small to occlude; but then it should be recollected that these vessels had been forcibly torn from the convolutions; and that the strain exerted upon them, communicated to the fluid with which they were distended, would be quite adequate to dislodge many of them from the situations in which they had been impacted. It is, of course, obvious that such masses as those seen in Fig. 1, if they had not previously been impacted in an artery, must have been on the very eve of being so at the time of the man's death. Vessels from all parts of the convoluted grey matter showed similar occluding masses within.

An examination of portions of the *liver* showed the cells of the organ to be uniformly large and distended with granules; whilst here and there were to be seen areas in which actual fatty degeneration had taken place. In the thin sections which were made, several of the hepatic arteries were seen to contain masses of white blood-corpuscles similar to those in the vessels of the brain; and a condition of thrombosis was seen in many of the portal veins; that is to say, in the sections of some of these, there was seen within them (instead of the well-formed red blood-corpuscles, mixed with masses of white corpuscles, which were recognisable in others) only a dark reddish granular *débris*, such as results from the breaking up of red blood-corpuscles, together with intermixed single and aggregated white blood-corpuscles.

The *kidneys* presented appearances in every way analogous. Both organs were extremely congested. The renal epithelium throughout was granular and swollen, so as almost completely to fill the tubules; and many of the vessels were blocked up with aggregated white corpuscles, like those in the liver; whilst others showed evidences of a mere arrest of blood, and subsequent disintegration of red blood-corpuscles.

The *spleen* was, unfortunately, not examined.

It should be distinctly understood, however, that, whilst the vessels of the pia mater and other parts presented in their interior these irregular aggregations of white corpuscles, they showed no appearances (such as a lining of these next the walls of the veins) which could be considered in any way characteristic of inflammation of the part itself.

(To be concluded.)

SOME PHENOMENA OF ANÆSTHESIA BY PROTOXIDE OF NITROGEN.

By F. WOODHOUSE BRAINE, F.R.C.S., London.

THE topic of anæsthesia being at the present time before the medical profession, I send a few notes, that may prove interesting to those who have the subject under consideration, on the anæsthesia following the administration of protoxide of nitrogen.

It is curious to remark how often, as unconsciousness comes on, the ruling idea is one of noise and motion combined. Some patients think they are seated in, or running after, an omnibus; but many more imagine themselves in a railway carriage, travelling faster and faster, till they suddenly seem to enter a dark tunnel, and then all is a blank to them. Sensual emotions are not unfrequently excited in both sexes. A man, who had been married about three months, stated, on awaking, that he had been dreaming of his wife; and an unmarried hysterical girl certainly gave evidence, by her movements, that she was quite aware of one of the duties of married life; and, moreover, in this case, the idea was still present when she was able to speak, for she addressed the administrator in terms far fonder than the occasion warranted; while another girl, who had behaved in a similar manner, said, "I hope I have not said anything naughty." Both these cases brought forcibly to one's recollection, many trumped-up cases of felonious assault, and how extremely inadvisable it is to have recourse to anæsthesia without a third person being in the room.

At a recent meeting of the Odontological Society, it was stated that the nitrous oxide had been administered in a few cases of pregnancy; but, delivery not having at that time taken place in any one of these cases, the fetus *in utero* was unknown. A lady, one of the above cases, whom I put fully under the influence of the gas twice during the eighth month, has just been confined with a fine healthy boy; so that, in this case at least, the gas cannot have interfered with the nutrition of the child, for it weighed at birth eleven pounds and a half.

When administered to a girl, aged 19, with cavities in the apices of both lungs, the patient was insensible at the end of forty-five seconds. The respiration suddenly became very shallow and panting, while, instead of the rosy hue which generally appears over the face and lips on the removal of the face-piece, the lips and face became more dusky before the red tint appeared; the pulse was not affected, but the respiration, for more than half an hour afterwards, was very shallow and hurried.

CASES OF EXTRAUTERINE FÆTATION, DETECTED AT AN EARLY STAGE OF GESTATION.

By EVORY KENNEDY, M.D., DUBLIN.

THERE are some diseases of such rare occurrence, that a physician with large opportunities never meets a case throughout a life's practice; whilst his acquaintance with them is restricted to their histories, as reported in the repertories of rare medical cases, or allusions to them in popular systems. I am about to draw attention to some cases of this kind which I have had an opportunity of observing and detecting during life—an opportunity that rarely offers, as their general recognition is delayed until after death. The cases to which I allude are those in which the human germ is found *without*, instead of *within*, the uterus.

The first case of the kind which I met in practice was in the year 1829. A young woman, supposing herself pregnant for about three months, was attacked with excruciating pain in the region of the uterus, spreading over the abdomen, with fullness and tension in the seat of the uterus. On a careful examination, the distension was found greater than should have been, according to the period of her supposed pregnancy. The pulse was small and rapid; the countenance pallid and shrunken. The uterus, on vaginal examination, was not enlarged in a manner corresponding to the period; but a doughy resistance, or feeling like a soft tumour, was perceptible on pressing towards the upper floor of the vagina. The tumour in the region of the pelvis increased gradually in size for two days. The pulse became smaller and more rapid; sickness of stomach occurred; gradual prostration, with bloodless aspect, followed; and she expired, with all the appearance of a patient dying from internal hæmorrhage. On examination shortly after death, the cavity of the pelvis was found filled with clotted blood, which rose considerably above the pubes. The uterus was but little enlarged, and was pressed downwards and forwards towards the pubes; and an ovum was found, corresponding to about the ninth week, imbedded in the clot. The right Fallopian tube, with the tissues of the broad ligament torn and jagged, exhibited a dilated cyst, in which had rested the ovum.

This case, which I give from memory, as it occurred immediately after my entering the profession, naturally became impressed deeply on my mind; and, I doubt not, the impression it made prepared me to expect the occurrence of similar cases. I was not fated to be long delayed in my search for its analogue; and of it I took accurate notes at the time, which I now reproduce, but abbreviated.

On November 1st, 1830, I was summoned to see Mrs. —, and was informed that she had miscarried about a fortnight before, at which time she had had some hæmorrhagic discharge, and a clot came from the vagina. She was then bled by Dr. Madden of James Street, in consequence of complaining of severe pain in the lower part of the abdomen. She had so far recovered from the attack as to be able to be up, going about her house. She was again attacked on the night before my visit with violent pain over the pelvic region; on examining which, a tumour could be distinctly felt, occupying the place of the distended bladder, but firm, solid, and painful to the touch. The pain was constant, but sometimes very violent for a few minutes, and extended round to the back and loins. Her countenance was pallid, and expressive of extreme distress and suffering. The pulse was 112, and small. She made frequent attempts to pass urine, which came away with pain and in small quantities. The bowels had been acted on, from saline medicine taken the day previously. Leeches were now applied over the abdomen, and a full anodyne administered. Early on November 2nd, I was sent for in haste, and found her suffering from extreme pain in the abdomen and loins, and vomiting. The pulse was 130, and scarcely perceptible; her countenance was exsanguine, her lips blanched, her extremities cold, and her body covered with clammy perspiration. The tumour in the abdomen was more perceptible. There was now a fullness observed generally over the lower part of the abdomen, which gave a doughy sensation on pressure. I now formed the idea that my patient was sinking from hæmorrhage. But the question arose, Whence was the hæmorrhage? On a vaginal examination, the os uteri was found tilted back and towards the right side; and so completely was it displaced, as to escape detection for some time. It, however, was open; and the tip of the finger could, without difficulty, be insinuated within it. Nor did it at all exhibit the characteristics of an impregnated uterus. The upper part of the vagina could be, at the same time, felt pressed down into the pelvis by some semi-solid substance, giving exactly the idea of clotted blood. The patient had stated that she reckoned herself about six or eight weeks pregnant, and did not know accurately whether the ovum had come away when she was ill a fortnight

since. The menstrual discharge, although it had not ceased, appeared in very small quantity last month. Under these circumstances, therefore, I concluded that this patient had an extrauterine impregnation; that the vessels supplying this from the cyst had given way, or were ruptured from some other cause; and that she was now sinking from hæmorrhage into the peritoneal cavity. I explained the nature of the case to the lady's husband, with the extreme danger (I might have added my impression of the certain fatality attending it); and asked for further advice, when Dr. Collins was called in. Dr. Collins agreed with me in the view I had taken of the case; and, to place the matter beyond doubt, I introduced within the os uteri a catheter, which I passed up for about two and a half inches; and this could be distinctly felt (through the abdominal parietes) on moving it by the hand pressed over the pubes. Opiates, chicken-broth, and stimulants were freely administered; perfect quiet was enjoined; the limbs were encased in flannel; and at 9 P.M. the pulse was more perceptible. She was in less pain, and in other respects as in the morning.

Nov. 3, 9 A.M. She had slept well; drank freely of broth and wine-whey. Pulse 120. The opiate injection remained up. She felt stronger; the extremities were warm. There was rather more fullness over the pubes. She had little pain now, unless on pressure or motion. There was a slight sanguineous discharge from the vagina. The opiate enema was ordered to be repeated at bedtime, and the aliment to be continued as before.

Nov. 4th. She slept several hours in the early part of the night; but became very restless and uneasy towards morning. Pulse 140, and very weak. The countenance was completely bloodless; the canthus quite white; and the tongue as if parboiled, the under surface appearing to want its vessels. The bowels had now been without action for days. An injection was ordered to be administered; this not acting, two grains of calomel were given, which acted; and the pulse fell at the evening visit to 125. She was ordered to continue aliment freely, and to have claret *ad libitum*.

Nov. 5th. Pulse 128. She slept well; in other respects she was as on the previous day.

Nov. 6th. Pulse 128. The bowels acted from the injection; she slept well, had less abdominal uneasiness, but could not bear pressure.

Nov. 7th. She imprudently sat up. The pulse rose again to 135, with much prostration. Stimulants were more freely given, and perfect rest enjoined.

Nov. 8th. She had a good night; pulse 120. The calomel-pill was repeated.

From this, she continued much the same, unless on one occasion, when exertion again brought up the pulse, and the tumour seemed more diffused, extending rather higher up in the abdomen. On the 18th, she was so far recovered as to sit up without inconvenience. At this time, the doughy resistance or tumour extended up to near the umbilicus, and her pulse still kept up to 120. The face was bloodless, and she was easily exhausted on the slightest effort. Her subsequent recovery was slow, but complete; and took the course of a case much reduced by hæmorrhage. The tumour gradually became absorbed; and, when I last saw her, very little of it was perceptible, low in the abdomen. Unfortunately, I lost sight of this case, owing to her leaving her residence in Dublin, and I was unable to trace out her subsequent history.

This case seems to have been identical nearly with the first, or fatal, one recorded. The rupture occurred in the cyst, in all likelihood, placed in the Fallopian tube. Blood was poured out into the cavity of the abdomen, and a clot formed and closed up the vessels, so as to give time to rally and make fresh blood. By over-exertion, the clot appears to have been displaced again and again, and draining to have recurred from the ruptured vessels, apparently slowly, but evidently in sufficient quantity to add to the effused clot sensibly, and to keep down the vital powers. Eventually the vessels became impervious, and she steadily rallied, exactly as a hæmorrhagic patient usually does.

The next case I saw, eighteen years since, with Dr. Dwyer. The opinion at which we arrived as to its nature was disputed; and it is only somewhat more than a year since the result of the case declared itself. I shall give the first part of the case in the words of Dr. Dwyer, and the latter part in the words of Dr. Churchill, who have kindly supplied me with the details, I having only seen the case in consultation with the former gentleman at its early stage.

"Mrs. — has had one child, at this date (October 1844) 10 years old. About two years since, she fancied herself pregnant; her menstruation having become scant and painful, accompanied with profuse leucorrhœa, occasionally tinged red. I treated her for these symptoms; and, on her recovery, did not again see her until Sept. 4th, 1846, when she was suffering from symptoms of early pregnancy. Her last period had been on 16th July, 1846; it was natural, and she expected her confinement at the end of April 1847. She now commenced suffering from

malaise, with uneasy sensations in the uterine region; and, on Oct. 20th, these became so acute that Dr. Kennedy was called in to see her with me. Fomentations and sedatives were directed, and with relief, for some days; when, suddenly, there set in agonising pain in the right uterine and iliac regions, attended with vomiting and great prostration, with extreme shabbiness of pulse, indicating apparently some peritoneal injury. Dr. Kennedy was at this time out of town; and Sir Henry Marsh saw the case with me. Opium was now administered freely, one grain of solid opium being given every second hour for some hours; and fomentations were repeated, followed by a blister and brandy. She gradually obtained relief, improved in health, but always experienced more or less sense of uneasiness and weight in the right iliac region. I discontinued my attendance on November 7th; but was subsequently informed that she had quickened. I was called to see her on Nov. 26th; and, on examination with the stethoscope, detected in the right iliac region, which felt full, a distinct placental *souffle*. I did not visit her for nearly four months from that time, and was again called to see her in March 1847, when she suffered great distress from pressure and, as she termed it, a bursting feeling at intervals. I now sought for the sounds of the foetal heart, but always in vain. A bandage and mild aperients afforded relief; and, on April 25th, 1847, I was summoned by the nurse-tender then in attendance upon her, who supposed her in labour. She stated that she had been all night complaining; and added that, as the pains continued, she thought it well I should know. The pains subsided, and the threatening went off for ten days, when, in consequence of the pain returning, with uterine discharge, I was suddenly summoned, and immediately asked for a consultation with Dr. Kennedy."

Here Dr. Dwyer's report terminates; and I shall now state the rest of her case in its early stage, with which I am myself familiar.

On a close investigation of her case, we satisfied ourselves that the os uteri was patulous. The neck was not obliterated. A resisting fullness was felt at the upper part of the vagina, pressing on its upper floor, and more perceptible at the right side of the uterus; the neck of which was traceable and but little enlarged, beyond what would be the case if unimpregnated. It was pushed over to the left side. A steel-sound was introduced by me into the os uteri and passed up for upwards of three inches; and Dr. Dwyer could distinctly feel the point of the sound pressing up the fundus of the uterus against his fingers placed above the pubes. We now arrived at the conclusion that the case was one of extrauterine pregnancy, most likely of that form in which the ovum had rested low in the Fallopian tube, close to the wall of the uterus; and further, as the pains had yielded under treatment, principally sedatives, and as there was no indication of internal hæmorrhage, at least, to any serious extent, from the rupture of the cyst if (this had taken place), we determined that no more decided interference was then called for. We informed the patient's friends of our opinion; and endeavoured to reconcile them to the idea that, at some future time, nature would assist in accomplishing the throwing off the foetus, by abscess pointing in the vagina, or elsewhere; when assistance could be rendered more safely than by attempting any operation at the moment. This opinion was very unpalatable to the friends, and so ungraciously received, that we were relieved from further attendance upon the case, and the lady placed herself under the care of an eminent physician, since dead, who arrived at conclusions different from what Dr. Dwyer and I had done as to the nature of the case. What these were, we never could exactly ascertain; further than that, in his opinion (an opinion I feel bound to say with justice, highly thought of in the profession), the lady "was not — nor had she been — pregnant, and consequently did not carry about a dead foetus."

Eighteen years passed over. The lady, I have been informed, continued in a complaining state, but was able to go about, and did not evince much appearance of delicacy. She was said to have suffered from general debility, and, for several years, from a profuse menstrual discharge, as well as from rather constant sanious — purulent or leucorrhœal — discharges. These symptoms, and her general delicacy, ascribed in a great measure to the mistake which her physicians had made in pronouncing her pregnant when not so, and treating her accordingly, caused much interest to be taken in her, both within and without the profession, especially when this lady's case came upon the *tapis* between mutual friends. It should operate as a warning to the younger members of the profession, who pride themselves upon an astute diagnosis. For eighteen long years, we reaped the full benefit of ours before the mystery was elucidated; and the only answer the two doctors could give to the repeated attacks and insinuations about the error they had committed, was "wait"! But, happily for the sake of science and truth, the mystery was eventually cleared up, and happily for the doctors they survived its elucidation. Some months since Dr. Churchill and Dr. Butcher were called to see this lady; and I shall best conclude the case by giving Dr. Churchill's account of the result in his own words.

"I was called to see Mrs. —, in a state of debility, worn out with discharges from the vagina of long standing; and, on examining *per vaginam*, I found behind the cervix uteri, and a little to the right of the mesian line, a small opening as large as a goose-quill, into which the finger-nail entered, and grated against a hard substance, which was concluded to be bone. Higher up, a small tumour could be felt in the posterior wall of the uterus. On consultation with Dr. Butcher, this opening was enlarged by me; and Dr. Butcher removed the bones of a foetus in detached portions denuded of soft parts, and much discoloured, indicating development to about the third month. Some bones were subsequently expelled with the discharges; and the cavity, on being examined by me, seemed to be large enough to contain a good sized walnut. Her health improved immediately after the healing of the abscess, which was speedily accomplished, and her periodic health became regular and moderate, with total subsidence of sanious and leucorrhoeal discharges, to which she had been for eighteen years more or less liable."

The question that remains an open one in this case is, whether any rupture of the cyst occurred; and, if it did, at what period of the pregnancy? If rupture occurred, it must have been about the 25th of October, when the acute abdominal suffering occurred, for which Sir Henry Marsh and Dr. Dwyer treated her; but she evinced no symptoms of internal hæmorrhage; therefore, if the rupture occurred, no serious amount of blood could have made its way into the abdomen. The absence of any increased size or tumour in the abdomen further confirms there having been no hæmorrhage in this, as was the case in the two preceding cases. Another feature of interest, that creates a doubt as to the exact period at which the development of the germ ceased, is the fact of Dr. Dwyer having detected the placental murmur exactly a month after the occasion of the violent pains on the 25th of October. It will, no doubt, be in the recollection of my hearers, that, in the year 1833, I put forward some cases of murmur existing after the death of the foetus, but altered and more abrupt in its character; and this may probably have been the case here.

THE APPLICATION OF MODERN IDEAS TO INFANTILE THERAPEUTICS.*

By T. P. HESLOP, M.D.,
Physician to the Birmingham Children's Hospital, etc.

(Concluded from page 46 of last number.)

LET me digress for a moment, for the purpose of pointing out that the knowledge of the generalised actions of drugs should direct us to the utility of combining several similar ones in coping with disease. In this way, the maximum of effect is produced with the minimum of danger. Brown-Séquard tell us that he has seen greater benefit accrue from the use of many remedies combined together than from either of them alone, and furnishes us with a formula for a pill containing seven neurotic agents of great potency. These considerations are in opposition to the principles of one school of medical thought, which relies on the effects of a single drug administered at one time, and inveighs harshly against polypharmacy. It is, however, probable that in abstaining from associating medicines we yield advantages, while we run dangers otherwise capable of being obviated. By such association we lose the charm of simplicity; but is not disease a deviation from the simplicity of nature?

The principle of the universal effects of our therapeutic measures, and consequently of their necessarily limited use, was once very well seen in the effects of blood-letting. This belongs to the direct class of measures; in pursuance of their belief that they could jugulate the inflammatory process in pneumonia, our predecessors took away from fifty to one hundred and twenty ounces of blood. They sought to obtain their end by emptying the lungs of blood, and, out of the sudden great loss of the nutritive fluid, to create a profound impression; in other words, a shock throughout the system. Doubtless they sometimes actually gained their object; at others they destroyed the subject of the inflammatory process. Even when the pneumonia was strangled, they brought about endless evils by the immense depletion practised. These eminent men lost sight of the principle I just mentioned. They acted as if the lungs could be emptied of their blood without devitalising the medulla oblongata and the semilunar ganglia; as if the respiratory organs had a nutritive supply independent of the rest of the body; and as if this independent mass of blood could be separately abstracted from the system by means of an opening in one of the veins at the bend of the elbow. These assumptions seem to us absurd; but they may teach the lesson that our indirect medication by drugs must submit to the limits imposed on the direct

medication by blood-letting, and that any part of the system is only reached when the whole has been penetrated.

Moreover, the practitioners of the past forgot that we cannot soften or harden, eliminate or cicatrise. They did not know that exudation, proliferation, and vasation are equally outside the reach of the modifications of art. In what their blood-letting did result, as compared with other methods, is easily seen in the table given by Dr. Jaccoud, in his clinical lectures. The mean mortality in pneumonia, treated by blood-letting alone, by Dietl, and at Edinburgh, was 27.06 per cent.; by tartar emetic alone, by Dietl and Rasori, 21.38 per cent.; by mixed treatment, *i.e.*, expectation in mild cases, blood-letting and emetics in serious cases, by Grissolle, Laennec, and Skoda, 14.25 per cent.; by pure expectation, *i.e.*, abandoned to itself, 7.4 per cent.; by tonic medication exclusively (Bennett), 3.10 per cent. Jaccoud's comments on these figures are the following: "The mortality is lowered in proportion to the diminished energy of the treatment; and the pretended curative virtue of these medications is thus estimated with a mathematical severity. As for digitalis, the comparative researches of Thomas of Leipsig, have established the fact that, in spite of its powerful action on the pulse and temperature, it does not diminish by one hour the duration of pneumonia, and in no way modifies the natural defervescence. The figures shew you, besides, that the minimum mortality is obtained by the exclusively tonic treatment, *i.e.*, with quinine, wine and a light alimentation, even during the stationary period. This is a most remarkable result." (P. 71.)

If these ideas are of moment in general medicine, they are of infinitely greater weight in the domain of pædiatrics. Infancy is the period of acute diseases, and especially of those which run a rhythmic course, with a well defined ætiology, a period of incubation, of rise and of decline. If we exclude infantile paralysis, some cutaneous disorders, and the chronic wasting derived from improper or insufficient food, we have here only to deal with what, to adopt Dr. Gull's phrase, must be called the storms of pathology. It is true that rachitis, scrofula, hereditary syphilis, do not belong to the category of acute diseases, being eminently chronic. But an exact classification must exclude them from the list of diseases proper.

They are, for the most part, germinal in origin, and find their centre in intrauterine, or even in ovarian life. They are malformations not less real than hare-lip; though, instead of being confined to an external part of the body, they infect its whole life. From hygiene, alimentation, time, and the long-continued employment of analeptic medication, we mainly hope for the restoration of the tissues to the physiological standard.*

The diseases of children run on at a pace which baffles art. In a moment, laryngismus or a convulsion may compromise life. In twenty-four hours, scarlatina, croup, and diarrhoea, will often run their fatal course. In a few days, pneumonia, some forms of meningitis, intussusception, and noma, pass through all their stages. In most of these and many other diseases, we can avail ourselves only of indirect treatment, the limits of whose efficacy are far narrower than among adults.

The most powerful direct means of arresting the course of disease, that of blood-letting, is closed to us in infancy. Loss of blood is ill borne in children; the shock attendant upon it is worse borne. The wild efforts of our ancestors to conquer nature and subdue disease by this form of depletion are both more noxious and more fruitless among the young than among the full-grown. My last illustration of this was a case of gangrene of the lips after measles. Great hæmorrhage ensued, but it did not prevent the child from dying of pneumonia some days afterwards. The child is unable to resist an amount of disease which would scarcely be competent to endanger the life of a man. There is a higher unity of the system in childhood, as Barthez and Rilliet have pointed out. The whole is more impressionable and sympathises more readily and more deeply with the several parts than in adult life. A convulsion, syncope, or diarrhoea, may come to vanquish our hopes long before the full pathological development of the particular disorder has been completed. Owing to this condition of things, while the drug administered may be rendering service, its effects may be frustrated by an accident; or it may become itself the cause of accidents, for the nerves, vessels, and blood of the part are but a fraction of the physiological integer.

The peculiarities of children in the pathological state meet us on all sides. An intense febrile accession of the most alarming nature may occur, vanishing in a day or two, without giving the smallest clue to its causation. The most fatal of their diseases, tubercular meningitis, is often heralded by symptoms so trivial as to escape the notice even of the parent. Hoarseness and stridor may mean exudative croup, demanding active medication; catarrhal croup, requiring only the simplest procedures; or, the onset of measles, disappearing of itself as the erup-

* Read before the Birmingham and Midland Counties Branch.

* I make a reserve in reference to mercury in syphilis.