tinct fold of peritoneum. This vessel obviously corresponds to the gastro-epiploica dextra of mammals. Now, the latter artery is very constant in the higher animals, and with one exception always runs, as in man, behind the pyloric end of the stomach. The exception is most notable. In the marsupials, this artery runs, as in the amphibia, in front of the pyloric end, and carries with it a separate fold of peritoneum, just as it does in the frog or toad. In the amphibia, the whole intestinal canal and stomach is supplied from a single trunk, the coeliaco-mesenteric. In the triton, there are inferior mesenteric arteries. In the duck-bill there is also a single artery for the abdominal viscera, the coeliaco-mesenteric. In the echidna there is the same trunk, with the addition of an inferior mesenteric artery. This artery is absent in the marsupials, and some edentates, but is present in nearly all mammals above the last named.

The Monotremes.—The alimentary canal is simple. The bend of the colon over the duodenum is marked. There is a simple cæcum. There is but little specialisation of the stomach. The vascular supply is very rudimentary, and the intestines are comparatively short. The echidna, viewed according to its intestinal canal alone, stands above the ornithorynchus.

The Edentata, from the present point of view, occupy a very peculiar position. Some of them show a fairly advanced development, while others should occupy a position below the monotremes. In the two-toed ant-eater, the intestinal canal forms a simple loop as in the amphibia; there is no turn in the colon, no distinct duodenum. The mesentery is narrow, as in the amphibia, not wide, as in all the higher mammals. The colon presents two so-called cæca. I would venture to maintain that these are not mammalian cæca, but correspond to the double cæca of some birds. The mammalian cæcum is always single; it is, without any exception, connected to the ileum with a fold, the ileo-cæcal fold, and occupies a position in the general intestinal tube nearer to the stomach than the false cæca occupy. These false cæca are nearer to the anus than the true cæcum, and, like the cæca of some birds, they have no folds. False cæca are met with in certain armadillos, and again in the hyrax. In the last named animal they are associated with a true mammalian cæcum, so that the false and the genuine can be well compared.

With regard to the other edentates, the tamandua and the great ant-eater both show a most rudimentary arrangement of the intestines; and these animals, together with the two-toed ant-eater and the sloths, should occupy a position below the monotremes. They certainly show great specialization of the stomach to make up for their defects in teeth, but, in the general disposition of their alimentary canal, they show the lowest organization of any mammal. The armadillos show a much higher development, a simpler stomach, a perfect bending of the colon, and a more elaborate blood-supply. In certain of them, indications of the false cæca appear. The pangolin, or scaly ant-eater, marks a still higher step in development; and, at the head of this strange group, stands the Cape ant-eater. This animal shows evidence of advanced development, of a development that places it beyond the marsupials. The cæcum is highly formed, and its colon elaborately developed. With regard to the edentates generally, there is no evidence, derived from the anatomy of the abdomen, to show that they have sprung from the monotremes, much less from the marsupials. They would appear to have sprung up side by side with the monotremes. As regards mammalian descent, they lead nowhere, and are very emphatically separated from all kinship with the marsupials.

The Marsupials.—These animals exhibit three types of stomach: 1, a simple globular viscus as met with in the dasyure and phalangers; 2, a stomach, simple in its external form, but provided with a complex cardiac gland, as in the wombat; and 3, the elaborate sacculated stomach of the kangaroo. The stomach of the kangaroo is thrown into a series of remarkable sacculi, and closely resembles the human colon. It is about equal in length to the body of the animal, and shows some indications of the features of the ruminant stomach. In connection with its blood-supply, it is of great interest to note that in nearly all the marsupials the gastro-epiploica dextra artery runs in front of the pylorus, in a special fold of the peritoneum, derived from the gastro-hepatic omentum. This is precisely the condition met with in the amphibia, and is an arrangement that obtains in no other class of mammal. The great omentum is of large size, and of simple arrangement. The duodenum is large, and the bend in the intestines is pronounced. The cæcum is a third of the length of the body, and the colon shows traces of sacculation. This is the first appearance of sacculation in the mammalian intestine.

In the phalangers, the cæcum is of great length. In the vulpine phalanger, it is twice the length of the body; and, in the koala, three times that length. No mammal shows so remarkable a development

of the cæcum, and it is possible to perceive that, by progressive increase in the length of this part of the bowel, the species may become exterminated.

In the wombat, the main features of the intestine closely approach the rodent type; the first part of the colon is twisted upon itself, as is the case in many rodents; the colon beyond presents a loop, which is identical with the colic loops, that form so prominent a feature in the rodents; and the bowel is sacculated. I would point out that the so-called vermiform appendix of the wombat is not a true appendix, but merely a small and dwarfed cæcum. The pouched ant-eater shows an arrangement of the alimentary canal, that recalls the simple disposition of the intestine in the principal edentates. The remaining members of the family call for no detailed notice.

In viewing the position of the marsupials, from the stand-point of the alimentary canal, it must be owned that their position is low, although it is above that of both the monotremes and the edentates. They possess no inferior mesenteric artery, the blood-supply of the stomach is rudimentary, the folds of the peritoneum and great omentum are peculiarly simple. There is no evidence to show that they are derived from either the monotremes or the edentates. In relation to those groups, they appear to occupy an independent position, and to spring from some primitive mammalian stock, of which no members now survive. They would appear to be clearly the progenitors of the rodents and ungulates. The long pointed cæcum, the coiling of the ascending colon, the formation of colic loops, and the sacculation of the bowel, are all features that are predominant in the groups of mammals named. Upon like grounds, it may be argued that the insectivora, the carnivora, and the cheiroptera, cannot be traced back to a marsupial root. I think it can, on the other hand, be shown that these classes of mammal take their rise from the monotremes, and obtain their present position without passing through marsupial territory.

ON SOME CHRONIC NERVOUS SEQUELÆ OF SMALL-POX, ESPECIALLY AS AFFECTING THE SPEECH.

Abstract of a paper read before the Clinical Society of London.

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AND

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We would bring before the Society to-night two cases in which small-pox has left some lasting and peculiar traces on the nervous system. The clinical histories and conditions of the two cases have so many points in common, that we are glad to be able to present them together, especially as we do not find any records of English cases with just the same clinical history, though the experience of Germany and France can leave us little doubt that such cases occur among us occasionally.

They are both women in middle life, aged 45 and 42 respectively, who had attacks of small-pox, the one in 1879, the other in 1881, from which they recovered incompletely, with some paralytic and ataxic symptoms, and a peculiar difficulty of speech, which was at one time so strikingly similar in the two as to produce genuine confusion, if the ear alone were trusted to distinguish them. They have been under observation about six and four years respectively, and have made some progress towards recovery, but still retain some interesting features, especially in the character of their speech.

Jane B., aged 45, the elder, taller, and stronger of the two, enjoyed excellent health up to July, 1879, about six years and a half ago, when she had confluent small-pox, and was treated in the Small-pox Hospital at Fulham. She had given birth to a child only three weeks before that, and had been very anxious about the health of another child. Her speech became affected when the small-pox eruption appeared. Of her state during her stay in the Small-pox Hospital, the resident medical officer very kindly furnishes us with an account. When admitted, she could give no account of her illness, put out her tongue with difficulty, but appeared to understand what was said to her. For the next twelve days, she was delirious and unconscious, but then improved slowly, recovered consciousness, and could put out her tongue. She tried to talk, and she had no deficiency of words; but she could not make herself in the least intelligible for the next ten

days or so. She was much excited during these attempts at speech. There was great muscular weakness in her hands and legs; she made many unsteady awkward movements, and improved very slowly in this respect, as well as in speech. She was sent home after three months in Fulham Hospital, with the sequelae of small-pox showing themselves in weak ataxic movements of the arms and legs, especially of the arms, and with an almost unintelligible fashion of speech, though no signs of paralysis of the palate had been noticed. She had, further, a very irritable temper, which was quite foreign to her previous character. She had quite lost her old power of writing a good hand, and doing sums easily. A fortnight later, she became an out-patient at St. George's Hospital, under Dr. Cavay, under whose treatment she recovered the use of her hands and legs to a considerable extent, and who was good enough, in January, 1880, to transfer her to my (Dr. Whipple's) care as an in-patient.

The abnormality of the speech was the most striking symptom; the tone was high-pitched, monotonous, and nasal, the articulation so indistinct that at first she was almost unintelligible. Every word was mouthed and forcibly squeezed out, syllable by syllable, by resolute and exaggerated muscular effort, which made her "hot all over," as she said. She ascribed her difficulties to the feeling that her tongue "was stiff," and seemed, as she phrased it, "to belong to someone else." She could put it out easily, but always protruded it at first to the right side, with the tip pointing downwards, and, as protrusion was completed, gradually turned it to the middle line, so that it ultimately assumed a normal position, but she found it nearly impossible to turn the tip upwards at first. This was a habit which had come on with the small-pox, and was variable, but not wholly got rid of till three years later. When the tongue was depressed with a spatula, it could easily be seen that just at first the right aryepiglottic acted more powerfully than the left; the tip of the uvula was thus drawn upwards, backwards, and to the right, but in about ten seconds resumed its natural position. Laryngoscopic examination revealed nothing abnormal about the larynx, all movements being perfectly performed. Both hands and arms were weak, and their movements ill controlled; she could not button anything, or write in any but a very irregular fashion, or hold a mug in the left hand, which was the weaker of the two. Her walk was rather stiff and rather unsteady, but she could stand easily when her eyes were shut. Sensation was perfect. Her intelligence was remarkably acute; she showed great quickness of apprehension. Her look was that of one who had undergone much anxiety; the eyeballs were a little prominent, and, at times, especially when questioned, there was a wild, eager look in her eyes. Her manner was shy and nervous; she disliked examination and questioning, and was fully aware of her shortcomings in speech. There was now and then some rather hysterical laughter, but nothing beyond the limits of sanity. She read easily to herself, but said that she forgot all she read. She did not, however, forget her own life, on which she was frequently tested. She had perfect memory of the Lord's Prayer and the alphabet, and the processes of addition.

She left, after about nine weeks (April 3rd, 1880), at her own request. Her arms had grown rather stronger, but were still clumsy in movement, the fingers especially so. Her speech was very little improved, but her general health was better; she had much less dyspepsia and headache. Her walking powers were fairly good; a month after her discharge (May, 1880), she walked alone about two miles up to the hospital without much difficulty.

During the five and a half years since then, she has been kept under occasional observation. She has, on the whole, considerably improved, though very slowly, and retains the traces, at least, of the more essential symptoms. The gait is slightly irregular, but by itself would hardly attract notice; she can walk easily with her eyes shut, and feels no giddiness or difficulty in turning briskly. The hands are both rather weak and clumsy, the left the weaker. She cannot perform rapid movements, such as a shake on the piano, with either hand; but her writing is now fairly well shaped and steady. No tremor is produced by paying increased attention to her movements. The deep reflexes, which were in her early stages rather difficult to estimate, owing to her incapacity or disinclination to relax her muscles, are now very easily elicited, and perhaps in slight excess, but there is no patellar reflex or ankle-clonus. The movements of the laryngeal muscles are natural, as before. The most striking symptom is still, as it has always been, her abnormality of speech. There has been slow improvement during these last seven years, but still her language is sometimes obscure to the stranger. There are the old nasal monotone, in many words the scanned syllables at nearly equal intervals and with nearly equal accent; the semi-explosive muscular effort in articulation, and the unruliness of the tongue, which together make up an ataxic picture, widely different

from the ordinary forms of stammering in its regularity, and in its absence of long pauses, or of constantly recurrent clonic spasms.

The second case, that of Mrs. B., a married woman, aged 42, is drawn on essentially the same lines, but requires a few words of introduction. She had had very good health up to July, 1881, when she caught the small-pox, that is, about 4½ years ago. She went to the Deptford Hospital; and we are indebted to Dr. John McCombie, medical officer of that institution, for a brief account of her condition whilst there. It was written from memory, as the notes of the case had been mislaid. "There was nothing peculiar about the eruption," he writes, "which ran the course usual in small-pox modified by vaccination, but the nervous symptoms are peculiar. When she was taken ill, her husband thought she was under the influence of drink, and, on admission a few days afterwards, she was in a state bordering on mania, although unable to articulate. She would bite and tear the bed-clothes with her teeth, and grasped objects firmly with her hands, though she had nearly lost the power of moving her upper and lower extremities. She made great efforts to speak, but was not able to do so. Her stools and urine were passed voluntarily. The pupils were unequal. She remained in this state for a week, and then began gradually to recover her senses, as well as the power of moving her limbs, and the power of articulation. She was evidently at no loss for words, but her utterance was difficult, thick, and jerky. In raising her hands to her mouth, she would often miss her mouth entirely. These symptoms improved very much before she was discharged" (about eight or nine weeks after her admission). "at which time she could walk very little, and that only with the assistance of the nurse." Within a week or two of her discharge from the Small-pox Hospital, she came under Dr. Watney's care as an out-patient at St. George's, and he was kind enough to transfer her to me as an in-patient.

What then troubled her most was her weak stumbling and irregular gait; what, perhaps, struck the medical observer most was her very unusual fashion of speech, strangely like the first case. There was certainly no loss of intelligence; she was very acute and very cheerful; no distinct paralysis could be found in the muscles of the face or tongue, soft palate or larynx; but her speech was peculiarly slow, nasal and monotonous in tone; each word was jerked out in a semi-explosive fashion with an excess of muscular effort; she did not find, as her analogue, Mrs. B., of case 1, had done, special difficulties with special letters or words, but she hesitated before giving utterance to each word, as though "at first," as she said, "she could not frame to pronounce it right"; but, after a moment of such hesitation, the word or letter burst forth from her restraining lips.

She could read easily, and remembered perfectly what she had read. Neither her writing nor her powers of calculation had suffered in the least. She was, as a rule, an even tempered woman, but not quite free from those attacks of irritability common in cases of this kind.

Her gait showed some inco-ordination; she took short, irregular, hurried steps, bringing down the heels first sharply on the floor, and feeling constantly afraid of falling. However, she could stand well with her eyes shut, and could rock from heel to toe with her feet close together without any difficulty. The deep reflexes in the legs and arms were slightly in excess, but there was no ankle-clonus, nor any fibrillar tremor, nor tremor on movement. The grasp of the hands was firm, the left was a good deal the weaker. She could not move her fingers quickly, as in executing a shake on the piano, nor could she manage some such co-ordinate movements as plaiting her hair. She dared not nurse her baby for fear of dropping it, and she could not carry a full cup to her lips, without giving it her very best attention.

She stayed about three weeks in the hospital, without material change, but has often come since during the subsequent four years, to be watched and treated.

During these four years there has been decided improvement, though it has not been quite continuous; and, on the whole, the chief features of her case still stand out clearly. She walks with short, hurried, undecided steps, and dare not walk through a crowd, knowing that she could be easily pushed down. The deep reflexes are decidedly in excess. The hands are not so clumsy as they were; she can pick up a pin, and is now able to plait her hair in a fairly tidy fashion; and not long ago, after attempting it for a minute or two, she volunteered the statement that she felt as if the muscles of the arms had been beaten. No tremor, however, is induced by movement. The speech is rather less broken, and more distinct than it was; but, if she read aloud a piece of the *Times* taken at random, it is very hard for her audience to follow her. There are the nasal monotonous tone, the exaggeration of muscular efforts, the abnormal separation of the words or syllables, as a rule; the scanned speech of foreign observers; less

marked, it is true, than was the case four years ago, and less easily to be mistaken for the speech of her companion case, but still belonging, with her, to a type which we have not met with under other conditions.

As the nervous sequelæ of small-pox have received very little attention in English medical literature, we could be sure they were very uncommon in practice, but thought it worth while to turn for a moment to the experience of some of the chief small-pox hospitals of London. The records at Stockwell were consulted by Dr. Myers, and showed in the last fourteen years about 1,600 deaths from small-pox, but in only three of these is any nervous injury mentioned; and in these it was slight cerebral meningitis, with no symptoms that could clearly be distinguished, during life, in the patient's state of high fever and delirium. The clinical accounts of the last 2,000 cases were looked through without finding any records of nervous sequelæ. At Homerton, the records showed nothing; but from the cases at Deptford, the Junior House Officer, Mr. Struthers, was kind enough to tell us of two cases in the last eighteen months, in which the speech had become unintelligible. In the first, it so remained for three weeks and then recovered, but concurrent delirium tremens lessened the possibility of drawing any accurate conclusions; the second case died early, before detailed record had been made, and there was no post-mortem examination of the nervous system. From Highgate, Mr. Goude has been good enough to send us word that the records throw no light upon the subject; so we have thought we might be excused for drawing up a brief summary of seventeen cases we find elsewhere, previously printed, mostly in Germany and France; only one, so far as we know at present, in England. There is a striking group of eight cases, in which symptoms closely analogous to those of the patients we have brought forward to-night have been carefully observed. Westphal originally, in 1871, after an epidemic of small-pox in Berlin, brought such cases into notice by a brilliant paper, which raised a temporary interest in the matter in France as well as Germany, where Gabler, by his comprehensive essay in 1880, on the nervous sequelæ of fevers in general, had prepared the way. The accuracy with which Westphal's description of the speech applies to the present cases is not a little remarkable.

This is not the time or place to attempt to discuss the pathology of the affection, even if there were a sufficient basis of facts for such an attempt. It may just be remarked, however, that there is nothing in the symptoms incompatible with the hypothesis of minute scattered lesions, chiefly cerebral; and that it should occur in small-pox much more frequently, apparently, than in other fevers—for six out of the eight most closely analogous cases in our table are of small-pox—suggests minute hæmorrhages as a possible origin.

The clinical picture is not that of the commoner types of disseminated sclerosis. There is sudden onset; there is no increase of tremor; no nystagmus. The peculiar laboured speech, with each syllable "squeezed out," as Westphal phrases it, is different from the more ordinary forms in disseminated sclerosis. And what is more important as a characteristic and a distinction is, that the prognosis is better. In these cases, there has been slow improvement during six and four years, and the improvement seems likely to continue. In a third of the analogous cases we tabulate, there has been recovery; in nearly two-thirds, improvement; and in the single case of death out of the seventeen, the prevailing and fatal malady was tuberculosis.

Note.—Since writing the above, we have been glad to see that the same subject has been very ably handled by Professor Jaccoud, in three clinical lectures published under the date of this year. After reviewing the greater part of the previously recorded cases which we have tabulated, he supplies a very good example in his own practice of the same kind of affection of speech after small-pox, and another after pneumonia; and shows his appreciation of the earliest and most valuable evidence of Professor Westphal, to which we have briefly alluded. To the general condition he is content to give the name of "false" disseminated sclerosis—false, in as much as it tends nearly always to recovery, though the recovery may be very slow, as it has been in the cases we have recorded. He has not been able to find any *post mortem* evidence on the pathology of the affection, beyond what we have noticed—namely, the single case under Ebstein; and agrees in admitting that, on that matter, there is not at present enough material for a hypothesis.

AMBULANCE CLASSES FOR RAILWAY OFFICIALS.—The project of forming a Special Ambulance Class for Midland Railway Guards, under the auspices of the St. John Ambulance Association, was mooted at a meeting, held at Derby on Saturday last.

PELVIC TUMOUR COMPLICATING PREGNANCY.

By P. HORROCKS, M.D., B.Sc., M.R.C.P.,

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IN the BRITISH MEDICAL JOURNAL of March 20th, Mr. John W. Taylor suggests that the case which I published on March 6th, as one of Fibro-myoma complicating Pregnancy, might have been chronic distension of the Fallopian tube.

I should like to point out the differential diagnosis between these two conditions; and I will not lay any stress upon the fact that I have had ample opportunities for examining the case, both in the hospital and in the out-patient department, whilst Mr. Taylor has never seen the case.

I will take simply my own account of the facts of the case, given in the JOURNAL, March 6th, from which Mr. Taylor has drawn his conclusion, and I will show from them, even to his satisfaction, that the case is much more likely to be a fibro-myoma than distension of the Fallopian tube.

First. The substantive complaint of the patient was profuse losses at the monthly periods, accompanied by severe pain. Now, it is a well-known fact, that menorrhagia is almost constant in fibro-myoma of the uterus, whereas, even on Mr. Taylor's own admission, it is not a very common symptom of tubal occlusion and distension. Hence this symptom alone renders it highly probable that it is a fibro-myoma.

Secondly. The sound passed three inches and a half, proving that the uterus was considerably enlarged. This, again, is a common condition in the case of uterine myomata, and one which is much less common in distension of the Fallopian tube.

Thirdly. When the uterus had become pregnant, so far as to reach midway between the pubes and the umbilicus, the pelvic tumour itself had not been raised to any appreciable extent, but was lifted up by manipulation, so as to rest in the iliac fossa. Now, had it been a distended Fallopian tube, either it would have been raised up by the growing uterus, supposing it to be movable and free from adhesions, or it could not have been dislodged, and would have probably caused a miscarriage, had it been fixed by surrounding inflammation.

Fourthly. After the confinement, the tumour underwent evident involution, a well recognised phenomenon in the case of uterine myomata, and, to say the least, an unproved process in distension of the Fallopian tube.

Fifthly. The patient had severe pain at her monthly periods, and, when in the hospital, had pain in passing motions; otherwise, there was no pain. Mr. Taylor says that chronic distension of the Fallopian tube "is generally accompanied by pain, increased before or during menstruation." Therefore, if mine were such a case, it would have exceptional symptoms, or lack of symptoms, unless it were a chronic and stationary hydrosalpinx. The menorrhagia, the uterine enlargement, the behaviour of the tumour during pregnancy and under manipulation, the involution during the *post partum* period, and the absence of intermenstrual pain, appear to me to justify the diagnosis of uterine fibro-myoma.

In this differential diagnosis, I have used only the facts contained in my clinical account, which Mr. Taylor had before him; but I feel sure that, had he been able to examine the case carefully, as I was, he would have come to the same conclusion as myself in regard to it. I am far from denying what Mr. Taylor asserts at the end of his paper, namely, "that chronic hydrosalpinx, both by signs and by symptoms, may occasionally closely simulate nodular myoma of the uterus, and need differential diagnosis from that affection;" but I think I have made this differential diagnosis in my case.

REMARKS ON COLLOID DEGENERATION OF THE SKIN.

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

Physician to the Skin Department of the Middlesex Hospital.

THREE cases of a rare degeneration of the skin have come under my observation during the last few years, to which I desire to call the attention of those who are interested in dermatology. Unfortunately, all three cases occurred in private practice; and I have been unable to exhibit them, or even to make a microscopic examination; therefore all my remarks will be simply clinical.

I will preface these remarks by saying that a similar disease or degeneration has been referred to by Wagner, under the name col-