It is also observed that, during moments of powerful muscular effort, when the chest-wall is fixed, the thoracic diaphragm, abdominal wall, and muscles guarding the outlet of the pelvis, contract powerfully to steady the trunk. Under these circumstances, the abdominal organs are subjected to equal pressure in all directions; but, under precisely similar circumstances, with the exception of relaxation (or a passive state) in lieu of powerful contraction of the muscles at the pelvic outlet, the abdominal organs are pressed in the direction of the pelvis, and therefore force downwards the pelvic diaphragm towards the perineum. This is what actually takes place during the act of defecation, especially when much effort is used. Under the latter circumstances, it happens not unfrequently that the pelvic diaphragm gives way partially at the recto-uterine ligament, very much in the same way as the abdominal wall in cases of hernia. The peritoneum is forced downwards between the rectum and vagina; and, as it descends, it drags upon the posterior surface of the uterus, and causes it to fall backwards into the recto-uterine pouch, and bend at its most flexible part the junction of the body and cervix. Again, when the uterus as a whole is slightly lowered in the pelvic cavity, which is generally the first step in the process of posterior malposition, the fundus is directed upwards towards the promontory; and, when this position is obtained, the body of the uterus is forced backwards in front of the intestines at each succeeding muscular effort. The degree of flexion, which varies considerably in different cases, depends upon the amount of muscular effort, flexibility of the uterus, fixity of the anterior attachment of the cervix, capacity of the pelvis, state of nutrition of the soft parts, and integrity of the structures at the outlet of the pelvis; *e.g.*, pure retroversion—that is, without any flexion—would be obtained in a capacious pelvis, with a relaxed condition of tissues and a somewhat swollen rigid uterus.

Posterior displacements are not unfrequently brought about quickly by violent straining at stool, or by any sudden and instinctive muscular effort made to save oneself from falling, when the body is unexpectedly overbalanced by a slip of the foot or otherwise. It appears that, under the latter circumstance, the muscles at the outlet of the pelvis are liable to be taken by surprise, not being so readily acted upon by a reflex stimulus as those more immediately concerned in keeping the body in the erect position: hence the sudden displacement downwards of the pelvic diaphragm, and malposition of the uterus. These are the most usual circumstances in which posterior displacements are produced in young and healthy females; but more frequently they are the work of weeks or months, and are the result of a combination of causes—namely, a loss of elasticity and resisting power of the soft tissues, increased weight of the uterus, together with muscular effort, etc.

Although the normal position of the uterus is apparently more favourable to anteversion and flexion than any other displacement, yet, as a matter of fact, it is found that anterior displacements which are productive of any discomfort to the patient are extremely rare in comparison to the other varieties. The explanation of this is to be discovered in the anatomical connexion of the uterus and the inferior resisting power of the pelvic diaphragm at the recto-uterine pouch.

The positive conditions which most frequently determine anterior displacement are, the virgin state of the uterus and its attachments, a slight increase in the weight of its body and fundus.

With regard to lateral varieties of uterine malposition, it may be stated, in the first place, that even the posture of a patient may suffice to determine this to a slight extent temporarily. The fundus of a heavy uterus is found on examination to incline to the side on which the patient lies—that is, when the pelvis is capacious, and the soft tissues are relaxed and flabby. But a more permanent lateral displacement may be produced by a tumour situated a little to one side of the median line in the body of the uterus; by acute or chronic disease of either of the broad ligaments; by a diseased condition, attended by increased weight of one of the ovaries; or by tumours, etc., in the neighbourhood of the uterus and its appendages.

Prolapsus Uteri.—It has been already shown that the uterus is freely movable in the vertical direction, the line of movement forming an arc of a circle which is more or less parallel with the axis of the pelvic cavity. And it is found, on examination, that the relative position of the uterus in this pelvic arc varies in different individuals, and also in the same individual, within a certain latitude, under varying circumstances. When the cervix descends below its normal limits (which may be stated approximately to be at about an inch and three-quarters above the fourchette), the case is said to be one of prolapsus. When this occurs, the pelvic diaphragm is forced downwards in an infundibular manner. The suspensory ligaments of the uterus, as well as the supports at the pelvic outlet, give way, allowing the organ to descend, and, in extreme cases, to invert the vagina and protrude through the vulva. The main conditions which determine this variety of mal-

position are, loss of elasticity and resisting power of *all the surrounding* attachments of the uterus; increased weight of the organ itself, and the parts pressing upon the pelvic diaphragm; and impaired support of the soft structures around the vagina and at the pelvic outlet.

THE ORIGIN OF MIASMATIC DISEASE.*

By JOHN M. BRYAN, M.D., President of the South Midland Branch, Northampton.

IT has not been usual, I believe, that your President should deliver an address at this our autumnal meeting; but I think it is due to the Society, and to the position which he holds, that the business of the meeting should be opened by one, however short. I am pleased to meet all present, however few the number; and I regret that the distance at which many members reside, and the difficulty to leave professional duties, prevent more from being present.

This year will long be remembered in our annals for the greatest gathering of medical men ever brought together in London, or, perhaps, any other place. There were three thousand present at our annual general meeting in August, besides four hundred ladies at the Mansion House, and that number at two of the evening *soirées* or presentations at which I was, *viz.*, at the Mansion House, given by the Lord Mayor, and at the College of Surgeons; one other also was given by the University College, at which ladies were present. I was pleased to see our Branch fairly represented, as I believe I counted about twelve of our Associates at King's College. But surely more ought to have been there; and absent gentlemen can hardly realise the vast hospitality and pleasure derived, and knowledge gained at the annual general meetings. I can speak well for myself, having attended the three last, *viz.*, Plymouth, Birmingham, and London, as well as Leamington, Oxford, and others.

As this locality has recently been visited by typhoid fever, and was so, likewise to my knowledge, some few years since, I thought it might be interesting, and lead to some discussion and good results, if I made a few remarks on that disease, and the origin of miasmatic diseases generally. I may premise that infection is the power possessed by the breath, perspiration, excrementary discharges, and cutaneous waste of persons in certain morbid conditions, to propagate "catching" diseases. And it might be well to consider what are true reliable disinfectants, in contradistinction to deodorisers, as there is much difference of opinion on the same. I am disposed to think that the only true disinfectants are those which produce an atmosphere or vapour in which neither we nor any life can be sustained, such as heat, chlorine, and sulphur vapour principally.

The belief in the spontaneous origin of the specific miasmatic diseases rests on negative evidence, *viz.*, the fact that cases do spring up, in which it is impossible to trace the disease back to a personal source of specific propagation and dissemination—an event which is inherent in the very nature of these diseases. There seems no doubt that typhoid fever is the result of the inhalation of miasm of decomposing animal matter, either in the form of aerial emanations, such as sewer-gas, or of local pollution of the drinking water, by infiltration of such matters; and, whenever we meet with a case of enteric fever, we always look to the local circumstances under which the patient was placed, at a date corresponding to that of the ordinary commencement of the period of incubation, which period, according to Sir W. Gull, may be from twelve to fourteen days.

Endemic influences result from conditions or agencies peculiar to a locality which favour the development of various miasmatic diseases, and may thus account for their sudden origin; they are traceable to the constitution and state of the soil, water, and air; to elevation above the level of the sea, vicinity of sea-rivers, or stagnant water; woods or vegetation, variations of temperature; prevalent winds; in connection with avocations, modes of life, quality and quantity of food, as modified by moral agencies, such as indolence and activity, privation and comforts, filth or cleanliness of people, together with their habits of life and employment. Endemic influences become mainly active through the following conditions, *viz.*:—1st, that the specific poisons by which the communicable diseases, such as small-pox or typhoid fever, propagate their kind, are never totally in abeyance; 2ndly, the specific communicable diseases are constantly somewhere, and only under conditions favourable to their dissemination do they spread or become epidemic; and, although their germs or gases, or active principles or media of propagation and development, may lie dormant or latent for a time, it is not to be inferred that they have ceased to exist. There are the same

* Read before the South Midland Branch.

alternations of slumber and activity—prevalence in one place, free in neighbouring places—and so that they prevail in a new locality after having died out in the old. The occurrence of long intervals of rural exemption is not traceable to any feebleness of the poison to act; for, when the disease becomes developed in these places, the ratio of persons attacked is incomparably greater than is ever seen in cities in like circumstances. *Ex. gr.*, about two years since, at Kingsthorpe, a village near Northampton, the death-rate was 76 to the 1000; and such I have personally known some years back at Hardingstone, Brafeld, Denton, Ecton, and other villages, where the entire population seemed affected; and I have had twenty-three or more cases under my charge at one time in one of these.

In small villages, where no sewers exist, the air may be infected, or the water contaminated, by direct or indirect importation of cases of specific diseases, or their equivalent, the poison itself, as I have myself known and seen from servants going home with typhoid, and several of the family in some distant village (at the time free from any like complaint) taking the same, and dying in numbers of two, three, or more; so that the organic impurities, the dung-heaps, the open soil which surrounds the dwellings of the patients, the cesspools and privies common to several houses, gradually but eventually become impregnated with the specific poison of the disease. One element is constant, that is, the specific or morbid poison which is the origin of each case.

In large cities, such specific poisons are always more or less active. The immunity acquired by one attack is of no avail against the rest. There is reason to believe that fermentation, putrescency, or decomposition may quicken the activity or facilitate the development of specific morbid poisons in the way of a predisposing cause; but cases spring up in which it is impossible to trace the disease to a personal source of specific propagation.

It seems to have been clearly proved by Dr. W. Budd of Bristol, "that the communicable poisons of typhoid fever are capable of being imported or carried from place to place by persons who have the disease." Mr. Simon makes the important remark, that "the bowel-discharges may not be the *sole* means of multiplying or disseminating these diseases, although Dr. Budd's arguments are to the general effect, that, specially, the bowel-discharges are the means by which a patient, whether moving or stationary, can be instrumental in disseminating typhoid fever or cholera;" query, whether the bowel-discharges, in the course of decomposition, or not, acquire power? Sir W. Gull's theory is, "that germs get into the blood, as the air is full of them." He also says, that, "in the treatment, we must save the strength from the beginning, and not trust to medicines to cure it;" and he would prefer to carry anyone through typhoid fever by wines, soups, and fresh air rather than by the use of drugs. From what I have seen myself, I believe that there may be no case, however unfavourable the symptoms, from which recovery may not take place.

I might still further dilate on this subject, did time permit; but, having thus far proceeded, I shall hope to hear remarks from our valued associate, Mr. Haviland, and others, which may possibly lead us to the best mode of treatment. As to entire prevention, we must leave that also to the first-named gentleman; as the ungrateful public can hardly expect us, as medical practitioners earning a living, to do that which would lead us to say, with Othello, "that our occupation is gone!"

PATHOLOGICAL MEMORANDA.

CONGENITAL UMBILICAL HERNIA.

A PATIENT of the Westbourne Dispensary, a primipara, was delivered by the midwife of a female infant; vertex presentation, labour normal. At birth the infant presented the following peculiarities: (a) considerable deficiency of the cranial bones at and around the posterior fontanelle; (b) a supernumerary toe and finger on each hand and foot respectively; (c) at the umbilical aperture a large globular tumour of the size of a small hen's egg, with semi-solid and fluid contents, enclosed by an expansion of the sheath of the umbilical cord. From the lower end of this tumour extended the funis, which at birth had been divided and ligatured just *below* the tumour.

The infant lived five days. During life it took hardly any nourishment; uttered a peevish whining cry; it had no action of the bowels; but on the second day the friends gave some castor-oil, and two evacuations of meconium took place: no subsequent defæcation occurred. There was no vomiting.

At the *post mortem* examination, the tumour near the umbilicus was found to be an umbilical hernia, consisting of the following structures:—viz., the remains of the funis, about two inches of the ileum, the cæcum

and vermiform appendix, and a portion of the colon distended by meconium. All these contents were matted together by old adhesions of lymph; and the adhesions between the superficial parts of these, and the walls of the sac, were very firm; at the umbilical ring, however, no adhesions existed.

Remarks.—The mother attributes this occurrence to a fright she received in the early months of pregnancy, owing to hearing about a man who was killed on the Metropolitan Railway, after which he was dragged by the train with his head on the rails. Pathologically, the case presents the following points of interest. 1. The marked adhesions point to inflammatory action having occurred during the early months of pregnancy; so that probably a temporary umbilical hernia existed previously to the fright, and at this time became aggravated in size, and was rendered permanent, probably, by some accidental peritonitis which then occurred, bearing out the view held by Sir James Simpson. 2. These early and firm adhesions render an attempt to reduce such congenital umbilical hernia impracticable. 3. Ligature and division of the funis must be carefully applied, so as to avoid all chance of including any intestine *below* the tumour. 4. Purgatives are useless; the case shews the necessity of giving a prognosis of death within a few days of birth, in all probability.

H. CRIPPS LAWRENCE, L.R.C.P. Lond., etc.,

Surgeon to the Westbourne Dispensary.

CLINICAL MEMORANDA.

VACCINATION FROM A VARIOLOUS PATIENT WITHOUT COMMUNICATING SMALL-POX.

MR. ALDERSON'S memorandum on vaccination from a child suffering from small-pox, in the JOURNAL of Dec. 6, reminds me of a circumstance that occurred to me in the autumn of 1864, when small-pox was prevalent here. I was consulted about a boy 14 years of age, who was slightly feverish; and, as he had never been vaccinated, and lived in a street where small-pox was prevalent, I at once vaccinated him. His arm took so well, that I re-vaccinated more than a dozen persons from it. On the same day, the eighth, the boy felt rather chilly; and on the thirteenth day I was sent for, and found him in bed with incipient *confluent* small-pox, which was especially thick on the face. He was very ill for about a week, and then rapidly got better, and the pustules aborted, never becoming larger than a split pea. He is now in good health, married, and has a family. All the arms rose well, and no variola was communicated.

In this case, it seemed to me that the vaccination rendered the small-pox latent for a time, but that, when the vaccinia had passed its *acmé*, the variola took its usual course, but was rendered abortive, and declined, instead of being worse, after the eighth day.

RICHARD ALFORD, F.R.C.S. Eng., Weston-Super-Mare.

FÆCAL ACCUMULATION.

As an addition to the case of fæcal accumulation published by Dr. Cole, in the BRITISH MEDICAL JOURNAL of November 29th, and to illustrate the importance of diagnosis in all diseases situate below the diaphragm, which are too often designated as obscure "abdominal tumours," I beg to submit the following. A. P., aged 14½, was admitted into the Queen's Hospital, Birmingham, February, 1871. When she was two years old, her mother noticed an enlargement of the abdomen on the right side. When she was two years and a half old, she had scarlet fever, and the enlargement was said to be due to dropsy. She was always confined in her bowels, often passing a week without a motion; and, four years ago, there was no motion for nearly three weeks. After the bowels had been confined for some time, the enlargement increased in size and diminished again when a motion was passed. The motions were always small in quantity, and watery. There was no sickness nor headache; no œdema of the ankles; no pain on micturition. Occasionally, she had gripping pains in the tumour. On admission, the abdomen presented a prominent enlargement, chiefly on the right side, and was very prominent in the right iliac region. By firm pressure, the hand could be placed below the tumour into the cavity of the pelvis. The superficial abdominal veins were rather enlarged; there was no bulging of the flanks; there was hyperresonance all over the abdomen, except in the right iliac region; there was no fluctuation. On palpation of the right side, a sensation was given as if the abdominal walls were pressed against some sticky tumour, and then slowly separated from it. Firm pressure with the finger left a depression, which could easily be distinguished. The tumour could be felt extend-