vaccinated (the only ones in the place), eight had small-pox; of these, seven died and one recovered with the loss of an eye.

That efficient revaccination gives an almost absolute immunity from small-pox was shown by the following evidence. Drs. Meigs and Pepper say that, in the terrible American epidemic of 1871-72, they did not see so much as a case of varioloid after successful revaccination even in those exposed. Dr. Welch, of the Philadelphia Municipal Small-Pox Hospital, states that not one of those connected with the hospital who have been revaccinated has taken the small-pox; while three or four of the nurses, who had previously had the small-pox, took the disease a second time. Again, from the report of Dr. William Gayton, Medical Superintendent of the Metropolitan Asylum Small-Pox Hospital, it would appear that only one of the large number (three hundred and sixty-seven) of nurses and others who have been employed at this establishment since its opening (nearly seven years ago) has contracted small-pox, and in this case revaccination had been omitted.

Dr. Atkinson next took up the question whether syphilis could be conveyed by vaccination, and said it would appear, from the cases brought forward by Mr. Hutchinson, that a syphilitic lancet, or blood taken up with lymph from a syphilitic infant, might be the means of transmitting it; though it must be admitted that the experiments of Cullerier and others with mixtures of syphilitic matter and vaccine, and vaccine taken from persons suffering from constitutional syphilis, are most powerful arguments against the idea; and it must also be remembered that, in 1857, Mr. Simon addressed a series of questions upon this very subject to a large number of medical men both in this and other countries, and received answers from no less than five hundred and thirty-nine, with scarcely an exception, entirely in the negative. They declared that syphilis could not be conveyed by means of true vaccination; while, at the same time, they pointed out that, by gross carelessness, it might be inoculated instead of vaccine. One thing is certain: two poisons cannot be present in a true Jennerian vesicle; for lymph may be taken from a vesicle developed in a person who has been vaccinated too late to prevent small-pox and used without the slightest hesitation for vaccinating another child. He next referred to the experiments of M. Taupin of the Children's Hospital, Paris. This gentleman vaccinated a large number of children with virus taken from subjects affected with scabies, scarlatina, rubeola, varicella, varioloid, variola, rachitis, scrofula, tuberculosis, chronic eruptions of the scalp, darts, etc., without communicating to the patient any of these affections, either those of acknowledged contagious or non-contagious nature.

When skin-eruptions follow vaccination, the fault is by no means necessarily with the lymph, but often with the constitution of the child vaccinated. If it cannot bear the slight disturbance of vaccination with impunity, it is clear how utterly unfitted it would be to bear the serious disturbance of small-pox, which is the almost certain alternative. It has been asserted, he said, by some that vaccine loses its effect by constant transmission; but, if this be correct, then, for the same reason, the poison of fever ought to become less virulent and infectious each succeeding year; but this is not the case, and though, owing to altered atmospheric influence, prevailing epidemics may for a time die out, they soon return when the conditions are again favourable, with all their former activity. Besides, Jenner, after careful observation for upwards of twenty years, came to the conclusion that the vaccine underwent no change whatever; and, in addition to this, Marson, Ceely, and others of great experience, have proved, so far as is possible, that vaccine matter does not lose any of its prophylactic power by continued transit through successive subjects.

After this, Dr. Atkinson gave the evidence of some of those who have experimented with lymph taken directly from the heifer. During the siege of Paris, Dr. Quinquand had all successful cases with the human lymph, but only a third with heifers'. Dr. Thevenot, with calf-vaccine, had only two successful cases out of twenty-one. Of thirty-two surgeons in Paris who sent in their reports, one said that vaccine from the calf became better after passing through the systems of three or four different children, though bad and difficult to introduce for the first time. The rest (thirty-one) agreed that vaccination from the calf was provokingly unsuccessful, succeeding at the very utmost in only a fourth of the children vaccinated directly, and much less from calf virus tubes or glasses. Of sixteen others who tried the calf-virus, thirteen failed completely. Dr. Gaillard, who succeeded one hundred and seventy times out of two hundred and eighty-three with calf-vaccine, was successful two thousand seven hundred and forty times out of two thousand eight hundred and fifty-six with Jennerian vaccine. After various remarks upon other points, Dr. Atkinson concluded his paper by suggesting that the public should have as much information given them upon the subject as possible, and that every medical man should be particularly careful in the performance of the operation, since it was

clear that small-pox was capable of being banished from our shores, and it was only by these means that the looked-for result could be accomplished.

EXCISION OF THE RIGHT WRIST-JOINT FOR CARIES.

By J. H. PORTER, L.R.C.S.I., Surgeon-Major,
Assistant-Professor of Military Surgery, Army Medical School, Netley.

THE utility of excision of the wrist-joint for disease not being altogether accepted by some of the most distinguished surgeons, it may be of importance placing on record the result of one's experience, however limited. The following case I am disposed to consider of interest, as showing that, notwithstanding many adverse circumstances, the operation may be followed by most satisfactory results. In this case, there was well-marked strumous diathesis, extensive scrofulous bone-disease of the joint and soft parts at the back of the hand. The hand and fingers were almost powerless before the operation. There was free exposure of the flexor tendons during the operation. Hæmorrhage occurred twice after the operation, necessitating opening of wounds; and during subsequent treatment, the cicatrices reopened and formed into unhealthy ulcers.

J. H., 12th Brigade Royal Artillery, aged 21, had no hereditary history of scrofula, though he presented all the characteristic features of such a diathesis. He had suffered from primary venereal disease, but not from secondaries. He served two years and a half at Malta; and, while stationed there in September 1876, experienced dull aching pain in the right wrist-joint, attributable, he states, to a jar received while endeavouring to move a gun shears. The joint became much swollen; and in November, an abscess formed, which was opened and discharged a small quantity of pus. Notwithstanding free incisions and the introduction of setons, the joint itself became seriously implicated, his appetite failed him, he lost flesh, felt generally unwell, other abscesses formed in the joint, and he was invalided to Netley, where he arrived on May 27th, 1877, having somewhat improved during the voyage. His state on arrival was as follows.

There was a large ulcer on the left arm above the elbow connected with a sinus, at least six inches in length, extending up the arm; and a second ulcer over the elbow, both discharging freely. The right wrist was much swollen; the fingers and thumbs were extended, and with the exception of the forefinger and thumb, which had very slight power, he had no power of flexion or extension, the tendons being apparently adherent to their sheaths; the wrist-joint was fixed, and he had no power of either pronation or supination. Several openings of sinuses existed, one being over and in connection with the fifth metacarpal bone, another on the opposite side of the hand, and three in front of the wrist, all in connection with diseased bone.

Measures were at once adopted to recruit his health. The sinuses in the left arm were laid open, and the wounds treated with salicylic acid lotion. The wrist was treated by free incisions, rest, and the use of the warm arm-bath twice a day, from which he derived great ease and comfort.

Towards the end of October, the ulcers on the left arm had completely healed, he had increased in weight, his health had improved, but the wrist being hopelessly diseased, I decided to excise the joint, and accordingly, on October 31st, performed that operation by Mr. Lister's method, the patient being under the influence of ether, and the limb rendered bloodless. The fingers and thumb were forcibly flexed, and adhesions were broken down immediately before the operation was commenced. There was considerable difficulty experienced during the operation in removing the carpal bones, which were so extensively diseased and softened that it was found necessary to dissect them out one by one, the slightest pressure or force causing them to break down. The radial artery, being much enlarged, required care to avoid it in making the radial incision, and to keep it out of the way and protect it when extirpating the trapezium. The pisiform bone, being much enlarged and diseased, was entirely removed. One small vessel near the bed of the pisiform bone was secured, and the wound was washed with a solution of chloride of zinc, thirty grains to the ounce of glycerine. The large cavity whence the carpal bones were removed was filled up with strips of lint, and Mr. Lister's splint was applied in the usual manner. Hæmorrhage occurred in the form of oozing, in about two hours after the operation, and again on the morning of November 2nd; necessitating, on both occasions, the opening of the wounds and application of compresses and perchloride of iron. No vessels could be detected as a source of the bleeding. The wrist and hand now looked in anything but a promising condition, being much swollen,

black, and very offensive; matters, however, progressed most satisfactorily, the compresses came away in the copious discharge, which was absorbed and deodorised by the application of sawdust pads.

By November 13th, he was able to be up and about, but was much annoyed by a painful ulcer over the internal condyle, which soon healed when a hole was cut in the splint opposite to it so as to relieve the pressure.

On December 5th, Mr. Lister's splint was replaced by a light gutta-percha splint, moulded to the lower end of the forearm and hand, which gave more freedom of action for his fingers, which had been flexed daily since date of operation. He commenced using a weight suspended over a pulley on December 11th; which exercise greatly improved the condition of the muscles of the forearm and the power of slightly flexing, extending, pronating, and supinating the wrist.

On December 14th, he commenced writing exercises with a large handled pen, which he has continued daily, and now says he can write a better hand than before the operation.

By the end of January 1878, the wounds had almost healed, when from some unaccountable cause, the cicatrices took an unhealthy action and reopened into most indolent and irritable ulcers, with diffuse swelling and induration of the fingers, hand, and forearm. By change to another ward, alteration of diet, aperient medicine, and warm applications, the parts again took a healthy action, and with the exception of small superficial abscesses forming on the fingers or near the seat of operation, he has progressed most satisfactorily, and is now (June 1st, seven months since date of operation), in the following condition. The wounds of the operation are healed; the wrist has become consolidated; and he is able to brush his hair, sweep the floor, lift a "Windsor chair", and carry a box of coal of 38 lbs. weight. There is fair power of grasping with the hand, which he can slightly pronate and supinate. He is able to flex and extend the thumb, fore and middle fingers, but the power over the ring and little fingers is impaired. He can write with an ordinary pen, pick up a pin, or use a needle in sewing. He has quite given up wearing a splint or sling, and altogether has an useful hand, which no doubt will further improve, should his circumstances in life admit of his maintaining his health at a proper standard.

The illustration represents the bones of the right wrist (natural size), including the articulating ends of the radius and ulna, with portions of the metacarpal bones, kindly drawn by Surgeon P. G. Radstock Young, A.M.D.

ABDOMINAL TUMOURS AND THE MICROPHONE.

By CLEMENT DUKES, M.D., B.S.Lond., M.R.C.P.,
Physician to Rugby School and Rugby Cottage Hospital.

THE following negative evidence of the use of the microphone in the isolation of pregnancy, when we have an unknown abdominal tumour, may be of interest to some members of the profession.

Mrs. L., aged 38, residing in Rugby, called on me on June 11th, 1878, saying that she was afraid she had a tumour in her abdomen. She had had one child ten years ago, which died, and she was so extremely anxious to have another child, that I rather suspected to find a phantom tumour. I arranged to see her next day in bed; and, on examination, immediately heard the placental murmur, and presently the foetal heart. Thinking that I should only have a phantom tumour, it had occurred to me whether the microphone could give me any assistance in diagnosis; having, however, found all I needed with my stethoscope, I was not to be deterred from trying to see if the microphone

could aid me still further, and so be of use in the diagnosis of doubtful tumour cases.

Accordingly, on the evening of June 17th, 1878, my friend Mr. G. M. Seabroke accompanied me to my patient with his microphone, which we applied, with this result.

1. We heard distinctly the placental murmur.

2. We could not hear the foetal heart, owing to the movement of the abdomen in respiration making too much sound in the microphone; and, even when the breath was held, it was still disguised, I believe, by the muscular contractions necessary to fix the abdominal walls.

3. On applying the microphone over the heart and to the radial artery, we heard them distinctly.

To-day Mr. Seabroke very kindly made an exquisitely sensitive modification of the microphone, which resembled the end of the stethoscope, and could be placed in any position, horizontally or vertically, and which could, therefore, be much more easily manipulated and applied accurately to the abdomen; still, we were unable to hear the foetal heart owing to the sounds caused by respiration, though it could be well heard with the stethoscope.

THERAPEUTIC MEMORANDA.

ALCOHOL AS FOOD.

HAVING read with interest the correspondence upon the above subject, I beg to quote a case that has lately occurred in my practice, which, in my opinion, proves that alcohol is a food. On March 1st, 1878, I was called to see a gentleman, a distinguished officer, who had seen much active service, and found him in a very weak and low state. I was assured by his friends that the only food he had taken, for nearly a year, had been one egg *per diem*, beaten up with sherry. I was sent for in consequence of his refusal to take the egg any longer, or any food, with the exception of alcohol. I persuaded him to take milk, which he did, but only half a pint a day, for three weeks; after which time until the day of his death, on June 2nd, he took nothing but alcohol in various forms. He was nursed throughout by a skilled nurse, in whom I have every confidence.

R. FEATHERSTONE PHIBBS, L.R.C.P.Ed.,
St. John's Wood, N.W.

SURGICAL MEMORANDA.

AVULSION OF A MUSCLE OF THE EYEBALL.

A VERY unusual case of accident came under my notice some time since in practice, and, as I have never seen or read of a similar one, perhaps it may be worthy of record. The case was one of injury to the eye, and happened as follows. One of the rests for supporting the globe of an ordinary gas-bracket entered the orbit of my patient, a young girl, pierced through the conjunctiva, and, being hooked or bent at the extremity, was entangled in one of the muscles at the external surface of the eyeball. This it tore from its attachment to the bone, and the belly of the muscle lay down the cheek when the girl came to me; the insertion of the muscle into the globe remaining intact. Of course, nothing could be done but cut the muscle as close to its insertion as possible; this was done, rest to the eye was enjoined, and evaporating lotions were applied to the orbit.

The muscle torn away must have been either the inferior oblique or the external rectus, as both are attached close together, at the outer aspect of the eyeball and near the cornea. From the structure of the muscle at its extremity, I should infer that it was the inferior oblique, as its origin was tendinous and by a single head, an arrangement very different from that obtaining in the case of the external rectus, which arises by muscular fibres and is biventral. As the patient did not return, nothing could be gathered as to which muscle it was, from the loss of motion and strabismus which would inevitably result as a consequence of the destruction of the muscle. It may be assumed that no serious inflammatory action or loss of function resulted in the eye as a consequence of the injury; and this is rather surprising, as the force exerted must have been very considerable, and one would have expected that very serious consequences would have ensued to the delicate tissues of the eye. The very serious and unique character of the accident, and the minimum result of injury to the eyeball, have induced me to record this brief note of the case.

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