band it was impossible to determine, as the boy positively refused all interference, either with or without chloroform.

Frances H., the girl treated by Mr. Holt by internal division and the application of metal shields, wore the shields for some months after leaving the hospital, but discontinued them some eighteen months back. The contraction has returned to some extent, the band which existed in the cheek having shortened so as to diminish the extent to which she can separate the teeth one-half, viz., from three-fourths to three-eighths of an inch. The cheek is slightly tucked in owing to the contraction; but the girl is perfectly well and comfortable, and will not allow any interference with the parts.

Isabella M'Nab (my other case treated by metal shields) whose case was remarkable owing to the adhesions being present on both sides of the mouth, was seen by Dr Crockett, of Dundee, in the middle of last Summer, and that gentleman has kindly sent me the following report of her condition:—"The jaws can be opened with ease to the extent of half an inch; she has begun to articulate distinctly within the last two months, and within the last fortnight is able to chew a crust of bread, having some lateral motion of the jaw. A fetid muco-purulent discharge continues to come from the mouth, but her general health is much improved."

ART. XVIII.—*Puerperal Fever, Metastasis to the Bronchial Tubes; Successful Treatment by Small Doses of Turpentine.*

By JOHN POPHAM, A.M., M.B., Licentiate King and Queen's College of Physicians.

ABOUT the middle of January, 1865, an outbreak of puerperal fever occurred in the lying-in department of the Cork Union Workhouse, which, at first, threatened serious consequences. There is accommodation in these wards for about fourteen cases; and the beds are kept generally occupied. Taking into account the number of women having primary or secondary syphilis who come into the workhouse for child-birth, it is surprising that grave puerperal ailments are not more frequent; but free ventilation and cleanliness are so strictly enforced that it is a rare occurrence for any

medicine beyond the ordinary simple formulæ to be prescribed. However, at the time above-mentioned, three cases of puerperal fever occurred in as many days, of which the first was fatal, and the two others recovered. Impressed from former experience with the necessity of clearing out the wards thoroughly, as the only reliable mode of arresting the contagion, I transferred the healthy patients to an airy apartment, while the affected cases were changed to the spacious ward used for fever, but then unoccupied by any infectious disease. The bedding was then removed from the midwifery ward, the floors were scoured, the walls and ceilings whitewashed, and fumigation employed. The prudence of these steps was seen in the cessation of the epidemic; so that, after a fortnight's probation, during which time the windows were kept open, both by night and day, I was able to re-occupy the rooms without any subsequent case up to the present time.

The history of the three cases was as follows—the first of them was the fatal one:—

Bridget Keefe, over forty years of age, was confined with her first child, on Friday, January 13th. Her labour was severe, lasting thirty-two hours; the child still-born. On January 20th, the eighth day, she left her ward without permission, in order to be churched. The day was cold, and she was detained more than an hour, but at the time she made no complaint of any inconvenience. During the night, however, she got severe pain of the abdomen and dyspnea, for which the nurse applied turpentine fomentations with much relief. At the visiting hour, on Saturday, my attention was called to the case by the nurse, and on making a close examination, the threatening symptoms of uterine inflammation appeared to have passed away; and the patient expressed herself as quite free from any complaint. The same favourable state continued all the next day. On Monday, the 23rd, however, a most formidable change suddenly ensued. The abdomen became tympanitic, the patient shrinking on being touched; the respiration short and gasping; the lungs greatly oppressed, bronchial râles being audible all over the chest; the pulse had risen to 140, and was feeble and thready. The ghastly hue of death was fast settling on her face. I saw her almost immediately after the sudden collapse, and used stimulants and counter-irritation without any avail. She died asphyxiated sixteen hours afterwards. No *post mortem* examination was made.

The preceding case was an example of puerperal fever after a treacherous calm falling suddenly and heavily upon the pulmonary organs. Up to the morning of the 23rd no indications existed of any mischief occurring in any of the large cavities. The patient, after the first symptoms of pain had been relieved, experienced no return of it for two days. She allowed free pressure with the hand over all parts of the abdomen without wincing; there was no vomiting; both the pulse and the respiration were quiet. On the above morning all this was changed, and rapid typhoid sinking was but too fatally evident in the livid face and bronchial effusion which had set in, defying all medical treatment. Was this suffocative secretion to be regarded as a metastasis to the pulmonary organs from the uterine? We shall defer the consideration of this matter until we have detailed the next case.

This was a young woman named Margaret Leahy, aged eighteen, who occupied the next bed to Keefe, and was taken ill a few hours after her fatal collapse. This woman was also a primipara, and had been confined on January 16th. She progressed favourably until the night of the 23rd, when a rigor occurred, followed by confusion of intellect, lapsing into delirium. On the 24th I found, on examination, peritoneal tenderness; distention of the abdomen; heat of this region rising to *calor mordax*; face anxious; soreness of the throat, with some difficulty of swallowing; breathing hurried, and a pulse of 130. As the type of this case seemed more inflammatory than typhoid, I directed leeches to be applied to the abdomen, and a bolus of calomel, camphor, and henbane, to be given, followed by a draught of castor oil and turpentine—a mode of treatment which I have found often to arrest puerperal inflammations. It did not, however, do so in the present case; and her state on the next day, the 25th, was alarming. She had passed the night in wild delirium without any sleep; the bowels had been fully affected by the medicine, and on the whole, less tenderness and fulness existed; but another set of symptoms of equally dangerous import had supervened. The lungs, as in the preceding example, were dangerously complicated, the respiration was laborious, and suffocation seemed not far distant. The cerebral organs were also affected, as was plain from the creeping stupor, known as *coma vigil*, coming on. Thus, when spoken to in a loud tone, she would open her eyes languidly, but at once would relapse into an unconscious dreamy state. The mouth was partially open,

the lower jaw relaxed, and the power of swallowing by voluntary efforts was beginning to fail. Signs of gangrene of the genital organs had commenced, and a foul discharge flowed from the vagina; retention of urine also existed, requiring the catheter. In consulting with Dr. Gardiner upon this seemingly hopeless case, it occurred to me to try turpentine in small doses, and I directed draughts containing half a drachm, with fifteen minims of chloric ether, to be given in an emulsion every two hours, alternating them with decoction of seneka and carbonate of ammonia. Blisters were applied to the nape of the neck, and to the sternum; turpentine to the abdomen; and the strength was to be supported by beef tea, as much as she could be got to swallow.

January 26th.—Her appearance to day is more hopeful. The nurse had given her seven draughts of spirits of turpentine and ether; the stupor had lasted till midnight, and then declined gradually, so that about four o'clock a.m. she had become conscious; the blisters had risen on the chest and neck. The turpentine had produced numerous fluid evacuations of a slimy character; and the size and tenderness of the abdominal walls and uterus had diminished; urine abundant and not passed involuntarily. Her senses had returned; but she could not recall anything since her illness began. On examining the lungs they were found extensively affected; in fact, the whole severity of the ailment seemed now concentrated on the chest. As the turpentine caused nausea from the frequency of its administration, the draughts were lessened to one every six hours. Barm poultices were applied to the external labia, and antiseptic vaginal injections used.

27th.—The peritoneal and uterine symptoms continue to abate; the action from the bowels is kept up freely by the turpentine; nothing remains of the cerebral symptoms except deafness, and her general appearance is much more encouraging.

There is, however, cause for anxiety in the condition of the lungs; auscultation shows a copious effusion into the finest capillary tubes, and her breathing has risen from twenty-four, which it was in January 25th, to forty per minute. The pulse is about 126. To relieve the stuffed state of the bronchial tubes, she was ordered a mustard emetic; the turpentine draught to be continued.

28th.—She has thrown up a quantity of ropy-mucus, with a diminution of a few beats in the pulse, and somewhat of the frequency of the respiration; the bowels are still copiously acted upon by the turpentine; all tenderness and tension of the abdomen

have nearly subsided; a copious purulent discharge from the vagina exists, and the gangrenous tendency in this part has been arrested. The turpentine draughts to be continued twice a day.

30th.—The cough is still paroxysmal; the frequency of the respiration is over thirty; bowels moved several times a day; she complains of hemorrhoids; the vaginal discharge much improved. Ordered to omit the turpentine.

In the subsequent treatment of this case the broncho-pneumonic symptoms continued very obstinate, the tubes showing much infarction, and portions of the lungs indicating by dulness on percussion over them, and localized pain, pneumonic consolidation. Under flying blisters and expectorants the symptoms were resolved, and emetics were always of use in getting rid of the accumulated effusion. It was not until a fortnight from the last date that the inflammation of the pulmonary organs was quite broken up, and the profuse secretion reduced to the normal amount.

The third case was a much lighter one, and is chiefly remarkable as arising, like the last, evidently from contagion. The woman, Catherine Kidney, was confined on January 22nd; the presentation was a breech. She was put into a bed which Keefe had occupied, just before her illness had assumed its fatal signs. On the next day, the 24th, she was seized with rigors, stoppage of the lochia, and soreness with distention of the abdomen; she also had vertigo and headache; noises in the ears; nausea and vomiting, but no pulmonary complication. She was ordered the same bolus and draught as the last case, and with the effect of checking the progress of the ailment; she vomited largely after the draught, and her face became slightly icteric. The action of the heart was feeble, and a great tendency to syncope existed; the pulse not rising above eighty-four. She was ordered a turpentine enema and powders of calomel and opium. On the following day the danger had declined, and in a few days she was convalescent.

Remarks.—There are a few points in the preceding cases which may require observation, the first I shall notice is the *rapidity of the communication of the disease.*

The occurrence of three cases of puerperal fever within as many days in a ward wherein for many months not a case of *post partum* illness appeared, could not fail to attract attention. The first, or fatal one, to all appearance, originated in exposure to cold, in a

person peculiarly predisposed to take disease, from a tedious labour with a first child, and at the mature age of forty ; but in the two others there was nothing sufficient to awaken any apprehensions of uterine fever, save, that one was in her first confinement and the other had a preternatural presentation. But these latter events are of everyday occurrence, without the sequela of uterine fever, when the patients are not brought within the operation of contagion. But it becomes different when a disease so malignant in its character as puerperal fever exists in the vicinity. Then the slightest concomitant circumstances are elevated into predisposing causes—exhaustion from slow or painful labour, hemorrhagic losses, mental anxiety, shattered health—all these impart an increased aptitude to take on inflammation when an exciting cause is applied. The uterus requires rest ; it has just passed through a severe ordeal, it is to be regarded as an injured or wounded organ on the brink of disease, in which a rapid disintegration of matter is going on to restore it to its pristine state of dormancy. In such a state, as Dr. Carpenter has observed, there exists in the body an azotized matter tending to decomposition. This putrescent matter when in excess, and when its elimination from the body is prevented, becomes a septic poison, not only contaminating the blood in the persons in whom it exists, but capable of communicating itself to others susceptible of its influence. There is a limitation to this susceptibility ; the uterus and its appendages must have been prepared for it by a certain state. Not only are non-parturient females unsusceptible of it, but parturient cases also after the lapse of two or three weeks from the period of labour, when the decaying organic matters, floating in the system, have nearly all of them been expelled. I regard the first of the above cases as one of metro-peritonitis, of which the exciting cause was cold, and that a sporadic cause like this is just as capable of becoming a source of contagion as an epidemic one, which may originate in some unknown and unhealthy state of the atmosphere. In the former instance proximity is required to develop the disease in others ; in the latter, it may not need the presence of other cases. It is observable, that the two women who were attacked shortly after the first patient, were both within a few feet of her, while the women at the opposite side of the ward escaped, the poison being prevented from becoming concentrated by diffusion through fresh air. The rapidity of the seizure shows that the period of incubation in the system is not so long as in most zymotic diseases.

2nd. *Broncho-Pneumonic complication or Metastasis.*—The second

point of interest was the occurrence of broncho-pneumonia in two of the cases, and that in an extreme and sudden form. In both of them it came on quite unexpectedly, far surpassing in gravity the uterine symptoms, though the latter organ was the *point de depart* of the disease, and terminated life in one case, while it endangered it in the other. It is worthy of inquiry in what light we are to regard the pulmonary lesion. Is it as a merely accidental circumstance? This scarcely seems probable, as it occurred almost coincidently in two cases, neither of which had any pre-existing bronchitic tendency. The chances of two persons being suddenly attacked with the same disease at the same time are remote though certainly possible occurrences. I am aware that in puerperal fever the respiration is affected at an early period, without the lungs being necessarily engaged, and that this is explained by the increased duty thrown upon the intercostal muscles by reason of the forced inaction of the diaphragm from the pain which its contractions would cause to the inflamed peritoneum, but this is totally different from the present cases. In these we can scarcely avoid considering the pulmonary affection as a stage of the disease, just as in typhus fever or variola. In most of the fatal cases the morbid appearances indicate generally copious effusions into the areolar tissue of the lungs and the bronchial tubes, and also into the cavity of the pleura, and the latter accompanied with deposits of fibrin. What is the cause of these pulmonary complications? Do they arise from a septic poison, from the uterine sinuses, floating in the blood and causing irritation in the organs it pervades? Or are we to accept the mechanical theory of metastasis advocated by Virchow, that thrombi form in the uterine veins, which, becoming detached and carried along in the current of the circulation, are by their arrest in the lungs sufficient to create inflammation in these organs. In corroboration of his opinion Virchow observes—that in a recent epidemic of puerperal fever at Vienna it was found that “however manifold the forms the disease assumed, yet all those cases which were accompanied by metastasis in the lungs were also attended with thrombosis in the regions of the pelvis or in the lower extremities, whilst in the inflammations of the lymphatic vessels the pulmonary metastases were wanting.”^a The interesting analogy thus opened to us by Virchow deserves to be followed up by other observers.

^a Virchow, Cellular Pathology, translated by Dr. Chance, page 206.

3rd. *Treatment by Small Doses of Turpentine.*—I had frequent opportunities while a student of the Coombe Lying-in Hospital, under the mastership of Mr. Hugh Carmichael, of witnessing his treatment of iritis by small doses of turpentine, and I formed a favourable opinion of this medicine from several successful cases of its use when mercury failed or could not be used. It has been lately shown by Dr. Magnus Huss, in his valuable work on fever, that a similar employment of it is very useful in the bronchitis and pneumonia of typhus. In the capillary bronchitis of fever, he observes:—"I never saw any remedy more powerful in preventing this affection from assuming a dangerous character, either by transition into pneumonia or by stopping up the finer tubes in a greater or less degree;" and the opinion thus put forward has received the corroborative testimony of Murchison and other competent judges. The formula which Huss recommends is an emulsion with honey, if there be no diarrhea, or gum mucilage should diarrhea be present. $\mathcal{R}$ —*Ætherolei terebinth. depur. ʒss. vitelli ovi unius, aquæ destill. mellis a a ʒii m. fiat emulsio*: dose, a teaspoonful every other hour; the quantity of turpentine in each dose is nine drops. The effect is to loosen the tenacity of the bronchial mucus, to lessen the irritation of the cough, lower the heat of the skin and the frequency of the pulse, and increase the secretion from the kidneys. In the pneumonia of typhus his experience of it is equally encouraging, but it is more successful in idiopathic than in hypostatic pneumonia. The transition from this to the bronchopneumonia of puerperal fever is easy. In the preceding case, where it was used in larger doses, it certainly acted rapidly and happily on the uterine and abdominal symptoms, and more slowly, but still safely, upon the pectoral. But this may be expected in so extensive a bronchitis as the above, wherein the blood was fast becoming loaded with carbonic acid and beginning to act fatally on the brain. This menaced danger was in a little more than twelve hours removed by the turpentine, aided by other means. We had then to deal with the enormous effusion suddenly poured out by the tubes, loosened from the first or non-secretive stage, to the expulsion of which the emetics greatly contributed. It must not be forgotten that Huss gives a necessary caution, namely, to stop its use when the catarrh is resolved, as it has a tendency when long continued to irritate the mucous membrane of the stomach and bowels.

Case of M.W.

Fig 1.

Case of J.N.

Fig II.

Fig III.

Fig IV.

Fig V.

Case of E.B.

Fig VI.

Fig VII.

Fig VIII.