people were marching all the time. The facts are: It took forty years to cross a four hundred mile desert; over a half million births (and funerals) occurred, and if the cloud abode the people stayed till "a day, a month, a year or a longer time."

That no mention is made of anything like sepsis when many hundred thousand adults and children were circumcised with stone knives rather confirms my experience that Jewish children are quite proof against the usual septic sequellae which dirty finger nails and unboiled instruments would lead one to anticipate.

As to the rite, that great lawgiver and sanitarian, Moses, would have none of it. He was versed in all the wisdom of the Egyptians, quite a different thing from the practice of any Arabian rite. He must have marvelled as we do—"How can a mohl (whose hands, we know, must show mixed and virulent cultures) tear up the preputial mucous membrane and the child escape infection." Substitute the word plague for infection and the idea will be clear, since there is small difference between a plague of sores and septicemia. That the child commonly does escape proves that the race is protected in some way from rock knives and dirty finger nails. Bacteriology has its supernatural, and this immunity is one of its miracles.

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### THE PNEUMONIA DANGER IN SOUTH AFRICA

For a long time the excessive pneumonia prevalent among workers in the Rand mines has caused much anxiety, and has also deterred many from seeking employment in the district. At the invitation of the Rand Native Labor Association, Sir Almroth Wright has carried out important investigations, in which the treatment accorded to patients was considered, as well as probable causes of the disease. A report has just been issued, the most arresting portion of which has reference to the use of drugs in the treatment of disease. Sir Almroth lays down certain propositions worthy of attention, namely, that the empirical method of administering a drug "concerning which we have neither *a priori* grounds for believing that it will, nor evidence to show that it does, do what is intended" is unscientific. This applied with special force to a drug intended to destroy microbes. In that case it was necessary to determine, in order—(1) the effect on the particular microbe of graduated dilutions of the drug in water and in blood serum; (2) the effect on animals, both as regards rendering them immune from infection and curing them when infected; further, whether the blood of an animal treated and cured developed any resistance to the microbe—as would occur if recovery took place without the use of drugs; (3) the effect on normal men artificially inoculated with the microbe, and on men actually suffering from the disease—the native powers of the blood being ascertained before and after administration in each instance. A comparison could then be made between the course of a treated and the course of an untreated case and definite conclusions arrived at. A drug could not be described as successful which,



while it destroyed bacteria, at the same time injured the "nobler structures" harboring them. If the normal power of the blood to develop specific antidotes was interfered with, or if the white blood corpuscles, the "army of protection," were rendered less active than usual, the drug stood condemned, no matter how great its merits in other directions. Ehrlich has taught the world that drug administration might, indeed must be, reduced to a science. The older physicians seemed to have proceeded upon the assumption that any antiseptic, given in such doses as the patient could tolerate, must exert a check upon the growth of microbes in the body. "They were satisfied not only themselves to proceed upon that faith, but to hand it down as a dogma to future generations until it perhaps might, in the fullness of time, appear whether any good had really come of the treatment." That method could no longer be tolerated. An absolutely scientific drug, for example salvarsan, "606," attacked a specific organism only. It combined with the protoplasm of that organism to form a new innocuous chemical compound. It did not injure the patient's tissues in any way, nor inhibit the powers of the blood serum. Finally, it passed successfully the test of a control experiment—that is to say—of comparison of its action with the course of an untreated case of the disease.

#### IS ANOTHER REVOLUTION IMMINENT?

We have given this lengthy summary of Sir Almroth Wright's report because it foreshadows a revolution second only in importance to that which occurred when the letting out of blood was abolished in favor of drug treatment. As *The Times* properly points out, it is not sufficient to pour a drug into the human body with the object of destroying bacteria; there must be some regard as to the possibility of the drug destroying life itself. Hence it is necessary that knowledge of the power or effect of drugs must be increased. For this purpose it is claimed that the effect of a drug must in all cases be tested before it is administered, and, further, that it can only be tested by means of a control experiment—that is to say, by comparison of its action with the course of an untreated case of the disease which it is required to cure. "To obtain recognition," says our contemporary, "a drug must be specific in the true sense; it must be proved that it attacks the disease and at the same time leaves the patient unharmed. The number of drugs that have been tested in this way is, it is safe to say, comparatively small. But there can be no doubt that the pharmacy of the

future will be governed by control experiments, and that gradually a new system of medicine will be built up in which tests of this nature will be the universal rule. By this means a true knowledge of the effect of drugs will be arrived at, though their application must always be governed by the fact that the effects vary with different individuals." The field here presented for investigation is vast indeed, but medical science must not shrink from the task. In our anxiety for "preventive" progress we must not neglect curative means, nor must we accept every claim put forth by the discoverer of a new "drug." It must be tested in all its effects before it can be used with perfect safety.—*The Sanitary Record and Municipal Engineering.*

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## NAPOLEON'S DEATH

(Int. Med. Congress.)

Old controversies were revived and new theories advanced when the section devoted to the "History of Medicine" considered two papers dealing with the death of Napoleon Bonaparte. Dr. Guthrie read an interesting and detailed paper, in which he asked the question, "Did Napoleon suffer from hypopituitarism at the close of his lifetime?" This condition is one to which medical science has only recently turned its attention; it has relation to the pituitary gland in the brain, whose functions are not at present fully known.

Dr. Guthrie discussed the condition of Napoleon in the closing years of his life, and pointed out the gradual decay of his mental faculties; his increasing lassitude, fatigue, and prostration; the increase of corpulence and chilliness, and lowered bodily temperature (indicated by the exile's frequent recourse to hot baths in a temperate climate). These symptoms were not entirely explained by the disease from which he was supposed to have suffered, and pointed to the presence of hypopituitarism.

It was pitiful, said Dr. Guthrie, to trace the mental decadence of this mental giant. Napoleon became a bore, and in the last five years of his life degenerated into a pettish, querulous, and irritable old man. These things pointed to some trouble of a cerebral nature. The brain, he added, was never examined at the post-mortem, and this theory he advanced was one that could never be definitely determined.

## QUESTIONS FOR CONSIDERATION.

Dr. Chaplin, in a paper on "The Fatal Illness of Napoleon," asked the members of the historical section to consider themselves in the position of a tribunal or commission, called together to consider the following questions:

1. What were the diseases from which Napoleon suffered during his detention on the Island of St. Helena?
2. What were the probable causes of those maladies?
3. How far did the post-mortem examination substantiate the clinical evidence of those diseases?

The medical evidence was to be found in books or reports furnished by eight medical men—O'Meara, Stokoe, Antommarchi, Arnott, Shortt, Henry, Rutledge and Burton. The last four were present at the post-mortem only.

Up to the end of 1817 O'Meara, who was in attendance on Napoleon, attributed his illness largely to his invincible determination to live a life devoid of exercise, and calculated to break most of the ordinary rules of health.

Antommarchi arrived at St. Helena in September, 1819, and set himself to the task of attempting to break down his patient's repugnance to fresh air. This he succeeded in doing, and by the end of October was able to describe his patient as well.

## CHANGE IN SYMPTOMS.

After various relapses and attacks symptoms began to appear in September, 1820, which pointed unmistakably to a serious disease in the alimentary tract. By the end of March, 1821, the case was hopeless, but he lingered on, becoming steadily worse, until May 5, 1821, when he died at eleven minutes to six in the evening. The change in the symptoms in September, 1820, might be fairly attributed to the beginning of the cancer of the stomach which eventually caused his death.

His second premise was based on the contention that during the three and a half years that Napoleon was ill the symptoms exhibited corresponded in the main to those of undulant fever, a condition which would have produced the appearances found in the specimens of the small intestines in the Museum of the Royal College of Surgeons.

But if there appeared to be little doubt that the ultimate cause of Napoleon's death was cancer, there are still the symptoms from which he suffered during life to be considered, some of which were not in accordance with those of gastric cancer. It had been sug-

gested that inflammation of the liver (hepatitis) existed for three years and a half, and there was a direct conflict of evidence on the point as to whether the post-mortem examination disclosed any signs of hepatitis. Of the eight doctors present Antommarchi alone describes the liver as being affected.

Motives for stating certain facts were of no assistance, because both Antommarchi and the seven British doctors were biassed, the former to support the climatic contentions of the Frenchmen and the latter in support of the British authorities, with their negation of any climatic influences whatsoever.

Professor Arthur Keith had propounded the view that Napoleon's indisposition was due to an endemic form of disease dependent on particular climatic conditions in the island of St. Helena.

#### RELIC OF NAPOLEON.

He rested his thesis, said Dr. Chaplin, on two main premises. The first premise was based on his contention that two specimens of small intestine exhibited in the Museum of the Royal College of Surgeons, and described, "Incipient fungus of the glands of the small intestine, Napoleon, Barry O'Meara to Sir Astley Cooper," did, in fact, come from the body of the Emperor. On submitting these specimens to microscopic examination, Professor Keith found that the so-called incipient fungus was not cancer at all, but inflammatory in nature, and, indeed, what one would expect to find in a man who had been affected for a long period with chronic undulant fever.

## News Items

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Dr. A. G. Morphy, Montreal, has sailed for Naples and Genoa.

Dr. J. J. Mason, formerly of London, Ontario, has moved to Vancouver.

Calgary, Alta., is planning to build a tuberculosis hospital at a cost of \$30,000.

Dr. Samuel Johnston, Toronto, has returned from a holiday at Old Point Comfort.

Dr. Bliss S. Thorne, Havelock, N.B., died on the 26th of January, aged 71 years.

The total number of deaths in St. John, N.B., in 1913 was 824, as against 741 for 1912.

Dr. George Sterling Ryerson, Toronto, has been elected President of the Canadian Red Cross Society.

Dr. Charles S. Minot, Harvard University, attended the annual banquet of McGill medical faculty and students.

Robert C. Young, M.D., McGill, 1873, died at his home in Detroit in November, aged 63. From 1874 to 1911 he practised at Ridgeway, Ont.

Dr. G. S. Beck, Port Arthur, died in Toronto, January 12th, aged 54 years. He was graduated from Trinity University in 1881. He had not been in good health for a number of years.

The Tranquille (B.C.) Sanatorium has to face a deficit of \$15,000. It is proposed to construct a new building at a cost of \$100,000; and the Provincial Government is being asked for additional assistance.

Dr. Montizambert has appointed Drs. H. R. Elliott and F. W. E. Wilson, Niagara Falls, Ont., quarantine officers, in connection with safeguarding against the introduction of smallpox from Niagara Falls, N.Y.

By the will of the late Lord Strathcona the Royal Victoria College for Women is the only department of McGill University to benefit, but during his lifetime he gave \$850,000 to the medical faculty, \$50,000 to the pension fund, and \$25,000, which made possible Strathcona Hall.

Verdun Protestant Hospital, Quebec, treated 477 men and 433 women during the past hospital year. There were 247 admissions, and of the 151 discharged, 74 had recovered, 45 improved and 32 unimproved, leaving in the institution at the end of the year 665 patients.

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