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Original Articles.

POSTERIOR OCCIPITO PRESENTATIONS.

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One of the most important changes in obstetrics during the past quarter of a century has been the swinging of the pendulum or centre of gravity from suffering woman to the relief of that suffering by the use of chloroform and forceps, and though some women require neither chloroform nor forceps, yet many do, and no practitioner now takes charge of a case without a supply of chloroform and his favorite instrument ever ready when occasion demands.

Probably no presentation of all on our list will require chloroform and forceps as often as posterior occipital, and no presentation will give the woman so much pain and the obstetrician so much anxiety as this same presentation.

I say pain for woman, for in the first place the pains are strong and regular, which causes continual suffering, or the pains are weak and irregular, or both, which causes great delay, and the case is prolonged three or four times longer than an ordinary case. And the anxiety to the obstetrician is caused by the great delay, but principally by his doubting his own diagnosis; hence, in discussing this paper this afternoon, if we can remove these difficulties and give clear-cut and decisive views on these two points—diagnosis and treatment—we will have accomplished the task allotted by this association and have rendered service to every practitioner in attendance, since about 17 per cent. of cases are occipito

posterior, and five times as many are occipito right rather than occipito left.

In discussing the diagnosis, I emphasize the fact that no doubt should exist in your mind whatever. You cannot doubt that you doubt, and you must be positive. Most of the delay and suffering is caused by delay in making diagnosis. You cannot be positive of your diagnosis in making it in the ordinary way. Palpation will give you important information. Never omit palpation, for it is a ready means of making a quick examination and forming an opinion, afterwards to be confirmed or disproved. I will not follow the diagnostic points gained by palpation. They are familiar to you all. Vaginal examination is of great value, but sometimes of very little value here, especially if case is delayed and labor has been in progress for some time, because the head undergoes marked change in shape, i.e., it is lengthened from chin to occiput and compressed in other directions, and the ordinary landmarks are obliterated. However, we should all make the vaginal examination, and should all know exactly what to feel and where to feel it.

As the right occipitio posterior exist far more frequently than the left, we will confine our discussion to the right, as the reverse obtains for left. Now what attracts your attention first :

1. There is something wrong; the familiar points are not present, or, if they can be felt, they are not in usual place.
2. The small fontanelle points to the right sacro iliac point.
3. The saggital suture lies in right oblique diameter.
4. Large fontanelle is pointing to the left ilio pectineal eminence, either high or low.

All this is very fine, but if you cannot distinguish the small fontanelle from the large one; if you cannot be sure which way the saggital suture runs, you may find the large fontanelle very low, or it may be very high, so that it cannot be reached. Usually it is very low, for in these cases there is very poor flexion. Then doubt exists, labor is not advancing, the woman is becoming exhausted, the relatives are saying, "Doctor, can't you help her? Don't let her suffer." Here the obstetrician is in a dilemma. Gentlemen, I never wait; I always make sure of my diagnosis. I leave no doubt in my mind about exact position of head. I give chloroform and put up my hand and find posterior ear, which removes all doubt about diagnosis, and leaves you ready to carry out the correct line of treatment. For you cannot treat correctly except you diagnose correctly. Before referring to treatment, however, permit me to draw your attention to position and mechanism. The head will be obliquely posterior, and it will either rotate anteriorly

or it will become directly posterior, i.e., the occiput will rotate into the hollow of the sacrum; occasionally it will remain obliquely posterior. Only about 2 or 3 per cent. of these cases rotate with occiput into hollow of sacrum, and this is usually brought about by the large fontanelle occupying a lower level than the small one; hence anterior rotation of the sinciput; consequently posterior rotation of occiput. If such takes place the child will be born in that way, with face to the pubis. In these cases the region anterior to the large fontanelle strikes the anterior portion of the pubis; then the occiput is slowly pushed over the anterior margin of the perineum, extension takes place and occiput falls over backward and justified that the overproduction of lymphatic tissue has been a brow, nose, mouth and chin appear successively under the symphysis pubis.

Only a very small majority end in this way. We have mostly to deal with the obliquely posterior, i.e., those cases with head lying in the right oblique diameter. For sake of clearness, I will divide these cases into two classes:

1. Those with good flexion or the one with the large fontanelle high up. The one with fontanelle lying opposite the acetabulum in the right oblique line. This is the more favorable variety in which the occiput always rotates to the front or can be easily rotated to the front by the hand. This is the one which, if left alone, will have the greatest chance of rotating spontaneously, since the occiput will strike the pelvic floor first and follow the normal law of rotation.

2. The one with head not well flexed. The anterior fontanelle in this case is low down and can be easily felt; there is extension here. This is the unfavorable variety. These are the difficult cases, and, if left alone, extension will become more acute, the sinciput will strike the pelvic floor first, anterior rotation of sinciput will take place, and it will end as a case of direct posterior occipital, or occiput into hollow of sacrum. Now, many of these obliquely posterior cases, especially the ones in good flexion, will rotate spontaneously; others can be easily rotated when making your diagnosis with hand on posterior ear.

A third class: the patient would have to be placed in correct position, chloroform given, and head grasped between the thumb and four fingers of right hand, and during the interval of a pain rotate the occiput forward.

A fourth class: The head becomes so impacted, or remains so firmly in oblique diameter that it can neither be rotated nor pushed upwards with the hand. To this class, gentlemen, I wish

to draw your attention to the double application of the forceps. This operation was first introduced by Seanzoni, many years ago, and revived by Williams. Williams is very much impressed with his success in this line. In applying the forceps in first step, Williams applies the blades with the pelvic curve looking towards the face of the child; whereas in the second manipulation it looks towards the occiput in the usual way. You will first pass your hand up into left segment of vagina and locate the posterior ear, and over this is applied the left blade. You then apply the right blade in a similar manner. Forceps is then locked. The sagittal suture now occupies the right oblique diameter of the pelvis. Downward traction is now made until the head is brought to the pelvic floor, when a rotatory motion is given to the forceps and occiput is rotated to the right transverse, and later to oblique anterior. Forceps is now removed and re-applied in the usual manner and delivery completed. The very best results are claimed for this manipulation, and although we have had several occipito posterior in this vicinity this past three months, we have treated these all by hand rotation, with the exception of one, which rotated into hollow of sacrum and was delivered very successfully with face to the pubes without any laceration. However, every practitioner should familiarize himself with this manipulation, so that, should occasion arise, he will be equal to that occasion. Williams, who is a recognized authority on this subject, says: "By this method I have obtained most satisfactory results, and have been able to deliver many women with ease after the usual methods had failed. Indeed, my experience has been so satisfactory that I have ceased to dread occipitor posterior presentations, and now regard them with equanimity, feeling that delivery can be safely effected when necessary."

THE MODIFIED SALICYLATE TREATMENT.

BY WILLIAM OSENBACH, M.D., INDIANAPOLIS, INDIANA.

Since the introduction of salicylic acid into the therapeutics of rheumatism by Maclagan, there has been quite some change in the views as to the causation of rheumatic conditions. Formerly we were taught to regard the disease as the result of an accumulation of uric acid or lactic acid in the system, and it was supposed that that specific effect of the salicylates was due to their neutralizing these substances and rendering them powerless to harm the tissues.

Gradually with the extension of bacteriological researches into the causation of disease many investigators were led to regard acute articular rheumatism as a germ disease, although no specific organism has yet been discovered.

The change of ideas as to the etiology of rheumatism, however, has not brought a corresponding change in the treatment. Salicylic acid and its salts still continue to be the most prominent remedies. To the general practitioner these theoretical considerations are of no practical value unless they lead to a radical change in the treatment. What we are particularly interested in are improvements in our older forms of medication, and it is for this reason that I venture to say a few words here in regard to a new form of salicylic acid, which, in my experience, has shown itself superior to the sodium salicylate or the other members of this group.

It is a well known fact that there are many persons who cannot take the salicylates for any length of time or in sufficient doses to derive any benefit from their use, and that in some they are directly injurious. This is especially the case in patients suffering from digestive or circulatory disturbances, and, unfortunately, these are the very ones who most often require these drugs. In rheumatic conditions of the acute type we are compelled to saturate the system with salicylic acid for some time in order to neutralize the toxic material in the blood, and it is there that their irritating effect upon the digestive organs and their depressing action upon the heart are particularly observed. Some of the substitutes for salicylic acid are practically salicylic acid disguised in some form or other. Thus, for instance, a certain physician of my acquaintance, who was afflicted with rheumatism, took salicylic acid in 4 to 8 grain doses, without any relief. Some one suggested to him to try certain capsules of proprietary character which were said to be absolutely safe and reliable. He took them for a short time and experienced decided benefit and later was completely cured, but he was left with marked digestive disturbances, muscular weakness and depression of the heart. Afterwards he found that the capsules contained ten grains each of salicylic acid.

It has been recommended that the unpleasant effects of salicylic acid can be avoided by using a pure quality of the drug obtained from vegetable sources, but the physician has no positive way of knowing that his patient will get the pure article, and moreover, the injurious action of the acid is due less to impurities than to its inherent irritating and depressing effects.

To my mind substitutes for the salicylates which are insoluble in the stomach and are not decomposed until they reach the intestinal canal are the most logical, since by their use we avoid gastric irrita-

tion, which is one of the chief obstacles to the administration of salicylic acid. Among the preparations of this kind we have salophen, salipyrin, and lately aspirin. I have for some time investigated the last named drug, because it approximates most closely to the salicylates in its percentage of salicylic acid, and therefore comes nearer being a substitute. It also seems to me that its gradual decomposition and absorption in the intestinal canal is accountable for the fact that unpleasant by-effects, such as tinnitus, headache, and cardiac depression, are much rarer than in the case of the salicylates.

In connection with aspirin I have lately employed another new salicylic acid derivative as a local application, named mesotan. It is intended to replace the oil of wintergreen which has been largely used locally in liniments or in the pure state. Experiments made with the new preparation, however, have shown that it is much more easily absorbed than the oil of wintergreen and that in the milder forms of rheumatism it yields sufficient salicylic acid by absorption to do away with the necessity of giving the salicylates internally. My experience, however, does not agree with this, and I have been unable to note any beneficial effect from its use if applied alone. The best results were observed in acute inflammatory cases, the more acute and active the inflammation the more pronounced the results. The first improvement noticed was the reduction of the swelling and a marked lessening of the pain. No irritation of the skin was seen, except in one of the cases referred to below, and in this I believe it was due to other causes. Its psychical effect, however, cannot be ignored. The mere fact of rubbing in a small quantity of a drug gives an impression of power, and the odor being unknown and peculiar suggests a new remedy, and to this the laity attach a good deal of importance. Aside from this, however, I believe that the drug has a definite physiological action resembling that of the salicylates, and reinforcing their effects when internally administered.

Before making an application of mesotan I direct that the painful parts be covered with a cloth rung out of hot water and kept on for a number of minutes, or order a warm bath. If this is done immediately before applying the mesotan the effect seems to be more rapid and pronounced. I have employed mesotan in the pure state, but now prefer a mixture of equal parts of olive oil, as is generally recommended.

Below I have given the histories of a few cases treated with these drugs, both favorable and unfavorable, and these will serve to illustrate in some measure the results observed.

Case I. Mr. T., aged 27 years, clerk, suffered with an attack of acute inflammatory rheumatism affecting the right shoulder. There

were present marked pain and swelling, the temperature being 100. F. Treatment. Aspirin, 10 grains, was given every two and one-half hours at first and the mesotan mixture applied locally in amounts of a teaspoonful twice daily. There was, however, no apparent relief until the third day, when a diminution in swelling and considerable relief from pain were noted. The same treatment was continued and on the sixth day the patient was entirely well.

Case II. Miss L., aged 42 years, housekeeper, was seized with acute inflammatory rheumatism of the right knee, having had three previous attacks in the same joint during the last two years. Aspirin, 5 grains, was administered every three hours, and she was instructed to apply the mesotan mixture in one-half teaspoonful quantities two or three times a day. No improvement was observed at the end of the third day, but the treatment was continued as before. At the end of the sixth day, however, little progress had been made, except that she rested better at night. Mesotan was then discontinued on account of a slight local irritation, and the aspirin increased to 15 grains every three hours, with the result that after three days' treatment she was well on the road to rapid recovery.

In this case I did not see any benefit from the mesotan, and no special relief from pain was noted after its application.

Case III. Mr. H., clerk, complained of muscular pain, more severe in the back of the legs, and severe headache. Pain and soreness in the lumbar region was so great that any movement of the body caused great suffering. Aspirin, 10 grains, was administered every two hours until eight doses had been taken, and then every three hours during the following day. Mesotan was also applied to the lumbar region three times daily. At the end of the third day he was completely cured.

Case IV. Mrs. S., aged 33 years, was suffering with a severe attack of lumbago, being unable to get out of bed. Aspirin was prescribed in ten grain doses every three hours until nine doses had been taken, and then every four hours. Mesotan was applied twice a day. In addition to these a lithia tablet was taken in a glass of water, three times daily. Under this treatment the patient was out of bed doing her work on the fifth day.

These cases have been selected from a much larger number, and they show that under the plan of treatment outlined above the patients, as a rule, speedily recovered from their rheumatic ailments without suffering from any of the unpleasant and injurious by-effects of the salicylic acid treatment. My impression is that by using mesotan in combination with aspirin smaller doses of the latter are required and the relief of symptoms is accelerated.

Selected Article.

VIVISECTION.

BY ANDREW MACPHAIL, B.A., M.D., MONTREAL.

There are questions of science and there are questions of sentiment; but there are also questions in which both science and sentiment are combined. To this class vivisection belongs, and the present aim is to establish the proper relation existing between these two factors. Much work has been done on this subject at different times, and evidence has been adduced on both sides by the staunchest opponents. The evidence has been recorded, but no systematic attempt has been made at a summing up from which any plain unprejudiced mind could draw an authoritative conclusion. All that now remains is to consider the evidence offered, and to point out on which side, according to all reasonable rules, the decision must lie.

The store of published facts concerning vivisection in America is singularly small, because in this country it has never really become a public question, but in England, on the occasion of the first attempt at restrictive legislation, in 1876, the conflict between those who favored the practice and those who opposed it was singularly keen.

There are two classes of persons working to lessen pain: those who oppose vivisection, striving to prevent the sufferings of animals, and the vivisectors whose motive is the seeking after truth and knowledge, which will go toward alleviating the sufferings of humanity, and of the animals themselves through scientific medicine or applied physiology. That these two classes, who have a common aim, should hold views so conflicting must be due to some misapprehensions which it is intended the present exposition of facts will help to remove.

If it can be shown that the pain and death which vivisection implies have been wrought for the good of humanity, by leading to knowledge, light, and power, and that this knowledge, light, and power could have been arrived at in no other way, and that these are so considerable that mankind would be badly off without them, then the case for vivisection may be considered proven. But if, on the other hand, it is clear that vivisection is practiced indiscriminately

with no object in view but to satisfy an idle curiosity, that suffering is inflicted out of proportion to the benefits received, that it is not a useful means of obtaining information which is procurable in some other way, and is essentially bound up with cruelty, then grounds may be said to exist for its limitation, or even its actual suppression. What restrictions, if any, should be laid upon the practice are to be considered afterwards.

By vivisection is to be understood the operating with cutting instruments or other means on the bodies of living animals. The objections advanced against it are mainly three: the cruelty involved, the consequent injury to the moral nature through the infliction of a wrong, and that the practice is not justified by the results. It will first be necessary to estimate the amount of pain actually caused, for in this the principal fallacy lies.

In the transition from life to death there are three stages: the first, marked by loss of consciousness; the second, cessation of breathing and heart action; and the third is initiated by those changes that characterize the rigidity of final death and decomposition. An animal may have life and not be "living," that is, it may be alive but unconscious and without the capacity for suffering pain. The animal lies perfectly quiet and appears dead; it can be pricked or cut in the most sensitive parts and give no signs of pain. The only functions that remain are breathing and heart beating; all consciousness is asleep, and these two mechanical operations alone are unsuspended. It is under these conditions, induced by anæsthetics, that most vivisection is performed. The heart may be in full working order, the respiratory movements unimpeded for hours after consciousness has disappeared, and in the case of cold-blooded animals even for days. Operations performed on such an animal are rightly classed under the head of vivisection, but to brand them as improper is as unreasonable as to charge the skillful surgeon with cruelty, who uses all care in removing a tumor from a living but unconscious patient. By the use of those anæsthetics which physiologists habitually employ the animal is rendered unconscious. This is the moment the vivisector chooses for his work. He brings into use the instruments of his research. He watches the ebb and flow of blood, the throbbing of vessels, and takes tracings of them; he measures their force; he gathers the juice which a gland secretes; he divides one nerve and stimulates another, or poisons a third. He records his observations and finishes a painless but profitable death in one of a variety of ways. Just as anæsthetics have rendered the surgeon's task a simple one and enlarged his sphere, so they have rendered new experiments possible and have become as great a necessity in physiology as in surgery.

Dr. Yeo submitted the following estimate as to the proportion of operations that caused pain:

Absolutely painless	75
As painful as vaccination	20
As painful as the healing of a wound	4
As painful as a surgical operation	1

100

This is on the assumption that the capacity an animal has for suffering is equal to that possessed by a human being. As a matter of fact, the cases in which anæsthetics interfere with the progress of an experiment are exceedingly rare except in certain researches on the functions of sensory nerves, but these functions have already been worked out, and as it now stands the percentage where pain is an essential factor is lower still. The public mind has been befogged by the use of a single term, vivisection, for two separate things: experiments upon sentient and upon non-sentient animals. It would be easy, one would think, to distinguish between these two, yet Miss Cobbe, speaking for all opponents of vivisection, says, "We find it practically impossible to separate torturing from non-torturing vivisection," and Mr. Bergh implores pardon for saying "that, if the rose would smell as sweet by any other name, surely the blood of tortured animals would also retain its repulsive odor under any other designation."

The question whether vivisection is good or bad is not affected by saying that there are other things equally wrong, the agonies caused by sportsmen to birds dragging their wounded bodies to some hidden covert, the piercing cries of the hunted hare, the suffering of the brave fox as his living body is to be torn by the pursuing hounds, or that the pain caused by vivisection ever since it was practiced is as nothing compared with the suffering animals undergo in transportation and in slaughterhouses for the satisfaction of man's bodily needs, or to assert that in every agricultural community vivisection is being performed constantly for no purpose but to increase the power of man over male animals and to make the noblest of these beasts of burden more easily answerable to his guidance, or to show that the ghastly scenes which anti-vivisectionists conjure up from physiological laboratories with their "torture troughs," represent no such cruelty as is depicted in Snyder's "Boar Hunt," or in Landseer's "Death of the Otter." It is also useless to point out that the most earnest vivisector may be an ardent lover of animals, and that his deepest endeavor is to alleviate their suffering in com-

mon with that of mankind, or to affirm that their opponents are actuated by an unmanly sentimentalism.

First, there is the principle that should govern man's conduct in relation to animals. Without swearing to the words of any teacher, or committing one's self to any school, it may be laid down as a truth that life is a struggle, a struggle with fellow men, with living beings, animals and plants, and with the lifeless forces around us. The conditions in which men find themselves inevitably lay upon them this burden, and they are obliged to use the means they find around them in this struggle, amongst which are the lives of animals. If, then, man is to prosper he must kill animals, it may be tigers, sheep, or vermin. It is a duty imposed upon him by nature, even if a painful duty, but self-preservation demands it. The rule cannot be laid down that an animal may be killed for one purpose and not for another, that life may be taken to gratify an appetite or nourish the body, but not to increase the existing store of knowledge or benefit the mind.

The only test is whether the death of an animal is likely to be of benefit to society at large. Man must be fed; he is justified in killing and eating sheep; man's success in this struggle for existence depends on superior knowledge; he is justified in killing a frog or rabbit if it can be shown that human knowledge is thereby enlarged. But he is not justified in causing pain if it can be avoided, or unless pain is of advantage to him. Death is painful in itself, but that does not mean he is to abstain from killing; it means that he is to kill with the least possible pain. One could imagine a costly system of anæsthetizing animals about to be slaughtered, but no one has shown it to be practicable, just as a surgeon may not find it practicable to administer chloroform where some local anæsthetic like cocaine or the ether spray would serve the purpose nearly as well.

It was pointed out that to justify vivisection the information must be obtainable in no other way. Let this be qualified by saying "in no other reasonable way;" and, to illustrate, place the only two means that are in any way reasonable side by side. Take cholera, for example, in which experiments have been conducted on both principles. On the one side are the scientific infection experiments of Thiersch and others following him, performed by vivisection; on the other hand are the popular experiments which have at various times been performed during cholera on human beings, by companies supplying them with water and other commodities. Even the most confirmed antivivisectionist will commend the former way. But even if this knowledge could be arrived at in "some other way" at some future period, what of the suffering and death that must in the meantime come to the human race? What of those who must

die unaided till the light comes in some hypothetical and mysterious way, and of those now living, whose lives are due to their laying hold of the remedies and the prophylactics which vivisection has brought?

But it is not certain that the knowledge could be obtained in any other way, for the discovery of the lethal agents in the transmission of disease was only, and could only, be determined by means of experiments on living animals.

It remains to be proved that the human race has benefited considerably by the results obtained from vivisection. To discuss this in detail would involve the tracing of every step in the progress of medicine, for medicine is no longer an art to be practiced by rule of thumb, and whatever progress it has made is due to observation and experiment. There was reason for the mocking words of Voltaire, when he jeered at the old physicians, "pouring drugs, of which they knew little, into bodies of which they knew less." They were doing their best in those pre-vivisection days; they gave the white spots on a leaf to consumptive patients; they gave the carrot in jaundice because it was yellow; for kidney diseases they gave fruits which resembled that organ. They were groping in the dark unaided by the light of experiment, and men were dying around them of complaints that to-day it is unnecessary to feel. Contrast the present position of medicine with that of fifty years ago, and you have a measure of the value of experiments, for the most part performed on living animals. Experimentation on animals for the benefit of humanity is the keynote of modern medicine, and the physician who underestimates its value is out of tune with the best that is said and thought on the subject. Physiology is at the basis of rational medicine, and it is to physiology the physician must seek if he would be anything more than a "medicine man," a dispenser of chance-gotten drugs. Experimental pathology is the synthesis, as clinical diagnosis is the analysis of disease, and physiology reduces the facts to a system. If physiology consist in the study of vital processes going on in living organisms, it follows that many of them must be studied as they actually take place. It is useless to appeal to the dead body, for though there the changes can be noted the processes will have passed away. In the dead body there is no disease. As Virchow remarked, disease presupposes life.

It will be possible to refer only to the most notable examples of vivisectional results in relation to the practice of medicine, but enough will be given to obtain for it the justification of practical utility. Vesalius, the founder of anatomical study, states in his work on the human body that it was through experiments on living animals he was led to his wide generalizations in anatomy which,

before his time, consisted of shreds and patches of crude observation and false induction. Harvey, "having frequent recourse to vivisections," received the first hint of the circulation of the blood, by watching the palpitating heart of a living creature. Haller, who by his doctrine of "irritability," laid the foundation of the true physiology of the nervous system, wrought through pain and death to animals. Charles Bell and Majendie traced out the distinction between motor and sensory nerves, and Marshall Hall demonstrated by vivisectional methods the occurrence and importance of reflex actions, by which one-half of our life is controlled. Weber demonstrated in the same way the inhibitory action of the pneumogastric nerve upon the heart, and laid down the principles of a rational treatment for the prevention of heart failure in diphtheria and other acute diseases. Du Bois-Raymond, Pflüger, Flourens, Brown-Sequard, Schiff, Vulpius, Goltz, Waller; in fact all physiologists by their work attest that if physiology is not a hopeless puzzle and a baseless fancy it is due to the results of experiments on living animals. The chemistry of living beings was worked out in the same way by Lavoisier and Priestly, who first made out the chemistry of respiration. The chemistry of digestion and nutrition would yet have been a phenomenon and a guess if it were not for the labors of Schmidt and Bidder. Fever and inflammation, old mystic words, were never understood till Claude Bernard and Cohnheim made their researches on the vaso-motor nerves of living animals. It was by vivisection Aselli and Pecquet discovered the system of lymphatic vessels and Malpighi the capillary circulation. Artificial respiration was made a practicable means of resuscitation by Vesalius, Hooke and Lowe, through experiments made upon dogs. The experiments of Rev. Dr. Hales on pressure of the blood in the arteries are also to be noted. In the seventeenth century Sir Christopher Wren and other Fellows of the Royal Society experimented on the transfusion of fluids, and recently it has been made a means of saving life. In 1835, a committee of physicians at Dublin showed how heart sounds are produced and enabled clinicians to diagnose the various forms of heart disease. Duhamel in 1740, Sir Astley Cooper in 1820, Syme in 1831, and more recently Ollier and others have conducted experiments on living animals to show the processes by which wounds are healed and injured parts restored, and especially how fractured bones are united, the practical results of which are inestimable. The surgery of the old days has been robbed of its horrors through the results of vivisection. The "fearful fear of hemorrhagy," that the old surgeons felt, is now groundless, through the experiments made in ligaturing the arteries of animals. By this simple process the boiling oil, the vitriol, and caustics, the hot searing irons, and recep-

tacles for blood are no longer seen at an operating table, where the surgeon is willing to avail himself of the benefits to be derived from vivisection. It was by such experiments the Esmarch bandage, a bandage applied to a limb about to be amputated to prevent the flow of blood, came into use. This inaugurated bloodless surgery. The principles of antiseptics were studied on animals, and with the introduction of aseptic methods all dread of pyæmia, fever, tetanus, and secondary hemorrhage have disappeared. Inflammation is no longer a formula "redness swelling heat and pain," since by the experiments of Bernard, Virchow, and Cohnheim, and later by Redfern and Von Recklinghausen, on the blood cells in the leg of a frog and the eye of a rabbit, its secret has been pierced, and following it, new knowledge of abscesses, ulceration, gangrene, and clots.

The present abdominal surgery had its origin in vivisection. In the American Civil War out of 3,717 cases of wounded intestines 3,273 ended fatally. A series of experiments was conducted in Chicago, in which 37 dogs were etherized and shot, when the feasibility of opening the abdomen was proved. The percentage of fatal cases after such injuries at present is 12; before this experiment it was 88; that is, the position is exactly reversed, and if these experiments in vivisection had been performed before the Civil War, 3,273 soldiers, instead of 446, would now be living, and their injuries would not even be considered grave. Sir Spencer Wells, by operating on dogs, introduced the practice of suturing the peritoneum, and reduced the percentage of fatal cases from 34 to 11. Out of 1,000 cases of his, 760 were saved and 17,800 years added to the sum of human life. Martin, of Berlin, in the same manner, proved the possibility of ovariectomy, and performed this operation, which a few years ago used to be denounced as murderous, in 130 cases, with only one fatal result. By these observations on the opening and suturing of the peritoneum of animals, and the treatment of the pedicle by ligature, abdominal surgery is now a matter of routine.

Another feature in modern surgery is the progress made in operations on the brain, and all of these are based on experience gained by vivisection. Hitherto the brain was looked upon as "the oracle of God," but Dr. Ferrier, by his experiments on animals, demonstrated the location of sensory and motor functions in the cerebral hemispheres as clearly as if the skull and membranes surrounding the brain were transparent.

Dr. MacEwan, of Glasgow, in one year saved the life of ninety patients by following Ferrier's methods. In one year Dr. Echeverria collected 165 cases of epilepsy, of which 75 were cured by

following the principles of localization laid down by Ferrier; yet for these experiments the eminent physician was hauled before the magistrates as if he were a malefactor.

Thousands of patients died from malignant affections of the kidneys till Simon at Heidelberg demonstrated on animals the possibility of its extirpation and the performance of the excretory function by a single organ.

By the experiments of Gerlach, it has been shown that tuberculosis in cows can be communicated to healthy animals, such as man, fed upon their milk; that the disease may be induced by tubercular matter being inhaled or taken into the stomach, facts of importance in relation to the prevention of the disease. By the sacrifice of a few dogs and rabbits information was obtained which may have, and as a matter of fact has had, an important bearing upon the safety of the human race.

These results were arrived at by making on a few animals experiments which men for generations have in blind ignorance been making on themselves. Cholera has already been referred to, and since 1884 Freire, in Brazil, has been working to obtain a specific against yellow fever along vivisectional lines, and is only waiting for an epidemic to put his results at the service of mankind.

Dr. Wood, by "baking alive," at 120 degrees, two pigeons, ten guinea pigs, twenty rabbits, and six dogs, that is, subjecting them to a temperature of 120 degrees, a degree of heat which laborers often experience in summer, proved that sunstroke is due to the coagulation of the bodily fluids, and from this he deduced the proper treatment, abstraction of heat from the body. The "morality" that will take offence at experiments such as these deserves the pitying contempt we would accord to personal cowardice. The only gleam of hope that has ever come to a patient affected with that terrible malady diabetes has been through Bernard's experiments on the formation of glycogen in the liver, and until the mystery is cleared up by the death of more animals the treatment of the disease must remain a matter of empiricism.

Whatever of good Pasteur has conferred on mankind he has accomplished by vivisectional methods, and yet the results are out of all proportion to the pain inflicted. There is a danger of becoming technical in pointing out that it was through observations made upon the tadpole by Arnold it was found out that blood vessels are formed by the hollowing of protoplasmic cells, and to enter upon a discussion of what embryology owes to vivisection would take one far beyond the present limits and the needs of this discussion.

The modern method of pharmacology is based on vivisection.

Instead of "experimenting" on patients, the effect of a new drug is tested upon the frog, rabbit, or dog. Its mode of action is exactly ascertained, and the physician knows what organs and structures will be affected, how they will be influenced, and the changes which will be produced by the progress of a disease. Even if the charge were true that vivisection had never added a drug to the pharmacopœia it would prove nothing, for it is the work of the vivisectionist to test the effects of existing drugs and define their uses. A few instances will suffice. If nothing were ever learned by vivisection but the action of digitalis upon the heart, the pain caused would be abundantly justified. Bromide of ethyl was brought forward as an efficient anæsthetic, but a vivisectionist by the death of a few dogs prevented a series of those dreaded accidents, death on the operating table, which would have followed its use. By operations on animals, Bernard discovered the hypodermic use of drugs, and Majendie of strychnine. Traube explained the real nature and use of digitalis, and Maure of saline purgatives. Luchsinger, following up the clue obtained from experiments on dogs, demonstrated the value of strychnine as a preventive of night sweats in consumptive persons, and by the same means nitrite of amyl was shown to allay the agony of angina pectoris, and pepsin to be of value in dyspepsia. In the same way jequirity was introduced in ophthalmic surgery, salicylic acid in rheumatism, jaborandi in dropsy, iodoform as an anti-septic, and the bromides, chloral, and paraldehyde as analgesics. All the new drugs—antipyrine, exalgine, and antifebrine—that have cooled so many fevers and alleviated so much suffering, were all tested and their effects proved on animals. Who would have dared to use cocaine on the human eye, like all anæsthetics, "God's best gift to his suffering children," with all the risk of inflammation, if its effects had not first been ascertained on animals?

But this charge is not true, for Dr. Lauder Brunton has shown that between 1864 and 1867 seven drugs were added to the pharmacopœia, and from 1867 to 1874 eleven were added.

Even commercially, vivisection has been of the greatest practical importance. Dr. George Fleming, in his work on Veterinary Science, makes some estimates of the results. In one district in France sheep to the value of £213,600 died in one year of anthrax, and in Russia 100,000 horses died annually till Braueil, followed by Delafond, Davain, Chauveau, Toussait, and Pasteur, perfected the knowledge of the poison and showed the means by which its energy may be abated. The desolating scourge of the cattle plague was stayed, and the silkworm disease was brought under complete control by Pasteur. Smallpox of sheep, the swine plague, dis-

temper of dogs, and chicken cholera can be prevented by inoculation. The exact method of the propagation of pleuro-pneumonia in cattle has been made out, which is the first stage in discovering a remedy. The ravages of epidemic fever in cattle and analogous diseases of horses and sheep have ceased since their nature and mode of prevention have been discovered by vivisectional methods. and hydrophobia is now robbed of its terrors. Glanders, a disease "as infectious as syphilis and as fatal as tuberculosis," can only be diagnosed by the method of inoculating animals.

Another use vivisectional experiments have been put to is in the detection of murderers who have resorted to poison. The notorious Lamson, who was executed in England in 1883, may be mentioned. He used aconite to kill his victim, and the presence of the drug was only proved by its effect on small animals. If it were not for this, secret poisoners might enjoy all the immunity that was formerly obtained in the days of the Borgias.

It will be permissible to place in evidence some important statements on the value of vivisection. The International Medical Congress, held in London in 1881, which was attended by three thousand physicians and surgeons from Great Britain, America, and foreign countries, passed unanimously the following resolution: "That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable for its future progress, and while deprecating the infliction of unnecessary pain, it is of opinion that in the interests of man and of animals it is not desirable to restrict competent persons in the performance of such experiments."

At the same Congress, Mr. Simon, principal officer of the Government Board, speaking in connection with diseases of horned cattle, of carbuncle and marsh-fever, ventured to say "that in the records of human industry it would be impossible to point to work of more promise to the world, and they are contributions which from the nature of the case have come, and could only have come, from experiments on living animals." Before the British Medical Association, in 1881, Professor Humphrey declared "almost every advance in our knowledge of the working of the human body has been made through vivisection."

As Mr. Wilks puts the case for England, "All the leading men in Europe, those who are best capable of forming a true judgment have expressed their opinion strongly in favor of experiments on animals, and have at the same time supported their opinion by an exposition of facts. Opposed to these savants are certain lords and ladies, certain bishops and members of Parliament, who, with

all the dogmatism of mature ignorance, declare that "vivisection only panders to curiosity, without doing anything for science"; "that it is a detestable practice not attended with scientific results." I would ask the reader to picture to himself a platform on which Virchow, Pasteur, Humphrey, Foster, Simon, Huxley, and Fraser unite in the statement that the remarkable advance in medical science and art during the past twenty years is due to experiments upon the lower animals, and immediately afterwards a sincere rural dean and a conscientious auctioneer uniting in stating "that experiments on animals led to no useful results."

In the United States resolutions affirming the value of experiments upon animals, and deprecating legislative interference, were adopted by seven medical schools, by the New York Medical Society, and by sixteen organizations in various localities. Three of the leading American universities have been quoted in support of the practice, and to the number is to be added Harvard Medical School, a believer in the experimental method.

But, after all, there are a number of experiments, a small number, which necessarily involve pain to animals, and in their defence it is only necessary to fall back upon the original position that the pain is justifiable for the sake of the good that is accomplished. These are the ones necessary to demonstrate the effects of drugs, of poisons like that of cholera, and such as were performed by Chossat, in which the animal must be deprived of food, but the experiments which cause pain become fewer and fewer as physiology advances, until all that remains to be studied is pain itself, and the physiologist can study that best upon his own body.

Some hasty opponent has recommended vivisection to practice among themselves. And so they have. The names of Toynebee, found dead in his laboratory; Christison, Hunter, Heinrich, Dvorak, and Schiff need but be mentioned in this connection.

It is not a pleasant occupation spending one's days and nights in nauseous dissecting rooms, surrounded by dead and dying animals. Physiologists have found themselves ostracised and vilified, and their practice ruined; but the misrepresentation which they have suffered has not stayed their hand from working for science and humanity. They subjugate emotion and feeling to judgment.

The provision that vivisection should not be practiced unless there is a probability of beneficent results must not be pushed too closely, for science must be untrammelled. The science of to-day brings us nearer to the science of the future, and one truth may in an unseen way be the germ of others. Science has only to do with the seeking of truth: utility will follow in its train.

Who, for instance, could foresee that a simple physiological preparation, the leg of a frog with its living but non-sentient nerve in the hands of Galvani, was to be the origin of Galvanism, electricity, and allied subjects?

If one urge that experiments may be performed on one class of animals and not on another, it may be said in reply that no two persons could agree where to draw the line between the tadpole and the dog, and some might even include within the pale the phylloxera that formerly destroyed the vineyards of a nation.

For the benefit of those who deny that utility and morality have any interdependence it will be necessary to refer to the ethics of vivisection. If there is a moral wrong involved in experimenting on animals, then, they say, no considerations of utility can justify it, even if by the death of one animal the light would break upon the pestilence that stalketh in the darkness, that there may be a knowledge which man is bound to forego, and that the alleviation of pain is not the highest good. According to the same principle, it were better to starve than to do that violence to the moral nature which is involved in the death of a creature. They say that honor should deter man from exercising the tyrant's power, which nature has given him, and that is well nigh impossible to deal rightly with animals when men are at the same time judge, accuser, witness, and culprit.

Another class of objectors resist scientific research because it loves what art hates, analysis; and yet another class, because they accuse it of attempting to reduce God to a "physical necessity." To the one it may be said that art itself must have a basis in truth, and "to the solid ground of nature trusts the mind which builds for aye." The other class of objectors is urged to remember that the "Kingdom of God is within."

But the greatest show of reason is with those who object on what they call "moral grounds." Arguments have been urged against them by Virchow, who held that an animal was a man's "honestly bought chattel," and by Dr. Carpenter, who affirmed that moral duties exist only towards those possessing moral responsibility, but these do not meet the case. As reasoning beings, we can only be reasonable when we deal with the facts around us as we find them. It would be easy to conjure up Swift's land of the "houyhnhnms," where the relations between men and beasts were reversed, but with this condition we have not to do; there is no brotherhood between man and beasts. Without insisting too strongly on the fiat which went forth in the world's first spring time, "Let man have dominion over the fish of the sea and over the fowl of the air, and over the cattle, and over all the earth," it

it undeniably one of the principles of creation that animals are subordinate to man for his use in the progress of life. Nature has ordained it, and Nature is not without pain to living beings whilst they dwell in this world, or whilst they come into or leave it. "The whole creation groaneth and travaileth in pain." Man has to live; like the Apostle, he is enjoined to "rise, kill, and eat." Man's duties towards inferior creatures must taken in man's nature, which he cannot discard. Therefore, his relations towards animals can only in a qualified sense be regarded as ethical, and the divine injunction cannot apply: "Do unto others even as ye would that they should do unto you." It would involve one in a tiresome discussion to include a consideration of sacrifice, vicarious and by compulsion, but it might be noted that the Great Teacher admitted that mankind was of more value than many sparrows.

If vivisection is productive of good to humanity it remains to be considered under what restrictions, if any, it should be practiced. Vivisection and cruelty are in no way bound up together, and even if in some countries it appears that improper methods are used it does not follow that the practice should everywhere be restricted. Because exiles are badly treated in Russia, it does not follow that no criminals should be sent to Siberia or that law-breakers should go unpunished.

It yet remains to indicate the course and results of legislation in restriction of vivisection, from which it will appear that it has been both futile and harmful. The only country where restrictive legislation is really in force is England, though the attempt was made in Germany, Sweden, Denmark, and the United States. The first important legislative attempt to restrict the prosecution of physiological research was by Lord Hartismere's Bill in 1875 in England, which aimed to restrict the work to specified places and licensed persons, and compelled the use of anæsthetics in every case. It was objected to as destructive of original work and never came into effect. Then a Royal Commission was appointed, composed of Lord Cardwell, Lord Winmarleigh, Hon. W. E. Foster, Sir John Karslake, Professor Huxley, Mr. Erichsen, and Mr. Hutton, to enquire into the "practice of subjecting live animals to experiment for scientific purposes." They examined every person in England likely to throw any light on the question. The evidence is contained in a bulky blue book, and in that report it is stated:

"The imputation of cruelty, which has always been indignantly repudiated, has not been substantiated by a single authentic instance. In their evidence given before the Royal Commission, the Society for the Prevention of Cruelty to Animals state through

their Secretary that 'they do not know a single case of wanton cruelty.' The report also recommended 'that no ban be placed upon vivisection.' "

The teachers of physiology addressed a memorial to the House of Commons, in which it was stated: "We repeat the statement, which most of us have made before the Commission, that within our personal knowledge the abuses in connection with scientific investigation, against which in this bill it is proposed to legislate, do not exist, and never have existed in this country. The memorial was signed by Professor Sharpley, University College, London; Dr. William Carpenter, London Hospital; Professor G. Humphrey, Cambridge; Professor Rutherford, Edinburgh; Dr. Pavy, Guy's Hospital; Dr. M. Foster, Trinity College, Cambridge; Dr. Bourdon Sanderson, University College, London; Dr. Robert McDonald, Dublin; Professor Redfern, Belfast; Professor Cleland, Galway; Professor Charles Cork; Professor McKendrick, Glasgow; Dr. Pye-Smith, Guy's Hospital; Professor Yeo, King's College, London; Mr. Charles Yule, Magdalen College, Oxford; Professor Gamgee, Owen's College, Manchester.

The Belgian Special Commission's report, published in July, 1890, practically substantiates this position. Notwithstanding the failure of a Royal Commission to obtain evidence of the abuse of physiological vivisection in Great Britain, the Legislature was induced in 1876 to pass an enactment in which it is prescribed:

1. That experiments must be performed with a view only to the advancement by new discovery of knowledge which will be useful for saving or prolonging human life, or alleviating human suffering.

2. That they must be performed in a registered place.

3. By a person holding a license.

4. The animal must, during the whole experiment, be under the complete influence of some anæsthetic.

5. It must be killed before it recovers consciousness.

6. Experiments must not be performed for demonstration.

7. They may be performed for the purpose of acquiring manual skill.

In 1883 Mr. Reid introduced another bill, but it never came to a discussion. If it had passed it would have stopped all progress in physiology, pathology, and pharmacology in those places coming under the influence of its provisions. The Home Secretary, Sir W. Harcourt, affirmed at the time "that under the then existing circumstances there was very little infliction of pain, and what suffering was caused was abundantly justified for the benefit of humanity at large."

The effect of this mischievous and meddling legislation was disastrous to English physiology, and compelled those who practiced vivisection to flee to France and Germany and to draw upon the United States for their medical knowledge. Mr. Lister found the working of the Act so "vexatious as to be practically prohibitory," and went to Toulouse to carry on his investigations. This scientist, whose observations and experiments in connection with infection have been the means of saving thousands of human lives, was obliged to discontinue his investigations and conduct them in other countries. He said: "Even with reference to small animals, the wording of the Act is so vexatious as to be practically prohibitory of experiments of a private practitioner unless he chooses to incur the risk of transgressing the law."

Dr. Greenfield, Pathologist in Edinburgh University, who was at work on investigations for the prevention of splenic fever, was forced to write: "I have not been engaged in other investigations for the simple reason that with the present restrictions and the difficulty of obtaining a license, I regard it as almost hopeless to attempt any useful work in this country. As the result of my experience it is my opinion that these hindrances and obstacles constitute a most serious bar to the investigation of disease and of remedial measures. When to this is added all the annoyance and opprobrium which are the lot of investigators, it is to be wondered at that anyone should submit to be licensed." He also mentions the case of a surgeon who came to him with what appeared to be a remedy for lock-jaw, to have it tested before using it upon a patient; the law forbade the experiments and the patient died.

Professor Fraser writes: "In several instances in which the objects were of the highest interest, and in which the importance of the results could not be predicted, the Government has constituted itself the supreme arbiter of science, and has ventured to decide that certain experiments were not required and should not be performed. I have only just now experienced the mortification of being refused a license, where permission was requested to perform a few experiments on rabbits and frogs with a reputed poison used by the natives of Borneo to anoint their arrows."

Professor Foster thus sums up his views: "This legislative action has gone far to cripple physiological research in this country. Our science has been made the subject of a penal Act. We are liable at any moment in our enquiries to be arrested by legal prohibitions. We are hampered by licenses and certificates. We are asked to make bricks when they have taken the straw away from us." Speaking of the Congress of 1881, in which Virchow declared the charge of cruelty was a subterfuge, Dr. Foster says.

"One good fruit of the present Congress is 'that our foreign brethren, seeing our straits, will go home determined to resist to the utmost all attempts to put the physiological enquirer into chains, for we are assured that experiment is the best weapon with which he can fight against the powers of darkness of the mysteries of life.'"

Sir James Paget thought it intolerable that he might pay a rat-catcher to poison the vermin about his place, and not be permitted to use them for the good of mankind, or that he should have to appeal to a Government official for leave to prick a mouse.

Dr. Lauder Brunton was engaged in England in experimenting with the poison of venomous serpents, when restrictive legislation was introduced and put an end to them. But the Government that introduced the legislation supplied Dr. Weir Mitchell and Dr. Reichert, who lived in a more reasonable country, with the snakes, and they succeeded in isolating the poison. This was necessary before discovering an antidote to a poison which annually carries off twenty thousand victims.

Mr. Horsley, in the *British Medical Journal*, protests against the difficulty of obtaining a license, and Dr. Wyatt Johnston observed that the incubation period of disease should be lengthened, since it usually developed before a license could be procured. Scientific men are averse to be licensed like publicans or prostitutes. They refuse to work in an atmosphere of distrust and suspicion, even upon subjects not prescribed by law, and object to having their laboratories searched by detectives as if they were smugglers' dens. Notwithstanding the existence of a law which limited the number of persons performing experiments to twenty-six in England, Scotland, and Ireland, and under which the Government inspectors continually spoke of the cruelty practiced as "insignificant," "inappreciable," "equal to that caused by vaccination"; the opponents of vivisection were not satisfied. This was in the face of the report of the inspectors appointed by the Government. In 1878 they reported that there were not more than forty cases in which "an amount of suffering worth noticing was inflicted." In 1879 the number was twenty-five, ten of which were on frogs, and in the other fifteen the suffering was about equal to that caused by vaccination. In 1880 and the two following years the inspectors report that there were only ten cases in which any pain was caused. The Irish inspectors reported that "the experiments were free from any appreciable suffering." Mr. Bush, in his report for 1884, admits that the "amount of direct or indirect actual suffering as the result of physiological and therapeutic experiments performed under the Act in England and Scotland was wholly

insignificant." He then specifies that in the case of three frogs, six mice, thirty minnows, and sticklebacks, some suffering might have been caused—a grand subject truly for a nation of whose new-born six per cent. die yearly from neglect. This legislation, so sweeping in its provisions and so drastic in its results, one would think, left to the votaries of the suppression of vivisection very little to desire. One of the foremost of them, Mr. Colam, acknowledged that after employing the "surveillance of detectives" he could "not accuse the physiologists of cruelty." Yet in 1883 every endeavour was used to have vivisection totally prohibited. But, after all, Frances Power Cobbe, the chief scribe of the anti-vivisectionists, was led to exclaim, that "anti-vivisectionists recognized that their work must take the shape of an ethical and religious agitation."

The law hampered and harassed the vivisectionists for a time, till they were able to take up their work in other countries, but the total amount of pain inflicted was not diminished by one iota. Fortunately for humanity, there were centres where researches could be carried out, but the results have not gone to further the credit of English physiological work, being arrived at under the ægis of foreign schools. The public is exacting of the ability of a physician, but by a senseless agitation it forbade the means of acquiring knowledge. Yet it has not been slow to avail itself of the advantages derived from physiological research, and would stand aghast if medical men were to cast aside what has been gained by the method of vivisection and return to the days when quacks flourished and vended their vaunted nostrums, their charms and cure-alls.

In the United States there is really no restriction placed upon vivisection, and the discussion of the question has been meagre. Professor Dalton makes the general statement: "The exhibition of pain in an experimental laboratory is an exceptional occurrence. As a rule, all the cutting operations are performed under the influence of ether." This is because the infliction of pain is generally no part of the experimenter's object, and on every account it is preferable to avoid it. In his own demonstrations he says: "I do not make experiments upon animals involving more pain than is caused, for example, by pithing to kill, or injecting an anæsthetic subcutaneously."

In 1867 an Act was passed by the State of New York "for the more effectual prevention of cruelty to animals." It declared it a misdemeanor to "unnecessarily or needlessly mutilate or kill any living creature," but nothing in the Act was to be construed "to prohibit or interfere with any properly con-

ducted scientific experiments or investigations performed only under the authority of some regularly incorporated medical college or university of the State of New York." This law was so vague its provisions did not interfere with vivisection any more than the Blue Laws prevent reasonable recreation on Sunday.

At the session of 1881, Mr. Henry Bergh introduced into the New York Legislature a bill providing, "That every person who shall perform, or cause to be performed, or assist in performing, upon any living animal an act of vivisection, shall be guilty of a misdemeanor," and "the term vivisection used in this Act shall include every investigation, experiment, or demonstration producing pain or disease in any living animal, including the cutting, wounding, or poisoning thereof." The attempt was renewed in 1882, and again in 1883, but since that time nothing has been heard of the bill, and vivisection in America is practically untrammelled, a fact the English Government has not been slow to take advantage of to evade the provisions of its own laws. From this it appears that vivisection can be practiced in a civilized country extensively and carefully, without cruelty or unreasonable pain, and without legislative interference. Indeed, the physiologists and legislators of the United States have proved the case for unrestricted vivisection. As the celebrated Owen said, "The Legislature of the United States of America, assailed by well-meaning ignorance, has refused to pass a law which would cast an unproven and unmerited stigma on scientific men."

If anti-vivisectionists claim that legislation has not diminished the practice as a whole, then their labor has been in vain; if they claim that it has, then they have committed a wrong against humanity in the light of the benefits vivisection has bestowed. But it is impossible to apply these principles by any other than moral force, and the great work the opponents of vivisection have wrought is, that they have stimulated and rendered sensitive the moral sense of operators, which deters them from unnecessary cruelty. In England and America, where the moral nature of the operator and community is well grounded, the suffering has been shown to be inappreciable, the number of operators small, and the operations few, but even on the continent there is nothing to show that cruelty is practiced at the present day. In a common German manual of physiology this rule is laid down: "An experiment involving vivisection should never be performed, especially for purposes of demonstration, without previous consideration whether its object may not otherwise be attained. Insensibility by chloroform or other drugs should be produced whenever the nature of the experiment does not render this absolutely impossible." Indeed, Profes-

sor Schiff of Geneva, one of the best known of continental vivisectors, has never found it necessary to practice on a feeling animal.

Dr. Pye-Smith, in his address before the British Association in 1879, laid down the lines on which anti-vivisection legislation is at all permissible. "The only restriction which Christian morality imposes upon such practices is that no more pain shall be inflicted than is necessary for the object in view. Any one who would inflict a single pang beyond what is necessary for a scientific object, or would by carelessness fail to take due care of the animals he has to deal with, would be justly liable to public reprobation." This means that the physiological laboratories should be licensed like dissecting rooms under the Anatomy Act in England, and licenses given only to persons of adequate knowledge and known character, and that then the experts should be left to follow their own methods.

Upon the question of the restriction of vivisection, Professor Dalton says, categorically: "I think investigators and teachers should be the sole judges as to what is necessary in their investigations and teachings." Dr. L. S. Pitcher believes it only necessary that "the public should be informed of the truth relating to vivisection in order that there should be secured to science every advantage and privilege which its advancement may need." Professor Wesley Mills, the leading physiologist in Canada, declares openly that a scientist can be the only judge of the rights and obligations of his own profession. Dr. Osler, his predecessor, later of Johns Hopkins, was of a similar mind.

In Dr. Yeo's table it is admitted that only one experiment in a hundred is painful. Legislation aims to deal with this one case, and in doing so suppresses the other ninety-nine as well. The way to insure that not more than one case in a hundred shall be painful and yet science go untrammelled is not by legislative enactments based on sentiment and insufficient knowledge, but as Frances Power Cobbe, its most ardent opponent admits, "by an ethical and moral agitation," by a more refined morality on the part of the operators and the community in which they live, brought about by the methods of ethics and religion. The action of the Societies for the Prevention of Cruelty to Animals, by countenancing the extremists who would suppress vivisection, has alienated the support of physicians whose position and relations would be invaluable in furthering the general aims of the Societies. The medical journals are no longer shy of the practice. Under the influence of public opinion at one time they spoke of vivisection apologetically and with caution; in recent years they adopt no line of excuse, and treat the objections of the opponents with aggressive

scorn, confident that false sentiment, assumptions, and illogical reasoning cannot, in the long run, retard the progress of light.

It does not appear either that restrictive legislation has lessened the sum total of cruelty, or that physiologists have altered their methods under its compulsion. It will always be ineffective, because there will continue to be communities not overpowered with "genuine British narrowness," where biologists can labor unimpeded in the name of truth, science, and humanity.

The extent to which legislators should interfere with vivisection is very limited, unless they choose to incur the responsibility Darwin speaks of that "he who retards the progress of physiology commits a crime against mankind." Physiologists themselves assent to the principles laid down by Sir Thomas Watson: that experiments must not be performed at random to see what will happen; that they must have some object in view, a question to settle or a doubt to remove, and with a reasonable hope of resulting benefit; that operators have the skill, judgment, and intelligence, and previous knowledge to make experiments successful and instructive; that they guard against everything that would enhance pain, and do nothing out of mere curiosity.

Looking at the whole question from the distance of a few years, and in the light of the results that have been attained since then, it is clear that the outcry against vivisection has been the result of a popular delusion that cruelty and vivisection were synonymous, that the experiments were useless and unnecessary, and that the same knowledge might have been gained in some other way.

But the present exposition of facts shows that vivisection is not of necessity cruel, and should not be interfered with, since:

1. It has tended to correct and extend our knowledge of the functions of the human body.
2. It has aided in obtaining exact knowledge of the processes of disease.
3. It has tested the remedies by which diseases are to be controlled.
4. By it the means have been ascertained of checking contagion and preventing epidemics both in man and beast.
5. Poison can be detected.
6. All this information could have been obtained in no other way.

7. There is no moral wrong involved in the operations either to animals, to operators, or to spectators.

While physiologists and physicians know it as a fact that the road to a more perfect medical science lies through experiment, it may be painful experiment, they can afford to resist the clamor

of those whom they would serve, believing, by the added experience of two centuries, with Harvey of immortal name, who, in speaking of this same subject, declared that skill and knowledge could be arrived at "*non ex libris sed ex dissectionibus.*"

During the past seventeen years very little has been heard of the controversy in the United States, and interest in it has largely passed away. No new legislation has been created upon the subject in any country. In all countries, save England, the practice of vivisection is without legal restriction. In Germany, on March 27, 1906, two petitions were presented to the Reichstag, praying that the matter be dealt with; but Professor Von Bergmann having explained that vivisection was based on a purely humanitarian purpose, "the House passed on the Order of the day."

All sensible persons are now agreed that medicine as we have it to-day, and as we will have it in the future, is based upon experiments on animals, and that the practice is in no way bound up with cruelty. Those few persons who allege to the contrary have deceived themselves and are striving to mislead others. Their mistatements lie on every page of their writings. They have been convicted before the Courts and they have publicly withdrawn their allegations.

These opponents are few in number and most of them are well-meaning, but they proceed upon the assumption that experimenters are cruel. Indeed, the late Miss Cobbe brought forward the awful charge that they were instigated by lust; and Professor Haliburton, speaking in London on May 16, 1907, was interrupted by the cry, "Lord Lister is a brute."

I admit that they are sincere in their desire to lessen cruelty. The medical profession is equally sincere. Nearly forty years ago a committee of the British Medical Association reported that, in their opinion, anaesthetics should be used wherever possible; that no painful experiments should be performed for illustrating laws of facts already demonstrated; that all painful experiments should be performed by skilled persons with sufficient instruments and assistants, and in laboratories under proper regulations; and that, in veterinary work, operations should not be performed for the purpose of acquiring manual dexterity.

In closing his evidence before the Royal Commission now sitting in London, the representative of the Fellows of the Royal College of Physicians said, on the part of the whole medical profession, that "we have no less regard and sympathy for suffering animals than others, nor any less urgent desire to spare them so far as is compatible with the larger claims of humanity." Mr. W. P. Byrne, of the Home Office, which has to do with the enforcement

of the Act of 1876, expressed the belief that the chief protection which animals had was the desire of experimenters to exercise all possible humanity, a feeling which he was sure was in the mind of every experimenter. The public opinion of the other men working in the laboratory, another witness said, was adequate safeguard.

The violence of these agitators has wrought evil to all humanitarian effort. They take their stand upon what they call "moral ground" and endeavor to reinforce their position by publications which they are forced to withdraw, untruths which they are obliged to correct, and slanders for which they are induced to apologize. Thus all ethical questions are brought into disrepute. Many of these persons are consistent and will not employ animals for food; but the sum of their contribution to human knowledge is that a vegetarian diet does not conduce to truthfulness or sweetness of temper. Such self-abnegation is worthy of all respect if it proceeds from a spirit of humaneness and not from recalcitration.

This violent conduct is peculiar to England, where a large section of the public is always sacrificing itself; the males going to gaol rather than pay taxes, and the females because they want to vote. Such extremists find it difficult to be moderate in speech. They are easily led away from the truth, and they do not seem to see the distinction between what is true and what is not true. This makes us sorry, for they are in other respects good people.

It will be useful to set down a few examples of their unwisdom, so that humane persons who retain their sanity may be induced to remonstrate with them. There is a peculiarly flagrant case in the London *Daily Mirror*, November 6, 1906, in which it is stated that deeds which are alleged by a nameless writer to have been done in France seventy years ago are done in England to-day. In the London *Tribune*, November 8, 1906, a story of horrible cruelty to a cat was published as part of the evidence given before the Commission now sitting. The following day the paper acknowledged that it "had been victimized" and apologized "very frankly." Yet the fabrication was repeated in *The Christian*, April 4, 1907, although it was characterized formally before the Commission as "absolutely false," Q. 3673. Three newspapers in London habitually publish untruths about the Commission. They say it is conducting its enquiry behind closed doors, and that the revelations are "too terrible to mention."

(To be continued.)

The Canadian Medical Protective Association

ORGANIZED AT WINNIPEG, 1901

Under the Auspices of the Canadian Medical Association

THE objects of this Association are to unite the profession of the Dominion for mutual help and protection against unjust, improper or harassing cases of malpractice brought against a member who is not guilty of wrong-doing, and who frequently suffers owing to want of assistance at the right time; and rather than submit to exposure in the courts, and thus gain unenviable notoriety, he is forced to endure black-mailing.

The Association affords a ready channel where even those who feel that they are perfectly safe (which no one is) can for a small fee enroll themselves and so assist a professional brother in distress.

Experience has abundantly shown how useful the Association has been since its organization.

The Association has not lost a single case that it has agreed to defend.

The annual fee is only \$3.00 at present, payable in January of each year.

The Association expects and hopes for the united support of the profession.

We have a bright and useful future if the profession will unite and join our ranks.

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And Ontario Medical Journal

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No. 2.

COMMENT FROM MONTH TO MONTH.

Progress in Medical Science in 1907.—The tendency to immediate operation in all cases of appendicitis has been on the wane. Surgeons have demonstrated that the operation in the quiescent interval is practically void of any danger. Immediate operation is only called for in acute fulminating cases and abscesses; this class of case is in the minority. Unusual articles have been reported found in the appendix during the last year, in one instance a clove, well preserved; eleven small stones in one, which on chemical analysis were found to consist of cholesterin and bile pigment; in another case four small faceted stones chiefly of calcium phosphate.

The Association of Appendicitis to Typhoid Fever, we drew attention to many years ago in these pages, citing an instance where a young lady had been sent into one of our Toronto hospitals, with all the symptoms of acute appendicitis. The surgeon refused to operate, stating the case was not one of appendicitis. A consulting physician stated as positively it was not enteric fever. A week or ten days later there was no doubt of it being typhoid. During the past year attention has been again called to the association of these two diseases, and it has been stated the congestion of the ileo-cæcal portion of the bowel occurring in typhoid fever pre-disposed to inflammation in the appendix. Cases have been quoted where the two diseases co-existed. No doubt true typhoid inflammation may be present in the appendix itself.

Tuberculosis continues to attract a great deal of attention, and considerable advance was made in education and in the promotion of sanatoria. Although there has been much discussion in Canada and elsewhere, no distinct advance has been made except in Edinburgh and a few other places, where notification has been made compulsory. Probably health authorities have hesitated in advocating compulsory notification of tuberculosis owing to the all too great and unreasonable antagonism towards the tuberculous on the part of the laity. There have been encouraging practical results from a new phase introduced lately in sanatorial treatment, namely, that of graduated labour.

Koch's 1901 Announcements are being gradually offset and disbelieved in; and it seems to be becoming generally accepted as a fact that bovine tuberculosis can be produced in animals by certain strains of tuberculous matter of human kind. According to the second report of the Royal Commission on Tuberculosis, no reason can be shown that man is less susceptible to bovine tuberculosis than any animal. In fact, the Commission states definitely that in many cases—as many as 14 out of 60 human strains—the bacilli of human tuberculosis possessed the characteristics of bovine tuberculosis.

Though Sleeping Sickness, or, rather, a knowledge thereof, is of no practical importance to our readers, it is interesting to know that two young Canadian graduates have made a special study of this unique and attractive disease, and published during the past year a review on the subject of combating it. Drs. Allan Kinghorn and John L. Todd have arrived at these conclusions: A drug as specific in its action on sleeping sickness as quinine is on malaria must be supplemented by the same preventive measures as carried out in destroying the mosquito. As there are no means of destroying the tsetse flies in large numbers yet found out or carried out, strict quarantine and isolation measures should be enforced to prevent the further spread of trypanosomiasis; the value of "atoxyl" is problematical, although it is beneficial, but it must be administered continuously and regularly.

Vaccine Therapy has been the subject of many investigations since Sir A. E. Wright brought opsonins to the attention of the medical world. He in conjunction with other investigators and observers has recently shown that the process of auto-intoxication might come under observation in the beginning of a tubercular

infection; and that it is, in fact, a regular accompaniment of the hectic of advanced pulmonary tuberculosis. "They also brought forward evidence to show that in the induction of an auto-inoculation, when this is preceded and followed up by a series of measurements of the opsonic index, there exists a method which can be turned to account for the resolution of some of the diagnostic and therapeutic problems which present themselves for solution in connection with every localized infection which is not accessible to direct bacteriological examination." This will prove valuable in diagnosis in doubtful cases.

The Action of Pituitary Extract has been set forth by two scientists before the Royal Society by Prof. E. A. Schafer and Dr. P. T. Huring, who have made some very interesting experiments and important observations. These experiments were made with the extract upon the kidney. Their conclusions were that pituitary extract has a greater diuretic activity by far than any substance in the whole pharmacopœia. By its action on the vascular system it produces an optimum in renal activity. It apparently also exerts a specific stimulation upon the renal epithelium. They regard it that possibly the extract acts as subordinate or auxiliary to the function of the kidney.

Clean Milk is essential to infantile life; and its production and marketing should concern everybody most vitally. Von Behring believes that most of our adult tuberculosis is taken into the human system while we are yet babies in our cradles. But it is not in this fact there is all the danger. It is the most important single article of diet we have; how requisite, then, is every detail in bringing it clean and pure to the consumer! How lax, however, are some of our boards of health in this respect. Halifax and Fredericton have no regulations governing its production. St. John, N.B., seems to have about the best regulations of any city in Canada. Quebec, Montreal, Ottawa, Kingston, Regina, and Vancouver appear to do about as much as St. John. In Toronto the requirements are 3 per cent. butter fat and 12 per cent. total solids; inspection of milk takes place as delivered. In a recent bulletin on milk from the chief analyst of the Department of Inland Revenue, Toronto, shows poorer than any other district.

The Campaign Against Rats has taken practical form in England. A National Society for the Destruction of Vermin is being formed, with Sir Lauder Brunton as President, Sir James Crichton-Browne, Sir Patrick Manson, Surgeon-General A. F. Bradshaw,

and Prof. W. J. Simpson as Vice-Presidents. When the common brown rat invaded England he gradually killed off the "Old English" black rat; and at this day the latter is only found in small numbers in ports and docks. Everybody knows it has been proven beyond question that the black rat caused thousands of deaths every year in India, through bubonic plague. This ubiquitous rodent was feasted upon and infested with fleas; the fleas deserted his dead carcase, carrying the plague bacillus to the blood of human beings. The brown rat remains mostly now in England, and he is not exempt from the charge of carrying other diseases, such as typhoid fever. This brown rat multiplies very rapidly. The female will litter eleven to twenty young every six weeks; the young doe will bear a family at three months. Thus the National Society for the Destruction of Vermin will have its work cut out for it.

The Re-organization of the Visiting Staff of the Toronto General Hospital is now said to be complete. Elsewhere in these pages will be found the announcement as it appeared in the public press. The whole scheme exhibits one very bad and rather nasty feature. Several men have had their heads pole-axed for simply attending faithfully to their duties, and leaving altogether out of sight politics, pull, etc. Now, this unsavory action on the part of either the Board or the medical advisers to the Board is abominable; and occurring as it does amongst medical men, who are sticklers for ethics, smacks of quackery. If this sort of slaughtering is to be a feature of hospital work every few years—and many of the young men recently appointed will bear in mind that their tenure of office is for a year only—then it is high time reform, thorough and lasting, should be inaugurated in all hospitals which receive governmental and municipal grants. Taxpayers, lay as well as professional, should have something to say as to the manner their money is spent. To deny the right of a practitioner, who is a taxpayer, or whose patient may be a taxpayer, to follow that patient into the wards of any hospital, irrespective of his being or not being on the visiting staff, does not seem just as just to that practitioner and that patient as it may be advantageous to the hospital and the visiting staff. In other words, Boards care more for their hospitals and visiting staffs more for their appointments than either care for the patients. It is only the patient and the patient's doctor who is concerned in the case in hand. Every man who is licensed to practice is entitled to practise upon his patient in his own home. The conscientious doctor when he needs the aid of a confrere or specialist, he so advises. Why are

there men in the medical profession who for a little questionable fame attached to a hospital appointment will deny the right of other of their regularly licensed confreres to practice in hospitals as well as outside? Why should a poor man, because he has not enough money to pay for his hospital maintenance, have taken from him the right, which he is entitled to as well as any one else, to choose his own medical attendant in any hospital? There are a great many medical men who do not care for hospital appointments. There are others who will pull out tooth and evulse nail to get them. Is their success in life so dependent upon this disgusting wire-pulling? We trow not. It would be just as great, just as distinguished, just as transcendent, if every physician and every surgeon had the privilege, as it is his right, to follow his patient and treat him in any hospital he liked.

Editorial Notes.

Communication from Dr. D. W. Cathell.—Baltimore, Maryland, December 18, 1907. Editors *Maryland Medical Journal*: When one reflects on the ten-thousand-dollar and the one-thousand-dollar and the five-hundred-dollar fees allowed by the new fee table adopted by the Medical and Chirurgical Faculty in May last and published in the December number of the *Journal*, he naturally concludes that such charges are intended to cover either very extraordinary cases or cases occurring in persons noted for their wealth, and we all know that both such classes of cases do occur; but to know that such fees are actually gotten sometimes makes one feel something in his mind and heart akin to envy.

General practitioners also have highly important cases, and as one of them I would mention a non-fee table plan that I often follow, which enables me to obtain a fee that is a little more just to my pocket and to my reputation than it would be oftentimes under the unfair fee table system.

We will now turn to a money subject that is of direct importance to every general practitioner in America.

Looking back fifty or sixty years, we find that neither the amount of practical knowledge then possessed by the average medical practitioner, nor the worth of services based on that knowledge, can at all compare with the wisdom and worth of the average practitioner of medicine to-day, because the great art of medicine itself was then based on much less certain and much less numerous facts than we now possess.

Owing to this lack of development our profession then, and even up to about 30 years ago, was composed almost entirely of all-round men, who were then called "family physicians," but now known as general practitioners, all working under an unjust fee system, thousands of them barely eking out an existence on the pittance their practice brought them.

But since those bygone days medical knowledge and medical practice have undergone great advancement, and this has caused to spring up in all large communities numbers of scholarly and scientific medical men, known as "specialists," who each devotes himself to some one of the various branches of study and practice, and in consequence of their advent our profession now consists of two well-known divisions: Our surgeons gynecologists, laryngologists, oculists, neurologists, alienists, proctologists, etc., in one division, known as specialists, and in the other the legion of family physicians, now called general practitioners.

Owing to the good and satisfactory work being done by these specialists and the resulting excellent reputation they have earned for themselves, the size of their charges for services and the time at which their fees are due and payable are no longer governed by the old 1847 fee-table methods, for which they have but little or no respect, but in lieu thereof each of them wisely adopts some more or less definite financial policy of his own, and rightly puts his own valuation on his services to his cases and makes his own terms of payment, naturally taking care to charge this and that patient sums commensurate with his services and large enough to materially aid in giving him and his dependents a comfortable support, with some addition for his own and their needs when he is no longer able to labor; and each rightly leaves every other man to put his own value on his services and to pursue his own methods in collecting.

Money-getting is not the chief object of the worthy physician, yet it always has been, and always must be, one of the objects, because no one can live by his calling without money. Yet in our noble and humane profession everybody, whether specialist or general practitioner, willingly and rightly does, and we hope always will, do his share of "no-charge" work among the worthy poor, and all act as Good Samaritans to any who are in the grasp of physical distress, and each has cases in which he humanely gives to those who appear to deserve it "a poor man's bill," and every practitioner, for one reason or another, often gets but little or nothing from people well able to pay, sometimes not even "Thanks" for very valuable services, occasionally even for saving life itself; and almost everyone also encounters transient, indefinite, chronic,

emergency, or minor cases, in which he charges only a meager pay-by-the-visit fee, whether attended at their homes or at his office.

But when it comes to rendering important and well-marked services for patients who can afford to pay just fees there exists a very great difference between the size of the charges and the terms of payment of the specialist and the general practitioner, for then every specialist impressed with a correct idea of the value of his services ignores the number of visits and all other lesser details and names this or that specific sum, with the worth of those services as the basis.

On the contrary, his brother, the general practitioner, in computing the amount he shall charge, even in well-defined and highly-important cases, sometimes even involving life itself, unjustly belittles himself by acknowledging that old-self-belittling method of computing by the number of visits made, with but little or no regard for anything else; and to-day, while the fees of your wiser brethren are estimated by their skill and services, the public is still willing to measure yours by that ridiculous old method, and consequently you seldom or never receive an adequate and just fee in highly-important cases.

When your surgical friend, or your gynecological neighbor, or a specialist of any kind, approaches the fee question his better business system leads him to recall all the difficulties of the case, and the time and the trouble and risk required, and then to "lump" his fee into a round sum of even figures, five, ten, fifteen, twenty, twenty-five, fifty, seventy-five, or a hundred dollars, and so on up, and we all know that this round-charge method, instead of injuring one's standing, actually strengthens and extends his professional reputation, and he is apt to receive his better fee promptly, with but little or no quibbling and little or no rebate. You also know by experience that when you call a specialist in consultation your patient cheerfully pays him five or ten dollars for his visit, and often cash.

But when Dr. G. P., after unwisely allowing weeks or months to elapse and one fee after another to accumulate, say seventeen, thirty-four, or even dollars, finally ventures to send his bill, the astonished patient wonders how it is possible that he owes Dr. G. P. seventeen dollars, and may demand to know for whom his or her doorbell has been pulled seventeen times, and poor G. P., after recalling the various visits to several wide-apart cases, fearing that there exists some doubt or objection, to retain their good-will or from pinching need of money, or from fear he may have to earn it over again in collecting it, may actually make a considerable reduction for cash, from this self-pauperizing per-visit amount.

Now, if instead of binding yourself invariably and always to this old per-visit relic of antiquity, you will begin, and, whenever possible, charge a just and feasible "lump sum" for attending the case, and never let the amount sink down to the exact number of visits, it will benefit instead of injuring your reputation, and help your pocketbook, too; and when circumstances compel you to let the fees for two or more cases run together, charge per case for each important one, and be ready promptly to disown the per-visit method, more especially when unusual time is given with the service, or an additional responsibility is placed on you by reason of the patients social position and his importance in the community, or by your having to treat him by a regular and prolonged system.

We are now living under greatly changed conditions and in prosperous times, and although a dollar is still a dollar, yet its purchasing power is vastly less than in 1847, when eggs were six or seven cents per dozen, with everything else in proportion, and it is your duty to yourself and to your dependents to drop this per visit mode of charging whenever the gravity of the case or the responsibility justifies, and in lieu thereof to do good, up-to-date work and then, unless it is an ordinary day visit or an ordinary office call, to make the abstract question of the value of your services the foundation of your charge, taking care that the amount named be sufficient to cover distance, visits, detentions, and all other legitimate features, varying the charge to different people, according to their ability to pay.

If a good patient employs you, and you charge him twenty dollars when some less wise per-visit brother would charge him but thirteen or fourteen, you will still be called when he needs you again if he believes you can do more for him than any other physician in reach, for he is not then thinking about fees, but about personal safety. Indeed, we might almost state it as an aphorism that the physician who habitually charges by the visit instead of by the case, when the services are important, constantly robs himself of both prestige and fees, and in the professional race unconsciously puts his own self in the position of an armless man in a rowing match against men with arms, or a legless one in a contest of speed against men with legs.

Prompt rendition of a just but round-sized bill for an important case begets fuller appreciation of the services, and if you will write on the face of every lump bill rendered the words "important Case," or "Surgical Case," or "Obstetrical Attention," or whatever other awakening explanatory phrase agrees with the facts, it will set the patient to thinking in the right direction.

News Items.

WINNIPEG proposes to establish a children's hospital.

IN December in 1907 there were 159 deaths from tuberculosis in Ontario.

MONTREAL's birth rate for 1907 is 44.20 per 1,000, 13.21 higher than Toronto's.

DURING 1907 there were 2,727 cases of measles reported in Ontario, with 119 deaths.

SMALLPOX is lessening in Stormont, Dundas, and Glengarry Counties, Eastern Ontario.

HON. SYDNEY FISHER is opposed to granting a site on the Experimental Farm for a tuberculosis hospital.

THE Provincial Government of New Brunswick will consider establishing a sanatorium for Consumptives.

DR. UNSWORTH, of the Mountain Sanatorium, Hamilton, Ont., has resigned and gone to Europe for graduate work.

DR. E. J. TURNBULL has resigned from the Verdun Hospital, and has been succeeded by Dr. Robert King, Montreal.

TORONTO GENERAL HOSPITAL will occupy temporary quarters for its out-patient departments on the new site on College Street.

GLENGARRY PRIVATE HOSPITAL, Montreal, has been closed, and Dr. F. Monod has gone to reside in Paris and practise with his father.

DR. JAMES DOUGLAS, New York, has presented to the Verdun Protestant Hospital for the Insane, Quebec, an adjoining farm, valued at \$42,000.

DR. JOHN STEWART, Halifax, N.S., has returned after several months abroad. His many friends all over Canada will be glad to learn he is much improved in health.

MCGILL MEDICAL FACULTY and students held their annual dinner on the evening of the 7th of February, at the Windsor Hotel. Mr. H. W. Garcelon, '08, was the president.

AT the beginning of 1907 there were 507 patients in the Protestant Hospital for the Insane at Verdun, Que. The admissions during the year were 168. The discharges were 104, and the deaths 39. On the 1st of January, 1908, there were 533 in residence, 284 men and 249 women. Since the opening of the Verdun institution there have been 2,575 admissions and in only about one-third of these has heredity been denied.

THE establishment of a Department of Public Health for Canada was the subject of a resolution and debate introduced recently in the Canadian House of Commons by Dr. J. B. Black, M.P. for Hants, Nova Scotia.

DR. JOHN L. TODD, Victoria, B.C., before leaving to assume his duties as Professor of Parasitology at McGill University, gave a public lecture in Victoria on Sleeping Sickness. Dr. Todd spent twenty-three months in the Congo.

LIEUTENANT-COLONEL CARLETON JONES, M.D., Director-General of the Army Medical Service, was in Toronto the 4th and 5th of February, and was entertained at the Queen's Hotel on the evening of the 5th by the Toronto officers of the Army Medical Corps.

DR. DICKIE MURRAY, Halifax, one of the brightest and most sociable of medical men of the younger generation in Canada, died early in December. Who will ever forget his unfailing kindness and courtesy when the Canadian Medical Association met in Halifax in 1905?

DR. LIONEL PRITCHARD, of Bay Roberts, Newfoundland, was in town over Sunday. The death of Mrs. Pritchard (*née* Whiteway), a daughter of Sir William Whiteway, took place at her parent's home, Riverview, St. John's, Newfoundland, on January 21. Dr. Pritchard's old classmates in Toronto, and many other friends, who sent him so many good wishes on his marriage last June, will grieve to hear of his bereavement. Mrs. Pritchard was a delightful girl, ardent and enthusiastic, and most devoted to her young husband, whose home was only brightened by her presence for a very few months. Dr. Pritchard left on Monday, February 3rd, to return to his professional work in Bay Roberts, where he has a huge practice, and is very popular.

TORONTO GENERAL HOSPITAL'S NEW STAFF.—After fourteen months' work the Special Committees of the Board of Trustees of the Toronto General Hospital on Staff Reorganization had the satisfaction of seeing the work completed yesterday, when the trustees finally passed the committee's recommendations. The committee recommended that, in addition to the head of each department there shall be a senior assistant, or assistants, and clinical assistants, and that the following gentlemen be appointed to the positions specified: Surgery—Service in charge of Dr. George A. Bingham; senior assistant, Dr. Charles Shuttleworth; clinical assistants, Drs. Wallace Scott and Arthur B. Wright. Service in charge of Dr. Alex. Primrose; senior assistant, Dr. F. N. G. Starr; clinical assistants, Drs. Stanley Ryerson and Samuel Westman. It is recommended

that Dr. Clarence L. Starr be given the standing of senior assistant and attached to Dr. Primrose's service for the purpose of being available as an assistant for Mr. I. H. Cameron, the senior professor in surgery in the University of Toronto. Service in charge of Dr. Herbert A. Bruce; senior assistants, Dr. W. J. O. Malloch; clinical assistants, Drs. Warner Jones, John McCollum, and A. A. Beatty.

Medicine—Service in charge of Dr. Alex. McPhedran; senior assistant, Dr. A. E. Gordon; clinical assistant, Dr. Wm. Goldie. In charge of tuberculosis clinic, under Dr. McPhedran's service, Dr. Harold C. Parsons. Service in charge of Dr. W. P. Caven. First senior assistant, Dr. John Fotheringham; second senior assistant, Dr. W. B. Thistle; clinical assistants, Drs. E. C. Burson and Joseph S. Graham. In charge of the department for the treatment of functional neuroses, under Dr. Caven's service, Dr. D. Campbell Meyers. Service in charge of Dr. Graham Chambers. Senior assistant, Dr. R. D. Rudolf; clinical assistants, Drs. Goldwin Howland and George W. Ross; clinical assistant in dermatology, Dr. D. King Smith.

Gynaecology — Service in charge of Dr. James F. W. Ross. Senior assistant, Dr. Frederick Marlow; clinical assistants, Dr. R. W. B. Hendry, A. C. Hendrick, Ida E. Lynd, and Helen MacMurehy.

Obstetrics — Service in charge of Dr. Kenneth Mellwraith. Senior assistant, Dr. Frederick Fenton; clinical assistant, Dr. J. A. Kinnear.

Eye Department—Service in charge of Dr. R. A. Reeve. Senior assistants (of equal rank), Drs. Charles Trow, J. M. MacCallum, and D. N. MacLennan; clinical assistants, Dr. Colin Campbell and W. H. Lowry.

Ear, nose and throat department—Service in charge of Dr. Geo. McDonagh. Senior assistants (of equal rank), Drs. D. J. G. Wishart, Geoffrey Boyd, and Perry Goldsmith; clinical assistants, Drs. C. M. Stewart and Gilbert Royce.

Department of anaesthetics—Dr. Samuel Johnston in charge; assistant, Dr. Duncan Anderson.

Electrical Department—Dr. Charles R. Dickson in charge. Assistant, Dr. George Balmer. The committee recommended that all appointments lower than that of senior assistant should be probationary, and subject to special review before the annual appointments are made; also that in observance of the provisions of the Burnside Trust Agreement, Drs. J. A. Temple and F. L. M. Grasset be appointed life members of the active staff without service.

Consulting Staff—The committee recommended that the following be added to the consulting staff: *Medicine*—Drs. John L. Davison, T. F. McMahan, W. H. B. Aikins, Allen Baines, and John Caven. *Surgery*—Drs. Luke Teskey, R. B. Nevitt, and N. A. Powell. *Obstetrics*—Dr. Adam H. Wright. *Eye and ear department*—Drs. G. Sterling Ryerson and G. H. Burnham.

Publishers' Department.

IN those grippal cases with dry irritation in fauces, larynx, trachea or bronchi, Pinocodeine (Frosst) will be found an excellent combination to prescribe. Each fluid drachm contains 1-8 gram of codeine phosphate, which rapidly allays the irritability of the nerves and prevents the harassing coughing which, because it is non-productive, is useless and harmful.

THE COUGHS FOLLOWING GRIP.—Dr. John McCarty (Louisville Medical College), in giving his personal experience with this condition, writes as follows: "Ten years ago I had the grip severely and every winter until 1902, my cough was almost intolerable. During January, 1902, I procured a supply of Antikamnia & Codeine Tablets and began taking them for my cough, which had distressed me all winter, and as they gave me prompt relief, I continued taking them with good results. Last fall I again ordered a supply of Antikamnia & Codeine Tablets and I have taken them regularly all winter and have coughed but very little. I take one tablet every three or four hours and one on retiring. They not only stop the cough, but make expectoration easy and satisfactory. The best results are obtained by allowing the tablet to dissolve slowly in the mouth before swallowing."

ERYSIPELAS-PNEUMONIA.—June 5, 1905, I was called to attend Mr. K—. I found him suffering with a very aggravated case of facial erysipelas. I applied my usual treatment of carbolyzed salve locally, and gave the proper internal treatment, but when I saw the case again in twenty-four hours I found symptoms no better. I thought I would try Antiphlogistine. After applying the salve to face, I spread Antiphlogistine on a cloth making a mask that would cover the entire face, directing nurse to change when it dried out.

Next day I found patient much improved. He said "that clay relieved all the burning five minutes after you applied it." I now make it a rule to use Antiphlogistine in treating erysipelas, and I am sure my patients get along faster than they did when treated without it.

I also use Antiphlogistine in pneumonia, and all cases of inflammation of the lung or pleura. Indeed I would hate to have to treat this kind of cases without Antiphlogistine. I will report on one case of an infant where I believe this remedy saved the patient's life.

Jan. 3, 1906, infant, age 18 months. Two days after initial fever, temp. 104 degrees, resp. 48, pulse 120; tongue coated, could