sulphuretted hydrogen, and that precipitate yield, by the process of reduction, a crust possessing the physical characters and chemical property described above, it is quite impossible to draw any other conclusion, than that arsenic has been detected.

XI.

Documents relative to the History of the Malignant Puerperal Fever which prevailed in the Lying-in-Institution in Vienna, from the beginning of August to the middle of November 1819.

THESE documents are published in the Medical Annals of the Austrian States, first volume, new series, 1822, and consist of, 1st, A description of the disease and its progress, extracted from a Report to the government of Lower Austria by Dr Raimann, Director of the General Hospital of Vienna, and Professor of Clinical Medicine; 2d, History of the disease from the beginning of August, to the middle of November, by Dr Boër, Professor of Midwifery; 3d, Report of the appearances observed in the dissection of those who died, by Prosector Biermayer; 4th, Report of a Committee appointed to investigate the subject.

We have translated literally the two last documents; the last, as containing a summary of the whole observations made, and the preceding, as containing the most extensive and indisputably authenticated account of the organic pathological effects of this dreadful malady.

For understanding the relation of the various Hospitals and Institutions mentioned in these Reports, it is necessary to mention, that in the great General Hospital of Vienna, there is a separate Institution allotted for the teaching of midwifery, and that there are other lying-in wards in the hospital, not connected with the school. For distinction's sake, we have designated the former, to which the disease was almost confined, by the title of the Institution, or Lying-in Institution.—*Editors.*

Report of the Dissections of Women who died in Child-bed in the General Hospital of Vienna, from July 26th to the end of August 1819. By Prosector Dr BIERMAYER.

THERE were opened during this period 56 puerperal women.
Of this number were from the Lying-in Institution - 38
From the Clinical Ward of Professor Raimann 2 3

From the division of the Lying-in Hospital of Dr Pellam	-	1
From the division of Dr Schiffner	-	11
From the division of Dr Festi	-	1
From the division of Dr Belletzky	-	2

Of this total number, three cases came into the hospital after having been delivered in private.

They were mostly between twenty and thirty years of age; three were eighteen, one nineteen, six above thirty, and two forty.

All were well formed; most of them of a full habit of body; only three emaciated.*

In all were observed many livid blotches over the whole body, and rapid putrefaction soon after death; in most of them immediately, so that in a few hours the bodies could scarcely be opened.

In all there was a bloody discharge from the mouth and nostrils.

In all the belly was more or less greatly distended, except in two, who had been delivered a considerable time before death.

The parts of generation were every where more or less swollen, discoloured, reddish, and foul; four were syphilitic.

Marks of blood-letting appeared in 13; of leeches on the abdomen in 7; of blisters alone in 17; and of both cupping and blisters in 12.

In the head, the organs were always turgid with blood; the ventricles generally contained more than the usual quantity of serum; in other respects there was nothing worthy of notice in reference to this disease.

In the trachea there was generally found a sanguineous fluid, and its internal surface was reddened.

The lungs were always in the greatest state of expansion, turgid with blood, frequently adhering or united by effused lymph to the pleura, which was generally, but not in all, slightly red.

In the cavity of the thorax and pericardium, there was invariably more than the usual quantity of bloody serum; the pericardium in no case morbidly changed, nor the heart externally, but its substance, without exception, more flaccid and tender than in the healthy state. Its internal surface, particularly the valves, chiefly of the right side, of a deep red, often of a black colour; the mass of blood generally fluid.

* This fact is inconsistent with the opinion advanced by Prof. Boër, that want, hard labour and misery, were the causes, at least the predispositional causes, of this disease.—*Editors.*

In the abdomen there were only two cases in which there was no unnatural fluid, *i. e.* in those cases which had been delivered a considerable time before death. In all the rest there was found from one to two quarts of turbid, very fetid fluid, mixed with portions of coagulated lymph, and sometimes purulent matter; the latter appearance was observed in those cases where powerful antiphlogistic means had been employed, and which had survived longer after delivery.

The peritoneum, omentum, and mesentery, exhibited, in five cases only, no appearance of redness; in the rest it was always somewhat more or less red, particularly towards the pelvis; and they were often agglutinated with the adjacent parts.

With the exception of two cases, the stomach and intestines were always much distended with air, and their external surface more or less red. *Lumbrici* frequently appeared in great numbers, not only in the small, but also in the large intestines, in the stomach, rectum; and, in one case, in the nostrils.

The liver and spleen were always similarly affected; they were much more pale, flabby, and tender than in their healthy state; easily broken down with the finger, similar to the degeneration of the uterus, and filled with somewhat fluid blood; These appearances were seen even in those two cases where the abdomen was not distended, nor contained fluid, and in which the intestines were healthy. The gall-bladder was always much filled with dark bile. The pancreas always healthy.

The kidneys, in most of the cases, were flabby and tender. The ureters always somewhat enlarged, and red. The urinary bladder always contracted.

The internal parts of generation were every where covered with yellow coagulated lymph, except in the two cases, in which no fluid was found in the abdomen; and in those cases in which strong antiphlogistic means were used, there was frequently a thick yellow purulent fluid often externally on the neck of the womb. The ovaria and Fallopian tubes were always more or less swollen, red and tender.

The uterus, in all cases little contracted, was more or less red externally, even in those where the delivery had taken place long before, and the abdomen was not otherwise in an unhealthy condition. The substance or body of the uterus was always flabby, tender, easily broken down by the finger; in two cases, full of small holes or cavities filled with stinking blood. In two cases, the uterus, on account of the tenderness of its substance, had burst, during delivery, at its neck; in the one case, the rupture was four inches in length; and, in the other, one inch and a half. The cavity of the uterus was found

filled with fetid air several times, particularly in the syphilitic women. Its internal surface appeared generally covered with offensive cineritious ichor or mucus, only seldom with offensive viscid blood. Beneath this, it was always red, discoloured, often as if slightly eroded or ulcerated, the internal membrane very much eroded, and destroyed. Thus, in a woman of eighteen years of age, who had been delivered three weeks, in whom the abdomen was not distended, nor contained fluid, and there was nothing diseased in the abdominal cavity, except the liver and spleen being flabby and tender, the uterus was entirely ulcerated on its internal surface, like the internal surface of one of the large intestines, when covered with ulcerations. She died on the twenty-ninth day. On the fundus of the uterus, there generally remained particles of the placenta and *membrana decidua*, in the form of putrid shreds. The colour of the cervix of the uterus was constantly darker than the rest; and it always was darkest, and penetrated into its substance, at the mouth of the womb, which was likewise much dilated, and often as if destroyed with loss of substance, often cracked, as if rent. The vagina was generally preternaturally red.

Such were the facts carefully abstracted from the whole fifty-six dissections.

Report of the Committee appointed for a more Minute Investigation of this Disease.

By a government order of the 27th August, a Committee, consisting of Baron Von Matoschek, Vice-Director, Professor Hartmann, and the provisional Hospital Director, Raimann, was appointed to inquire and report without delay;—

1. Whether an epidemic disease and great mortality has occurred among the women delivered in the Lying-in Institution of the Midwifery School in the General Hospital of Vienna? and, if so,
2. Whether the epidemic and great mortality occurred only among those delivered in the said Midwifery School, or also in the other Midwifery departments of the public Hospital?
3. To what causes and circumstances the frequent disease and great mortality among those delivered might be ascribed?
4. What is to be done to check both?

Conformably to this order, the Committee met on the 28th August in the Midwifery School, and terminated their inquiries on the 31st of the same month. The Committee witnessed the dreadful spectacle of a disease which hurried inevitably to the tomb, in the prime of life, those seized with it. On the

very first day they saw five corpses, and scarcely as many patients. They had an opportunity of examining it in its commencement, *acmé*, and last stage.

The beginning and progress of the disease, reckoning only from the period when it assumes the appearance of a febrile affection, (for according to the assertion of Professor Boër, the accession of the fever is always preceded by marked changes in the whole system, and particularly in the uterus), indicate clearly an inflammatory state. The symptoms were such, that the inflammation of the uterus and peritoneum, combined with high fever, could not be mistaken. The lochia disappeared either immediately, or in a few hours; and the mammæ were found empty of milk, loose, and flabby. But the most alarming circumstance was, that while the disease was yet, in all appearances, a recent acute inflammation, Dr Boër, on examination with the finger, already discovered, in the mouth of the uterus, marks of gangrenous disorganization, which were rendered evident even to the bystanders, by the putrid smell of the finger.

Those patients who were in the last stage presented all the symptoms of effusion into the thorax and abdomen, extreme debility of the powers of life, and gradual dissolution. This view of the disease was in every respect confirmed by appearances found in the bodies of the deceased, seven of which were examined in the presence of the committee. The very rapid putrefaction of the body taking place in a few hours after death—the dissolved state of the blood—the strikingly soft and tender state of the whole bowels, the heart, lungs, liver, spleen, kidneys, and particularly of the uterus,—indicated a colliquative putrescent condition of the whole system, induced by the disease. There were found, moreover, in the cavities of the breast and abdomen, effusions of brownish serum, generally mixed with coagulated lymph. On the peritoneum and ovaria were traces of inflammation, more or less evident, and the internal surface of the uterus was destroyed by gangrene, which was, in every instance, most strongly marked at the *os uteri*; so that it appeared as if it spread from this point as from a focus. Exactly the same appearances were found, according to the unanimous testimony of Professors Boër and Biermayer, in all the dead bodies, fifty-six of which were opened from the 26th July, the day the disease broke out, till the 31st August, when the committee terminated the investigation, as the extract from the register of dissections shows.

The treatment of the disease, according to the report of Professor Boër and his assistant, confirmed by Dr Raimann, had

hitherto been chiefly antiphlogistic. They employed in most cases, immediately on the commencement of the disease, repeated venesections, the application of leeches, emollient cataplasms, emollient clysters; at a later period, blisters, with the corresponding internal remedies; in some cases calomel and other celebrated remedies; and in some, where gastric affections at first predominated, emetics and other appropriate remedies were given. On the commencement of debility, they had recourse to diffusible stimulants, but always with the same unfortunate result; the only difference being, that some were carried off by the violence of the disease very quickly, even in a few days, and one in six hours, others more slowly. The chief physicians, Schiffner, Festi, Belletzky, and Director Raimann, were not less unfortunate in the treatment of those pregnant women whom they took out of the Institution into their respective divisions of the Hospital. Notwithstanding the meritorious and scientific exertions of these able practitioners, all of their patients died.

There were delivered in the Institution in July, 187; in August, 231; in all, 418. Forty-three of these died from the commencement of the epidemic, *i. e.* July 26th, consequently about one in five; while in the lying-in wards of the public hospital, of about forty women who were delivered in them, only one was seized and carried off by this epidemic; from which it appears that this excessive mortality was confined to the Lying-in Institution.

From all that the committee learned, the causes of this mortality could not be attributed to any want of attention, or of careful treatment and nursing, but chiefly to the malignant nature of the disease itself, highly inimical to life, which, at the period when, in consequence of marked symptoms, it became an object of observation and treatment by the physician, had already produced incurable disorganization in one of the most important organs of the female system; for, according to all the observations of Dr Boër, the mouth of the uterus exhibits, even on the breaking out of the fever, undeniable traces of putrescency. In this state of the matter, it is of the utmost importance to detect the causes of this dreadful malady, so that we may use the most powerful prophylactic means to counteract them, as all attempts at cure have hitherto completely failed. But even on this point the committee are involved in great difficulties. In the Institution they found nothing obvious, at least to the senses, that could be considered as the cause of so desolating a disease. According to the opinion of Dr Boër, the pregnant women brought the germ of the disease with them into the Institution, and the process of delivery was

only the occasion of its perfect development; for by far the greater number of these women, previous to their admission into the Institution, felt many symptoms of a diseased state, generally burning heat in the abdomen, and in the region of the pubes, combined with great uneasiness, and frequent slight shiverings, distressing pain in both shoulders; and the greater number brought with them into the hospital, even erythematic spots on the hands and feet, chiefly upon the joints. Most of those, 40 in number, who fell a sacrifice to this disease, were persons who had experienced, during their pregnancy, many adverse circumstances, and came into the Institution only 6, 12, or 24 hours before their delivery; and in whom, on the 1st, 2d, and at latest, on the 3d day, indications of the disease already appeared; some even died in from 12 to 24 hours after the first accession of fever, one in six hours after delivery, one during the labour pains, and in one the uterus was burst during a slight bearing down pain, by which the foetus escaped into the abdomen. These three bodies showed on dissection, the previously diseased state of the uterus. Of those admitted several weeks before delivery, thirteen only were seized with this fatal disease. It may easily be conceived, that in pregnant women who are badly nourished, undergo hard labour, vexation and care, and live not unfrequently in low, damp, close dwellings, under the influence of excessive heat and continued moisture, such as occurred this summer, a gastric and scorbutic diathesis may be developed; nor is it less conceivable, that if inflammation occur in such a diathesis, it must have the greatest tendency to gangrenous disorganization, particularly if scarlet fever and erysipelatous eruptions prevail, as this summer evinced.* But shall a disease, which in every individual seized with it, terminates in gangrene of the organs chiefly affected, and in destruction of the whole organization, which appears as a highly malignant, we may say pestilential, fever, not also at last generate contagious matter, since it is universally allowed that gangrenous and putrid fever very readily produces contagious matter?

This question was brought under consideration by the committee; but Professor Boër declared, that up to this period he had never observed any trace of contagion.

The Committee very readily admit, that the opinion of such a man as Professor Boër, who had so many opportunities of

* That the mode of life had no concern in the evolution of this disease, was put beyond a doubt by our unfortunate experience in this city, when it spared neither high nor low, rich nor poor, those delivered in hospitals, in the city, nor in the environs, neither the gay and dissipated, nor the most retired and domestic. EDITORS.

observing this disease, and has so admirably described it, merits the first attention in regard to its nature and origin. But they still retain reasonable doubts of its non-contagious nature, on the following grounds.

1. If this disease were wholly the consequence of an indigent, hard and laborious mode of living, combined with the influence of the *constitutio annua*, Why does it not more frequently occur out of the Institution, in married women of the poorer classes of society who are exposed to the influence of the same prejudicial circumstances?

In the bills of mortality of the city of Vienna, there were in the course of this month few cases of death among parturient women.

2. Why did the disease prevail with such violence in the Institution, while, during the month of August, in the detached wards of the public hospital for lying-in women, received as boarders, scarcely a trace of it was seen? In the Institution, during the course of last month, one in five parturient women died, while in the other wards, of forty delivered, only one was seized and carried off. It is true, that into the latter, there were admitted only women who paid, and we may suppose therefore that they lived in less distressed circumstances, and that in them the disposition to this disease was not so easily unfolded. But the Institution had also a certain number of patients who paid, and in these the same proportion of disease and deaths took place during August, as in those that did not pay; of thirty paying patients six died, or one in five, being the same proportion as in the gratuitous patients.

3. A fact related by Dr Schiffner, who superintended the third medical division of the public hospital, could not fail to excite the attention of the committee. This physician received eight puerperal patients from the city into his division, most of whom had left the lying-in hospital only a few days before. Of these eight there died one, in whom there had been formed, when in her lodgings, a deposition of milk in the right thigh; (*Plegmatia dolens?* *Edit.*) two have already left the hospital cured; and two were still in danger on the 31st August; the remaining three, although malignant symptoms accompanied their disease, were convalescent; and yet this physician lost all the puerperal women who were brought directly out of the Institution into his division.

4. Has not this disease, in respect of its nature, malignity, and the obvious changes which it produces in the organs affected, a striking analogy with other diseases evidently contagious, *i. e.* hospital gangrene, typhus, and even the exotic pestilential diseases?

But if from all these circumstances suspicion at least must arise that the malignant puerperal fever in the Institution, although not produced in every case by contagion, was multiplied and as if domiciliated in it by contagion, it becomes indispensably necessary to do all that circumspection demands in so important a case by employing in the Institution those measures by which the spreading of such a contagious disease may be powerfully checked.

The committee have in the mean time ordered, together with the measures known to every physician, that all newly admitted patients, as well as those previously admitted, in whom the precursory symptoms of puerperal fever appear, be put into a particular lying-in ward appropriated for them; and that the greatest precaution be also observed in examination by the touch, in order that the disease may not be communicated to those in health from patients in whom are discovered marks of putrefaction at the mouth of the uterus.

In cases brought on by misery of life and atmospherical influence, the Institution can do nothing effectual in the way of prophylaxis, as the Institution has no cognizance of the pregnant women at the period when the disease becomes developed in their system.

It is more difficult to point out an effectual method of treatment when the disease is present, as its malignant and complicated nature is evinced on the one hand by inflammatory irritation, and on the other by simultaneous putrid solution, excessive propensity to effusion in the pectoral and abdominal cavities; and its extremely rapid course in so many cases, opposes so great impediments to every attempt at cure. In each individual case this must be left to the judgment of the experienced and skilful practitioners who superintend this Institution.

BARON VON MATOSCHEK.

Vienna, 6th September, 1819.

XII.

Cases by JOSEPH SWAN, Surgeon, Lincoln.

Cases of Calculi in the Bladder, and Diseases of the Kidneys.

MR C., æt. 74, had enjoyed very good health until the beginning of September 1820, when he became feverish, and had a disordered state of the digestive organs. A short