slight muco-purulent discharge from sleeping with her eyes open (an ominous sign). On examination of the abdomen the stomach could be seen contracting at intervals, forming a large swelling, and evidently much dilated. At the umbilicus a rounded swelling about the size of a tangerine orange could be seen through the thin abdominal wall, ascending and descending with respiration. This mass on palpation was hard, nodular, freely movable in every direction and nontender. The diagnosis made was malignant growth causing stricture of pylorus.

Operation. October 21st, 1897.—On opening the abdomen above the umbilicus the disease was found to be limited to the pylorus, and the operation of pylorotomy was performed as described. The patient stood the operation well, and appeared to be no worse at the finish than when it was commenced.

After-Progress.—Shortly after being put to bed she became much collapsed, lying with her mouth and eyes open, face and breath cold, shallow breathing, and pulse imperceptible at the wrist. Three pints of normal saline injected into the median basilic vein produced a marked improvement, and from this time her recovery was straightforward, the wound being healed when the dressing was removed on the twelfth day. Three weeks after the operation the patient was shown at the Northumberland and Durham Medical Society meeting. She was then able to eat and enjoy ordinary food, and had so much improved in condition that she was allowed to go home the following day.

February 8th, 1898. This patient recently visited the infirmary to report. She can eat anything; has gained $1\frac{1}{2}$ stone in weight, and feels quite well.

Microscopically the growth was scirrhus carcinoma.

In both cases there was a well marked pyloric obstruction to be seen in the specimens excised.

NOTE.

¹The needles used for this purpose are specially made for me by Messrs. Down Brothers, of London, and are the only good intestinal needles I know.

ON PALPATION AND AUSCULTATORY PERCUSSION.

By ROBERT MAGUIRE, M.D., F.R.C.P.,

Physician to the Consumption Hospital, Brompton; Physician to Out-patients, St. Mary's Hospital.

In the paper which I published last year in the *Practitioner* (April), I drew attention to palpation as a method of physical examination of the chest and abdomen. On first reading or hearing, it seems impossible that the method should perform all that I claimed for it, and I find that medical men are inclined to discredit the matter until the facts are demonstrated to them, and until they have actually tried the method and found how easy it is of application. Further experience has confirmed my opinion that palpation is for most purposes much more delicate than percussion, and, after a little practice, much more free from fallacies. It must, however, be understood that it does not altogether take the place of percussion. Each will tell something that the other does not, but I maintain that palpation is a very valuable method of examination, and in no way painful to the patient, while percussion, as frequently practised, often is.

If an experienced operator will analyse his thoughts as he examines a patient, he will find that the more he percusses chests, the more he unconsciously relies upon the resistance which is felt by his percussing and percussed finger respectively, and the less he relies upon the sound elicited by the percussion, though the latter is, of course, very valuable. Now if this be so, why should we not estimate the resistance without percussion by simple palpation? In the paper alluded to I gave tracings from the chest showing the outlines of the heart, liver, and spleen, determined by both percussion and palpation, which speak for themselves of the accuracy of palpation; indeed, a small error of percussion was corrected by palpation.

To practise the method it is well at first to press lightly and alternately with the first and second fingers of the right hand upon the part desired, using just a little more pressure than one would employ in testing the eyeball for glaucoma. If this be done there will be found in various parts of the chest wall, ignoring the bony and cartilaginous prominences, many spots in which the resistances vary. In trying the method it is important to throw one's knowledge of anatomy on one side, and approach the matter with a quite open mind. After a little practice, too, it is unnecessary to use the alternate pressure of the fingers described, and it suffices to pass the fingers, pressing lightly, over the chest wall. Try in the former way the first and fourth interspaces of the left side in the parasternal line (one inch and a-half outside the edge of the sternum), and the fourth space will be found to be the harder, from the presence of the heart beneath it. Again,

compare the second and the seventh spaces in the right nipple line, and the liver resistance will be felt in the latter space. One of my colleagues objected that the differences in width of the intercostal spaces might account for this, but the error can be avoided in a simple manner. Press with the ball of the thumb on the upper part of the thorax on the right side, and again on the part below the nipple, and the difference of resistance will be obvious. So far we have only tested the soft parts, but the cartilages show similar signs, as will be perceived when the resistances of the second and the seventh cartilages on the right side are compared.

It is astonishing, but nevertheless true, that differences of resistance can be felt through solid bone like the sternum. Test the resistances of the sternum opposite the first and the fourth intercostal spaces, and the resistance of the heart will be felt in the lower spot, though this requires a little care to detect. A case illustrating the value of this sign occurred to me lately. A man came to my out-patient room complaining of dyspeptic symptoms, but on hearing his voice I at once told the students that he probably had an aneurysm. On that day there happened to be no convenience at hand for examining the larynx, but on examining the chest carefully I could find no trace of aneurysm. On the man's next visit, wishing to demonstrate the method of palpation, I chose him as a subject, thinking that he had a normal chest, but I found that the upper part of the sternum was more, instead of less, resistant than the lower part, and further examination by other methods showed that he really had an aneurysm of the aorta pressing on the recurrent laryngeal nerve and paralysing the left vocal cord, the signs of which had not been developed at his former visit.

Practised as described, palpation can define delicately and more accurately than percussion the areas of the heart, liver, and spleen. We know the dulness of the normal spleen which percussion ought to define. In the mid-axillary line it should extend from the ninth to the eleventh rib; below it should follow the line of the eleventh rib; and anteriorly it should not pass beyond a line representing the junction of the ribs with their cartilages, which is approximately shown by a line drawn from the left sterno-clavicular articulation to the tip of the eleventh rib on the left side. But the results of such percussion are notoriously uncertain, because of the overlapping of the stomach and large intestine. By palpation, however, the resistance can be felt in spite of these. This I have found to be particularly valuable in the early diagnosis of enteric fever, which can be simulated so closely by, among other disorders, intestinal influenza. The addition of enlargement of the spleen to the other symptoms is important. Again, the kidneys can only be defined by the usual methods of percussion, with difficulty and uncertainty, while by palpation the upper border of the left kidney can be felt at the back, a little inside the scapular line, at the level of the eleventh rib and its lower border about 2 or 2½ inches lower. The upper part of the right kidney lies in front of the liver, and therefore cannot be felt from behind, but its lower border can be defined to lie somewhat lower than that of the left kidney. It is a manifest advantage of palpation that it can accurately show the area of the heart, for percussion is here uncertain, and in advanced cases of emphysema gives no reliable results. In the routine examination of the chest it has often occurred to me to find small areas of resistance which have yielded no other physical signs, but the patient has given a history of pleurisy or pneumonia in these spots. Probably the undue resistance was caused by a little thickening of the pleura or of the lung tissue, too small to be otherwise detected. I have tested the method in every possible way, including experiments on the dead body, and strongly recommend its trial by physicians.

Auscultatory percussion is not at all a new method, as has been supposed, for it was used by Laennec and Piorry. It was afterwards revived by Camman and Clark, and is mentioned by Gerhardt, Weil, and Walshe in their textbooks. But it has not received as much attention as it deserves, for it is a method of physical examination which is capable of value, if only it be used with a proper knowledge of its rationale. At the present time it is in danger of falling into disrepute because of having been mistakenly employed to determine the size of the heart, in connection with the Nauheim method of treatment. Let me say at once, then,

that it cannot give the slightest clue to the size of the heart, as will be apparent when the conditions of its mechanism are understood. Place two books on the table with their edges touching, and listening with the stethoscope over one, tap with a finger over the other: a dull knock is heard. Tapping over the farther book, and gradually approaching the nearer one, the same dull knock is heard until the nearer book is percussed, when a sharp click reaches the ear. This gives the *rationale* of the method, and on this point I think all other observers have been mistaken. It is not an ordinary percussion note which is heard, but the knock of direct contact, and the quality of the percussion sound is of no importance. In applying the method to physical examination, the stethoscope is to be placed over a part of an organ in direct contact with the body wall, the position of which is known, and percussion is applied over some distant part, gradually approaching the stethoscope, until the sharp click is heard. Then one knows that the stethoscope and the percussing finger are over the same organ, and by percussing in different directions, the outline of the organ over which the stethoscope is placed is defined.

But there are certain limitations to this conclusion, and overlooking these has led to the errors to which I have alluded. Suppose that it be desired to define the outline of the stomach—say in a case of gastric dilatation. If the whole of the stomach be in contact with the abdominal wall, the defined outline will be correct. But if the transverse colon lie over the stomach, then the outline will be that of the line of junction of the colon with the stomach, and the portion of stomach which lies under the colon will be overlooked. This is the error which is made in regard to the heart, for if the stethoscope be placed over the small exposed portion of the heart, and percussion be practised towards this spot, no change of sound will be heard until the percussing finger reaches again the exposed portion of the heart, that portion of the heart which lies under the lung giving no response. We define only the line of contact of exposed heart and neighbouring lung, or what is called the superficial cardiac dulness, which has as its only value the determination of a small amount of emphysema. But, returning to the examination of the abdomen, the method will define the exact outline of distended large intestine, a matter which may be of importance to the surgeon before operating for intestinal obstruction. The physician can by this method define the outlines of the various lobes of the lungs and the direction of their separating fissures. This is of great importance in deciding the locality and the spread of a phthisical lesion. A tuberculous lesion beginning in the middle lobe of the right lung is generally much more serious than one in other parts, and the spread of phthisis to the middle lobe indicates a late stage of the disease, whatever may be the condition of the lesion in other parts. A common method for the spreading of tuberculosis in the lung is by insufflation of sputum from one upper lobe into the upper bronchi of the opposite lower lobe and the localisation of the results of the latter accident guides the prognosis. Incipient phthisis of the apex of the lung can only be diagnosed with certainty by combining the results of all methods of examination, and slight shrinking of the apex is an important sign. This can be determined at the back of the chest by comparing the heights of the two apices. By percussion this is possible, but only to a highly-trained observer with a very delicate ear, while by auscultatory percussion it is easy to anyone. By the same method the upper line of a pleural effusion is determined without difficulty, just as by palpation as described above. For these reasons auscultatory percussion should not be allowed to pass into disuse.

It is stated that the produce of chestnuts in France amounts to 300,000 tons annually. The chestnut is a valuable food, containing as it does a large amount of fat, and nearly as much albuminoids as cereals, but it is much neglected in this country.

EXPERIMENTS made by M. Fonville in Paris appear to indicate that under all conditions of weather pneumatic tyres on a macadamised road give traction results never less than 10 per cent., and sometimes as much as 35 per cent., better than iron tyres.

THE TREATMENT OF SYPHILIS IN THE ARMY BY INTRAMUSCULAR INJECTIONS OF MERCURY.

BY SURGEON-MAJOR F. J. LAMBKIN, A.M.S.,

SUCCESS OF THE METHOD IN INDIA.

THE Army Medical Report for the year 1891 contained a paper by me advocating the treatment of syphilis in the army by intramuscular injections of mercury, and expressing a hope that the treatment be given a trial by army medical officers. This trial has been given to it, more especially in India, with favourable results. In the last two Army Medical Reports the Surgeon-General with Her Majesty's Forces says that the treatment has been generally successful in that country, not only in the actual treatment of the disease itself, but also in lessening the admissions into hospital for syphilis—that is to say, the admission-rate, high as it was, would have been still higher but for the treatment of the disease by the intramuscular method.

The chief advantages which I claimed in the paper referred to were:

1. That by the intramuscular method the soldier can be treated whilst out of hospital at his duty for that length of time during which it is absolutely necessary he should be with any hope of curing the disease. This is nearly impossible with other modes of giving mercury.
2. That the treatment is absolutely in the surgeon's own hands, and he knows for a certainty whether the patient gets his treatment or not.
3. That mercury given hypodermically does not produce diarrhoea and indigestion, which it so often does when given internally.
4. By this mode of treating syphilis the State becomes a distinct gainer, in that the time actually spent in hospital by the syphilitic soldier is much lessened, whilst the chances of his readmission for the same is reduced to a minimum.

RESULTS.

As far as my own practice is concerned, during the six years which have elapsed since the publication of the above paper, the intramuscular method has given me the very best results, in not only getting rid of the primary symptoms in a wonderfully short time, but also in preventing further outbreaks of the disease, and in some cases, when I was able to observe for a lengthened period, probably curing the patient completely.

The soldier, on first getting syphilis, is kept under treatment in hospital only as long as any of the more active primary or secondary signs of the disease exist; when these disappear he is discharged to his duty, and ordered to attend hospital on one day a week for an injection. In the army there is no difficulty in seeing that the men attend regularly, and they are taken away from their duty for not more than a few minutes a week.

THE PREPARATION TO BE USED.

The preparation of mercury which I recommended for injection was as follows: Hydrarg. ʒj; lanolin. pur. ʒij; ol. carbol. (2 per cent.) ʒj. Maximum dose 10 ℥. for an injection. At first I used a solution of perchloride (gr. $\frac{1}{2}$ to 20 ℥.), as also of sal alembroth, but was obliged to give them up, principally on account of the pain which followed at the site of injection, and also because in one case a large abscess formed after an injection of the perchloride solution. To within the last six months I continued to use nothing but the mercurial cream above described, and with it I have given over 6,000 injections, not one of which has been followed by abscess. In some slight induration remained at the site of injection for a few days; the operation itself was practically painless, and only in a small number did any pain occur afterwards. I can truly say that not one soldier who has been injected by me has been incapacitated (through the injection or its results) from doing his duty. I have always been sensible of the fact that the mercurial cream possesses very great drawbacks, for it requires a certain amount of care in compounding and dexterity in injecting. In cold weather it becomes semi-solid, whilst in hot the reverse occurs, so