commenced at fifteen and continued with perfect regularity for two years, had ceased entirely for six years. This had led to a suspicion of some form of ovarian disease existing as the cause of the ascites. At the operation, to quote Dr. Bantock's notes: "Both ovaries were in their natural position, and not enlarged; or, if so, very little. But their peculiar condition arrested my attention. Their surface was very irregular, hard, and warty. On bringing them into view, they were much paler than natural, and, on palpation, presented a semi-cystic character. Could this be the cause of the ascites? There could be little doubt that this condition was connected with the absence of menstruation. I determined to remove the ovaries. The pedicle was rather short, and, on drawing the right ovary into view, the outer edge, consisting of the two layers of peritoneum, was very tense. I first secured this by means of a fine ligature (No. 1 silk), I then transfixed and tied in two with No. 3 silk, the outer transfixing silk being brought round the pedicle after the ovary was cut away. The left ovary was treated in the same manner; but, owing to its close connection with the sigmoid flexure, its removal was attended with greater difficulty." The uterus was found to be drawn somewhat backwards; and, owing to some change in its ligaments, partly due to the ligatures on the very short ovarian pedicles, was so tense that it was very difficult to introduce even a small sponge into Douglas's pouch. Owing to the difficulty in getting the peritoneum dry by attempting to remove thoroughly the blood-stained serum, which oozed freely from it in the pelvic region, a drainage-tube was introduced. The operation, performed by Dr. Bantock, with the assistance of Mr. Meredith and myself, lasted one hour; after three-quarters of that time had elapsed, the spray failed, and was not replaced for five minutes, the operation being continued in the interval.

I examined both ovaries immediately after their removal. The right measured one inch and five-eighths; the left, one inch and three-quarters. In both, the external and internal appearances were similar. The tunica albuginea was pinkish; it had not its normal shiny white appearance, and had lost its smooth polished feeling when touched with the fingers. It was puckered in several places; but no new cicatrix, nor any prominence of a cyst or corpus luteum, remained. On section, the whole of the central portion of the stroma was found to have broken down, apparently by mucoid degeneration, leaving a cavity in which, in the right ovary, about a dozen Graafian follicles (from one-twentieth to one-eighth of an inch in diameter) projected, like a row of pearls. They were readily detached from the very soft stroma around their outer part, and all that were opened contained perfect ova, with the germinal spot and vesicle well-marked. In the left ovary, there were very few such follicles; the central softening was less marked. In both, the stroma immediately under the albuginea was unusually tough.

For several days after the operation, much serum escaped from the drainage-tube, saturating the dressings; and what remained in the tube became less and less blood-stained. The temperature never rose above 100.6°. On the sixth day, only two ounces of straw-coloured serum were drawn from the tube, which was removed, and two inches of narrow India-rubber tubing substituted; this was taken away within twelve hours. On the seventh day, the drainage-tube aperture had almost closed; the first stitches were taken out of the abdominal wound on the ninth day. A fortnight later, the patient returned home.

The ascites never returned, as, indeed, has been the case after the mere opening of the abdominal cavity without removal of any organ; and, seventeen months after the operation, Mr. Case kindly wrote to me the following account of the patient's condition: "She is looking very well, and says she is able to do her work without trouble; and the only thing she complains of is a little weakness of the legs and slight leucorrhoeal discharge. She has had no menstrual discharge since her return."

There can be little doubt that, in this case, ascites was due to inflammation of the pelvic peritoneum, and there is strong evidence leading us to believe that the morbid process commenced in the ovaries. Pathologists are very chary about admitting the possibility of ascites from primary inflammation of the peritoneum; and few would admit that such inflammation could give rise to effusion filling the peritoneal cavity to the extent seen in cases of cardiac disease, in cirrhosis, and in this instance now under our consideration. Considering the distinctly morbid state of the ovaries, we are not justified in dismissing this case as an example of "idiopathic ascites". Let it be remembered that the interior of the ovaries contained normal Graafian follicles, yet ovulation had been arrested for years, for not only was there suppression of the closely related phenomenon of menstruation, but also total absence of corpora lutea, and not a sign of any follicular cicatrix on the surface of the ovary. It is clear that some change in the tunica albuginea and subjacent stroma had prevented the rupture of the follicles, for these little cavities all appeared healthy, whilst the morbid thick-

ening and roughness of the superficial part of the ovary was evident. A very slight change in the surface of the ovary may produce irritation of the adjacent peritoneum; and, if continued for a prolonged period, may in this way give rise to considerable effusion into the peritoneal cavity. It is not to the point to question whether the morbid changes in the ovaries were primary, or due to uterine disease; that the ovaries were diseased we know, and it is presumably through them that the peritoneum became affected. They showed every sign of a very chronic state of inflammation. Now, a large smooth-walled ovarian cyst seldom sets up peritonitis with ascites; but, let some solid vegetations protrude from a rent in the cyst wall, then the peritoneum is very likely to become distended with serum, through irritation. Many will say that the irritation is due to morbid cells from the vegetations; but we must not be too ready to ascribe malignancy to these cells. Let us rather look upon them as simple irritants—such as would be inflammatory effusions thrown from the surface of an ovary. In a case under the care of Mr. Spencer Wells, described by myself in the last volume of the *Transactions of the Pathological Society* (vol. xxxi, page 174), not only ascites, but pleuritic effusion, was set up from the irritation (prolonged for over a year) of a discharge from papillomatous growths in the Fallopian tube. Cells certainly escaped into the peritoneum; but it is most significant that ascites never recurred after the operation in April 1879, and the patient is now quite well. In fact, the discharge, and the cells it contained, irritated and inflamed the peritoneum, causing ascitic effusion. Had the disturbance of the serous membrane been due to malignant action on the part of the cells, the patient would hardly be to this day free from abdominal disease. Dr. Bantock's case bears a strong resemblance to this one, as far as the ascites is concerned; and it must be remembered that both commenced with symptoms of disease in the region to which the cause of peritoneal irritation was traced.

Dr. Matthews Duncan has recently turned attention to "hydroperitonæum" (*Medical Times and Gazette*, vol. ii, 1879, page 547); and, in his valuable paper on this subject, he shows that passive peritoneal effusions have, in all well-described cases, a definite cause—such as cancer of the peritoneum; but as to the disease, as an idiopathic affection, he states most definitely: "I am not aware that it" (referring to a large collection of fluid in the peritoneum) "spontaneously and rapidly disappears; but many cases were recorded, which were *probably* of simple hydroperitonæum, and where spontaneous cures, or cures after repeated tapings, took place; and I have seen such cases." Dr. Duncan then gives a supposed case, occurring in a girl aged 19: she was tapped; six months later, she was *slowly refilling*. In short, the "idiopathic" form of hydroperitonæum must be extremely rare; and, considering the condition of the ovaries, Dr. Bantock's case cannot fairly be considered as a primary peritoneal effusion.

NOTES ON A CONJOINT EPIDEMIC OF FACIAL ERYSIPELAS AND ENTERIC FEVER

AT THE SOMERSET AND BATH LUNATIC ASYLUM IN 1879, AND REAPPEARANCE OF ERYSIPELAS IN 1881.

By C. W. C. MADDEN-MEDLICOTT, M.D.

SOME particulars on the above-mentioned epidemics may be of interest to all engaged in sanitary investigations; and, therefore, a condensed account is herewith given.

The outbreak of facial erysipelas involved, from its commencement, no fewer than forty-six cases, with five deaths—namely, thirteen males and thirty-three females, and ranged over a period of six months. The first case occurred in December 1878, on the female side of the Somerset and Bath Lunatic Asylum; and it raged continuously from this date to the 18th February 1879—no fewer than nineteen cases occurring in this period, of whom nineteen inhabited the most recently erected part of the asylum, namely, the infirmary and east wing. These two buildings join each other at right angles, and had been occupied about three and a half years. The majority of these cases were of a very severe type, and were ushered in by previous sickness and rigors. The face and forehead had the peculiar "butterfly-shaped" stamp of redness characteristic of facial erysipelas, and there was also brawiness of the cheeks; while the thermometer registered a temperature varying from 103 to 105 degrees in the axilla, and the pulse ranged from 130 to 140. In some cases, sharp diarrhoea occurred; in others, the face became much disfigured and inflamed; while severe multiple abscesses formed in the eyelids, neck, and scalp—in fact, in some cases, suppuration was most profuse.

On the first outbreak, the following measures were adopted for treatment and precaution. The patients were at once placed in single rooms,

the structural arrangements of the asylum admitting of their ready but perfect isolation. Styptic colloid was painted over the face and forehead, and five grains of quinine were given every four hours, in addition to concentrated beef-tea, eggs, milk, wine, and brandy. All rags used for the discharges from the abscesses were immediately burned. The floor was washed with carbolic soap at first, but dry rubbing was afterwards adopted; and, in fact, no floors were washed at all, unless imperatively demanded. Chloride of lime was also placed in these single rooms, and all clothes (previously disinfected) were sent to the laundry by themselves, with strict orders to be washed separately in the foul wash-house. The drains were ordered to be flushed every week, and were disinfected, as well as the water-closets, with carbolic acid and Sir W. Burnett's disinfecting fluid. Lastly: the single rooms and corridors all over the asylum were disinfected from time to time; the ceilings were scraped and whitewashed, the sides of the walls repainted, and all paper stripped off. Further: the floors of the single rooms were all thoroughly planed over, and washed out with carbolic acid, before being occupied; while the drains were opened and examined, and, on January 27th, were found clear, but afterwards were ventilated (on the outside) by one-and-a-quarter-inch iron pipes running up beyond the roof.

In spite, however, of all these measures, erysipelas went on appearing; but apparently, after February 18th, with some diminution, both in the severity and the frequency of the attacks, though a few cases now appeared on the male side of the asylum.

After this lull in the outbreak of erysipelas, the wife of the assistant-clerk of the asylum was taken seriously ill on April 22nd. Suspicion was directed to the drains, and orders were given at once to ventilate the closet by a pipe running above the roof of the cottage, which was detached, though on the grounds of the asylum. Meantime, the fever increased; severe delirium set in; temperature persistently registering in the morning 104 degrees, with great prostration. Defective sanitary arrangements were feared, and closer examination was made. The drain of the scullery sink was then opened, and found in direct communication with the main drain of the asylum, but untrapped—thus conclusively proving that the disease was not imported. Here, again, the most stringent precautions were taken. The chances of infection or contagion were met by the enforcement of complete isolation. The excreta were immediately disinfected by the use of chloride of lime and dry earth, with subsequent burial in the earth, nothing being allowed to be thrown down the water-closets; and all soiled linen was soaked in Condy's fluid before being washed separately at the foul laundry. The buildings adjacent to this cottage were also minutely examined with reference to their drainage. Thus, the dairy and larder were ventilated at that time by up-pipes between the trap and the main drain. In addition, the high-pressure reservoir was emptied and thoroughly cleaned out, as was also the tank in the upper garden; and a sample of the drinking-water supplied to the asylum was sent to Mr. Stoddart of Bristol for analysis, who reported: "It contains nothing that can be prejudicial to health. The total solids in solution only amount to twelve grains per gallon, and there is no free ammonia, nitrates, or chlorine, or animal matter—so that there can be no sewage-contamination."

The untrapped condition of the scullery sink in this isolated cottage suggested further examinations elsewhere; and the next place was the kitchen of the assistant medical superintendent, Mr. Sheldon. Here, too, the scullery sink opened directly into the main drain, and the water-closet in the basement was found unventilated. It was a rather curious coincidence that, when Mr. Woods entered on his duties as assistant medical officer, and occupied the same rooms as Mr. Sheldon, he was attacked with severe diarrhoea a few hours after his arrival, although perfectly well before.

Facial erysipelas meantime showed itself again, and once more in the female infirmary. Orders were now given by myself to the resident engineer to take the water-closets in these new buildings completely to pieces. On taking out the pan and syphon of the water-closet in the east wing, he found a very bad smell; and, on further examination, discovered a large hole in the lead soil-pipe (this lead-pipe was thirteen inches long, and connected the syphon and the nine-inch earthenware soil-pipe which led into the main-drain), the lead having been eaten away by rats to an extent admitting more than one's fist—consequently allowing sewer-air to escape right beneath the boards of the water-closet, and thus enter into the ward. Further: the S-bend attached to the water-closet in the basement of the east wing, when examined by a mason, was found uncemented, even un-mortared—thus, not only showing scamped work, but a source of sewer-air coming into the buildings. A coroner's inquest was held on the fourth fatal case; and here it was elicited that the overflow pipe, in the cistern attached to the water-closet in the female infirmary, was particularly at fault, as it

was immediately connected with the soil-pipe; and, whenever the water in the S-bend evaporated, it would act as an extraction shaft, delivering the sewer-gas into the ward.

Before closing these notes upon the first outbreak of facial erysipelas (forty-six cases and five deaths), it is proper to state that a great deal of sickness of another kind took place at the same time, appearing as severe diarrhoea in some patients, and in others exhibiting itself in the form of headache and general *malaise*. It is also somewhat remarkable that, at the height of this outbreak, snow was on the ground.

The last case of facial erysipelas occurred in June 1879; and, on August 15th, 1879, a very severe case of enteric fever occurred on the female side of the asylum, the morning temperature registering between 104° and 104.6°, even in the third week of the disease, while the pulse was 140 and upwards, with intense abdominal tenderness, pea-soup-like stools, delirium, and prostration. From this date to December 26th, not fewer than fifty-eight cases of illness occurred, namely, twenty of enteric fever (in seven attendants and thirteen patients, with four deaths among the latter), the remainder being diarrhoea (also among attendants and patients), in various degrees of severity, from mild to sharp and very severe, but all on the female side of the asylum.

Very careful thermometric observations were taken in all these cases, always twice, and in many cases four times a day during each day of the disease in each week. There is nothing special to comment upon regarding these cases of enteric fever. Among some of the patients, no previous history of shivering could be elicited, a few being so lost and demented as to be unable to give any account of themselves or their feelings. In others, again, a very clear account could be given of the date of the first approach of rigors or diarrhoea. The clinical thermometer generally gave the first clue to their being seriously ill, together with the report from the attendant of the ward that they did not seem so well, and immediate isolation was enforced. In some patients, the characteristic eruption on the abdomen showed itself, but not in all, though in the majority of cases the abdomen was found tumid, with well marked gurgling in the right iliac region, and frequent light-coloured stools, combined, however, in others with profuse diarrhoea and vomiting. The body-temperature registered very high in some instances, and rose as high as 107.8° in one of the fatal cases.

During the outbreak of these two epidemics, the following particulars were especially looked into: 1. The analysis of the water used for drinking; 2. The chances of further infection or contagion; 3. The possibility of overcrowding; 4. The personal cleanliness of the patients.

As some of these subjects have already been mentioned (in reference to the precautions instituted on the outbreak of these diseases), it is sufficient to add that, in October 1879, a further analysis of the water used for drinking was made by Dr. Thudichum, taken from the wards where the cases of enteric fever and diarrhoea occurred. Three samples were forwarded, and he reported thus on the result of chemical and microscopic analysis: "On the whole, the waters are unusually good, and show no sign of sewage-contamination; and the deposits of all these, very small in amount, contain great numbers of vegetable formations, mainly diatoms, infusoria, and some ferric oxyde." Yet no case of enteric fever occurred on the male side of the asylum.

The possibility of overcrowding was also specially considered, and, although not the cause of either facial erysipelas or enteric fever, was regarded as a possible factor in keeping up an unwholesome, if not an unhealthy, state of the atmosphere, peculiarly conducive, therefore, to general *malaise*. At an early period of the year, however, arrangements were made for utilising temporarily every available space; and, by fitting up the chapel approaches and female workroom, room was thus obtained for forty-six beds.

The personal cleanliness of the patients, it need scarcely be stated, had always been looked after, inasmuch as each patient was bathed twice a week, had a complete change of linen twice a week, and the water was changed for each patient. It is specially worthy of remark, however, that in wards (emptied for the time being of patients, in some cases for several weeks), there yet would be found an overpoweringly bad smell, proved to be coming up from the gratings in foul air attraction-shafts.

The effect of such an amount of illness in the asylum (especially among the attendants themselves), was such as to seriously embarrass for a time the proper working of the asylum, and there was great difficulty in replacing the charge attendants who were ill.

The details of these two epidemic outbreaks have been given to form a trustworthy basis for further inquiry, for only thus can sufficient importance be attached to such vexed terms as "contagion" or "infection". Thus naturally the first and most anxious question arises, "Is the above-mentioned facial erysipelas infectious or contagious?" Yet

another and apparently an antagonistic one immediately complicates it, as follows: "Was not the person supposed to be infected poisoned by the same source as the original patient?" It is a significant circumstance that, when facial erysipelas was raging, an enormous amount of sewer-air seems to have been pent up in the drains, actually having been seen bubbling up through the water in the pans of the water-closets on both sides of the asylum.

The medical staff were unanimous in their opinion that sewer-air was the cause of the outbreak of facial erysipelas; for, since tapping the inside as well as the outside of all the water-closets, a lull in the severity of the symptoms occurred, and the rush of sewer-air up the pipes was inappreciable as compared with the rush prior to ventilating the water-closets. Although the committee were divided in their individual opinions upon the precise cause and source of the outbreak of facial erysipelas, I consider they should have followed my suggestion of the imperative necessity of calling in a first-rate sanitary adviser, locally independent, from the first time when I suggested a sanitary inspection of the asylum. Some of the drains were badly laid, as leakages were found in different parts, both in the asylum and in the airing court. The committee, indeed, themselves had ocular demonstration of what was wrong in the state of the drains when those underneath the single rooms in the new buildings were examined, for they saw the water being baled out, which stank horribly of feculent matter, whilst others saw the black sewage-matter which had exuded from the joints of the drains in the airing court.

The outbreak of enteric fever, following so closely on that of facial erysipelas, confirmed the suspicions of the medical staff, that the sanitary arrangements of the asylum in 1879 were imperfect, dangerous to the inmates, and the cause of both epidemics.

To conclude, however, the following facts are worth recording. In the epidemic of facial erysipelas, no attendants or servants were attacked, and the last case occurred in June 1879. The first case of enteric fever occurred in August 1879; the epidemic was confined to the female division of the asylum, but attendants, as well as patients, were attacked. The coincidence is curious that enteric fever attacked two patients within twenty-four hours of each other, although living in totally different wards, one of these having had facial erysipelas in the summer, although mildly. Lastly, the occurrence of two such severe epidemics in one year is surely unique in the history of county lunatic asylums.

Re-appearance of Facial Erysipelas in 1881.—The re-appearance of this unwelcome visitor, together with the continued presence of febrile diarrhoea, led to the suspicion that the sanitary arrangements of the asylum were still defective and dangerous. Anyhow, the number of cases amounted to twenty-nine, and two deaths, all on the female side. Further comment seems unnecessary; but when seventy-five cases of facial erysipelas, with seven deaths, and twenty cases of enteric fever, and four deaths, occur in twenty-four months' time, the observation of the chairman of the committee to quarter sessions, last June, seems startling: "Regarding the outbreak of disease, it is quite true I have never been satisfied with the sanitary difficulties dwelt upon by the Commissioners in Lunacy, and made much of by Dr. Medlicott".

ALLEGED ILL-TREATMENT OF A LUNATIC.—An inquest, extending over two days, was opened at Birmingham on Monday on the body of David Pullam, an operative painter, who died in the Birmingham Lunatic Asylum on the 13th inst. Deceased was admitted on the 10th inst. and, on being visited by his wife on the following day, he was found to be severely bruised about the body and to be unconscious. In this state he remained until the 13th inst., when he died. Several inmates of the asylum were called, who stated that the deceased had been grossly ill-used by an attendant named Hughes, but this official denied having ill-treated him. The medical evidence showed that death was due to inflammation of the bowels and shock from a rupture of the bladder, which had possibly been caused by a fall. The inquiry was resumed on Tuesday, when the coroner said the evidence already given was of such a nature that he thought it desirable, in the interests of the medical officers of the institution, that they should be afforded an opportunity of contradicting it; and an application was then made on behalf of Dr. Dodds, who attended the deceased, for an adjournment for a month. The jury also presented, though the foreman, a requisition to the coroner supporting this application, and asking that the coroner would lay the whole facts before the Lunacy Commissioners and the Home Secretary, as they desired, if possible, in the interests of the governing body of the institution, not to return a verdict of a criminal nature. At present, they thought that great negligence was displayed by the medical men as the evidence of the relatives clearly showed brutality on the part of the attendant Hughes. The coroner said that he would adjourn the case for a month, and see that the wish of the jury was forwarded to the proper authority.

ON OPHTHALMIA NEONATORUM, AND ITS PREVENTION.*

By KARL GROSSMANN, M.D.,
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AN eye-disease which, in the first state of its development, almost always comes under the observation of the general practitioner before undergoing the treatment of a specialist, and which, as it seems, can be reduced to a minimum of exceptional cases by taking the appropriate measures against it in time, does not require any apology for being brought before you, here, in this place and at this opportunity.

If we go through any large blind asylum, we are surprised to find that the percentage of those whose blindness is caused by ophthalmia neonatorum amounts to the enormous figure of 60 per cent. to 75 per cent. These poor individuals, when asked, tell us regularly that they were born blind; but one look at their eyes is sufficient to show that the cause of their blindness dates from the beginning of extra-uterine life. And if you consider that in the blind asylums only those patients are admitted whose blindness is double-sided, you may easily make a conclusion as to the true number of eyes destroyed by ophthalmia neonatorum. It is a very common occurrence, in every eye hospital, to see a mother bringing in a blind, but otherwise healthy-looking, child of one or two years old. When the child's lids are opened, you see the white opaque cicatrised cornea, often enough bulged out so much by the dilatation of the corneal scars that the lids do not suffice to cover the protruded and distended eye. Or you find a small atrophied stump, the result of a more general destructive inflammation; in short, a great variety of mutilations, which have all the one feature, that scarcely any help can be afforded, or only very little improvement to the sight be effected—a fact sad enough by itself, but rendered more melancholy still by the idea that the greater, nay, the overwhelming majority of these eyes could have been saved by an appropriate treatment, applied at the proper time. But how is the occurrence of this pernicious disease to be prevented? Let us, in order to answer this question, inquire for its causes.

There can be no doubt, at the present time, that the real and only cause is the infection from the secretions of the maternal passage during, or shortly after, birth. The secretions of the vagina need not exactly be of a purulent character, such as fluor albus or gonorrhoea; for it seems that, before and during birth, these secretions acquire often a character quite as infectious as that of gonorrhoeal discharge, though appearing in no way different from the physiological discharge of the mucous membrane. At least, the only one trustworthy statistic which we have of this kind speaks for this fact; it is the one which Mackenzie published of the Maternité Hospital of Stockholm in 1832. Of 328 women confined, there were 137 with fluor albus, 20 children of whom were affected with ophthalmia, and 181 without fluor albus, 10 children of whom were equally affected; thus showing that, whereas of the women with leucorrhoea every seventh child became infected, of the other women only every eighteenth child was suffering. In what way the normal-looking secretions of the pregnant woman are changed, we do not know, but the fact speaks for the infectiousness. And if we consider how intimately—nay, how inevitably, the secretions of the mother are brought into contact with the infantile conjunctiva, it is astonishing enough that we do not see the above statistic much more unfavourable. At any rate, we do well not to set our mind at ease with the much liked and used explanation that "a cold" is the cause, and that it will pass away by itself or by continued poultices. Many an eye destroyed in this way has fallen in my way during the two years that I have been in Liverpool. The period of incubation, after infection, is three or four days. I have never seen it less, often longer. For the latter, we can easily account by the near contact between mother and child after birth, the infectiousness of the secretions being so great that the contact with the linen or the fingers of the mother explains well enough the later appearance of the inflammation.

I do not need to give you a long description of the disease itself; it is known to you all. Nor do I need to dwell upon the great danger which arises for the eye by even the slightest implication of the cornea. You know that this makes the prognosis at once "pessima", as we cannot, with the greatest care, control the ulceration nor prevent entire keratomalacia.

If we consider what trouble the well developed ophthalmia gives in its treatment, and how little we can do when the cornea has once partaken in the affection, we must be highly satisfied by the fact that the

* Read before the annual meeting of the Lancashire and Cheshire Branch.