mences in the nerve-fibrils, and is propagated thence to the Gasserian ganglion, and so onwards along the so-called roots of the fifth to the Pons Varolii and the brain.

Starting then from these conclusions as to the origin and course of locomotor ataxy we can more definitely determine the seat of the disease, and therewith the prognosis and treatment. Obviously the chief distinction is between those primarily sensory and those primarily motor. The latter are by no means so likely to extend upwards to the medulla oblongata and the basilar centres and nerves of the encephalon, as the former, and therefore not so likely to involve the senses and the understanding.

ART. XV.—*Zymotic Diseases, as more especially Illustrated by Puerperal Fever.** By EVERY KENNEDY, M.D., ex-Master of the Dublin Lying-in Hospital, and ex-President of the College of Physicians in Ireland.

IN presuming to draw your attention to Zymotic Diseases, and more especially Puerperal Fever (a disease with which you are all so familiar, and one with which my opportunities, I regret to say, have rendered me but too conversant), I shall not weary you with unprofitable details, but at once investigate, with your assistance, their true nature, their characteristic features, and the laws which regulate their production. The tenor and purport of my observations will be directed principally to prevention; whilst I hope some hints may be thrown out in the course of our investigation that may also assist us in treatment.

In order to simplify our subject we shall begin by accepting your acquiescence in the broad principle, that puerperal fever is "par excellence" a zymotic disease.

As a motive for grappling with this class of diseases in the manner I propose to deal with puerperal fever, let us estimate the proportion of general zymotic mortality on the basis of the tables furnished by London and the other great cities of England. We may state it to be between one-fourth and one-fifth of the gross mortality; further, it may be asserted, for argument sake, that zymotic diseases result, in nine out of ten cases, from preventable

* Read before the Obstetrical Society, in the Hall of the College of Physicians, on the evenings of the 13th of March and 10th of April, 1869.

causes. It follows then that by the prevention of these causes the mortality may be reduced one-fourth, minus one-tenth. It would be quite possible to offer a proximate calculation of the diminution of morbidity under such a reduction of mortality; but the misery, suffering, distress, and poverty to be prevented by such a consummation would be beyond human calculation. The condition precedent to such results is the acquisition of an accurate knowledge of the principles that regulate the development and spread of each disease of the zymotic type; or, at least, of those laws that regulate their primary occurrence and subsequent growth. Whether the difficulties that invest the detection and analysis of the subtle poisonous miasm, and which have hitherto baffled^a the efforts of physicians for centuries, are to continue unsolved, is a question within the womb of time. But although the miasm or germ has hitherto escaped our detection, as recognized by its sensible qualities, its existence as an entity or such primary principle is admitted universally.

The laws that regulate its development and spread are within the scope of our observation, and we know and can handle certain morbid solids and fluids in which the poison, at least, may be said to possess its habitat, if not its essence: witness the lymph of cow pock, the puss of small pox and syphilis, and the cutaneous powder of scarlatina, &c.

In the first place, are we to ascribe the different zymotic poisons to a common principle, modified by a variation in natural or physical circumstances or conditions? The fact that diseases of the zymotic character prevail so frequently at the same time, would appear to support this opinion. Their being traceable to the same sources would further tend to corroborate it, and although they assume very distinctive characters in their development, yet the same observation holds in the varieties observable amongst diseases which belong unmistakably to the same genus, showing that *they*, at least, have been due to a common origin. With the occurrence of metria

^a The latest claim to the detection of the morbid principle is that of Dr. Harris, of New York, who states that he has detected in cattle infected with the prevailing plague a living organism or spongiole of definite form and properties, which multiplies in the body of the infected animal. Whilst scientific incredulity is to be deprecated in investigating so obscure a subject, quite as much as accepting hastily any doctrine or theory because it is new, I confess that looking for an escape out of one difficulty by accepting another and greater difficulty, requires at least deliberation and "confirmation strong" before adoption. The difficulties attending the elucidation of the zymotic molecule or germ can scarcely, in this view, be said to be simplified by presupposing the occurrence of so questionable a postulate as spontaneous generation, be it animal or vegetable.

in hospital after other zymotic diseases have, either accidentally or endemically, shown themselves, all hospital physicians are familiar, so much so, that they look with the greatest apprehension to the result when either typhus, scarlatina, or erysipelas occurs in their maternities.

I cannot illustrate this necessity or the conclusions I have long arrived at, better than by transcribing here a question put to me by a Medical Commission, who were engaged in inquiring into the state of the hospitals and sick poor in the year 1840, with my answer:—

Query—"Does puerperal fever appear to have prevailed more extensively when any general epidemic has prevailed in Dublin?"

Answer—"Yes; I have remarked that when continued fever, typhus, or erysipelas, were prevalent in the Medical and Surgical Hospitals, puerperal fever appeared to prevail in the Lying-in Hospital, as well as in the city generally. The character of the fever varied also at different times, and occasionally appeared to be influenced in its nature by any prevalent epidemic."

So frequently has metria shown itself afterwards that it is now no longer esteemed an accidental "post hoc," but that they stand in relation of cause and effect. This fact alone goes a considerable way in confirming the idea of a common poisonous principle or miasm. Upon this subject I treated so lately in my paper on Purpuric Puerperal Fever, read before the British Medical Association in 1867, that I shall not dwell upon it further at present.

Should the principle of isomerism, which has of late attracted much notice with our chemists and professors of physical science, come to be established, the difficulties in adopting the idea of a common morbidic poison would be lessened. As then the poisonous principle, which we might denominate *zymotocene*, would come to be classed as an original polyatomic molecule or principle, and would fall strictly within Dumas's* definition of what he terms *polymorphism*, namely—"one of those variations in the arrangements of integral molecules of a body which influence its physical properties, either temporarily or permanently."

There is nothing at all unreasonable, therefore, in supposing that, as in the case of polymeric or polymorphous hydrocarbons, we may also have the germs of different disease produced by polymeric combinations in the same elements.

* Lettre a M Ampere Ann de Chemie et de Phys. xlviii., p. 208.

To descend, however, from the consideration of these general principles to the special subject with which we are more immediately concerned—puerperal fever. This zymotic disease prevails endemically in crowded hospitals, where it is to be seen in its greatest virulence, and exhibiting its most concentrated fatality; although it is also to be met with in the hovels of the poor and the chambers of the wealthier classes. When epidemic, showing itself generally in our great maternity hospitals in the first instance, but not confining itself to them: like typhus fever, cholera, scarlatina, and erysipelas, it prevails endemically and like them it is contagious.

The non-contagious furor having pretty well spent itself, reason resumes her sway, and contagion can *now* be spoken of with calmness and toleration. Whereas twenty years ago the advocate of contagion was worse than an infidel.

The difficulties that beset medical men in investigating the epidemic and contagious nature of puerperal fever were simply expressed by the late Dr. Collins; when, after detailing its prevalence in the early years of his mastership of the Lying-in Hospital, and the success of the steps taken by him to lessen it, he adds—“The facts here detailed are strongly calculated not only to lead us to suspect, but even prove that this fever derived its origin from some local cause, and not from anything noxious in the atmosphere. To this I should assent,” he continues, “had we not proof equally well authenticated, of its prevalence and fatality in the houses of the affluent, as already stated.” If the views we have arrived at, and which we now venture to propound, with regard to the true nature of the poisoning in these cases be correct, then the contagious and sporadic nature of puerperal fever will be perfectly reconcilable. Collins's paragraph, above quoted, contains the gist of the puerperal fever difficulty in a nutshell. Its local cause approaches more nearly to a *constant* quantity in the wards of a crowded Lying-in Hospital; whereas it is only an *occasional* quantity in the houses of the affluent; and the only influence exercised in its production by the atmosphere is, that in certain states of the atmosphere, the constant and occasional quantities become *more operative* or *active* in generating or propagating this dreadful malady—a malady thus zymotic in its type and origin, produced by a poison emanating from parturient women; more active in proportion to the concentration of their excretions or exhalations, and consequently in proportion to their number cohabiting in a given number of feet of atmospheric space; but not requiring more than one parturient female to generate

it; when the poison she herself has generated may, as in the case of blood-poisoning, be re-absorbed into her own system, and self-contamination then as certainly strike her down as if a crowded ill-ventilated lying-in ward was the generating medium. The most striking parallel that we are acquainted with of the generation and development of diseases under similar conditions are, the gaol fever (a disease now fortunately little met with), erysipelas in surgical hospitals, cholera in our camps and over-crowded human gatherings, and tuberculosis as observed among the poor work people in Paris and other crowded cities, a fact that has given rise to the idea that phthisis should also be classed with zymotic diseases. In Paris, for instance, where this disease prevails so largely among the "ouvriers," it is calculated that 40,000 live huddled together in "chambres garnies," or furnished apartments, containing from eight to ten beds in each. The confining apes in close ill-ventilated menageries generates tuberculosis in these animals, apparently from similar causes; and glanders, a purely zymotic disease, produced by crowding horses together in ill-ventilated stables, furnishes us with a further example. Of the parallel with erysipelas, pyemia, hospital gangrene, and what we might term generally "hospital malaria," we shall have occasion to treat more at large when alluding to traumatic metria.

In distinguishing between puerperal fever or metria and its congeners, it will be unnecessary to my present practical audience to dwell upon afterpains, hysteralgia, or what I used to denominate to my class peritondynia or gastralgia; but peritonitis and metritis may require a passing notice. Such cases, in the pure form as we see them occur unconnected with deliveries, are occasionally to be met with, and may be known as partaking more of the character of local inflammation without zymotic indications. These are the cases that will bear depletion best, and the use of the lancet is too much neglected in them. Twelve to eighteen ounces of blood extracted from the arm, followed by eighteen or two dozen of leeches, will often relieve and subdue all inflammatory symptom, and the pulse that was hard, contracted, and compressed, will, as in ordinary peritonitis, rise to a more rounded resistance under this treatment.

The distinction I should draw between this form of disease and true metria, is that in the latter there are the characteristics of blood poisoning, the shrunken features, the depression, the unmistakable expression of countenance that the practical obstetrician cannot be deceived in.

In true puerperal fever of the present day the use of the lancet is rarely admissible; local depletion must be our sheet anchor. But in having recourse to it the secret of success is to reduce the pain by repetition of leeching before reaction has had time to establish itself.

The physician should see his patient every six or eight hours after the first attack; and if he find that his first leeching has not enabled the patient to bear pressure and relieved her from pain, he should at once apply more leeches before reaction is established, and so on as long as the pulse will indicate the propriety of further abstraction of blood.

Allowing, according to circumstances, a longer interval between each leeching as he finds the necessity become less urgent or the state of the circulation less indicate its propriety. A neglect of attention to this rule has often, to my own knowledge, caused patients to be snatched away by this fatal disease, who, in the hands of less hesitating or more energetic practitioners, might have been fairly reckoned upon as surviving. I know no more harassing trial to the consultant, in these cases, than to have been called into and assisted in subduing, the acute symptoms by prompt and energetic treatment, and then, when matters have improved, to be relieved from attendance under the impression that the danger was over, only to be recalled to see the patient, perhaps, forty-eight hours later, beyond the reach of treatment, from the inflammation having been again allowed to creep on to an impending fatal issue. This has occurred so frequently in my own case, that it left me in doubt whether, for my peace of mind, I should not refuse altogether to see such cases in consultation. Let my younger, and, indeed, my older, hearers be advised by me, whenever they think it necessary to divide the responsibility in such cases, to make the consultant sustain his share of it, until *he* pronounces the case out of danger. This is only fair by the physician in attendance, as well as by consultant, as a contrary practice is sure to recoil upon the ordinary attendant, in case of a casualty. Another practical hint I would wish to impress upon my hearers is, as to the use of mercury in these cases. There is no doubt of its efficacy if you can produce its specific effects; but, in the worst cases, there is not time for this, and indeed the system seems to be insusceptible.

When peritonitis or metria were to be anticipated, as when the disease was prevalent, after manual interference, in labour, or for the removal of the placenta, my habit was, to commence at once after

the labour was completed, with small and frequently-repeated doses of mercury, say a grain or half a grain of grey powder every third or fourth hour, and even applying in more suspicious cases mercurial ointment to the arm pits and groins. By these means, without disturbing the patient's system to any serious extent, in the course of forty-eight or fifty-six hours a slight mercurialization may be perceptible, often before the time at which the disease could grapple the patient; and then, should metria or inflammatory symptoms show themselves, by pressing mercurials a little more freely the system may speedily be brought under its specific influence, and the disease be thus easily checked if it had not already been prevented. I have only on one or two occasions seen puerperal fever prove fatal after mercurialization showed itself, and in them the action was incomplete. But, on the other hand, how often have I seen mercury in every dose fail in producing the slightest approach to its specific effects? I fear the answer to this question would exhibit a fearful array of baffled remedial efforts. I may mention, however, as apparently contradictory to this view a case that occurred under my care, in the Lying-in Hospital, of a woman who came in under the influence of mercury, which she stated she had taken only to the extent of three pills, as what she termed "sweetners;" and yet this woman was attacked with metria on the third day, and the attack proved fatal. Whether this was due to the fact that speedy ptialism is not always a proof of constitutional mercurialization or to the failure of the prophylactic, my hearers may be the best judges.

In dealing with metria the two-handed treatment, that of relieving local inflammation, whilst we support the constitutional powers—the strength and the circulation, by administering food easily and rapidly assimilated into the circulation, are the two chief indications, the latter just as essential as the former; and, in the true *metria*, or well-marked zymotic puerperal fever, by much the most important of the two. It must never be forgotten that the zymotic metria, *especially*, as we see it in hospital, is a *poison fever*; and no matter how severely it sets in with local distress and anorexia, that it is essentially a disease of debility, passing more or less rapidly into a state of collapse; consequently, that however depletory our treatment may be to check or restrain local distress and lesions, we must look steadily forward and provide for the coming issue—collapse and sinking from exhaustion. Our treatment must, therefore, be directed to that, and nutritious broths,

jellies, milk, and farinaceous food should be as freely given as possible, compatible with their being retained on the stomach. The same observations apply to stimulants, but they require more judgment in their administration, and, as a general rule, must be given as we observe their effects to be satisfactory.

On the whole, however, I have little doubt that they are given too *sparingly* and delayed too *long* in their administration—delayed, in fact, until the patient is absolutely sinking, when the stomach will not retain them and they produce no reaction. There is, however, a form of this disease which I ventured to describe many years ago, in which the symptoms of marked collapse and exhaustion set in early, accompanied with tympanitis, showing an exaggerated train of symptoms from the very commencement—countenance sunken; pulse small, rapid, and compressible; but this state not always accompanied by a corresponding amount of abdominal pain. I described this form as allied to the class of cases described by Laenec under the term “*Factitie Debile*.” Now, in this case we cannot commence our stimulants too early, and can scarcely administer them too freely. It is incredible the quantity both of stimulants and nutriments that this class of cases will take. It is the form in which turpentine treatment best agrees. It seems to be one in which the intensity of the poisoning and the extent of the inflammatory lesions bear no relative proportion, or rather are often to be found in an inverse ratio, *post mortem* examination showing in them only slight effusion; sometimes merely a gelatinous effusion behind the peritoneum in the cellular tissue; perhaps only a large flabby uterus, with intense tympanitic distension, and often little or no effusion in the abdomen, pleura or other cavities, nor any lesion of veins or uterus.

I recollect a case of this kind attended about three years since in consultation with the late Dr. Hardy and Dr. Mitchell. We left the house on three occasions, scarcely deeming it necessary to make a fresh appointment, the patient's dissolution appeared so imminent; and yet she recovered perfectly and speedily, and with little or no resulting inconvenience, and is now a strong healthy lady. In this case the lady consumed two bottles of wine, a quart of beef-tea, and a pint of brandy in 24 hours.

In describing the varieties assumed by metria, we would denominate one what we should term traumatic metria, or that occurring as the result of injuries, operations, and lesions of any kind during the delivery. In this way, when zymotic metria prevails in

hospital or in private, we know that operations or lesions that could at other times be calculated upon, as productive of little or no inconvenience, almost doom our patients either to fatal or alarming illness. The use of the forceps, of the crotchet, rupture of the perineum, abrasions, slight lacerations or injuries in the vagina, nay, even the use of the lancet in venesection, are thus followed by metria, often of the most indomitable character. In fact, the air of the maternity becomes charged with a poison, in many respects similar to what we observe in our surgical and military hospitals. In this way erysipelas, pyemia, arthritis, diffuse inflammation, phagedena, or hospital gangrene, run their course of havoc, exactly as in the operation wards of surgical institutions. The year 1838 was replete in the Dublin Lying-in Hospital with these traumatic cases. I drew the attention of the British Medical Association to some of their varieties at their meeting in Dublin in 1867; and showed drawings made at the time by Kirwan, Conoly, and myself. I shall here give a case of traumatic puerperal gangrene, combined with cerebro-spinal symptoms and purpuric discolourations that occurred in that epidemic.

Margaret M'Gouran, aged thirty-two, who was doing well for two days after her delivery with the forceps, in consequence of tedious labour, was attacked on the morning of the 2nd of March, 1838, by cerebral symptoms, with rapid pulse and slight abdominal tenderness. Her excitement was so great that she became unmanageable, and was obliged to be restrained in bed. She complained incessantly of pains in her legs. The whole surface of the body, but more especially the face and lower extremities, became livid. Large blue coloured bullæ, or vesicles, appeared on different parts on the lower extremities. The excitement subsided in a few hours into a state of depression, and she sank at noon on the 3rd, about twenty-eight hours from the commencement of the attack. Only an abdominal examination could be obtained of this case, when a small quantity of bloody serum was found in the peritoneal cavity, and some sloughing in the vagina. The subcutaneous cellular tissue of the body was the seat of congestive infiltration, this was particularly evident when a section of the adipose wall of the abdomen was made and the left lower extremity was livid.

The black serum brings to recollection my old friend Dr. Alison's case of the black fluid in the blistered vesicles.

Those who have had an opportunity of seeing this class of case

will bring to mind that in arthritic metria the joints are generally secondarily affected, and that at intervals of several days, nay often of weeks after the peritonitis or metritis has run its course. It was not so in several of those, which I might term thundering cases of arthritis that occurred in 1838. On the contrary, the joints were the first organs attacked, and the knee, the elbow, the ankle, the wrist, but above all, and the most violent of all the sacro-iliac synchondrosis, assumed in turn the lead, as the structure attacked. In some there occurred erysipelatous inflammation of the buttock. The torture attending these arthritic forms is extreme in all cases, but in that where the synchondrosis was engaged it was absolutely intolerable. The fullest opiates failed to afford relief, and violent as was the outburst, and extensive as was the structure engaged, although some of them proved rapidly fatal, others yielded to treatment: but only to that of the most prompt and decided kind; namely, the application of superficial caustics and escharotics, but chiefly to the free use of the actual cautery. Those cases in which lesions occurred in labour, as lacerations of the perineum, were attacked with hospital gangrene, when the free use of caustics and mineral acids, with chloride of soda lotion and antiseptic poultices, were useful. Erysipelatous inflammation of the buttock proceeded in more than one case to gangrenous sloughing and in another of this kind, although the ankle and knee were both extensively engaged, the woman recovered.

Bold incisions were made in some of these cases, under the advice of the late able and distinguished surgeon Abraham Colles; but the result was not satisfactory, and uncontrollable hemorrhage even followed their use.

The last variation of type, observed as a genus, of the general family of metria, to which I shall direct your attention, is what I designated in a paper read at the meeting of the British Medical Association, "Puerperal Purpuric Fever." I described it as a disease of peculiar malignity, that appeared in an endemic attacking the patients in the Lying-in Hospital, in December, 1837, then under my care, and which carried off thirty-five patients between that month and the month of April, 1838.

In a certain proportion of those attacked, symptoms exhibited themselves unlike what had hitherto been observed in metria. Those symptoms corresponded in their characteristics with what Dr. Marston clearly described in his two classes of the disease so

unfortunately denominated the "Black Death," and which attracted so much attention two years ago in this country,—Firstly, those expressive, as he justly terms it, of profound blood poisoning; second, those of cerebro-spinal irritation.

Owing to some mismanagement, the coloured illustrations that were to have appeared with this paper, have been mislaid, in their transmission from Edinburgh to London, and the publication of the paper was delayed in consequence.

PUERPERAL FEVER, WITH RAPID COLLAPSE, PRECEDED BY
CEREBRO-SPINAL IRRITATION, 1838.

CASE I.—Anne Whelan had been drinking a large quantity of spirits before admission. In the progress of her labour she had convulsive twitchings of the arms, and tremulous motions of the hands, and a slight convulsive paroxysm. This woman made no complaint in the course of the day after her delivery. She appeared to sleep through the night, but was found, at the next morning visit, in a state of collapse, with her abdomen tympanic. Stimulants, externally and internally, were freely administered, and she died in six hours.

The only morbid appearance revealed, on a *post mortem* examination, was a small quantity of serum, tinged with blood, in the peritoneal cavity.

CASE II.—Mary Sheridan had rigors on 17th January, 1838. Pulse 120. No local pain—(three days delivered). On the 20th, at two o'clock in the morning, had an attack; pronounced hysterical, with marked globus; crying and laughing. At eight o'clock she fell into a state of stupor, with stertor, and remained comatose until four p.m., when she expired.

Post mortem appearances.—The omentum and peritoneum opaque and covered with lymph; a pint of milky serum in peritoneal cavity; lungs coated with plastic lymph, congested and crepitating. Both pleural cavities filled with flaky lymph adhesions; transparent serum in pericardium; right auricle filled with fibrine; blood fluid; uterus soft and easily torn; ovaries embedded in lymph; subarachnoid effusion and effusion into ventricles.

The dissection here fully evidences the existence of puerperal fever. Now, this fact becomes the more important when we draw the analogy we attempt between the recent typhus and the puer-

peral epidemic of 1838 Sheridan's case is one of several that have occurred to me in puerperal fever, in which the hysteric complication furnished an unfavourable prognosis. The same fact has been dwelt upon by Cheyne and Graves, and more recently by Hudson, when hysteria occurs in fever. The latter astute physician connects its occurrence with suppression of the menses.

The next case we shall give is one in which head symptoms were also very markedly observed to complicate the fever, which ran to a more chronic form, with consecutive arthritis.

CEREBRO-SPINAL PUERPERAL FEVER, FOLLOWED BY ARTHRITIS.

Mary Lynch, delivered on the 30th January, 1838, was attacked by rigor on the 3rd February, with febrile symptoms; much flushing; pulse 130; some abdominal pain.

On the 4th delirium set in, with great restlessness, anxiety, and spasmodic respiration, headache, and rapidity and indistinctness of articulation.

5th.—Delirium continues, with headache, more distressing in occipital region. She struggles to get out of bed. Tongue streaked red; peculiar exhalation from tongue and mouth; sickness.

6th.—Violent and incoherent muttering, but answers rationally when addressed; pulse 136.

7th.—Raving and starting; a quantity of vapour issuing from the mouth; less complaint of head, but complains of abdominal pain, and of pain in left arm; pulse 144.

8th.—Slept well; no delirium; asks for drink; pulse 136; elbow-joint engaged; tender, swollen, hot, and red; stick nitrate of silver freely applied to it.

9th.—Delirium returned in the night; stupor and muttering; elbow more swollen; left knee and bursa engaged; retention of urine.

On the 10th the arthritis extended to the wrist; diffuse inflammation seized upon the buttock and the parotid gland; and the case assumed the characters of consecutive arthritis, and terminated fatally with effusion into pleura, on the 15th.

We have now to deal with the dark discolouration observed in these cases. The whole question of these, as well as in puerperal typhus, purpuric typhus, purpura, as in cholera, demand elucidation.

The hemorrhagic and scorbutic complications, to which it is referred, give us little assistance, and, with Flint, I have little doubt

that its explanation must be looked for in the capillary system, and perhaps in the blood itself.

FEVER WITH BLUE DISCOLOURATION OF SURFACE.

Mary Carton, aged twenty-seven, was attacked on the 11th of April, 1838, three days after a natural delivery, with aching abdominal pain—quick pulse, and high state of excitement. On the 12th, pulse 134; expression of countenance bad; hands and feet blue.

13th.—Blue tint extends to face and trunk; pulse almost imperceptible; respiration gasping; little abdominal suffering, unless on pressure.

14th.—Sinking; died at ten a.m., fifty-six hours ill. No *post mortem* examination permitted.

PUERPERAL FEVER, WITH DISCOLOURATION OF LIMB, VESICLES, GANGRENE, AND COLLAPSE.

Biddy Fox, aged thirty, was seized with rigor, followed by febrile excitement on the 5th May, 1838—the fifth day after her delivery of a seven months' child, caused by fright. She had only been three hours in labour. The fever continued without any local affection or abdominal tenderness throughout the 6th, and at three a.m. of the 7th, she was seized with acute pain in the calf of the left leg. At morning visit her state was as follows:—Countenance anxious, and expressive of suffering, and great constitutional disturbance; pulse small, 96; calf of leg swollen, tense, and acutely painful on slightest touch; no pain up thigh, but some uneasiness on deep pressure, low on left side of abdomen; skin hot; constantly crying about pain of leg; twelve leeches were applied to calf of leg; at one p.m. the limb became discoloured, the discolouration gradually extending up the thigh and down to the ankle and foot, where vesications rapidly formed. Some punctures were made in the calf of the leg and popliteal space by my able colleague, the late Surgeon Abraham Colles, in search of matter; but the pulse became rapid and indistinct, and she rapidly sunk, and expired at seven p.m., fifty-six hours from the occurrence of the rigor, and sixteen hours from the seizure of the limb. The femoral and tibial arteries continued pervious throughout, and the temperature of the left limb was higher than that of the right.

No examination permitted.

PUERPERAL FEVER, WITH GANGRENE OF UTERUS: SYMPTOMS PRECEDING DELIVERY.

Mary Anne Brennan was admitted at 11 a.m. on the 8th Jan., 1839, in the ninth month of gestation. About two o'clock the pupil on duty reported that she complained of great pain in her right thigh. On examination it was found large, tense, very painful along the course of the rectus muscle; but tenderness did not extend upwards as far as the saphena vein. There was also some soreness in the right iliac fossa. Pulse quiet and small; tongue furred. States that about a week before she had had a rigor, followed by sudden loss of power in right leg, and that yesterday she had another shivering fit. Twelve leeches were immediately applied to the limb, and within an hour she expressed herself much relieved. At half-past five o'clock p.m. she was conversing with the nurse, when she was observed suddenly to sink, her arms becoming powerless. Notice was immediately sent to the assistant on duty, who found her pulseless, eyes glazed, feet cold, features collapsed—in fact, moribund. Stimulants were administered, but she expired in a few minutes.

The Cæsarean section was performed, and the child removed, but it exhibited no signs of vitality, nor could its heart's action be detected at the moment of the mother's death.

On drawing backwards the abdominal parietes, the ovary and Fallopian tubes, particularly on the right side, were gorged with blood, and the structure of the uterus in their immediate neighbourhood was dark and softened—in fact, in a state of ramollissement. The fimbriated extremity was glued by soft, freshly-effused lymph to the peritoneum.

The following cases, passing into erysipelas, purulent depôts, cellular sloughs of the character of anthrax, and arthritis, show more strikingly how puerperal fever, like typhus, is ascribable to a poison which vitiates the blood and passes through a series of consecutive states, due to what are termed poison depôts in various parts of the body:—

Mary A. Keating was seized, on the 10th of December, 1837, with erysipelas of the elbow-joint, on the tenth day after her delivery. The solid nitrate of silver was freely applied to it, with relief. The buttock became engaged on the 12th, and the nitrate of silver was freely applied. The pain, which was intense, was relieved. She had much prostration, diarrhea, and rigors, at

intervals, and great nervous anxiety. Potassa fusa was now applied to the buttock.

The inflammation here became circumscribed, and, on the 17th, the sterno-clavicular articulation became engaged. Not until the 29th could matter be detected in the buttock, when a puncture was made. Some matter escaped, and ultimately a mass of sloughed cellular tissue separated. She gradually improved, the joints engaged, returning to their natural state, and she left the hospital on the 4th of January, becoming convalescent.

The hopeless character, however, of the more urgent cases, in which the large joints and adjacent structures take on this poison action, may at once be seen by looking at the specimens, which exhibit the trochanter eroded by ulceration, the two hip-joints engaged, the sacrum in a state of destructive ulceration, whilst the soft parts of the upper part of the thigh and gluteal muscles were in an advanced stage of ramollissement, and those on the left absolutely sphacelated. Surely, if ever the true *εσθιομενος* of the Greek fathers in medicine, justifying the synonym of the Latin, *exedens*, *depascens*, *corrosivus*, is to be found in modern pathology, we have it here.

Sydenham and other authorities have long established the fact that fever at different times and places may be characterized by peculiar and various local tendencies. And science, it is remarked, is no better prepared to explain their occurrence now than at any past period in medical history. By some, these varieties are merely considered complications or inter-current symptoms; by others pathognomic essentials, which justify the conclusion that the diseases are distinct in cause, symptoms, history, and pathology, and ought, consequently, to be so in name. In investigating both the predisposing and occasional causes which exist without the body of the diseased person, the "*circumfusa*," "*ingesta et applicata*," arising from the influence of external bodies, we too frequently lose sight of the assistance to be gained from the study of "*Epizotia*" or diseases of animals. In epidemic and contagious diseases this is much to be regretted. It was long since remarked by Guersent, that the circulatory and nervous systems of warm-blooded animals approach nearly to our organization, and their diseases present an analogy with ours. "The essential and symptomatic fevers ascribable to excitation of the nerves and blood-vessels, and the reaction of these organs upon each other, occur in them, and especially in the mammalia, with the same characters and almost the same names.

The resemblance between *their* maladies and those of *man* are sometimes so perfect, that it is impossible not to place them in the same "nosographic càdre," and not to assign them the same name. The discrepancies of opinions upon a name to be appropriated to the late epidemic might have been reconciled or harmonized had the phenomena observed in some of the epidemics which have prevailed amongst animals been looked to. For instance, in the epidemic typhus which prevailed amongst horned cattle in France in the year 1795, as well as in that of 1814, M. le Professeur Dupuis constantly observed "that the spinal marrow was more injected and soft than natural, the meningeal coverings were red, and contained in their folds a large quantity of limpid and transparent serum, and, in the lumbar region, the medulla was softened, and the cellular tissue of the lumbar and sacral nerves gorged with blood-serum. The brain in these animals dying of typhus was not so often observed softened as the medulla, but sometimes the meningeal coverings were more injected and red, and the ventricle often filled with a quantity of citrine serum."

Cerebral symptoms have also been observed in epidemic catarrh of dogs, assuming, in its progress, the form of epilepsy, or dance of St. Guy. Edward Jenner tells us of a gentleman who killed several of his dogs labouring under this disease, supposing it hydrophobia. Dissection displayed a soft brain; the ventricles full of serum, and the medulla softened, and fluid in its membranes. The "epizootic charboneuse" or typhus of domestic fowl, which prevailed in Paris in 1780, and whose chief complications were gangrenous angina and ophthalmia, was accompanied with convulsions of the wings, and other parts of the body, and the bird expired after a rattle of a peculiar kind, apparently convulsive, which resembled a plaintive cry proceeding from the bottom of the throat, not unlike spasmodic croup. On dissection, the brain was found gorged with blood, the interior of the bill and pharynx and external parts gangrenous, and ecchymosis in the different viscera.

We adduce these cases to show that, in the animal as well as man, modifications of known diseases occasionally occur, as in the puerperal cases observed by me in 1838, as well as in the latter cerebro-spinal cases *intercurrent* with the ordinary disease. The original type or generic characters prevailing and existing, whilst the varieties assume a more less prominent position, throughout its progress. Where these occur, as we might say, accidentally, in a peculiar epidemic, as, for instance, in the five cases of parotiditis out

of thirty-five recorded by Dr. Flint, and leave no permanent distinctive features, merely cropping up sporadically subsequently; they should be treated as complications due to causes in operation at the moment, evanescent in their nature, and in no way necessary to characterize the case, therefore, unworthy of a special name. When, however, on the other hand, we have a train of symptoms nearly constant in their occurrence, such as a peculiar eruption present, a peculiar structure engaged; non-contagious in its nature, not transient, not accidental in its occurrence, but permanently established amongst us, and traceable, as it is often, to cognate causes; then, I think, we must grant such a train of symptoms a right to be considered a distinct disease, and endow it with a special name, as we have done in the case of typhoid or enteric fever.

It remains still to be proved whether the group of symptoms observed to occur in the recent epidemic, shall recur and become permanent, as has been the case in enteric typhoid, or whether they shall assume those distinctive marks which have so isolated the latter disease, the very name applied to which evinces that it exhibits generic characters that assimilate it to a parent type.

The non-recurrence for nearly thirty years of an epidemic exhibiting the same characters as the cases described by me in this paper as puerperal typhus, would lead us to hope that such may possibly be the case as regards the recent epidemic also, and, consequently, that, failing in its element of permanency, it might only be referred to hereafter as a form of typhus prevailing in the spring of 1867, and limited to a small number of cases, attended with cerebro-spinal symptoms, discolouration, and collapse, and which may take its place with the puerperal typhus of the Dublin Lying-in Hospital of 1838, with epidemic typhus amongst horned cattle in 1795 and 1814, and with the typhus charboneuse in domestic fowl of 1780—all of which partook more or less of the same pathognomic characters.

It will be recollected that in the commencement of this paper we stated we had in view two practical objects—the cure and prevention of puerperal fever—but that the latter should occupy our special attention. To deal with both required a knowledge of what we termed the principles of the disease, or, more correctly, of the laws which observation and comparison satisfy us are those which govern it in its occurrence and recurrence.

We further stated that it was a disease purely zymotic in its character, consequently subject to the laws which hold in zymotic disease.

We stated as a motive to our investigation that growing knowledge had led to the conviction—a conviction every day strengthening—that zymotic disease is, in a great measure, preventable.

Hitherto we have been occupied in describing the varieties of metria with which I myself have been made familiar; and as it is of the utmost importance that no misapprehension, confusion, or deception should exist upon the subject, I wish it to be understood distinctly that every form of the disease described by me partakes of the zymotic character, is subject to the laws regulating this family of diseases, is capable of extension in the same manner as endemic, epidemic, and contagious disease, but, above all, that (by proper means) it is *preventable*.

Now, as it is impossible to be too explicit on this subject, where so much is at stake, we shall state that whilst we cannot, of course, object to the subdivision of diseases of the same type according to the structures engaged, for the sake of classification, we deem it quite important, for the sake of treatment, but, above all, of prevention, that diseases, especially of the zymotic type, should be so classed and arranged as to identify their common causes, predispositions, origins, treatment, and means of prevention. We mention this because the neglect of this rule renders our treatment empirical, frustrates our elucidation of the principles which develop the disease, prevents its recognition, and perpetuates its ravages.

We shall therefore classify the whole family under the head of “zymotic metria,” in preference to that by which it has been hitherto received, of “puerperal fever;” and under this common head we shall treat, as modifications of the same disease, puerperal fever, metritis, peritonitis, pleuritis, phlebitis, arthritis, pyemia, purpuric, or cerebro-spinal metria, traumatic metria, erysipelas, and hospital gangrene.

This I feel fully justified in doing, because I have traced one and all of them to the same contagium; several of them have prevailed in the same patients, and again and again in different patients at the same moment, under my own observation, when the hospital under my care was charged with the same zymocene; the varieties cropping up in adjoining beds, and referable, as in the traumatic form, to circumstances and causes traceable at the time.

Again, in the cases successfully treated, it will have been observed that the same treatment has been successful with all, supporting the strength, meeting local inflammation by mercury, local depletion, counter irritation and turpentine, issues of different kinds, and the decided but judicious use of stimulants.

The task now remains to us to state to what this contagion is due, or rather upon what combination of circumstances it depends; and in order to do this we must establish certain propositions:—

1. That puerperal metria is due to the absorption of a poison by the parturient female.

2. That this poison may be generated by any parturient female; and, where the circumstances are favourable to its imbibition, it may be absorbed into the system of the generator or that of any other parturient female exposed to its influence.

3. That the generation and absorption of this contagion is in a direct proportion to the number of parturient females cohabiting at their parturient period, or who breathe the same atmosphere when lying-in.

4. That in lying-in hospitals, where large numbers of patients are delivered under the same roof, this disease finds its habitat, appearing and reappearing at uncertain intervals.

5. That its appearance, although apparently capricious, is not infrequently traceable to the occurrence of other zymotic diseases, to a general unhealthy state of the hospital, the labours for some time being succeeded by bad recoveries, before the true zymotic metria exhibits itself.

6. That it is produced by contagion, long experience proves, following in the steps of certain practitioners, whilst others are totally free from it, and that in the same locality.

7. It is endemic, confined in its occurrence to certain localities.

8. It is not only confined in its occurrence to a given hospital, but it is observed to haunt certain wards of the hospital, and this to such a degree that I have been obliged to close up for many months wards in which it established its special habitat.

So much for our positive proposition.

Now for the negative; and whilst we freely admit that negative evidence is less valuable, we look upon it that here it is essential to complete the chain of reasoning.

9. Zymotic metria is not a disease peculiar to parturient women

confined in their own houses, occurring comparatively rarely among them.

10. It is not a disease observed to occur in small lying-in hospitals or cottages where only one or two patients cohabit in their lying-in.

11. The just and inevitable conclusion from the foregoing propositions is that by continuing the system of large lying-in hospitals we are causing the death by zymotic metria of a number of patients for one that would occur under any system that would secure the separation or isolation of women in their confinements.

12. But as hospitals possess advantages facilitating the cure of patients and as schools of instruction, it is quite possible to combine these advantages with those of the separate system by means of grouped but isolated cottage or pavilion hospitals, with only one, or, at most, two beds in each isolated room.

13. That consequently with our present knowledge of puerperal fever the conclusion is inevitable that the mortality among parturient women would be greatly lessened by an alteration in the construction and arrangement of lying-in hospitals.

As I have already dwelt sufficiently upon the first and second proposition in the first part of my paper, we shall now confine ourselves to the description of the subsequent propositions, beginning with the third and grouping the fourth along with it as a corollary, that the generation and absorption of the metria contagium is in direct proportion to the number of parturient females cohabiting in their lying-in, and that its habitat is the great lying-in hospitals. In affording proof of these positions, as in all the others I venture to propound, I shall give, in the first instance, my own experience, which I regret to repeat is but too comprehensive of this dread disease; and then the reliable experience of such other authorities as bear on the subject at issue.

The statistics of my own private practice, not of course including consultations, were, that out of about 3,500 deliveries, three fatal cases of puerperal fever or metria occurred. That is something under 1 in 1,200; whilst in the 13,157 patients delivered under my care from the years 1834 to '40 inclusive, in my mastership of the hospital, the number of fatal cases of zymotic metria were 117, or a little more than 1 in 112. Therefore, of the patients delivered under my own care, and for whom I was responsible to God and man, ten and eight-tenths, or almost eleven died of those in my charge in hospital for one in private, or in their own homes. This,

gentlemen, is an awful consideration; and, mark me, had we then possessed our present knowledge, this was all preventable, as the result of our investigation will prove.

It may be objected to this that the lying-in hospital admits the worst cases, many of them advanced in labour sent from considerable distances, exhausted and half starved. True, these matters must be taken into account as increasing the mortality; but, alas! there was a large margin to include all these cases, as the 117 deaths above reported merely included those who succumbed to metria. 101 more deaths also occurred in the 13,157, ascribable to child-birth and other diseases, a number amply sufficient to include every casualty and peculiarity to which hospital patients are obnoxious, and leaving untouched the grim array of 117 deaths by preventable metria.

Let us take the six years for which the Census Office in Dublin furnish data upon this subject, *i.e.*, from 1864 to 1868 inclusive. Although we do not obtain from these tables the number of deliveries, yet we can approximate to this pretty accurately by deducting the twin-births from the gross births, thus:—

Total births for the six years amount in the Dublin	
Registration District to	52,126
Deduct the usual ratio of twins, 1 in 60, as furnished	
by Collins's tables, the largest proportion of any	
country of which we have record,	862
<hr/>	
That gives deliveries	51,264
Divide into this the total number of deaths, including	
childbirth (197) and metria (251),	448

The result is one death in $114\frac{1}{2}$. This result, however, includes the deaths by puerperal fever in the hospitals, as well as generally throughout the city and suburban districts.

If we deduct only the deaths in childbirth (197) this would leave the mortality one in 265; but this would be manifestly an objectionable standard of comparison, as a certain proportion of sporadic cases of metria occur throughout the district, and at times this even assumes an epidemic character. We should be justified, however, in deducting the cases of metria occurring in hospital from the gross number of deaths, and then allowing an equivalent for the average

proportion of cases of metria occurring in the District without the hospitals, for the five years calculated, thus:—

In the two Lying-in Hospitals, from 1864 to 1868 in-	
clusive, there were delivered	D. L. 5,758
	C. 2,266

Total	8,024
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In the five years recorded the deliveries amounted in the	
city to	51,264

Outside of the hospitals the proportion by metria was 1 in 457, whilst in the hospitals it was 1 in 60. Allowing then an equivalent of deaths by metria within the hospitals for that without, one-seventh and one-half a seventh, including extra casualties and difficulties, that would leave it that 6 women died out of every $7\frac{1}{2}$, from being delivered within the walls of the hospitals, instead of in their own homes, or properly constructed huts or cottage hospitals. But if we take the two preceding years, so as to give a seven years' equivalent to my mastership already alluded to, the deaths in the hospitals from metria amount to 1 in 50 for the seven years, from 1862 to 1868 inclusive; and taking it for granted that the deaths from metria bore the above-stated proportion outside the hospitals, then the result would be that in the City of Dublin alone $7\frac{1}{2}$ women die out of every 9 from being confined in hospitals; in other words, that in all the deaths that have occurred in Dublin for the last seven years in parturition, out of every 9 deaths $7\frac{1}{2}$ women have died, who would in all human probability be at this moment alive had they been confined in their own homes, or in isolated cottage hospitals.

The Registrar-General's reports for England and Wales give, for three years, an average of:—

1 death by metria in 726; 1 by childbirth in 306 deliveries.

From both causes, 1 in 223.

IN LONDON:—

1 death by metria in 515; 1 by childbirth in 429;

From both causes 1 in 239.

In 27 cities and towns in England the mortality was, in the two years, 1862-63,

1 in metria in 781; from accidents of childbirth, 301.

From both causes, 217.

The Registrar-General of Scotland gives, for the two years, 1861-62, deaths:—

1 by metria in 400; by accidents in childbirth, 1 in 345.

From both causes, 1 in 225.

In Glasgow the deaths were, from both causes 1 in 227, of these two-fifths died of metria, and three-fifths from accidents in childbirth.

In seven of the most trading towns in Scotland the mortality was in the proportion of 1 death to 170 deliveries. The deaths from metria were about a third less than those from accidents in delivery.

But it is stated that, even admitting the mortality from puerperal fever to be greater in large lying-in hospitals, that this mortality is more than counterbalanced by the lesser number who die in them from other causes, or, as it is termed, from childbirth, and that, as the saving of human life in the aggregate is the object aimed at, the lying-in hospitals best attain it; but the plea, I regret to say, is totally fallacious, as the mortality from childbirth exclusively in the Dublin and Coombe Lying-in Hospitals combined amounted to 1 in 130 from 1864 to 1868, whereas those in the Metropolitan District for the same period only amounted to 1 in 260; and, as we have just seen, the average mortality from accident of childbirth in England and Wales for three years was only 1 in 306. That of 27 large towns in England was, in childbirth, in the year 1862, only 1 in 290, and in 1863 only 1 in 312.

In Scotland the deaths from childbirth, independent of metria, were only 1 in 345 births in the years 1861-62. And yet those who propose the fallacy alluded to would still assert that the recoveries are better and the mortality less from childbirth in great lying-in hospitals, if we exclude deaths by metria, than in the houses of the poor, or in cottage hospitals.

The mortality in the Waterford Cottage Hospital from childbirth, independent of metria, we should have mentioned was only 1 in 180.

Is it useless now to dwell upon the retrospect of what has occurred? The mischief is done, and may only be alluded to as a beacon to warn us against the continuance in such a fatal course. Out of the 190,783 deliveries occurring in the Lying-in Hospital since its foundation, 2,627 deaths have occurred, or 1 in 72½. Now, taking the ordinary calculation of our present death rates at 1 in 116, according to the Commissioners' return, that would leave a fearful avoidable or unnecessary loss of life in the difference between 1 in 72 and 1 in 116.

DEATH-RATES OF DUBLIN LYING-IN HOSPITAL, FROM ITS
FOUNDATION TO 1868:—

Year	Number of Patients	Deaths	Death	Deliveries	Year	Number of Patients	Deaths	Death	Deliveries
	3975	45	1 in	88	1800	1337	18	1 in	74
1757	55	1	1 in	55	1801	1725	30	1 in	57
1758	454	8	1 in	50	1802	1985	26	1 in	74
1759	406	5	1 in	110	1803	2028	44	1 in	46
1760	556	4	1 in	139	1804	1915	16	1 in	120
1761	521	9	1 in	52	1805	2220	12	1 in	185
1762	533	6	1 in	88	1806	2406	23	1 in	104
1763	488	9	1 in	54	1807	2511	12	1 in	209
1764	588	12	1 in	49	1808	2665	13	1 in	205
1765	533	6	1 in	88	1809	2889	21	1 in	137
1766	681	3	1 in	227	1810	2854	29	1 in	98
1767	664	11	1 in	60	1811	2561	24	1 in	106
1768	655	16	1 in	41	1812	2766	43	1 in	64
1769	642	8	1 in	80	1813	2484	62	1 in	40
1770	670	8	1 in	80	1814	2508	25	1 in	100
1771	695	5	1 in	139	1815	3075	17	1 in	180
1772	704	4	1 in	176	1816	3276	18	1 in	182
1773	694	13	1 in	52	1817	3473	32	1 in	108
1774	681	21	1 in	32	1818	3539	56	1 in	63
1775	728	5	1 in	145	1819	3197	94	1 in	33
1776	802	7	1 in	114	1820	2458	70	1 in	35
1777	835	7	1 in	119	1821	2849	22	1 in	129
1778	927	10	1 in	92	1822	2675	12	1 in	220
1779	1011	8	1 in	126	1823	2584	59	1 in	44
1780	919	5	1 in	183	1824	2446	20	1 in	122
1781	1027	6	1 in	171	1825	2746	26	1 in	105
1782	990	6	1 in	165	1826	2440	81	1 in	30
1783	1167	15	1 in	77	1827	2550	33	1 in	77
1784	1261	11	1 in	114	1828	2856	43	1 in	66
1785	1292	8	1 in	161	1829	2141	34	1 in	63
1786	1351	8	1 in	170	1830	2288	12	1 in	190
1787	1347	10	1 in	134	1831	2176	12	1 in	181
1788	1469	23	1 in	64	1832	2242	12	1 in	187
1789	1435	25	1 in	57	1833	2138	12	1 in	178
1790	1546	12	1 in	129	1834	2024	34	1 in	60
1791	1602	25	1 in	64	1835	1902	34	1 in	56
1792	1631	10	1 in	163	1836	1810	36	1 in	50
1793	1757	19	1 in	92	1837	1833	24	1 in	76
1794	1543	20	1 in	77	1838	2126	45	1 in	47
1795	1503	7	1 in	214	1839	1951	25	1 in	78
1796	1621	10	1 in	152	1840	1521	26	1 in	59
1797	1712	13	1 in	131	1841	2025	23	1 in	88
1798	1604	8	1 in	200	1842	2171	21	1 in	103
1799	1537	10	1 in	153	1843	2188	22	1 in	99

Year	Number of Patients	Deaths	Death	Deliveries	Year	Number of Patients	Deaths	Death	Deliveries
1844	2176	14	1 in	155	1858	1084	30	1 in	36
1845	1411	35	1 in	40	1859	1389	21	1 in	66
1846	2025	17	1 in	119	1860	1404	26	1 in	54
1847	1703	47	1 in	36	1861	1135	59	1 in	19
1848	1816	35	1 in	52	1862	800	58	1 in	14
1849	2063	38	1 in	54	1863	1228	32	1 in	38
1850	1980	15	1 in	132	1864	1184	26	1 in	46
1851	2070	14	1 in	148	1865	1332	30	1 in	44
1852	1963	11	1 in	178	1866	1074	40	1 in	27
1853	1906	17	1 in	118	1867	1146	40	1 in	39
1854	1943	37	1 in	53	1868	1022	39	1 in	27
1855	1060	35	1 in	30					
1856	1600	25	1 in	64					
1857	1509	33	1 in	46					
					190783	2627	1 in	72	

But in stating the gross mortality of the Dublin Lying-in Hospital now as 1 in 72 I should lead you into an error, as you will perceive by this table of the annual mortality, given from its foundation, that for the last fifteen years it has never been less than 1 in 64, and that it has in one year risen to 1 in 14. The average of these fifteen years is about 1 in $31\frac{1}{3}$; and this is the state of things we have now to contend with, one sufficiently grave to demand our immediate attention; nor let it be said that this is an accidental epoch of exaggerated zymotic poisoning, and that if we have patience matters will be restored to their former less alarming rate of mortality. Fifteen years is a sufficient period in all conscience to test whether an epidemic is temporary or permanent in its nature, and we must not conceal from ourselves that, comparing the epochs, the death-rate increases in a fearful ratio. If you will cast your eye along the table it will give you at a glance the longest duration of these endemic hauntings to which the hospital has been liable since its foundation. Observe where there are two figures in place of three, and you will thus arrive at a rough result. From 1761 to '65 was one of these, again, from 1767 to '70, and from 1772 to '74. From this year down to 1800 we meet only an occasional unhealthy year, but it remains at two figures until 1804, and so on with only an occasional unhealthy year until 1818, the most crowded state the hospital ever was in; in that year there were 3,539 deliveries. For three years the mortality then rose to 1 in 44; in 1826 it arose again, and continued for the next four years at 1 in 50. It returned to a

state of unexampled health for the next four years of Dr. Collins's mastership, the deaths averaging 1 in 186, so much so that my lamented friend was in great hopes that by the system of ventilation, purification, and separation he had so strictly established, he had obtained the key to its annihilation from the institution. I succeeded him in the charge of the hospital, having been his assistant, and co-operating with him in carrying out all his plans. But, alas! I had too soon to learn that all his plans and precautions were unavailing to stop this fearful malady. The metria attacked the hospital in 1834, and from that year to the present hour, that is, a period of thirty-five years, only on seven occasions, namely, 1842, '44, '46, '50, '51, '52, and '53, have the proportions amounted to three figures. In my seven years' mastership, one year of which I never was without metria, notwithstanding every precaution (with experience gained in working Dr. Collins's system with himself) my gross mortality amounted to rather less than 1 in 61. This mortality was fearful enough, but when we state that out of the 18,906 patients delivered in the hospital for the last fifteen years 603, or 1 in $31\frac{1}{3}$ have died, and that under the ablest superintendence and the most assiduous care, then, I affirm, there is clear convincing evidence that there is a something so defective and objectionable in the system of the hospital itself, that not a moment should be lost in correcting it in the manner that experience, science, and observation best dictate.

But let it not be supposed that we look upon the result of Lying-in Hospital practice in this city as the most fatal to be found; on the contrary, it is one of the least fatal of the great Lying-in Hospitals throughout Europe, showing that not to the want of skill and talent is due the fearful mortality upon which we dwell, but to an inherent defect of the gravest character in the system or construction of these institutions, and one that baffles human ingenuity to correct as long as they continue to be constructed upon their present vicious and faulty plan.

We shall, in proof of this position, now give a few statistics upon the Lying-in Hospitals generally, and request your close attention to the figures and the rateable mortality in reference to the size of the hospital and number of patients cohabiting:—

LARGE HOSPITALS.

		Mortality.	Deliveries.
Liverpool,	156 patients	1 in	99
London Hospitals, all,	2,000 „	1 in	77½

		Mortality.	Deliveries.
Coombe,	404 annually	1 in	72.25
D'Barnes' several Continental Hospitals,	14,253	1 in	56 $\frac{3}{4}$
Glasgow,	352	1 in	54 $\frac{1}{2}$
Dublin,	1,334 annually averages	1 in	31 $\frac{1}{3}$
St. Petersburg Midwives' Institution,	1,714 annually	1 in	26 $\frac{3}{4}$
St. Petersburg Hospitals,	1,715 annually	1 in	22
Vienna, 1838,	4,453 annually	1 in	25
Paris Gen. Hospitals, 11, 1862	483 or 4,764 in 11 Gen. Hospitals,	1 in	18 $\frac{1}{2}$
Paris, 1862,	2,204	1 in	18 $\frac{1}{2}$

COTTAGE HOSPITALS.

New Ross,	30 annually, total	924 1 in	185
Waterford, 23 years,	115 annually	1 in	295
Limerick,	367	1 in	367

We shall now give the statistics of the maternities which supply home attendance in midwifery cases, as furnished by Mr. Simon, and with which you are rendered familiar by Dr. Phelan's elaborate and convincing pamphlet, to which I beg to call your strict attention.

Royal Maternity, London,	18,751 in 5 years, 1 died in	334
St. Petersburg, reported by D. Hugenbeyte,	207,582 in 15 years, „	143
Glasgow Lying-in Hospital, patients attended from	729 in 2 years, „	73
Coombe Lying-in Hospital, patients attended from	4,473 „	223

This statistical part of this report cannot be better summed up than in Dr. Leon Le Fort's calculations and words:—

“Of 888,312 women confined in maternities or hospitals, 30,594 died; and of 934,781 deliveries effected in the towns, 4,405 were followed by death. The mortality was, in the first case, one woman out of 29 confined; in the second it was only one out of 212 cases, but Mr. Leon Le Fort's three essential parts or propositions ought to be written in gold—they are as follows:—

“The women who are confined in hospitals and maternities, not only die there in much greater numbers, but die in quite unusual proportions compared with those who are confined in their own dwellings.

"The cause of this frightful mortality must be attributed to puerperal fever, and it is by contagion that this destructive scourge exerts its ravages.

"It is absolutely necessary to take serious hygienic measures, and if the malady cannot be prevented from breaking out, it is however possible to impose barriers to it, and to say 'Thou shall go no further.'"

The capricious occurrence of metria is proverbial, in so much so that no hospital physician can calculate for any length of time upon a healthy state of his hospital continuing. This is perfectly true; yet there are precursors that cause the physician of experience much anxiety, and lead him to dread an outbreak. The first of these is the occurrence of other zymotic disease, either epidemically in the city or more particularly in his own institution. Typhus fever, scarlatina, and erysipelas, are those diseases that especially attract his notice, and the history of the Lying-in Hospital, as well in my own time as subsequently, has corroborated the fact that the appearance of these diseases, but particularly of scarlatina, is a fatal prognostic, and should put us at once on our guard. When such cases come into hospital they should be immediately removed to contagious hospitals, if this be possible, and if not separated and isolated, allowing no intercourse whatever with the atmosphere or occupants of the other parts of the building. The number of patients should be limited in admission, and if the disease shows itself the hospital closed altogether for a time.

Another precursor to the outburst of metria is the occurrence of bad recoveries after labour, particularly if operation, or manual interference had been necessary. This state may go on for some time, and that without a death occurring. When the hospital physician meets this threatening aspect of affairs let him adopt the same precautions just insisted upon in zymotic disease occurring; but above all, that of lowering the number of admissions or shutting up the institution, as, most assuredly if he do not, the outburst will speedily be upon him.

Prop. 6.—The proposition that metria is contagious is one that I am just as well satisfied of as that typhus or erysipelas is contagious, whilst it is not so markedly so as scarlatina, measles, or small-pox, I freely admit. The occurrence of the sporadic cases of this disease, leaving no possible trace by which they can have spread by contagion from another parturient female has, no doubt, given rise to, and confirmed the idea of, its non-contagious nature;

but exactly the same thing may be said of typhus fever and erysipelas. They occur no doubt sporadically, but will any one deny their spreading by contagion?

I doubt not, however, that many of those cases which we called sporadic cases of puerperal fever were cases of traceable contagion in which the contagium was carried from another case similarly effected by the medical attendant or nurse-tender.

I recollect being very much struck with the evidence afforded of this fact in the case of a most assiduous and indefatigable physician who was sent over by his Government from the North of Europe to study under me at the Lying-in Hospital. He was with me during one of the earlier outbursts of puerperal fever, when it became necessary to partially close the hospital and attend patients at their own homes. This gentleman was not remarkably attentive in exercising that virtue which is said to be only second to Godliness. He never appeared to change linen or woollen habilaments, and absolutely lived in a shaggy pilot coat by night and by day. He was so unceasing in his duties that he attended two patients for every other pupil's one; but the unhappy part of it was that I traced him through his rounds of duty like the pale horse in the Apocalypse, and the fatality attending his steps was such that I was obliged to request him to desist from visiting patients at their homes when the proportion of cases sensibly diminished.

But the onus of proving this carrying of puerperal fever about does not rest with my northern friend. The same has often occurred with practitioners extensively engaged in midwifery practice. We have known of such who were obliged (for their own peace of mind and from conscientious feelings) to retire for a time from midwifery practice, or absent themselves from the neighbourhood. But the remarkable feature in some of these cases was, that whilst the disease haunted such practitioners as their shadow, the practice of most of the other practitioners in the same district was unattended by it. Whilst it has been my duty to see a large proportion of the cases attacked with metria in consultation occurring in this city, the proportion of them occurring to myself when I was engaged in midwifery practice, as already stated, only amounted to about one in 1,200; and of this I have not the slightest doubt, that this small proportion was due to the fact of my early conviction of the disease being contagious, and my having acted always upon this conviction. In fact, I never went to a parturient patient after visiting a case of metria or other

infectious disease without taking all the precautions I should have done in a case of scarlatina or small-pox, such as ablution and change of dress.

I admit it was troublesome, and often put me to serious inconvenience. Nevertheless I ascribe to this freedom from much painful afterthought; and it is, in my conviction, a practice that no matter what a physician's opinion may be on the subject of contagion, he is not only not justified in omitting but highly culpable in neglecting.

It is all very well for a physician to form an opinion upon an abstract proposition of this or any other kind, and maintain it sturdily too; but for him to test it by exposing his patient to what a large proportion of his professional brethren believe to be almost certain death, is another and a much graver question, and one which, in my mind, don't admit of one moment's argument.

But if our views of a common poison be confirmed, many of these cases that we have hitherto esteemed sporadic may have been due to contagion, as hitherto little precautions have been taken by medical practitioners in separating zymotic diseases from parturient females, or in going from one to the other themselves, and possibly thus carrying the disease along with them.

Again, the practice of having lying-in patients in general hospitals, as they have in the Hôtel Dieu and in other hospitals in Paris—a practice productive of enormous mortality and most reprehensible in every way—goes some length to explain upon our views of the disease, not only the true nature of what has been termed sporadic metria to be contagious, but also the enormous fatality where this practice is adopted.

It having been fairly established by what has preceded that metria stands in relation of effect to cause with other zymotic diseases and crowded hospitals; how could a more mischievous and destructive plan be adopted than putting parturient females into general, and more particularly surgical hospitals, where the special traumatic element is developed?

In asserting the non-contagious nature of metria, the last argument, that based on its sporadic nature must yield, if the principle of poisoning by self-contamination be admitted as here, the contagium is just in operation the same as if the patient to be contaminated were placed for the purpose in the same ward with one stricken. And this is not dwelt upon merely as a nice point of the principles of medicine. It is purely practical in its bearing—a

point which the admitting can produce no evil, but good—as at once we are led to inquire why this self-poisoning should occur in some cases and not in others.

In my own cases of sporadic puerperal fever already alluded to, the condition of the patients' chambers assimilated to that of the lying-in hospitals. The atmosphere was sensibly loaded; cleanliness and ventilation were comparatively less attended to, and the atmosphere was charged with exuviae. Now this fact is not dwelt upon as implying that a want of cleanliness or neglect of the necessary precautions, such as removal of the excretions, foul linen, or attention to ventilation, could be chargeable to the lying-in hospital; on the contrary, I know that the reverse was the case, as well in my own mastership as in all those subsequent. But with every precaution that can be used in these respects, every hospital physician and surgeon knows that a loaded state of the atmosphere exist necessarily in a ward more or less crowded with patients. Nay, that to the ordinary visitor effluvia are quite perceptible, and even effluvia varying in their character are detectable by the visitor gifted as I am with an unpleasantly acute sense of smell. In fact, I never could mistake the special odour of the lying-in hospital labour wards, or fail to distinguish it from that of a surgical hospital ward.

We all recollect when cholera was pronounced non-contagious, and when those who were hardy enough to resist the popular current upon this subject were, if not carried away and overwhelmed by the flood, at least half-stifled and choked by its brawling turbulence. Reason has at length had her sway. The simple and conclusive evidence of its growth in gatherings, its zymotic origin, and its spread along the lines of human traffic, have at length been listened to; and the hardy supporters of contagion who have, like myself, survived the hubbub and turmoil, remain with their belief in the doctrine unshaken, nay confirmed by the buffeting it has undergone.

As to metria, I should place it in its degree of contagion, in the same category with erysipelous and typhus fever, and rather more so than cholera.

The seventh and eighth proposition we shall, for brevity sake, discuss together.

Its endemic nature, and its prevalence in a given hospital, or the wards of the same hospital, are self-evident facts from what has preceded; and in dealing with the subject of endemic and contagious

disease, I imagine much confusion has arisen from the attempt to create "a distinction without a difference." It cannot be denied that in endemic and epidemic disease, a physical entity or influence is present in the atmosphere, whether of the room, the house, the street, or the district, of a peculiar character, which produces a certain effect or train of symptoms, recognizable by us as ascribable to this endemic or epidemic influence. What this is has, hitherto, escaped our detection. Just as is the case in whooping-cough, measles, cholera, typhus fever, so it is in ague, metria, and influenza; accepting, as we may, the three latter as the best types of endemic and epidemic diseases. The fact of its being necessary to breathe the same atmosphere as that breathed by the whooping-cough sufferer, and to inhale the exhalations emanating on swampy localities, or to reside in the district visited by an influenza, does not alter the necessity of imbibing into the system, either by respiration or contact, a physical principle which acts as a poison, and, of course, this cannot be imbibed unless it exist, consequently it reduces the matter at the last to a poison or influence operating necessarily by contact; and thus all these modifications must come to be considered as contagious, and due to contagion.

My convictions upon the view of the endemic disease have long been confirmed by what I observed in the attacks of puerperal fever haunting certain wards in the lying-in hospital. This was especially the case with what most of my hearers will know as No. 11, with No. 10, and with No. 8, but particularly with No. 11. No. 11 consists of three small rooms in the old brick building, two of about eighteen by sixteen, and one about twelve by fifteen, communicating with each other, and containing about 3,400 cubic feet of atmospheric air; in these there were nine beds. Now, this ward was so subject to the disease, patients in the epidemics having been attacked in a proportion so much larger than the other wards, that I passed it over in its rota of receiving patients, and kept it empty—paying at the same time every attention to painting the wood-work, white-washing the walls and ceiling, scouring, with chlorate of lime solutions the floors, and washing, with the utmost assiduity, the bed-clothes, the nurses' wearing apparel; and obliging the nurses, wardmaids, and pupils to attend to ablution—a difficult duty I confess. Yet, on opening the ward, again and again the disease showed itself, until at last, on one occasion, I shut these wards up for six months before allowing new patients to enter them.

The same fact is observable in the lurking poison of scarlatina—

that most tenacious of all poisons to its habitat. I recollect a house in Mount-street, in this city, that was in the habit of being let furnished, and on three occasions, the last at an interval of twelve months from the preceding occasion, I had patients up from the country for their confinement, and members of their families, attacked in it with scarlatina. Nor can I easily describe my vexation on my being summoned to this house when it was too late to correct the mischief.

Now before leaving this subject it is right to mention that although I have not myself met fatal puerperal fever occurring epidemically in my own private practice, many other physicians of large experience have; and I have seen, in consultation, a larger proportion of such cases at a time when it was notorious that bad recoveries occurred in this city and neighbourhood than at others, ascribed to the epidemic prevalence of the disease.

Does not this, it may be said, go a great length to combat the contagious theory, and to disprove the greater hospital mortality—no such thing; it rather confirms both views if properly understood. Can any person of observation doubt for one moment that influenza is epidemic, endemic, and contagious. Witness its almost universal prevalence at times in whole districts. Again, its prevalence amongst all the members of a household in isolated cases; and lastly, the frequency with which a sociable friend carries it home from a visit of comfort to his suffering neighbour, or what is more conclusive and less pardonable, how frequently the benevolent man walks in to pay a friendly call to his neighbour when he ought to be nursing it in his chamber—and imparts a month's torment to him in communicating rapidly the news of the day. Can any person doubt that if it was our habit to live in common homes influenza would not be *universal* instead of prevalent as it is at present? Or can it be doubted that scarlatina even when epidemic does not become a scourge when it gains admission to Eaton, Harrow, or Rugby?

In fact, the conclusion practically to be drawn from the epidemic tendency is that the fact of this predisposition existing renders it the more imperative to avoid congregating those liable to zymotic disease and puerperal fever in particular, as it adds immensely to the likelihood of its occurrence and spread where the two influences co-exist.

We shall not recapitulate what has been stated in the earlier part of this paper about the comparative security to life of those

delivered in their own homes, however humble they may be, as compared to those delivered in large hospitals. This fact is now so firmly established that it were only an insult to my hearers to dwell upon it.

Let us now see what the results are under a system of proper management in the housing of poor women in their trying period. Mark me, gentlemen, I say proper management in housing—in nothing else do I presume to call in question the management.

The housing that we venture to bring under your notice in contrast with that of the great hospitals, which I have so unhesitatingly condemned, is that adopted so successfully in the smaller towns in Ireland; and we shall rest satisfied with giving you simply the statistics of three of them which have been carefully kept.

Their success depends upon only having one or two patients in the hospital wards at a time, as their treatment in all other respects appears to be the same as that in our larger hospitals.

In New Ross, of which there is a published report for 30 years, to 1839, the total admissions were 924, or over 30 in each year, and the deaths were only 5, or 1 in 185.

In Waterford, of which we have the report published by Dr. Elliott, to whose exertions to draw attention to this matter we owe so much. His report reaches from 1838 to 1868, 30 years, in which period 3,534 deliveries occurred. The gross mortality in it has been for this period 1 in 288, and the mortality from puerperal fever only 1 in 328.

In the Limerick Lying-in Hospital, however, the success was even more marked of the small hospital system, as it only gives 1 death in 367.

Dr. Elliott, who I am proud to claim as an old pupil of mine, puts the question under discussion so simply and so conclusively, that I must be permitted to quote the paragraphs referring to it from his report of 1868.

He describes his cottage hospital as “a small house rented for the purpose, in an elevated and airy part of the town.

“Of this house, only two rooms were available for the occupation of the patients. One was a very small room, in which were two narrow couches or beds, on which the patients were delivered; and the second, a larger room, in which were eight beds. Into this last-mentioned apartment the patients were removed at the end of some hours after delivery, and they continued to occupy it during

their stay in the hospital. This larger ward was lighted by three windows with a louvred pane in the upper sash of each. The door was removed from its hinges, so that the entrance was rendered a mere door-way, necessarily open at all times; the bedsteads were plain iron couches, very roomy, but devoid of tester, curtains, or valance of any kind; the beds were of straw, inclosed in a sack or ticking, and changed for each patient.

"Into this hospital 753 women were received and delivered between March, 1838, and October, 1844, a period of six years and six or seven months. Of these, six died, three of the deaths being the result of puerperal fever in one or other of its forms, thus giving a total mortality of 1 in $125\frac{1}{2}$, being a per centage of 0.79 or 4.5ths nearly; and a mortality from puerperal fever of half the amount, viz., 1 in 251, or 0.39 per cent.

"In October, 1844, the hospital was removed to the house which has been in continued occupation to the present time. This house is less favourably circumstanced as to its surroundings than was the former. It is situated in a narrow street, about 25 feet wide, in a poor and rather densely inhabited neighbourhood, and the ground on which it stands is rather low.

"It consists of six rooms. On the ground floor is a board-room to the front, and behind it a kitchen; on the first floor a small apartment to the rear, in which are two delivering couches; and to the front, an apartment or ward in which are four beds for the reception of patients after delivery, and during convalescence.

"On the upper or second floor are also two rooms; one to the rear occupied by the resident midwife, and another to the front, in which are four beds for the reception of patients.

"Each of the wards, in which are four beds, is lighted by two windows, with a louvred pane in the upper sash of each. The door of each is removed from the hinges as in the former hospital; and the bedsteads and bedding as before. Behind this house or hospital, if it be worthy of that appellation, is a small yard, in which are a wash-house, ash-pit, privy, and house for the storage of straw, but the drainage and sewerage are by no means perfect. These details, which may appear to some tedious or trifling, are given, because a knowledge of them is necessary for a due appreciation of the results.

"Into this hospital, from October, 1844, to this day, that is, during a period of twenty-three years, there have been received and delivered 2,656 women. Of these nine have died, two of that

number of puerperal fever in the form of puerperal hysteritis, being a total mortality of 1 in $295\frac{1}{3}$; or a per centage of deaths of 0·33, and a mortality from puerperal fever of 1 in 1,328, being a very small fraction indeed.

“It will have been seen that in the first hospital, where two apartments only were devoted to the immediate use of the patients, eight beds were grouped together in a single ward; and that in the present hospital three apartments are available for their use, so that the same number of beds is divided between two wards; and it will be noticed, as a significant fact, that whereas the mortality from puerperal fever was, in the first hospital, 1 in 251, during a period of six years and six months, the mortality from the same cause has been, in the present one, only 1 in 1,328, during a period of twenty-three years.

“In this, as in larger hospitals, and especially in lying-in hospitals, the number of patients together under treatment has varied greatly; there have been occasions when all the beds were occupied at the same time; and once or twice it has been found necessary to receive even more than the proper number; generally there have been only one, two, or three in hospital at the same time, and not unfrequently the hospital has been for some days, or a week, or even longer, completely empty.”

What practical deduction do we arrive at from what has preceded?

That by the system of large hospitals certain death results to a much greater number of patients than when admitted to small, or when confined in their own homes.

Whatever question may arise as to the accuracy of the statistics in patients delivered at their homes, none occurs in the well-authenticated reports of the small hospitals, that does not exist equally in the case of the large. We shall, therefore, limit our comparison to the great and small hospitals. Let us then take first the three small hospitals:—

Mortality in New Ross	is 1 in 185
„ Waterford	„ 295
„ Limerick	„ 367
<hr/>	
840	

The mean of these three is 1 death in $282\frac{2}{3}$.

This, then, is our standard of the proportion of deaths which

occur where women in labour are treated in small hospitals in place of large. We are justified in concluding that the general treatment is the same in both, the only difference being the congregating large numbers of parturients into the same building in one case and not in the other. Let us further bear in mind that the increased mortality bears nearly a direct proportion to the increased numbers inhabiting each building. What then are the comparative results with the small hospitals as our standard? We shall first take the larger hospitals in detail.

That in the Liverpool Hospitals, 2 out of 3 die, who should not; or in other words, the deaths by proper management should be reduced to *one-third* of their number.

In the London Hospitals, 3 out of 4 die, who should not; or the deaths should be reduced to one-fourth of their number.

In the Coombe* Hospital, 3 out of 4 die (on their present calculation) that should not; which calculation extends over a period of the last 7 years, and the deaths ought to be reduced to one-fourth of their present numbers.

In the Glasgow Hospital, 4 out of 5 die, who should not; or the deaths ought to be reduced to one-fifth of their number.

In the Dublin Lying-in Hospital, 8 out of 9 die, who should not; or the deaths ought to be reduced to one-ninth of their present numbers.

In the Midwives' Institution, St. Petersburg, 10 out of 11 die, who should not; or the deaths ought to be reduced to one-eleventh of their present numbers.

In the Hospitals generally in St. Petersburg 12 out of 13 die, who should not; and the deaths ought to be reduced to one-thirtieth of their present numbers.

In Vienna Hospital, 10 out of 11 died who should not; or the deaths ought to be reduced to one-eleventh of their number.

In Paris General Hospitals, 17 out of every 18 died who should not; or the deaths ought to be reduced to one-eighteenth of their number.

In the Paris Lying-in Hospital, or Maternity, 20 out of every 21 died who should not, and the deaths ought to be reduced to less than one twenty-first part of their number.

* As some difficulty occurred in tracing the fatal cases sent out from the Coombe to the other hospitals, I cannot pledge myself that the death-rate, if taken, for the Coombe Hospital for the last fifteen years, as in the case of the Dublin Lying-in Hospital, might not prove different, and perhaps approach more nearly to the figures of that institution.

Or if we take the mean of the death-rate of the 11 great hospitals as denominated above as one death in 44, and suppose the magic of our eloquence to reach and influence their managers in establishing small hospitals, or properly-constructed huts, instead of their present large hospitals, the saving to human life by this simple alteration would prove immense.

Be it recollected, these poor women flock to these hospitals under the impression that they are gaining a safe asylum in their hour of trial and distress; little do they imagine that they are, in their ignorance, taking a step that adds to their risks of death, in a ratio, at the very lowest calculation, of three to one, and at the highest at 20 to one, against their lives. Shall we then continue to keep these asylums open upon their present faulty principle, when by merely remodelling the great obstetric institutions of this city ample and safe accommodation can be provided for them?

But it will be asked would you absolutely shut up the hospital, and destroy our world-renowned school of midwifery in this city? By no means; I would establish the midwifery school upon a sound basis. I would take the lead, as Dublin has ever done, in this department of medicine, and correct the crying abuses that exist; abuses that may have been excusable when ignorant of them, but which are unpardonable alike in the eyes of God and man when dragged into the light of day. There is no difficulty whatever in the case of the Lying-in Hospital of Dublin in meeting the intentions of the founder by such an alteration of the present system as our increased knowledge of its vices suggests. The correction of these abuses will benefit the medical school of Dublin, and the obstetrical branch in particular.

The intentions of the founder, Moss, would be best carried out by accommodating his great charity to those changes that progress in his art dictates, and which his great mind would have been the first to grasp and the boldest to execute were he now amongst us. Picturesque huts, in the Swiss or Italian stylé, sufficiently elevated above the ground, could be easily constructed to accommodate as many patients as are at present admitted, and could be built in the high ground in the Rotunda Gardens or elsewhere, or the pavilion system, lately introduced in some Continental and American hospitals, might be adopted.

The large hospital, at present such an ornament to our city, and such a benefit to humanity, through its diseases of female wards, can be appropriated exclusively to diseases of females, the brick

building appropriated as a residence for midwives sent up for instruction from the country, and thus supply the greatest desiderata to our school.

Patients can be more generally attended at their own homes, and appliances, medicines, and even food supplied. In fact, all that is here insisted upon except the isolated huts is, and has been, for years in operation—ever since my establishment of the female disease ward; and all we want is to extend these and add the huts. I long foresaw the necessity of these changes, and have been gradually pressing them on the attention of the governors.

It becomes a trying effort to look on at avoidable loss of human life, when the responsibility of preventing this rests upon our own shoulders. In this painful position have I been for the last 30 years. As a governor and ex-master of the Lying-in Hospital my impressions have been confirmed as to the necessity of the change I now advocate. I feel that, with my knowledge and convictions, silence on this subject would be cruel, heartless, not to say criminal. This feeling of dissatisfaction increases with age and experience; so do our apathy and listlessness. Life runs on apace, but misery and redress of wrong lag. These convictions must plead my excuse for so tardily calling public attention through the influence of our common profession to this great grievance. I have now done what I conceive to be my imperative duty in this matter, and confidently leave the issue in the hands of a profession who have ever made the public good its first object.

ART. XVI.—*On Traumatic Fractures of the Larynx.* By WILLIAM STOKES, Jun., Surgeon to the Richmond Surgical Hospital; Lecturer on Surgery, Carmichael School of Medicine; Fellow of the Royal Medico-Chirurgical Society of London, &c.

As fractures of the cartilages of the larynx are a class of injuries which so rarely come under the observation of the surgeon, the particulars of the following case of comminuted fracture of the cricoid, presenting features which, I may say, render the case almost unique in the history of these injuries, must doubtless be held to be of considerable surgical value.

On the 22nd of last September, I was summoned to the Richmond Hospital to perform tracheotomy for a female who had just been admitted, suffering from extreme dyspnea, which had come on