had incessant jactitation of the head, both arms, and both legs, which seemed half voluntary, half choreic; and, though very severe, did not trouble him at all. The urine was albuminous. At the necropsy, the skull was very thick. The dura mater externally seemed healthy, but both middle meningeal arteries were rigid. The dura mater on the visceral side was thickened, and presented scattered effusions of blood, equal on the two sides. The arachnoid could be peeled away, leaving the blood on the dura mater. The arachnoid and pia mater were much thickened over all the convexity, evidently a chronic thickening. This was seen to a large extent at the base of the brain. There was no softening of the brain. The vessels were everywhere atheromatous, especially the vertebrals, the basilar, the posterior cerebellar, and the Sylvian arteries with their branches. The kidneys were small, granular, and covered with cysts.

In a case of a lady, aged 68, in whom recovery took place, headache, diplopia, strabismus, with certain paræsthesiæ of the limbs, and with twitching (almost convulsion) of the legs, indicated slight meningitis of the base. She had been gouty, and came of a gouty family. There was no albuminuria. Under counter-irritation, iodide of potassium and lithia, she recovered after a very tedious illness. An advanced arcus senilis, tortuous temporal arteries, and somewhat rigid radials, showed that the arterial system was seriously implicated. In a minor degree, the lesion here was doubtless of a similar nature to that in the previous case, but affecting the softer membranes only.

So much am I inclined to connect subacute fibroid inflammation of the brain and meninges with narrowed calibre of arteries, that I doubt whether such a condition is found, either as cerebral sclerosis, as firm adhesion of the dura mater to the skull, as subacute inflammation of the dura mater on the visceral surface, or as chronic leptomenigitis, without some morbid condition of the cerebral or meningeal arteries of such a nature as to narrow their calibre.

That gout is associated with meningitis, has often been recognised. Next, perhaps, to a morbid condition of the vessels themselves, the most frequent cause of thrombosis is just that hyperinotic state of blood that obtains in gout, and a form of meningitis is produced that resembles tuberculous meningitis.

This morbid condition may vary considerably. The one factor necessary is, that an abnormally small amount of blood should be able to pass. Is the lesion atheroma, tubercle, syphilis? Is it slight arteritis? Is it embolus, so small that, though caught at a bend in the artery, it yet allows a minute stream of blood to pass for a time? Is it one of the varieties of thrombus? The effect may be the same, whatever the ultimate causation.

That this is so in tubercular meningitis, is recognised by all. This lesion never occurs without tuberculous arteries; and a tuberculous artery is one whose calibre is narrowed by pressure from without by tubercle in the adventitia.

I have lately met with a case that had suffered long from the effects of syphilis. There was no albuminuria. The case resembled the first one of gouty pachymeningitis, except that during life there were epileptiform attacks; and after death, although the chronic inflammation of the dura mater was over the whole convexity, the hæmorrhage from the visceral surface was unilateral. Here the vessels were much diseased.

Many observers—Westphal, however, disagreeing—consider that posterior sclerosis of the cord is connected with syphilis in a proportion from 50 to 80 per cent. of all cases. If so, will it not be found—has it not, in fact, been found already—that the posterior spinal arteries are in many instances narrowed; or that the vertebrals themselves, from which these arteries arise, have some obstruction to their calibre? Ross speaks both of gummata forming in the walls of arteries, which may either project from the external surface or into the lumen of the vessel, and in the latter case may obstruct the vessel completely, or be washed off, to be arrested as an embolus in one of the small branches; and of an infiltration of cells, that may take place chiefly in the adventitia of the vessel, or between the intima and the epithelioid lining, these cells undergoing partial organisation and cicatricial contraction; whilst Wilks mentions, in a case of syphilis of the spinal cord, that the most striking change was in the vessels. He quotes also Dr. Mickle's observation of cases of insanity after syphilis, in which the arteries were found thickened, and various degrees of meningitis in different parts of the cortex. It is a very suggestive point, that posterior sclerosis of the cord is tolerably often associated with general paralysis of the insane—a condition not only recognised of late as frequently connected with syphilis, but manifesting *post mortem* just those sclerotic foci in the brain, and that subacute fibrous inflammation of the meninges, of which mention has been made in connection with diseased arteries.

The vessels, too, are found thickened in posterior sclerosis not associated with syphilis. And, to make one more reference, Dr. P. Baumgarten describes the case of a woman aged 32, who suffered from marked

cerebral symptoms. At the necropsy, the arachnoid, between the pons Varolii and the chiasma, were changed into a brawny bacon-like tissue. The posterior cerebral arteries must have alone supplied the whole of the cortical region with blood. All the other arteries were extremely diseased, and some obliterated. The middle cerebrals showed marked thickening. With regard to the diffused changes in the vessels, they consisted essentially of endarteritic growths.

The analogy in the pathological appearances is pretty nearly complete between the affection of the arteries in syphilis, with the consequent sclerosis and meningitis, and the interference in the calibre of the arteries in many cases of gout, with the various forms of meningitis found under such circumstances; and the stages in gout, in tubercle, in syphilis, are—1, a dyscrasia; 2, some morbid condition of artery, interfering with its lumen, caused directly or indirectly by the dyscrasia; 3, chronic fibroid inflammation of the meninges or nervous centres, or both.

Nor are proofs wanting in other parts of the body of the truth of this statement. In so-called fibroid phthisis, and still more in the fibroid thickening of lung that often accompanies the growth of tubercle, the original coarse lesion is apparently a vascular one. The same may be said in hepatic cirrhosis, and in alcoholic non-malignant sclerosis at the pyloric orifice. So, too, in gouty cirrhosis of the kidney, long before the blood has become so loaded with effete non-depurated material as to exercise a deleterious action on the arteries, these vessels are found diseased, anticipating, or at most synchronous with, the renal changes. It is, therefore, not to be wondered at, that similar vascular lesions in the neighbourhood or in the structure of the nervous centres should induce the same irritative changes in membranes so largely composed of fibroid connective tissue, and in nervous centres provided with so extensive and so delicate a neuroglia.

AN ADDRESS

DELIVERED AT THE OPENING OF

THE SECTION OF SURGERY,

*At the Annual Meeting of the British Medical Association,
in Ryde, Isle of Wight, August 1881.*

By W. MARTIN COATES, M.R.C.S.ENG.,

Senior Surgeon to the General Infirmary, Salisbury; President of the Section.

ON AN OPERATION FOR THE REMOVAL OF INTERNAL PILES.

EVER since my election to the Presidency of this Section of the British Medical Association, a feeling of intense surprise has been rarely absent from my mind, together with the question: How did it happen that I, a simple M.R.C.S., and of so small reputation, came even to be thought of for the important duty of presiding over the sayings and doings of men to whom I could be content to listen for instruction? I have not been able to so much as imagine an adequate reply to this question.

When, some weeks after my acceptance of the honour, I learnt that I should be expected to give an address, my surprise was turned into something akin to dismay. I have, however, two consolations: 1. That the address is limited to twenty minutes; 2. That I am in the hands of professional brothers, who will judge my shortcomings with generous leniency, and give me credit for sincerity of endeavour.

How to occupy, not unprofitably, the time allotted, and no more, was a problem not easy to solve. To have attempted an oratorical display would have been a foolish impertinence, and it was not in me to achieve success. I came to the conclusion that it would be more decorous in me, and more respectful to you, to bring to your notice an operation for the safe removal of that kind of internal piles having the hæmorrhoidal veins as their seat—an operation to which I have given much thought. I know of no more distressing affection, when it has become chronic. The pain and irritation, aggravated by constipation and defecation; the exhausting discharges of blood; the occasional difficulty and pain in returning the tumefied and tender parts within the sphincter; and last, though not least, the depression that almost invariably attends this disease, cause an amount of mental and bodily suffering very sad to witness. When this affection has arrived at this degree, there is, as we all know, no cure but by removal.

There are now four recognised operations with this object: the old one, or tying in two portions, leaving the parts to slough away; a second, in which the mucous membrane is first snipped, and the vein alone is tied, which is much less painful; the third, Mr. Cusack's operation by the clamp and actual cautery, modified by Mr. Henry Smith, which is less painful than either, but is not so secure against

hæmorrhage. Of Mr. Pollock's operation, I have no experience; but, probably, the after-pain is not so great as in either of the first three. It was the terrible and continued agony which I witnessed from the old method of tying *en masse*, that induced me to long for, and, at last, to work out the operation which I venture to bring to your notice to-day. All the four operations at which I have glanced have one serious defect. They all leave open wounds, and Mr. H. Smith's a burnt one. All must heal by granulation; and, therefore, all are liable to hæmorrhage, primary and secondary, and are exposed to the liability to septicæmia during the whole period of healing, which generally takes weeks, sometimes many, to complete.

My aim has been to contrive a cutting operation which would, while avoiding the pain of strangulation, sloughing, burning, or crushing, get rid of open wounds, protect the patients from the dangers of hæmorrhage, and leave a simple linear incised wound, closed against irritation or poisoning by the septic contents of the intestines.

The instruments, etc., required are: two of Curling's vulsella (Fig. 1), my clamp, a tenaculum or hook, a pair of scissors curved on the flat, artery-forceps, some needles set in handles such as this, some ligatures and sutures of the finest carbolised catgut, a sponge, a solution of the strength of one part of carbolic acid in 100 of water, and a suppository of two grains of powdered opium.* My clamp (Fig. 2) is made of well-

Fig. 1.—Vulsellum.

Fig. 2.—Clamp open.

Fig. 3.—Needle.

tempered steel. It is seven inches in length, having at one end a simple hinge, at the other a sugar-nipper fixing. The clamp proper is three inches in length, composed of parallel bars separated by a space of one-eighth of an inch. At the part nearest the handle are two shoulders, which prevent the blades from coming too near to each other, and so unduly pinching the living parts. The bars are a little over one-eighth of an inch in thickness, and are flat at their insides.

Proceeding from the inside of one of the bars are eleven needles, about an eighth of an inch in length, and about an eighth of an inch apart. They, when the clamp is closed, fit into corresponding holes in the opposite bar. The handles, which are four inches long and of steel, gradually separate from each other until they become distant three-quarters of an inch at the fixing. The needles used for the stitches are such as this (Fig. 3). It is stronger and more sharply curved than the ordinary needle of the sort, that it may turn closely around the clamp. The cutting edge, confined to the point, is parallel to the handle. The other part of it is round, that it may make as small a hole as possible laterally. This allows the operator to place the sutures much nearer to

each other than he could have done with the edges at right angles. These minute directions may be thought by some trivial and uncalled for, but not by experienced surgeons.

It is told that Michael Angelo, while working at a bust, was watched by a *dilettante*. The latter became impatient at the apparent slow progress of the work, and asked the artist if he had not nearly finished. "Finished!" exclaimed Michael Angelo, "Why, I have only just begun." "What can there be more to do?" asked the looker-on. "A thousand things," said the sculptor. "The eyelids have to be improved, the nostrils to be refined, and the lips have to be retouched." "Oh!" said the amateur, "these are trifles." "Ah!" replied Michael Angelo, "these seeming trifles make art, make perfection." So it is in surgery and every other art—given, of course, the first design. If the hæmorrhoids have been brought outside the anus by a sharp purge, followed by an enema (as should be always done), those at one side of the anus can be seized, according to their size, by one or two vulsella. If they have not been extruded, or have returned within the orifice, they must be there sought, and brought down—a thing easily done. Great care should be taken to include as much mucous membrane as possible, and no skin. This precaution will make the operation much more successful, and much less painful afterwards. The clamp is applied by separating the blades sufficiently widely to embrace the whole of the piles of one side, leaving sufficient space between the skin and clamp to allow the needles to pass between them without piercing the skin. The handles are now fastened, and grasped by the left hand of the operator, who thus obtains complete command of the part to be removed. The needles, armed with the finest carbolised catgut, are passed one after another, at a distance from each other of an eighth of an inch, rather less than more, keeping the needles close to the clamp (Fig. 4).

Fig. 4.—Clamp closed on Pile, with Sutures behind Clamp.

The catgut threads are detached from the needles by the finger and thumb, by a tenaculum or hook, at the option of the operator, and given one by one to the assistant, who, with one hand above and the other below, presses them against either buttock, keeping the sutures separate. It may be remarked here, that one of the duties of the assistant is to retain the buttocks as separate as possible during the whole operation. The sutures being placed, and kept gently on the stretch by the assistant, the piles are cut off smoothly, quite close to the *outside* of the clamp, the blades of which should now be unfixed and slowly separated, and any pumping artery secured and tied with the finest carbolised catgut, which is cut off at about a quarter of an inch from the knot. The clamp is now removed, and the assistant brings the whole little wound into view by gently pulling upon the sutures. Search is again made for pumping arteries; and, if there be none, the edges of the wound are brought closely together by the sutures, cleansed by a sponge wrung out of a weak solution of carbolic acid in water (1 to 100), dried, and painted with collodion or styptic collod. A suppository of two grains of powdered opium is now introduced into the rectum; and the operation

* The clamp and needles are made by Messrs. Weiss, 62, Strand. The drawings are half the size of the instruments

is complete. If there be piles at the other side of the anus, the process has to be repeated.

The after-treatment consists of the giving a grain of solid opium every six hours by the mouth, to keep the bowels quiet until the fourth day. On the fourth day, a dose of castor-oil is given, followed by an enema of warm olive-oil, which together produce an easy painless evacuation. No dressings are required beyond iced water for the first twelve hours, and then fomentations with a weak warm solution of carbolic acid (1 in 150). The diet should consist, until action on the bowels has occurred, of milk and beef-tea, as leaving least residuum. The patient may be placed on a sofa on the day next after the operation.

I have performed it fifteen times; Mr. Harcourt Coates once. All the patients have done well, without hæmorrhage or other trouble. In one only of the cases was it necessary to secure several arteries. This patient lost three ounces of arterial blood. In neither of the others was half an ounce lost, and in general no artery required to be tied. In three, one small vessel was tied. Venous oozing to a slight extent may be disregarded, as the sutures arrest it when they are tied. In my first trials of this operation, I used Chinese silk ligatures, and sutures, but of late the fine carbolised catgut. Since then, the pain has been greatly lessened—I presume from the yielding of the material from moisture. As might have been and was anticipated, the pain and retention of urine were reduced to a minimum. The former never lasted over twelve hours, and was sometimes so slight that one private patient got up contrary to orders on the day of the operation, another (an infirm patient) was caught by making his own bed on the day succeeding it.

The greatest pain I have witnessed after this operation was in a clergyman, who had suffered martyrdom from large ulcerated bleeding piles for the period of twenty years. So frightful was the pain that, when he first consulted me, I was obliged to give him champagne to save him from syncope in my consulting-room. I operated the next day, and he did admirably. The acute pain ceased twelve hours after the operation. The incisions in most of my cases healed by the first intention. In none of them was there the open wound, as in the old operations.

It is true, gentlemen, that my cases have not been numerous; but I am speaking to experienced surgeons, who will perceive at a glance the superiority of a clean incised wound, in which the vessels have been secured before closure, and closed by carbolised catgut sutures, over an open, burnt, or bruised one. I place this attempted improvement in surgery before this important meeting with implicit confidence that you will judge it fairly, and will not be influenced by the obscurity of its originator.

It may seem strange to some that I have not hitherto referred to this great Association, the true exponent of the whole medical profession—a profession that may be justly likened to a great army going forth, not to wound or destroy, but to save from disease, pain, and death: an army truly international, composed of men of every clime, carrying its flag to every part of the globe, doing noble and loving service. Untiring, and ready to brave every danger for the sake of others, they too frequently become victims to their devotion—sometimes struck down on the battle-field or in the hospital-tent when attending on the wounded soldier; sometimes dying of fever caught during their devoted care in the fever-hospital, or ship, or the wretched dwellings of the very poor; or—wonderful to relate!—from sucking almost certain death from the trachea of the diphtheritic patient, to save that patient from suffocation. These are the martyrs of the profession, and deserve our loving veneration. Of them I do not dare to speak in my own most feeble words, but will borrow those of one of our greatest poets to sing their elegy.

"They fell devoted, but undying;
The very gale their name seemed sighing;
The waters murmur'd of their name;
The woods were peopled with their fame:
The silent pillar, lone and grey,
Claim'd kindred with their sacred clay.
Their spirits wrapp'd the dusky mountain;
Their memory sparkled o'er the fountain;
The meanest rill, the mightiest river,
Roll'd mingling with their fame for ever."

Yes, our profession has its martyrs; without them, it would be incomplete. But it is not without its trophies; it is true, not of the material or honorary kind, but of a higher—indeed, of the highest—in the annual saving of men, women, and children from disease, pain, and death, by the improvements in the art of healing and sanitation. With a true consciousness of this, worldly distinctions can be dispensed with—indeed, are dwarfed into nothingness.

A few words more, gentlemen, to thank you for your patient attention to my twenty minutes' talk, and to ask your forgiveness if I have wearied you, or, from my inexperience in such matters, have said things unfitted to such a meeting as this.

AN ADDRESS

DELIVERED AT THE OPENING OF

THE SECTION OF PUBLIC MEDICINE,

*At the Annual Meeting of the British Medical Association,
in Ryde, Isle of Wight, August 1881.*

By ARTHUR RANSOME, M.D., A.M.,

Lecturer on Public Medicine in Owens College, Manchester.

ON THE NEED FOR A SYSTEMATIC STUDY OF EPIDEMIC DISEASE.

GENTLEMEN,—It has been usual for the President of each Section of the British Medical Association to deliver a short address in his own subject, during the course of the annual meeting. There is thus a wide range of topics thrown open to me on which to speak; but, amongst the many subjects brought before us, there is not one more important than that of epidemic disease. This branch of study has, during the past year, been far from sterile; many striking discoveries have, indeed, been made, but yet there remains much to be done if it is to satisfy the demands now being made upon sanitary science. I propose, therefore, to take advantage of the opportunity that is now afforded me, to say a few words upon the importance of a systematic and organised study of epidemics.

There are few, probably, who will dispute the importance of such a quest; and, amongst those who have devoted most attention to the subject, there will be found still fewer to assert that it has hitherto been studied in a sufficiently systematic and concerted manner. It is still as true at the present time, as it was in the days of Ramazzini, with regard to the study of epidemics, that "*Nihil in re medicâ forsan magis desideratur et minus excolitur*". (*Constitutiones Epidemicæ*, lix.) The present time, indeed, seems to be singularly favourable for the consideration of the subject; and encourages the hope that a well organised and combined effort might now be made to solve some of the many problems now before us.

At a time when hygienic principles were struggling to the light, and when the methods of State Medicine had hardly emerged from the region of hypothesis, it was, perhaps, to be expected that men's energies should be mainly directed to finding out defects in the machinery, or, at least, that they should rest contented with trying to make the best of the powers entrusted to them; but this period of uncertainty and trial has surely now, in great measure, passed away. We are also in a much better position as regards the requirements of such an undertaking as I now propose. For let us consider briefly what machinery would be needed adequately to carry out such an inquiry as this would be.

1. There would be needed an army of well-trained observers; for it would be hopeless for any single man, or even for any small body of men, to undertake such a gigantic task.

2. We should require continuous and accurate observations of epidemic diseases, taken at sufficiently short intervals, and having regard to both mortality and sickness; the cases recorded being accurately ascertained both as to time and place of origin.

3. These observations would have to be collected and collated by some central authority.

4. Comparisons would need to be made between these records and certain concurrent circumstances.

5. Local inquiries must be carried out, and directed to the mode of origin of the epidemics, their incidence on different ages, sexes, and occupations, their fatality at different periods, their several varieties; and, finally, their pathology, and their relations to other forms of disease.

6. There would further be needed experimental and other researches on the intimate nature of contagion, and on the microscopic forms associated with each disease.

7. There would remain various geographical, anthropological, and even historical questions, that would need to be investigated before our knowledge could be considered as complete.

It will, doubtless, be acknowledged that these requirements have not hitherto been fulfilled; but surely none of them are unattainable; and the importance of the subject demands that, at any rate, an attempt should be made to meet them. The inquiry is, in truth, of vast extent, and can only be undertaken by a numerous and varied band of investigators. Many of the problems involved, and especially those coming under the last two heads, must necessarily be left to the