

AN ESSAY

ON

H Y S T E R I A :

BEING AN ANALYSIS OF ITS

IRREGULAR AND AGGRAVATED FORMS;

INCLUDING

HYSTERICAL HEMORRHAGE, AND HYSTERICAL
ISCHURIA.

With Numerous Illustrative Cases.



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AN ESSAY ON HYSTERIA.

CHAPTER I.

A selection of cases presenting aggravated and irregular forms of hysteria,—Analysis of the phenomena—Hysterical ischuria—Erratic discharge of urine, sometimes with well-marked hysterical paroxysms; sometimes with various anomalous symptoms, particularly, paralysis.

THE aggravated forms of hysteria always present matter for curious speculation. The most prominent symptoms in such cases are usually those which indicate direct derangement of the functions of the nervous system. Sanguineous discharges, and, more rarely, vomiting of a urinous fluid with suppression of the renal secretion, have also been noticed as striking symptoms. Two cases resembling the latter class have occurred in the York County Hospital; and I am induced to publish as condensed a history of them as possible, not only on account of their singularity, but because of their remarkable resemblance both to each other and to several cases detailed by various authors. An analysis of the most authentic of these I have subjoined.

I. H. O., a female, about 16 years, was admitted into the York County Hospital, under the care of Dr. Belcombe, on the 7th of October, 1836, for symptoms of diseased spine. She was of low stature, had a plump face, rather florid complexion, blue eyes, round, well-developed arms and legs, and large mammæ; the nipples also a little enlarged, with dark brown areolæ. She complained of sleeplessness, pain in the head, dimness of sight, (for which she wore semi-convex glasses,) loss of muscular power, so that she was unable to walk, pain and œdema of the inferior extremities, and pain and tenderness in the back, which presented, in the inferior dorsal region, scars, as of old issues. She had a constant short cough, as if caused by irritation in the pharynx, with an expectoration of a whitish, frothy fluid in small quantities. The pulse was slightly quickened, the skin natural. She had also loss of appetite, and pain in the right hypochondrium. The abdomen was knotty, much enlarged, tympanitic, and very painful on the slightest touch. The navel formed a *cul-de-sac*, about an inch in depth, the bottom of which could be seen with difficulty. There was discharged from it a fluid, which tinged the linen of a light red colour, and deposited upon it a small, florid-red coagulum. A simi-

lar fluid was discharged from the ears. The bowels were constipated, and stated to have been so for two or three days. The patient was unable to pass her urine, and had not done so for more than thirty-six hours. Dr. B. ordered the catheter to be passed immediately, and five or six ounces of healthy urine flowed. The catamenia were regular, and had appeared a few days previously to admission.

I ascertained from the patient and her mother that she menstruated at the age of ten years, when she suffered a long confinement from an attack of typhous fever. She, however, recovered moderate health, though always complaining of pain in the back. From July, 1835, until December following, she had loss of appetite and debility, and scaly spots on her legs. She then recovered, but on the 5th of March, 1836, was affected with pains in the teeth, head, between her shoulders, and in her side. Soon after she had pains in the dorsal region of the spine, pulsation in the throat, and great difficulty of breathing. So urgent was the latter symptom, that she breathed convulsively, and suffocation was often feared. She had a short, harassing cough with bloody expectoration, her sight was nearly lost, and she became incapable of moving, so that she was altogether confined to bed. Her abdomen at this time was much swollen; she passed urine in small quantities and with great difficulty; sometimes three or four days elapsed without any evacuation, but after one long period of retention she passed three or four quarts of urine. Her bowels were very obstinate, requiring the most drastic purgatives and enemata to move them. Her navel discharged a bloody fluid, which fermented like yeast, and ran down the abdomen. Her ears also discharged a reddish fluid, having a faint urinous smell.

These various discharges continued until August, when they ceased, except that from the ears. The difficulty of breathing and cough were also much alleviated, but at this period she began to vomit a fluid, which tasted salt, and smelt like urine. On the first vomiting of this sort, the fluid gushed from her mouth suddenly, and in large quantities. A neighbour, upon duly inspecting the fluid thus evacuated, pronounced it to be "certainly her water." This occurred frequently afterwards, but not regularly, her urine by the natural passages being scanty or altogether suppressed. The bloody discharge from the navel recommenced in September, and continued until her admission into the hospital. Upon inquiry of her former medical attendant I found there was some slight, but no very material difference between the statements made to himself and me. He also had the goodness to inquire of the neighbours who had witnessed the urinous vomiting, and informed me that they corroborated the facts already detailed. He considered her a deceitful, obstinate girl. His treatment consisted principally in counter-irritants to the painful portion of the spine, purgatives, and the use of the catheter. Tartar emetic produced ulcers on the back, which healed with difficulty, and left the scars already

described. Her diet during the whole of this period was farinaceous; animal food was always disagreeable; but beef during her illness was the most obnoxious, and the smallest portion would frequently cause urgent vomiting and distress.

The sonorous grating cough continued night and day, for three or four days after her admission, but disappeared when severe measures for its cure were talked of in her hearing. As no urine passed spontaneously, the catheter was used daily, and small quantities drawn off. In a few days it became of a deep red colour; and shortly after a frequent, hacking cough came on, and an expectoration of a bloody fluid, amounting in quantity to several ounces daily. The ears and navel discharged about an ounce each during the same period, and continued to do so until December 18th, when they ceased. The bloody urine was observed for a month only. From the period of admission to the 12th of December the symptoms were headache, sleeplessness, dimness of sight, pain and tenderness of the back, arms and loins; paroxysms of dyspnoea, cough, quick pulse; anorexia; frequent vomiting; knotty, tumid, tympanitic abdomen, very painful on pressure; most obstinate constipation; and constant retention and diminished secretion of urine. The catamenia were regular.

Various remedies were tried without producing any apparent benefit. Warm baths invariably aggravated the symptoms. Every species of narcotic failed to procure rest. Leeches were repeatedly applied to the abdomen, behind the ears, and to the temples with only temporary relief. Once, at the suggestion of Dr. Wake, four ounces of blood were drawn from the arm with the effect of inducing syncope during the operation, and active delirium and sleeplessness at night. The blood did not flow in a jet, and, after standing, presented the appearance of a soft coagulum, having a gelatinous appearance and no buff or serum. Its surface was of a bright red colour. Tonics were equally as inefficacious as depletory measures. The mineral and citric acids, wine, quinine, and other bitters, and strongly saline acidulated solutions had no effect,—with this exception, that the latter proved a very active purgative, when croton oil, turpentine, colocynth, scammony, and aloetic and other drastic purgatives, and enemata, failed to open the bowels. Next to the saline solution, croton oil given in two minim doses, every six hours, with yolk of egg, was the most effectual. The most efficacious hypnotic was composed of six grains of camphor, four of extract of hemlock, and four of extract of henbane, made into pills, and given at bed-time. When the bleeding ceased from the navel the abdomen was less tender.

From the end of December, 1836, to the end of February, 1837, asafœtida, aloes, and extract of henbane in combination, opium frequently repeated, creosote, hydrocyanic acid, bark, and other remedies, were given, with the constant use of drastic purgatives and enemata; with what effect the following note from my case-book will show.

February 24 (1837).—During the whole period of the last eleven weeks, the symptoms have varied little, the bowels have been obstinately constipated, never being moved without the use of the most active purgatives and enemata, and the alvine evacuations obtained by these have been invariably scanty. During an equal period less than a tea-spoonful of urine daily has been drawn from the bladder by the catheter. At intervals, varying in length from seven to ten days, three or four ounces of a urinous fluid have been vomited. The appetite has been variable, most usually wanting. Sleep could only be obtained by the constant use of narcotics, and many nights together are stated to have been sleepless. Laudanum, in two doses from 20 to 120 minims, procured rest; when the latter quantity was given, active delirium, continuing for three or four hours, was excited. In addition to her usual symptoms she complains of pain in the head and chest: the abdomen is tympanitic, and there is an obscure fluctuation. During the last three weeks there has been bloody discharge from the ears only.

Notwithstanding all these sufferings, the body is still as fat, and the arms, hips, legs, and mammæ as plump, as when the patient entered the hospital.

On the 26th and 27th of this month the patient menstruated. On March 2d the discharge from the ears ceased, and she complained of profuse perspiration between the shoulders and hips, making the sheet and her shift quite wet.

Up to this period little attention had been paid to the reports of the nurse respecting the urinous matter vomited. That usually shown seemed to be the half-digested contents of the stomach, having a urinous smell, and seldom of so thin a consistence as spoon-meat. The following occurrence arrested my attention at once.

March 9.—A fluid was shown to me this morning, which it was said H. O. had vomited during the night. It is nearly limpid, of a pale straw-colour, has no smell, but when heated gives off a very strongly urinous odour. About ten o'clock this morning, in the presence of the nurse, she vomited a farther quantity of fluid, having all the properties of urine freshly discharged. There could be no doubt of its being pure urine."

This was the first open attempt at an imposition which was carried on during the following three months with an obstinacy and cunning never surpassed, and scarcely ever equalled.

In the first instance, I was convinced that the vomiting of such a fluid was impossible. The perusal of the cases hereafter to be detailed led me to modify my first impressions, and determined me to commence a close investigation of the symptoms. On the evening of this date she was removed into a private ward, and a system of inspection commenced, which was gradually made more strict, and ultimately unravelled the peculiarities of the case to a considerable extent.

From the 4th to the 22d of March, the daily quantity of urine reported to have been vomited varied from twenty to forty ounces. It was occasionally precisely like healthy urine, sometimes mixed with food, and sometimes blood-coloured, when it had a peculiarly faint smell, which resembled the washings of slightly tainted meat. It coagulated by heat and nitric acid. About six ounces of a fluid resembling saliva mixed with blood flowed once from her mouth. On the 22d the navel was found full of a thick sanguineo-purulent fluid, smelling like placenta. Little or no urine was found in the bladder when the catheter was introduced. She frequently declined having the instrument used, because she was "sore." For some days she complained of pain in the left shoulder, and pain and inability to move the arm of that side, which hung as if paralysed. She had sleepless nights, and pain in the head and back. On the 4th, her bowels were moved without an enema for the first time during eight weeks. Her abdomen was exceedingly tense: measured round the abdomen, it was thirty-one inches and a half in circumference; that of a stout healthy girl, measured at the same time, was twenty-six inches and a-half. It was also very painful, and on one occasion, she having fainted, a line of tumours was observed in the right iliac region. These were of the size of a nut, and painful on pressure. Her pulse varied between 88 and 148, sinking and rising rapidly in a few seconds. Twelve leeches were applied to the abdomen, and bled rather profusely: the bleeding was followed by violent pain in the head, and increased action of the heart; pulse 138; syncope, delirium, and jactitation followed. There was extensive ecchymosis round the leech-bites. On the afternoon of the same day I resolved to sit with her and watch her vomit. So soon as she ascertained my intention, she became very restless, twisting herself about as though she had the colic. She said that she vomited soonest when upon her back, and accordingly she placed herself in that position. I sat with her for two hours, and then called for the catheter. During the moment I turned my back upon her for this purpose, she sat up in the bed, and when I looked round I observed her putting urine out of her mouth. Some of this I gave to Mr. Stott, an intelligent pupil of the hospital, who satisfactorily ascertained that it contained urea, a small portion of albumen, sulphates, muriates, and phosphates, lime, magnesia, and ammonia. On the 18th she again discharged urine from her mouth.

Up to this period nothing had occurred in the conduct of the patient to excite any suspicion of deception on her part. She seemed a quiet, inoffensive, and exceedingly reserved female, patiently submitting to every remedial measure. But the vomiting of pure urine in such large quantities was enough to excite distrust; and on the 22d, with a view to ascertain whether there were urine in the stomach, Dr. Belcombe ordered an emetic to be given. In about half an hour after its administration, vomiting commenced, and a clear amber-coloured fluid was shown as having been brought up. It

had mucus floating on it, and contained a large quantity of urea. The superintendence of the operation of the emetic was left to the nurse, upon whom, I have since satisfied myself, full reliance could not be placed. I resolved, however, to seize the opportunity now afforded for a more strict investigation, and soon after the vomiting had ceased, I commenced a close watch, which I continued, by the kind assistance of Mr. Evans, a senior pupil of the hospital, during thirty successive hours. Every precaution was taken to prevent deception, and she was not left alone for a moment. During this period she complained of pain, giddiness, and throbbing in the head, and twitchings in the legs. A drachm of laudanum was given at bed-time, but only produced general restlessness and increased pain in the head, hypochondrium, and hypogastrium. She had a short, frequent cough, the sound of which seemed to come from the pharynx, and occasionally spit out a bloody fluid, frothy, and evidently obtained by sucking her gums. It differed altogether from the fluid expectorated on former occasions. Round the umbilicus she had pain increased on pressure. The abdomen had the usual appearance. At the tenth hour of the watch I found the bladder somewhat distended, and after repeated attempts on the part of the patient to prevent me, I succeeded in introducing the catheter, through which eight ounces of urine flowed. Thirteen hours after, by request of Dr. Belcombe, I again attempted the operation, but did not succeed. At the thirtieth hour Dr. Belcombe again visited her. The bladder formed a large tumour in the epigastrium. The catheter was introduced at the first attempt, and twenty-nine ounces of urine were drawn off. She did not sleep during the whole period, and took nothing except an egg, a glass of ale, a few ounces of weak wine and water, and a cup of coffee.

The absence of the sanguineous discharges, and of the suppression and vomiting of urine during so long a time, might probably be considered by some as decidedly proving their non-existence, during the *past* period. But I had satisfied myself that the first class of symptoms did really exist, and the same causes which operated their absence might have operated the secretion of urine. Besides, I had already ascertained that urine did really come out of her mouth; the question to be decided was,—how it got there?

The morning following the watch, I again saw her put out of her mouth a yellow-looking, strongly ammoniacal fluid, resembling urine, which had been kept in a warm place for a day or two. She was then removed into an inner ward, from which every utensil was removed except a hand-bell. In the evening the nurse stated that she had vomited urine five times during the day; the whole quantity vomited amounted to nine ounces. At ten o'clock I again commenced a watch. Finding a tumour in the hypogastrium, I introduced the catheter, expecting the bladder was full. To my great surprise, however, no more than half an ounce of urine flowed. I repeatedly introduced the catheter, and took especial care to ascertain that it entered the bladder, but no more urine flowed. Three

hours and a half after, she complained of pain and desire to make water. I drew off six drachms of urine. Having occasion, immediately after, to leave her for some medicine, I removed every utensil from the ward, (except the bell,) and fastened her in it. I returned in three or four minutes, and found her with her mouth full of the usual urinous fluid, which she immediately put out. I am at a loss to say whence it came, but have little doubt of a deception having been practised.

On the same morning, after a short absence, I recommenced my watch, and, with the kind assistance of Mr. Evans, continued it for thirty-three hours. Minutes of the symptoms were taken during this, as well as the former watches, at short intervals.

At various periods she complained of pain, heat, and pulsation in different parts;—in the head, ears, middle of sternum, the left breast:—the pain running thence down her right arm, back, hips, &c. She slept for three hours, waking at short intervals. She took no food, and but a few small sips of coffee or water; the latter she said tasted salt. The tongue was usually white. The finger acquired a peculiarly offensive smell while within her mouth, resembling that of the vaginal discharge after parturition, mixed with a rotten herring-like smell. A piece of brown paper which had been chewed, and had a similar smell, was found in her bed. It had a pudendal hair with it. She said she had chewed it to take the nasty taste out of her mouth. Mr. Evans and myself called in a patient and the nurse, to assist her in putting on a clean shift, and left her for a moment: so soon as our backs were turned she motioned for the spittoon, and put into it from her mouth half an ounce of a urinous fluid similar to the last-mentioned. I am at a loss to say whence she obtained this. There was nothing observed to lead to the suspicion that it was transferred from the bladder to her mouth, except by means of the chewed paper. But from subsequent observations, it was ascertained that she was unable to pass her urine. The catheter was introduced a few hours after, and twenty ounces of urine drawn off. An emetic was then administered by direction of Dr. Belcombe. Nothing but fluid was vomited, which had not the slightest urinous taint. Shortly after, her bowels were moved for the first time during eleven days. The stool was composed of soft feces, mixed with hard, dry scybala, resembling flattened nutmegs both in size and shape. From the 27th of March to 6th of April, she was left to the care of the nurse only. The hand-bell was found to have a urinous smell, and was removed. Urine was said to be vomited. This differed from that drawn off at the same time by the catheter, in having no precipitate when kept for some time. The bowels were kept soluble, by frequently repeated doses of camphor and extract of colocynth, in combination. The other symptoms were unchanged.

On the 3d April, the navel, and on the 5th, the ears, began to discharge the usual red fluid, but less florid. I washed the ears and navel carefully, and examined them closely, but could detect no

orifice or mark of any kind. The meatus of the former was abundantly supplied with cerumen. She also began to expectorate a reddish fluid, and her feet swelled a little.

On the 6th of April, her legs and body were inclosed in a calico sac as high as the waist, which was so put on that it could not be moved in the slightest degree without my knowledge. It covered the navel. Its use was continued until the evening of the 10th. During this period, the ears and navel discharged more profusely than ever; she seemed much indisposed; complained of pain and beating in the head and ears, especially when the latter discharged most profusely. Occasionally the left ear only discharged. The short, frequent cough and bloody expectoration also returned. She required the daily use of the catheter, which invariably caused her pain. The urine was sometimes natural in quantity, but most frequently scanty, and occasionally had a muco-purulent deposit. Her mouth had the remarkable taint already noticed. The tongue was tremulous; the pulse accelerated. She frequently had a sensation as if pins were running into various parts of her body. The abdomen was less tense, and gave an obscure feeling of fluctuation. The navel had all along formed a fossa or pit, constituted apparently by the œdematous integuments of the abdomen. As the usual discharge flowed more profusely, I was able to collect two or three ounces of it. At this period her nurse was removed, and her place supplied by one in whom I had complete confidence.

On the 14th of April, there was great difficulty in drawing off the urine; the catheter becoming repeatedly obstructed by an adhesive, white, curdy substance. There was not more than three ounces of urine in the bladder. She had also great dyspnœa and palpitation, and pain below the umbilicus.

On the 15th, when Dr. B. visited her, he found the navel full of a fluid, which I will call No. 2. It differed from that usually discharged (No. 1), in being of a rich red colour, not glairy or ropy, having no coagula floating in it, and very nearly resembling the fluid discharge when she was admitted. Dr. B. and myself examined the fossa containing it very minutely, dilating it, so that the floor might be distinctly explored. Nothing was observed except a small, indistinct point, and a crevice. The sharp point of a probe would pass into neither. On the 16th and 17th she said she menstruated. This statement the nurse corroborated. The fluids, No. 1 and 2, will be noticed again. On the 18th, it was observed that the fluid No. 1 was again discharged from the navel, and had a remarkably offensive smell, somewhat like the feces of an unhealthy child. It also became much more glairy, and contained a large quantity of coagula.

April 20, 10 A. M. The navel discharges as before, but there is not quite so much solid matter. The abdomen at a point an inch to the left of the umbilicus is very painful to the touch; the ears have not discharged; she had rigors, followed by increased heat, and other feverish symptoms during the night.

10 P. M. She fainted this morning; the pulse is 112; the skin is hot; the navel has discharged the fluid as mentioned in the morning; the bowels are constipated. To take fifteen grains of Dover's powder, and have a common enema.

21. Half-past seven A. M. I was called to see H. O. at two o'clock this morning. She seemed in excruciating agony. The pain was described as being of a spasmodic character, and situate a little to the left and above the umbilicus, where there was a perceptible tumour. The navel discharged so much about an hour before the attack, that the fluid ran down the sides of the abdomen. The pain was aggravated at short intervals, when she grasped the bed-clothes and uttered subdued cries, expressive of great suffering. Hot fomentations, sulphuric ether, and ammonia were found to be of no service. I ordered her to take two-thirds of a grain of opium, and four grains and a half of camphor, every half-hour, until relieved. At present there is no relief afforded, although she has taken six grains of opium, and thirty-six of camphor. The pulse is not quickened, yet the nurse is quite positive she has taken the whole of the medicine.

This state of excitement continued until the 24th. No urine was vomited. The average quantity drawn off by the catheter daily was four ounces. The navel discharged once or twice a clear fluid like water. The ears discharged the usual red fluid, and a bloody fluid was vomited. At this period the pulse ranged between 96 and 160 or 170 beats per minute; the tongue was tremulous, and coated with a yellow fur, with red points; the nights were sleepless; and sometimes not a morsel of food was taken during the whole day; yet she looked as plump, fat, and fair as ever. Leeches applied to the sternum produced extensive ecchymosis.

No one had access to the patient but the nurse. She was locked up whenever the nurse was absent during the day, and the bed of the latter was in an adjoining room. I have no doubt of the truth of this nurse's statements.

On the 25th, for the first time during a considerable period, a urinous fluid was shown by the patient as that which she had vomited. At this date the nurse missed the catheter, which she usually kept in her own possession. The patient's pulse rose to 180, and she had severe febrile symptoms. On the fifth day, a papular eruption appeared on the abdomen, left arm, sternum, and left side of the right breast. On the sixth it appeared on the face; the eyelids and face generally were swollen. On the seventh day the papulæ became confluent, and were interspersed with a few small pustules. On the ninth the eruption desquamated. The febrile symptoms were relieved on the appearance of the eruption; the usual discharges were scarcely perceptible on the first and second day, and then disappeared. From the 4th to the 16th of May little change was observed in the symptoms. The sanguineous discharges returned. She frequently professed still to vomit a urinous fluid, but these vomitings never occurred in presence of the nurse.

On the 16th of May, Dr. Belcombe approved of my suggestion that the catheter should no longer be used.

It was then repeatedly observed that the bladder became distended, and most unaccountably subsided. The nurse discovered pillows, a bath cloak, and other articles soaked with urine; and on the 19th, after a minute search, I found the missing catheter in one of her pillows. This was immediately removed without her knowledge, and on the 23d the pain of a distended bladder and fear for its consequences, compelled her to confess that at least on one occasion, she had drunk the urine she had vomited for the purpose of deception; that she frequently (more than six times, not twelve times), after having passed the catheter for herself, had mixed the urine with the food she had vomited, or asserted that she had vomited it as it was; and also, that she could not make water. Being questioned with regard to some of the special instances of vomiting of urine before-mentioned, nothing positive could be elicited. That which she stated at one moment she contradicted the next. In general she asserted that the fluids proceeded from the stomach. Her information respecting the instances which occurred while at home was equally vague. She said she vomited a quantity of clear water—a something which tasted sometimes salt, and sometimes sour; but she did not know it was her urine; but that “they,” meaning her mother and neighbours, “said it was.” I took some pains in noticing the conduct of the mother, and am of opinion she was not necessary to her daughter’s practices.

The catheter was introduced into the bladder, and sixteen ounces of urine drawn off. From the 19th to this date (23d) she passed no urine in any way; and only one small, hard stool. The strictest precautions were taken to prevent any deception.

From the 23d of May to the 7th of June, H. O. evidently improved. The bowels were moved two or three times a day; the stools were liquid, and contained urine. She denied being able to pass urine by the urethra, or if she did, she was not aware of it. Her abdomen gradually became softer and smaller; she ceased to vomit, and eat her usual farinaceous food freely. The ears and navel continued to discharge the fluid, No. 1, and two or three small portions of bony matter were found in the external auditory meatus of the left ear. She occasionally passed her urine in bed.

Her back was carefully examined, and there was observed an extensive curvature in the dorsal region. A hot sponge passed along the spine, felt hottest (she said) at a point corresponding to the eleventh and twelfth dorsal vertebræ. These were tender to the touch.

She was dismissed on the 7th of June, on the morning of which day she passed two ounces of urine spontaneously. Her tonsils were still as large as they had been during her stay in the hospital; she could walk, but stooped considerably; appearing a diminutive crooked girl. She had been confined to bed during the greater part of the time she was in the hospital (a period of eight months),

and entirely so during April and May; and confined also in a ward alone, no patients being allowed to visit her.

On the 17th of June, her mother informed me that her daughter passed her urine involuntarily as she lay in bed, and that the pudenda and thighs were excoriated by it. She was able to empty the bladder when she got up to the night-chair. Some weeks after I heard that she had quite recovered.

I ought in this place to give some account of the fluids collected from the navel.

No. 1 was the fluid most usually secreted; it was generally of a dark-red or grumous colour, glairy, and ropy when taken upon the finger, and having dark-brown and whitish *flocculi*, like curdy matter floating in it. Mixed with ten times its quantity of water, the white particles disappeared, and the dark-brown remained suspended in it at different heights in the tube. When allowed to be at rest, the flocculi or coagula sunk, leaving the supernatant fluid moderately limped. On the addition of nitric acid, it became opaque and milk-like. It had a peculiarly faint, offensive smell. Inspissated, it showed a crystalline structure. After being kept three months, it gave off a strong odour of sulphuretted hydrogen, and when heated, diffused a highly feculent smell. Nitrate of silver threw down a copious flocculent precipitate, which became of a violet colour when left for a few hours. The colour disappeared on the addition of hydrochloric acid, and part of the precipitate was dissolved. The remainder was a pulverulent powder, insoluble in strong nitric acid. Chloride of barium produced no change. When the fluid was boiled and filtered, a slight cloud was perceptible on the addition of a solution of the chloride, while gently heated a glass rod dipped in hydrochloric acid was held over it. Dense fumes were immediately produced.

Fluid No. 2 was collected only at a period when the patient said she was menstruating. It was of a rich red colour, transparent, without coagula: it abounded in saline matter, and when left to dry, formed beautiful pinnatified crystals. It had no offensive smell. After being kept three months, it was observed to have become opaque and dark. I deferred the analysis of these fluids, agreeably to the wishes of Mr. Tate, the Lecturer on Chemistry, at the York Medical School, who promised me his assistance. A severe indisposition has prevented him fulfilling his intention.

The principal features of this case are the following. Menstruation is said to have taken place at an early age; and it is stated that after long-continued ischuria, urine, or a urinous fluid was vomited, and discharged from the ears. Farinaceous food could only be taken in small quantities, and was frequently vomited. Animal food was loathed, and when taken was said to cause great pain and distress. The bowels were constantly constipated, and required the most active cathartics; the urine diminished in quantity, suppressed, or mixed with blood; the epigastrium swollen and

painful; tumours in the abdomen, the latter tense and tympanitic, and its integuments œdematous; a sanguineous discharge from the navel and ears; great irregularity in the action of the heart; a loose crasis of the blood; a remarkable proneness to ecchymosis of the skin; enlarged tonsils; distressing dyspnœa, and frequent cough, accompanied by a sanguineous expectoration; general irritability; symptoms of affection of the spine; frequent pains in the head; various derangements of the nervous system, as impaired vision, partial paralysis of one arm, the legs, bowels, and bladder; twitching of the muscles; a sense of formication, and pricking in the skin; delirium; sleeplessness; acute pains in various organs: great tolerance of opium and other narcotics; and a proneness to sudden and easily excited syncope; lastly, not only an absence of emaciation during this long and complicated state of suffering, but also the appearance of remarkable roundness and plumpness of the extremities, trunk, and mammæ.

The next case is less remarkable, but presents some interesting points of resemblance.

2. A. C., a female, aged 13 years, was admitted into the York County Hospital, on the 2d of March 1837, complaining of a frequent sanguineous discharge from the vagina, debility, and pain in the back and abdomen. The latter was enlarged, tense, and tympanitic. She was of small size, having dark eyes, and a complexion resembling that of a Hindo-Briton, and a dark tint round the navel. The areolæ of the nipples were of a brown-black colour, and studded with prominent papillæ.

The mother of the patient stated, that in June, 1835, her body began to swell, and become painful, and she had pain and difficulty in making water, which was in small quantity, sometimes not amounting to half a pint a day, and was very red, as if mixed with blood. She also spit up a yellowish-red water, and had a teasing cough. In August or September following she had the first appearance of the menses. Her abdomen at that time was very painful, frequently swelling to a great size, and then subsiding. The bowels were exceedingly constipated, and she spit up the bloody water already mentioned; her urine was very red. She continued more or less indisposed with these symptoms during the winter and spring following, frequently complaining of pain in the back, and when passing her urine, which was scanty.

On the 20th of August, she could not pass any urine, and was in great pain. The next day, however, she was able to make a few table-spoonfuls of a red colour. At this time, to use the mother's expression, "a nauseous salt water, of a red colour, and clear, used to come into her mouth." Her abdomen was swelled and tight; she had pain in the back; could not bear stays, but put them on sometimes, when she seemed to have one shoulder higher than the other, and her mother thought her "bow-backed." After this time the menses seemed to return too frequently, as she had a sangui-

neous discharge two or three times a week. Her appetite was always delicate; and broth constantly made her sick and vomit. She could take small quantities of animal food, but "when the red water came up, the smallest portion made her very sick." She usually took no breakfast, and very little dinner.

She is an assistant in a charitable day school. By the use of active purgatives, leeches to the abdomen, and other remedies, the prominent symptoms were relieved, and she left the hospital.

A pupil saw her a few weeks after, having the abdomen as large as if she were in the last month of pregnancy.

On April 27th, she was readmitted with the symptoms before-mentioned. Dr. Belcombe prescribed the asafœtida mixture, the use of which relieved the tension of the abdomen; but in a few days she complained of pain in the hypogastrium, and inability to pass her urine. The abdomen became again large and tympanitic. The bowels were constipated after the suppression had continued thirty hours. As the pain was urgent I introduced the catheter, and five or six ounces of urine passed. During the forty-eight hours following, she made only a few table-spoonfuls.

Under these circumstances, on the 4th of May, Dr. Belcombe ordered six drachms of spirit of turpentine to be given in the form of draught. Vomiting was excited, and she had one dark, ill-formed motion. The tension and swelling of the abdomen subsided, but the urine continued scanty. About this time she began to vomit a "saltish" water, and I directed her to remain in bed. I find the following notes respecting these circumstances in my case-book.

"May 6th. She has vomited four ounces of a dull-red colour, and a violet odour, like that observed in the urine of a person who has taken spirit of turpentine. The patient occupying the adjoining bed (a well-conducted female) saw her vomit. Heated in an iron spoon, it smells disgustingly strong of urea and coagulates. The abdomen is large as ever, tympanitic, and tender on pressure. Has the usual red discharge.

May 7th. Has vomited a mouthful or two of a fluid like that vomited yesterday, which she asserts is not urine.

8th. Vomited two ounces of a fluid, similar in all respects to the last, in presence of the nurse. Heated in an iron spoon, it smells disgustingly strong of urea.

9th. Has not vomited the urinous fluid, but one which tastes bitter. Says, "that, shortly after leaving the hospital, her body began to swell, and she vomited a red fluid, like that which came up yesterday."

From this period she recovered rapidly under the use of decoction of aloes, with bitters, and subsequently of the asafœtida mixture.

I obtained crystals resembling those of nitrate of urea from the fluid when recently vomited. A portion I kept with the hope of availing myself of Mr. Tate's analytical skill. After keeping it

for three months it deposited a dirty-red precipitate. It had a spirituous smell. The supernatant liquor was clear, and when heated, frothed up, and gave off strongly ammoniacal vapours, which formed dense fumes with hydrochloric acid gas. A solution of chloride of barium threw down a copious flocculent precipitate, partly soluble with effervescence, in strong nitric acid. A white pulverulent precipitate remained, insoluble in hydrochloric acid. Treated with a solution of nitrate of silver, a white flocculent precipitate was deposited, which became dark in a few minutes. Boiled to the consistence of syrup, the fluid gave off a strongly urinous odour, but no crystals of nitrate of urea could be obtained. There was no doubt of this fluid being urine mixed with some foreign ingredients.

This patient had communication with H. O., and she vomited the urinous fluid, when the circumstances of H. O.'s case were notorious. Hence a well-grounded suspicion of her having practised a similar deception. On the contrary, it ought to be stated, that she was a teacher in a school for poor children, attached to the convent at York, (being of the Roman Catholic persuasion,) and was in favour with her employers. She was very anxious to leave the hospital, and return to her employment, in which she took great pleasure. Her spiritual adviser considered her a girl of good conduct and character.

These cases will be best illustrated by a concise detail of those which bear some resemblance to them, and already recorded by authors. It is almost impossible to classify the ever-varying forms of hysteria. Three divisions or classes, however, may be formed, having a certain general resemblance; 1st, Cases with erratic discharge of urine; 2d, Cases with sanguineous discharges; 3d, Cases exhibiting remarkable derangement of the nervous system. In the present paper I shall confine myself to cases of the first class.

The *first series* of this class will be cases in which the erratic discharge of urine was accompanied with well-marked hysterical symptoms.

The *second series* will consist of similar cases, the details of which are less precise, or the symptoms less strongly marked.

The *third series* will be composed of cases in which there was an erratic discharge of urine, with various anomalous symptoms, but particularly with paralysis, usually paraplegic.*

The *total* suppression of the urinary secretion is a fatal disease. Prevost and Dumas, while prosecuting their inquiries respecting the blood, found that animals did not survive the extirpation of their kidneys beyond the fifth day. Professor Mayer of Bonn confirmed these observations. In cases of total suppression of urine observed

* In the case of D. Valetto (Ed. Med. and Surg. Jour. vol. xlvii.), the supposed urinous vomiting occurred in a male, and the paraplegia was the result of accidental injury done to the spine. For these reasons it has been omitted. It is nevertheless well calculated to throw light on this curious subject.

by Dr. Abercrombie,* death took place on the fifth day. Writers in general agree in the speedy fatal termination of this disease.† Cases to the contrary are related as being extraordinary exceptions, and it has been supposed, that in such the urine must have escaped by some outlet unobserved.‡ Life may be maintained for many days by a very small secretion of urine; or the latter may be retained in the pelvis of the kidneys or in the ureters or bladder without causing speedy death; life under these circumstances has been prolonged until the 30th day.§ In all cases, then, in which the urinary secretion has been stated to have been absolutely suspended for *months* and even *years*, either a deep deception has been practised, or there has been an erratic discharge of urine which escaped notice.

Our *fourth series* will consequently consist of cases in which there was a long continued and total suppression of the renal secretion, accompanied with hysterical and anomalous symptoms, but without any obvious erratic discharge of urine.

The *fifth series* is merely a list of references to cases, which most probably ought to be placed in one or other of the preceding. I have not been able to procure the details.

Cases of the First Series.

3. Sig. Koenig, M. D. Lithogenesisæ Humanæ Specimen. Bernæ, 1685.
4. Marangoni, Histoire de l'Acad. Royal des Scien. 1715.
5. Dr. Senter, Trans. of the Coll. of Physicians in Philadelphia. Vol. i. Philad. 1793.
6. Dr. Yeats, the London Med. and Physic. Journ. Vol. xxxi. p. 26. Lond. 1814.
7. Dr. Girdlestone. Ibidem, p. 111.
8. Dr. Arnold, American Journ. of Med. Sciences, 1828.

Second Series.

9. Marcellus Donatus, Hist. Med. Mirab. Lib. iv. Cap. 27. Mantuæ, 1586.
10. Philos. Transactions, abridg. Vol. xi., p. 376.
11. Vandermonde, in Sauvages, Nosolog. Vol. ii., p. 526.
12. Dr. Hastings, Midland Med. and Surg. Reporter, Vol. i.

Third Series.

13. Mr. Coley, London Med. and Phys. Journal. Vol. xxx., p. 465.
14. Dr. Crampton, Dublin Hospital Reports, Vol. iv.

* In Ed. Med. and Surg. Jour., vol. xvii., p. 216.

† Aretæus de Cansis et Signis Morbor. Acut. Lib. 2. cap. 9. Van Swieten apud Boerhaave, tom. iii., p. 230. Ed. 2da. Sir H. Hallford, Essays and Orations, 2d ed. p. 22, and seq. and others.

‡ Dr. Abercrombie, loco citato. Good, Paruria Inops, Study of Med., vol. iv. Cyclopædia of Pract. Med. Art. Ischuria Renalis, vol. ii.

§ Morgagni. de Sed. et Caus. Morbor. Epist. 41.

Fourth Series.

15. Schenk, Lib. iii. Obs. 277. Lug. Bat. 1644.
 16. Thom. A. Viega, Comment. ad. Cap. ii. Lib. vi. Galeni, de locis affectis.
 17. Zeviani, del Flato Ipocondriaco, p. 157. Veronæ, 1761.
 18. Dr. Peebles, Edin. Med. and Surg. Journal. Vol. xlvi. p. 153.

Fifth Series.

19. Acta. Nat. Curiosor. Tom. iii. Obs. vi.
 20. Acta Eruditor. 1726. Also Acta Petropolitana, i. p. 368.
 21. Vallisneri, Ephemer. Natur. Cur. Cent. 9. Obs. 50.
 22. Vandermonde, Sauvages' Nosol. Tom. ii., p. 526.
 23. Nysten, Journal Gén. de Médecine, Tom. xl.
 24. Cheyne, J., M.D. On Apoplexy, &c. p. 207. 1812.
 25. Cavalli Carlo, M.D. Storia Ragionata di Straordinaria Malattia, Milan, 1834. Of this case an account is given in Martini's Lezioni di Fisiologia, I think.
 26. Lancet, 1832-3, Vol. ii., p. 704.
 27. Dr. Lyncker, in Casper's Wochenschrift, No. 16; and Medical Gazette, Vol. xx., p. 891.

I. FIRST SERIES.

3. A female, aged 21, was admitted into the hospital at Berne, labouring under pemphigus. The vesicles were the size of a hand, and accompanied with excruciating pains and delirium. The disease yielded to a mercurial course, after being treated by various remedies for eight months. She continued well nine months, at the end of which period the disease again returned, and she was admitted into the hospital a second time. On the 12th day the vesicles disappeared, and on the 20th the patient was seized with pains in the loins, bladder, perinæum, and groins, accompanied by prostration of strength, loss of appetite, suppression of urine, and a quick and irregular pulse. The clysters administered were vomited, together with numerous calculi.

“Although the difficulty of making water was extremely urgent, yet, on introducing the catheter into the bladder, not a drop came away. The catheter stuck there as if it had been glued in. The belly was distended, but not to a great degree, accompanied with oppression of the præcordia, difficulty of breathing, and most acute lancinating pain in the region of the right kidney, and in the left hypochondrium. But what is most surprising of all, the girl during the whole of her illness had a plump and rosy appearance. At intervals of ten and twelve days four ounces of thick and greenish urine were drawn off by the catheter.”

She continued to vomit two or three times a day, or whenever a single spoonful of liquid was given, bringing up calculi mixed with blood. This caused so much distress, that for four months she neither eat nor drank, taking only a little sweet oil and sweet spirits of nitre. The bowels remained constipated, all the clysters ad-

ministered being vomited. Ten ounces of crude mercury were given, but it slipped through the bowels unchanged. The dysury was urgent; and although the catheter was introduced every third day, not more than two or three ounces of green urine were drawn off, oftener than every tenth or twelfth day. Subsequently the urine became loaded with gravel; the pains returned with excruciating violence, so as to induce delirium, followed by stupor, singing, laughter, &c. After a constipation of four months' duration, the bowels were moved by a solution of *Sal. Polychrestum* (sulphate of potass) in a large quantity of warm water. Six ounces were administered every quarter of an hour until three pints were swallowed, the patient's mouth being held close after each exhibition, so as to prevent the liquid being returned. The result was an evacuation of a mass of indurated feces, so large that it was feared the rectum would burst. During the four following months the bowels were moved every sixth day. After that period they again became constipated, and the patient vomited feces.

Four months after this, the catheter was introduced, but no urine flowed. Shortly after this, she passed spontaneously eight pints of feculent greenish urine. She then for three months vomited up (instead of discharging by its natural passage) three or four ounces of strong-smelling urine every second or third day. For five months the patient continued in moderate health, passing every day from three to five ounces of a clear yellowish water, at times slimy and bloody. She occasionally passed a calculus by the urethra, and vomited calculi. The belly continued tumid, and there was a painful harshness in the left hypochondrium. Subsequently she improved considerably, but in a few months was attacked by nausea and hiccough, which are followed by violent pains in the abdomen, difficult respiration, hysterical paroxysms, palpitation of the heart, convulsions, and loss of speech. These were followed by a discharge of a calculus by stool. Every morning, while making water, she vomited three or four ounces of urine of the same smell, colour, and consistence, as that discharged from the bladder. The abdomen continued tumid; a gangrenous spot showed itself on the right leg; she had also *angina notha*, and a hemorrhage from the fauces.*

Nothing satisfactory can be learnt respecting the nature of the calculi from the analysis given by Dr. Slare† and Dr. König.‡

4. A nun of the order of St. Francis, aged 35 years, of a thin and delicate habit of the body, and who had long been subject to hysterical complaints, was attacked with pains, spasms, and swelling of the abdomen, to which succeeded a violent and alarming suppression of urine. Soon after she felt a pain which she described as ascending from the lower part of the abdomen to the stomach, and she vomited a fluid, which without any difficulty was known

* Phil. Trans. Abridg. Vol. ii., p. 510. Vol. iii., p. 298.

† Idem, No. 182, p. 140.

‡ Idem, No. 181, p. 94.

to be urine. This vomiting continued forty days, during which the patient voided no urine by the usual channel, unless the surgeon drew it off with a catheter, and even then the quantity scarcely amounted to an ounce a day. The urine resumed its natural course spontaneously, and continued in it for twenty days, when she again vomited it, and complained of acute pain in the region of the pubis. On attempting to introduce a catheter the surgeon found the urethra so contracted that it would not admit a probe. The vomiting continued for thirty-two days, and was not then relieved.*

5. Lucy Foster, aged 15 years, a muscular, healthy-looking, well-proportioned young woman, was attacked with a pain in the left hypochondrium, accompanied with cough, fever, oppression of the chest, and difficulty of breathing. She menstruated at the age of thirteen. After some time she vomited a quantity of bloody pus, of a very disagreeable kind; her stomach was exceedingly irritable, and she had a suppression of urine for twenty-four hours. She recovered, and continued well for a year. Her former complaint then returned with greater severity. Opium and small bleedings were the only remedies which relieved her great distress. She vomited everything she took. A month from the commencement of the attack, she was attacked with a suppression of urine, which continued five days. On the sixth, she was taken with vomiting, which continued until she brought up nothing but water, which, she said, tasted in every respect like urine. The vomiting relieved her from the swelling and great soreness in the hypogastrium.

“For ten weeks successively she was incapable of retaining on her stomach either food or medicines, except opium. Whenever I omitted to draw off her water once in thirty or thirty-six hours, she never failed to vomit it up. To ascertain so extraordinary a fact beyond the possibility of a mistake on my part, or a deception on hers, I often visited her about the time I knew she must vomit, if the catheter were not introduced; and I examined her bladder, found it full, hard, and tender, and sat by her till the vomiting occurred, saved the water that she brought up this way, compared it with what I drew off, and found it the same in every respect.”

The urine subsequently passed off by the navel for three days successively, on an occasion when the catheter was not used for several days, and she did not vomit. A brick-coloured gravel began afterwards to pass off by the catheter, and she subsequently vomited a similar gravel mixed with urine, and a few months before her death she passed the same by stool. She twice passed a small quantity of urine through the urethra, in consequence of being frightened. She had pain in her head, tenderness and swelling in the hypogastric region; “her urethra, bladder, and genital parts” became extremely sore. “She voided at different times by vomiting (after she had thrown up all her urine) a bloody pus, of a very

* A Collection of Medical Facts, &c., by S. F. Simmons, M.D., vol. vi. Lond. 1795.

disagreeable appearance and coppery taste. Her bowels for the most part were much less constipated than could have been expected, considering the frequency of vomiting, her supine situation, and the little nourishment she was able to retain upon her stomach." She introduced the catheter herself, and sometimes drew off her urine to the quantity of a gill. Before her death "she became quite paralytic at times. She had several convulsion fits after vomiting," and at last became lethargic. The period between the commencement of the second attack and her death was upwards of three years.

On the examination of the corpse, "the stomach appeared very much changed from its natural colour, and in a gangrenous state, containing a semi-purulent matter of a fœtid scent." In the cavity of the uterus was contained about a drachm of thick, dark, fœtid pus. The *corpora fimbriata* had a gangrenous appearance. Nothing remarkable was observed in the other viscera.*

6. Ann Fooks, when aged 15, fell and struck the region of the stomach violently against a large stone. This produced vomiting of blood, which continued with occasional remissions for about seven years. She expectorated a yellowish phlegm mixed with blood; her stomach was hard, swollen, and painful, and she suffered greatly from the constant vomiting and hectic. She menstruated regularly during this illness from the age of 15. At the end of this period she began to complain of violent darting pains in the head, and indistinct and double vision. This state lasted six days, when she became insensible, and remained so for about ten days, sometimes dosing with her eyes half closed, moaning, and at times talking deliriously, and rolling her head about the pillow. During this period, a discharge of matter and blood, very offensive, took place one night from her ear and nose, and continued to escape from the right ear for six weeks. The head symptoms were then alleviated, but as soon as the discharge ceased, the arms and legs became œdematous. During this state, for forty-eight hours, she could not pass urine, although there was a frequent call to make it. The stools were slimy, and the bowels were very costive.

These various distressing symptoms were gradually alleviated during the two succeeding years, when she was seized while sitting in her chair with giddiness and dimness of sight, followed by a paralytic affection of her left side. Three or four weeks after this, a violent tetanic affection of the upper extremities came on, and continued four or five days. The paralytic affection lasted between three or four months, and then went off. For a year and a half, with slight exceptions, her disease was suspended. After this she passed no urine for a week, and subsequently no stool for ten days. She twice vomited feculent matter. Two days after the second feculent vomiting, she had a stool naturally, but extremely

* London Med. and Phys. Jour., vol. xxx., p. 493, and vol. lix., p. 542.

costive, hard, and lumpy, accompanied at the time with violent pain just above the navel. Soon after she ceased to pass her urine; the epigastric region became swelled and prominent from the spleen to the liver, and to the umbilicus, and extremely tender; her respiration quick and short, with cough; no appetite, and she vomited a dark fluid like chocolate-grounds occasionally, and her urine regularly for six months; sometimes it came up twice a day. All the matters vomited had a urinous taste. There was no fulness of the hypogastrium; the pudenda were hot, dry, and sore. At the end of the period just mentioned, after delirium, insensibility, rigors, and acute pain about the umbilicus, she passed four or five stools composed of clotted blood, and shortly after about a pint of urine; this was followed by frequent desire to make water, which was bloody. During the succeeding seven months she continued to pass urine, which was occasionally mixed with blood; the bowels were frequently torpid, the stools mixed with blood, and she had a severe attack of bloody vomiting. Her nights were generally sleepless. Animal food produced so much pain of the stomach and nausea, that she was obliged to confine herself to farinaceous food in small quantities. She had occasional syncope, contraction and spasmodic affections of the limbs, especially on the left side. For several weeks she sweated so profusely that it was often necessary to have her linen changed every hour.

A long controversy was carried on in connection with this case. There were not a few who considered it a case of imposition. On the other hand, very weighty testimony was brought forward to prove its truth. The relator never saw his patient vomit urine, but was an eye-witness of a great proportion of the other circumstances mentioned. Her sufferings produced little or no emaciation.

7. A young lady, the daughter of a respectable army surgeon, was under the care of her father and a physician for two years. The death of her brother by drowning had conspired, with other events, to induce syncope and a variety of nervous symptoms, which had resisted all the mineral, tonic, and nervous medicines which are commonly employed in such cases. Being sent to Yarmouth, she came under the care of Dr. Girdlestone. She was about twenty years of age, fair, and not unhealthy in her complexion; and though she was pale, yet she had more the appearance of a muscular than of a fat person. She had no use of her lower extremities, nor could she lie down without inducing fits of hiccough or vomiting. Animal food, or any liquid, immediately on entering the stomach, excited vomitings; and during the greater part of the two years she resided at Yarmouth, she was obliged to live entirely on fruit, and to sleep in an erect posture in a chair. The liquid vomited up proved to be urinous, and on standing for some time, had the healthy nebula of common urine. She usually vomited about six or eight ounces at a time, with intervals of about six or eight hours; and if animal food had not been taken to hasten its

rejection, it was unmixed with food. She ceased to pass urine from the bladder for above two years.

Her motions were invariably found to take the shape of a distended rectum, and to have come away without a single drop of urine; and in the presence of Dr. Girdlestone and Mr. Borratt, the catheter was introduced by Mr. Downe, and the bladder was found not only empty, but so contracted, as to lead to the belief that no urine had entered the bladder for some time. Dr. Girdlestone adds, that every medical man in the place (Yarmouth) at that time was made to bear witness to the case. After having tried pills with her repeatedly, without the combination of any animal food with them, he had some beef pounded into pills. Some of these were swallowed in the presence of Dr. G. and Mr. Borratt. In twenty minutes she began to express her doubts of being able to retain the pills, as she was feeling the same sensations as if she had animal food in the stomach. The pills deprived of the gum tragacanth which surrounded them, soon came up, with a considerable quantity of urine. Having continued at Yarmouth two years with these symptoms, she left, and in a few weeks died. An examination of the corpse could not be obtained.

It is to be regretted that the relator of this case did not explain more at length the "variety of nervous symptoms" which his patient suffered. Most probably they were the symptoms of hysteria in an aggravated form.

8. The history of this case extends through some years. Maria Brenton was of sound health, until she was afflicted with suppression of the catamenia, accompanied by hæmoptysis. She was bled profusely and emetics administered, the operation of which was succeeded by a *prolapsus uteri*, and a total inability to perform the urinary functions. In this state she continued nearly two years and a half. The catheter was introduced once in twenty-four hours, and if its use was omitted, she perspired profusely about the lumbar region. At the end of the period just mentioned, the catheter was not introduced for seventy-two hours, and the urine found an outlet by the *right ear*, oozing drop by drop. The quantity gradually increased, until it was discharged to the amount of eighty ounces in twenty-four hours, flowing in a stream the size of a crow-quill. This discharge was accompanied by a severe pain about the right eye and ear.

When the urine was not discharged at the usual period, or much diminished in quantity, the pain and distress were most excruciating, producing delirium, during which she would be very violent. Sometimes, however, she would merely laugh, sing, and converse very incoherently. At other times she would be seized with violent spasms, resembling opisthotonos; and after continuing in this situation for a few minutes, the muscles becoming relaxed, she would heave a deep sigh, and then swoon, and remain in an insensible state for half an hour, when she would sob perhaps, open her eyes, and after repeatedly sighing would again become insensible. Some-

times the spasms were unaccompanied by swooning. She had trismus at one time for three days. The swooning would be also unaccompanied by spasms, when she appeared cataleptic. The sight of the right eye was soon destroyed, and frequently that of the left was so impaired, that she could not distinguish any object across the room. The latter was subsequently restored. The hearing of the right ear is much impaired, she cannot distinguish sounds with it.

Urine next flowed from the *left ear, left eye*, afterwards was discharged from the *stomach*, "frequently, soon after food had been taken, with which it was often entirely unmixed." The urine next flowed from the nipple of the *right breast*, afterwards from that of the *left*, next from the *navel*, and finally, "nature, wearied in her irregularities, made her last effort which completed the phenomena of the case, and established a discharge of urine from the *nose*," flowing guttatim as from the ears, eyes, and mammæ. Previously to the flow of urine from the navel, "the abdomen about the hypogastric and umbilical region became violently and spasmodically contracted into hard lumps, and a sharp pain was felt shooting up from the bladder to the umbilicus, around which there was a severe twisting pain; in a few days subsequently a loud noise was heard, similar to that produced by drawing a cork from a bottle, and immediately afterwards urine spirted out from the navel as from a fountain."

All the fluids discharged were found by analysis to contain urea.

The urine from the bladder turned black when not drawn off at the usual period, and deposited a sediment resembling black sand; the supernatant liquor sometimes remaining after this deposit as black as ink. On several occasions it was noticed that when the urine was most limpid, the largest quantity of black sediment was precipitated.

The discharges from the other outlets have occasionally all turned black, and came off black, differing in this last respect from the urine secreted into the bladder.

"The quantity of urine discharged from the outlets was so great that I was apprehensive there might have been some deception. To remove every doubt, I and my friend Dr. Webb remained with her four hours alternately during twenty-four hours; and the quantity discharged during this time was as large as it had been during several days previous to and after this period. There has never been any doubt that these fluids, which have proved to be urine, were actually discharged from the ear and other outlets; since, the fact has been proved, day after day, by ocular demonstration."

Subsequent to the cessation of the catamenia there was a discharge of blood, supposed to be vicarious. It generally came on every five or eight weeks, sometimes at the regular period. For the first two years there was a discharge of blood occasionally from the stomach and lungs; from the breasts, more frequently from the left; from the ears, oftener from the left; and from the

navel and nose. From the nose and right ear it was mixed with nearly three-fourths urine; from the left ear with an equal quantity of urine; from the stomach and lungs with the contents of the stomach, and the secretions of the fauces; from the left breast and navel; it has generally been unmixed with any other fluid. It was frequently fœtid; the colour always dark; it sometimes coagulated, though not generally. These urinous and sanguineous discharges continued to flow from the right ear, right breast, and navel, at the time the author narrated the case, but in diminished quantity and frequency. Her death at one time seemed inevitable to all who visited her; yet she recovered sufficiently to ride out.*

II. SECOND SERIES.

9. A young nun, of slender frame, and living on meagre diet, had spectral illusions, and became melancholy. Soon after, the secretion of urine was entirely suppressed, and so continued for six months. The suppression ceased at the end of this period, and the bowels became constipated during four months, so that during that time the patient had no alvine evacuation. Afterwards, in addition to this, the urine was again suppressed, and she began to discharge from the region of the stomach, a fluid amounting in quantity to many pints, and having the smell and colour of urine. Subsequently the urinary secretion was reëstablished, the quantity being greater than in health, and the patient became affected with marasmus.†

10. A female, aged 23 years, tall and well-made, was seized with a weakness of one side, which soon went off, leaving only one knee weak and swelled. Some months after she had a stoppage of urine for two days, and had no inclination to pass it; the period of the suppression at a subsequent attack, which occurred a few days after the first, was extended to four days, and next to nine days. When the catheter was introduced into the bladder, little or no urine was found in the latter.

The secretion of urine was ultimately suspended for fifteen months. All this time she could eat once or twice a day, and walk and ride. She had but little sleep, her breathing was often very laborious, with a dry cough; the catamenia were irregular; there were œdematous swellings in her limbs, abdomen, hips, and face; but by the help of purges and spontaneous vomiting which began in the third month of the suppression, these swellings were reduced. She vomited sometimes every day, or every third or fourth day; and though these vomitings usually came on immediately after dinner, the fluid rejected seemed to be pure urine, not having any food mixed with it. In the thirteenth month of the suppression, the nipples of her breast became cracked, and discharged sometimes a watery humour, sometimes a thick matter streaked with blood, and sometimes a fluid

* London Med. and Phys. Journal, vol. lix., p. 538.

† Schenck, Lib. iii. Obs. 170.

resembling urine in colour. All these discharges had a urinous smell, and after their appearance the urinous vomitings became less frequent. Her legs swelled, her body became of an extraordinary size, and she breathed with the utmost difficulty.

Before the urine returned to its natural channel, "she felt uncommon pricking pains, with great heat all down her back and loins, and about the belly and groin." She then "voided about three ounces of thick slimy matter," and shortly after a little urine, accompanied, however, with considerable pain. This secretion became reëstablished to a certain extent, but she frequently had a suppression for a few days, and usually did not make half a pint of urine in the twenty-four hours.

11. A young female, after having been severely affected with hysteria for eight months, suffered a complete suppression of the alvine and urinary evacuations. Enemas, warm baths, and other remedies were administered for three months, without any relief. The use of cold baths during two months at length caused urine to be secreted, and the alvine functions to be formed. A profuse perspiration supplied the want of the urinary secretion.

12. A female, aged 23 years, was exposed to cold while the catamenia were flowing abundantly. She was admitted into the Worcester Infirmary with feverishness, a very deficient secretion of urine, and difficulty of passing it. Her abdomen became distended, bowels were constipated, she vomited incessantly, and passed little urine. For five days there ceased to be any urine drawn from the bladder by the catheter. She was delirious or insensible at nights; her pulse rose from 60 to 80; sixteen days after her admission a bloody discharge appeared at the umbilicus, after which the abdominal pain and tension were relieved. The vomiting became worse. This bloody discharge continued for four days, and on the fifth, it assumed a urinous appearance and smell. She had then passed no urine by the urethra for three days. The head was very painful; pupils dilated; bowels costive. The catheter was introduced, but no urine found in the bladder. Eight days after this, six ounces of urine were drawn off by the catheter, and in an hour after the operation two quarts of urine of the same appearance gushed from the umbilicus. This discharge of urine from the navel continued for three days, and was accompanied with great improvement in the general symptoms. At the end of that period, it ceased for three days, on the fourth the catheter was introduced into the bladder, and no urine was found. In an hour after this, two quarts of urine gushed from the umbilicus. Nine days after this, four ounces of urine were drawn from the bladder, for the first time during several days. During these nine days the patient suffered much from vomiting, and daily passed urine by the umbilicus. The catheter was passed every day and no urine found, but the bladder contracted strongly on the instrument. Sometimes immediately after the catheter was removed, a discharge of urine would take place from the umbilicus, and once as much as three quarts

were thus passed. All this time the medicine she took was chiefly purgatives. Blisters were applied to the neck and epigastrium. The bladder was subsequently restored gradually to its proper function, and in little less than three months she was discharged in tolerable health, but still often complained of pain in the pelvic region. She menstruated regularly during the attack. Thirteen years after, she was again admitted into the Infirmary for paraplegia, from which she recovered. There was no return of the former disease, although the use of the catheter was necessary.

Dr. Hastings thinks that the facts of this case proved that the urine was secreted vicariously from the umbilicus, and not transmitted from the bladder along the urachus.

III. THIRD SERIES.

13. A female, aged 21 years, the mother of one child, fell so that she fractured two of her ribs, and injured the spine and hip. She remained lame on one side until her death. Twenty or thirty hours after the fall it was found necessary to evacuate the bladder by means of the catheter. Its use was continued for two months, never drawing off more than ten ounces of urine in the twenty-four or forty-eight hours, so that there was a suppression as well as a retention of urine. She was subsequently able to empty the bladder by her own efforts, with great difficulty, once in twenty or thirty hours. About this time "she was suddenly attacked with a violent pain at the stomach, which required twelve grains of opium to allay it. This returned on alternate days, and always terminated with sickness and a vomiting of fluid possessing all the properties of healthy urine, with a disagreeable excess of uric acid. This urinous fluid was repeatedly discharged in the presence of myself and several other persons, and was minutely examined. It was observed, that on the days when this pain and vomiting occurred, no urine was discharged from the bladder; but on the intermediate days it was secreted, and evacuated in the usual manner.

She remained in this state seven weeks, when her bowels became constipated for ten days. A tense tumour of considerable magnitude occupied the region of the kidneys, and was circumscribed. No fluctuation could be perceived in it. The pain in the stomach ceased spontaneously; and the vomiting was attended with hiccough and a urinous perspiration, which was particularly profuse on the forehead. No urine was discharged from the bladder. After the bowels had been evacuated the tumour rather subsided. The pulse continued at 90, the appetite was good, and she had not experienced emaciation. She soon afterwards died. The cadaveric appearances are not detailed. This patient being probably *hemiplegic* the case is placed in this series, as showing marked lesion of the nervous centre, although functional only, as it would appear from the periodical vomiting.

14. A young lady, slender, but originally healthy and active,

after recovering from scarlatina, had a severe pectoral complaint. She had diarrhœa, aphthæ, a heavy expectoration, and became emaciated. After an attack of diarrhœa, (supposed to be inflammatory,) her bowels became constipated, so that discharges from them were rarely procured, and those with considerable difficulty. She took little substance, her stomach rejecting almost everything, although emaciated to the last degree, and apparently very near death. She was able to bear a voyage of fifty miles into the country; her abdomen then became tender and inflated; she seldom had a stool oftener than once a week; and the greatest part of her food, which was all liquid, and her medicines, were rejected from her stomach. What she vomited was offensive in the extreme, and often evidently stercoraceous; in some instances it had a urinous taste and smell, little urine being either secreted into or passed from the bladder. After a little time there was a manifest improvement in her general health; the vomiting also was less severe; but it occurred every day; the intervals between each alvine evacuation became longer; the urine was seldom passed, and then with pain, and in very small quantity; catamenia regular. Her usual sustenance was tea, toast, milk and gruel, but no solid food. There was no swelling of the abdomen.

“She is now in her thirty-seventh year, and has been in the state described for the last seven years. For the last eight months she has had no passage from her bowels, and only two or three during the preceding year; and she scarcely passes any urine. There is no possibility that any deceit can be practised, as she sleeps in a room with a confidential attendant, and is closely watched by her parents and sister. She never makes the slightest locomotive exertions with her lower limbs, but has the complete muscular power of the upper extremities. Her disposition from being cheerful and gentle has become peevish, irritable, and obstinate. She neglects the amusements of books and music, in which she formerly indulged.”

Dr. Crampton alludes also to the similar case of Anne Free, which came under his notice at Steevens' Hospital. When this patient had a stool, it was considered quite an extraordinary occurrence, and she never passed urine except when relieved by the catheter. She vomited occasionally excrementitious matter; and for a considerable time, when no urine appeared to be secreted, she threw up a fluid of a urinous taste and smell. It is not stated whether she were paralytic or not. Most probably she was.

IV. FOURTH SERIES.

15. A young female of rank, aged 11 years, had a tertian fever for three months. She recovered without any other complaint than a profuse flow of blood and spectral illusions. After much grief for the loss of some relatives she became melancholy, had severe headache, and pain in the abdomen. Subsequently her bowels be-

came obstinately constipated, so that at last no evacuations could be obtained by any means. The abdomen became swollen: next followed immoderate laughter, constant watching, spectral illusion, and then a cough so severe came on that the patient could scarcely speak. A tumour appeared in the epigastrium, a quotidian fever harassed the patient during the winter. No means were effectual to produce a stool; and while the urine was diminishing in quantity, the paroxysms of fever occurred night and morning. In a short time the urine, previously clear, became like white of egg, and at last was totally suppressed. There was no discharge from the nose or ears, and no sweat during the period of this suppression of the alvine and urinary evacuations, until there occurred a profuse discharge of blood. A remarkable loathing of food followed, and continued during a long period. After the cessation of the febrile attacks it diminished; but the patient still abhorred animal food. If she took a small quantity of the latter, vomiting of her food would come on, mixed with blood. After a while she had severe headache, accompanied by frequent general convulsions, and an appearance of insanity. They were of an epileptic character, and periodical.

After the constipation and suppression of urine had continued eight years, urine began to be observed in the enemata, which were administered every third day, but no urine flowed by the urethra. The patient ultimately recovered, married, and enjoyed good health.

16. A female was attacked with complete suppression of the urinary and alvine evacuations. She lived twenty years* without passing stool or urine, taking but a small quantity of food, and subject to frequent vomitings and epileptic convulsions.

17. A young female, whose case was well known at Verona, had not excreted a drop of urine for twenty-two months, when Zeviani reported her case. The bed-clothes had a urinous smell, as also had the room. Although *afflicted with many diseases*, she had no affection of the brain.†

18. In this case the patient was a female. It was necessary to use the catheter for many days together, and occasionally there was a total want of the secretion of urine; the kidneys more than once suspending their functions for five weeks. There was no coma, stupor, or vomiting. The patient was very subject to violent spasmodic affections, and to inflammatory attacks of the organs of respiration, with a tendency to hemorrhages for many years from the nose, lungs, uterus, and intestines. After death the body was

* From the expression, "*Honesta quædam virgo, ante annos viginti,*" I am inclined to think the disease commenced before the female was twenty years of age. *Ante*, as an adverb, in the sense of *since*, is usually joined with an ablative case, as "*viginti antè annis,*" *twenty years since*. Schenck, however, interprets the phrase as in the text, thereby corroborating the opinion of Dr. Peebles,—*Ed. Med. and Surg. Journal*, vol. xlvi., p. 152.—Schenck, *Lib. iii. obs. 253.*

† Morgagni, *De Sedib. et Caus. Epist. 41. Sect. 5.*

carefully examined; the pulmonary and costal pleuræ were adherent. The kidneys and other organs were sound.

V. FIFTH SERIES.

19. A case of a female who had urinous vomitings and sanguineous discharges with hysterical symptoms.

20. "Mirabilis alvi et urinæ suppressio in Judæa virgine hystericâ."*

21. Case of a young female who had suppression of urine, and vomiting of a urinous fluid, which continued many days.†

22. A female, when aged 43 years, was suddenly seized with a suppression of the urinary and alvine evacuations, which continued seven years. The most active diuretics and cathartics were tried in vain, until at last the discharges returned spontaneously. During their suppression she was subject to very copious and most offensive sweats, which continued for two or three hours, and recurred every day, or every second or third day. She was confined to bed the whole time, being unable to move; but ate well, and was fat, and of a florid complexion.

23. Nysten observed vomiting of urine in two females aged 26 and 40. In the second an imposition was detected.

24. Dr. Cheyne "saw a girl in 1797 who vomited at stated times a fluid with all the sensible qualities of urine; the discharge by the urinary passages having been long suspended."

25. "An instance of a woman who lived twenty-eight years with copious vomiting, believed urinous, accompanied with extraordinary phenomena."‡

26. This case belongs to the second series. The urinous vomiting was observed in the Westminster Hospital.

27. Belongs to the first series, and is a well-marked case. The urine was discharged from the stomach, mammæ, umbilicus, and skin of the legs. The details of the two last having been recently recorded, are not given here.

An erratic discharge of urine is an unusual symptom of disease. The following are the more general circumstances under which it appears.

Urine has been discharged from the *anus* when there was no known communication between the rectum and bladder. This has most usually occurred in *boys*.

The examples of this discharge from the *umbilicus* have been observed (with few exceptions) in *females*. It has been commonly supposed§ that in these cases a communication is formed between the bladder and umbilicus, along the *urachus*. This opinion Mau-

* Van Swieten apud Boerhaave, Tom. iii., p. 228, (Ed. 2da.) Lug. Bat. 1750.

† Morgagni, De Sedib. et Caus. Morbor. Epist. 41. Sect. 41.

‡ Ed. Med. and Surg. Journal, vol. xlvi., p. 152.

§ The Cyclop. of Anatomy and Physiology, Art. "Urinary Bladder, Abdominal Anatomy of," and others.

riceau* long ago combated on anatomical grounds; nor have I yet met in my reading with a dissection which proves it. There are two or three cases in which the bladder was ruptured at the umbilicus, and contracted an adhesion to the latter. In cases numbered 7 and 12 in this paper, urine flowed from the umbilicus when the bladder was empty.

Vomiting of urine has occurred principally in hysterical females, but has been observed occasionally in males suffering from suppression or retention of urine.†

Urinous discharges from the ears, salivary glands, and skin, of both males and females, have also been observed in the latter class of cases.‡

The mammæ in some rare instances have been an outlet for this fluid.

The details of the cases I have given from authors must be read with some suspicion. It is not a little remarkable that the greatest number of medical rarities have occurred in females,—military malingers excepted. Most cases of imposition have occurred in females, particularly those affected with the rarer forms of hysteria. Dr. Seymour§ mentions several such cases. Mr. Gibbon|| refers to a case well known in Guy's Hospital, of a female who drank her urine. M. Nysten¶ reports two cases of vomiting of urine and fæces in females, one of which was subsequently shown to be a deception, the patient having previously swallowed the matters vomited. She practised her tricks successfully for ten months.

The singular resemblance of the symptoms observed in the cases detailed is, nevertheless, a strong proof of their accuracy, and this remark is equally applicable to cases 1 and 2. Many cases of deception have been founded in reality. Moore of Tutbury, and her rival the Osnaburgh woman** had a remarkable power of enduring long abstinence. They gave exaggerated and false reports of this power, for the purposes of gain, and were compelled to deceive when the truth of their statements was tested. Such probably was the case with H. O.

The history of these cases would have been more complete if their relators, after having satisfactorily ascertained that urine really passed from the outlets mentioned, had prosecuted their inquiry further, and endeavoured to learn how this occurred. Taking them all together, it appears that for the most part they were examples of an exaggerated and very chronic form of *hysterical ischuria*, of

* *Traité des Maladies des Femmes Grosses*, Tom. i., p. 219.

† *Epist. Georgii Tanstetter*, Oct. 1537, in Schenck, Lib. 3. Obs. 199. Haller, *Elem. Physiolog.*, Tom. ii., p. 372, and others.

‡ *Sauvages (Ephidrosis Urinosa) Nosolog.*, tom. ii. Morgagni, de Sed. et Caus. *Epist.* 41, Art. 5. Haller, *loco citato*.

§ *London Medical Gazette*, vol. xix., p. 506.

|| *London Medical and Physical Journal*, vol. xxxi., p. 24.

¶ *Journal Générale de Médecine*, Tom. xl. (1810–11.)

** *Hufeland's Journal*, 1820.

which a vicarious discharge of urine would be the legitimate and necessary consequence.

Hysterical ischuria in a mild form is of no uncommon occurrence, and, doubtless, is frequently overlooked by or concealed from the practitioner. A young female will suffer for twenty-four or thirty-six hours a suppression of urine. If the hand be placed upon the hypogastrium, no distension of the bladder will be observed. She is perhaps alarmed at the occurrence of this long interval, the pulse will be found much quickened, but nothing otherwise remarkable will be noticed. At last the patient voids a few table-spoonfuls of urine, and nothing more is heard of the suppression. Here, there is that want of exercise of the function of volition which is said by Sir B. Brodie* to occur in hysterical retention of urine, but, in these cases at least, it probably happens, because the contents of the bladder are in two small quantity to give it the requisite stimulus to action, or to enable it to contract efficiently upon them. Females who come under the head of *hysterical impostors* will wilfully retain their urine for certain purposes; but in these, not only is volition not exercised, but the contractile power of the bladder is resisted.

Paralysis, producing inability to move, obstinate constipation, and retention of urine, is a prominent feature in the cases before us. This paralysis occurs in the secreting as well as the muscular structures. It has been said to "simulate" the more common form of the affection.† It appears, however, that in those suffering under the varied forms of hysterical *paralysis*, the loss of power to move is frequently as complete as in cases of softening, compression, or direct injury to the spinal chord. An inquiry into the causes of this and other of the symptoms of hysteria will be entered into more at large in another place. If an opinion might be ventured upon here, I would say that hysterical *paralysis* is the result of functional derangement of parts of the nervous system, the common form, of structural lesion. A similar relation exists between them, as there is between arthritic and idiopathic gastritis. This remark is equally applicable to hysterical and traumatic tetanus, and many other affections of the nervous system.

Remarks upon this question must be deferred until the series of cases illustrative of other aggravated forms of hysteria are completed. I think they will show that their varied and remarkable phenomena afford good grounds for supposing, that they are caused by a *translation of the exciting cause* of this functional derangement from one portion of the nervous system to another; singularly resembling the metastasis which occurs in serous, synovial, and mucous membranes.

* Lectures in London Med. Gazette, vol. xix., p. 246.

† Ibid., p. 506.

CHAPTER II.

Hysterical hemorrhages—General hemorrhages—Sanguineous ephidrosis—Hæmatemesis—Hysterical nervous affections—Neuralgia of the mamma—Ecchymosis of the mamma—Hemorrhage from the mamæ—Dyspnœa—Aphonia—Convulsive cough—Hoarseness—Incessant cough—Croupy respiration—Dysphagia—Vomiting—Hiccup—Hiccup and aphonia—Frequent sipping—Marked hysteria—Imitative hysteria—Imitative laughter—Paralysis and tetanus—Tetanus—Epilepsy and dysphagia—Chorea, paralysis, epilepsy—Mechanical repetition—Coma—Catalepsy and somnambulism—Insanity, catalepsy—Infanticide—Insane cunning.

IN a previous chapter I gave the details of cases of hysteria, the most prominent symptom of which was a long-continued retention or suppression of urine, accompanied in some by an erratic discharge of that fluid.

I thought I had noticed all the cases of this class worthy of mention. I find, however, that I have omitted a case related by Dr. Tickner of New York, in the *American Journal of the Medical Sciences* for May, 1834. It is more extraordinary than any I have yet read, and has some resemblance to Dr. König's (No. 3). The patient, a female, is reported to have suffered from discharges of urine, and of great quantities of sand and calculi from the mouth, rectum, nose, ear, a wound on the side, and the umbilicus. These symptoms were accompanied with paralysis, tetanus, &c.*

In pursuance of my original plan I shall now proceed to detail cases illustrative of the hemorrhages and extraordinary nervous affections to which females are liable. Instances of these are comprised in the preceding paper. I shall then attempt an analysis of the phenomena of the whole of the series.

SECOND CLASS—HYSTERICAL HEMORRHAGES.

This class having little of the marvellous, and being by no means rare, introductory comment is unnecessary.

29. *General Hemorrhages.*—Isabella Robinson, when aged 15 years, had the catamenia twice. While menstruating for the third time, she was thrown violently on a stone. Her left shoulder was hurt, and she vomited a large quantity of blood. The next day the menses were suppressed; the injured shoulder and side were very painful, and she had hæmatemesis and epistaxis. These last continued to a large amount daily for two years. Sometimes hemorrhage would take place from the ears. During the next four years she bled from the mouth, nose, eyes, and ears, at short intervals; and from the uterus occasionally. In the sixth year, cupping-glasses were applied to the back, and the hemorrhages was arrested for seven weeks. Pain and tumefaction of the breast followed, so that

* 28. *Lond. Med. Gazette*, vol. xiv., p. 539.

she was obliged to be scarified a little below the ensiform cartilage. In the eighth year she was greatly distressed with a suppression of urine for eight or ten days, and with bloody urine. In subsequent years blood flowed from the mammæ, and the roots of the nails of both fingers and toes, and the patient was in the habit of being bled for the purpose of arresting the hemorrhage from these various sources. Mr. Murray, the relator of the case, had bled her, and the blood was invariably no higher coloured, nor of thicker consistence than water in which flesh had been washed. The effused blood was similar. The history was communicated to the Edinburgh Society during the lifetime of the patient, and its members were invited to verify the facts by their own observation.

30. *Sanguineous Ehidrosis*.—A female, aged 10 years, was treated successfully with mercury and decoction of woods, for a supposed syphilitic affection. Nine months afterwards, she experienced an unpleasant tension of the right arm, which was followed by an eruption of pustules, and pricking pains in the latter. Shortly after, pure blood flowed from them, and they, as well as all painful sensations, forthwith disappeared. The same train of symptoms recurred at two successive monthly periods. The patient was bled from the foot, and emmenagogues were administered, with the effect of checking the hemorrhage from the arm, and inducing regular menstruation. If the fingers of the right hand were exposed to cold, blood still trickled from the roots of the nails. No fissure or mark could be discovered from which it might flow. By suitable remedies this was removed, and the patient continued well for four months. Blood then began to distil from the surface of the right-hand fingers, recurring every or every other day. Her face then became suffused, the head affected with vertigo, the larynx swollen, and she experienced a kind of hysteric suffocation. The symptoms disappeared on the breaking out of a bloody sweat on the neck. The right hypochondrium then became tumid and painful: the tumefaction of the larynx, and the accompanying symptoms returned; and blood flowed from the nose, neck, right arm, and calf of the right leg; at the same time the whole of the right side was affected with spasms. Afterwards, the eyes, lips, neck, hands, and knees, were alternately convulsed, and the abdomen swelled. On the cessation of these symptoms, the left arm and leg were found in a state of tetanic flexion, and the right eye was amaurotic.

The use of various remedies restored motion to the arm; but the leg and eye were unrelieved, and the abdomen remained tumid. Subsequently blood flowed from the left eye without restoring vision, then from the skin on the left side of the nose, from the nostrils, the ends of the right-hand fingers, and the ulnar side of the right arm. The history of this case, in the handwriting of Boerhaave, was found in his desk after his death. The termination is not given. Various means were used with little success.

31. An irritable woman, of a sanguine temperament, regularly

menstruating, was seized at the age of 25, with convulsions, recurring upon any painful affection of the mind. Whenever the mental disturbance did not excite nervous symptoms, it was invariably followed by considerable hæmoptysis and convulsive cough. Two years after the first seizure, she was attacked with severe pain in the region of the left kidney in consequence of a fit of anger. The abdomen became so painful that the usual coverings were intolerable. Violent vomiting repeatedly came on. The urine was clear and scanty during the paroxysm, which lasted twelve hours; but a few days after it was loaded with much red sandy matter.

This colic, invariably originating in a moral cause, frequently recurred during two years. At the end of that time she had a paroxysm unusually long and painful, and accompanied by a very unpleasant itching. The patient was now alarmed by the appearance of large spots of blood upon the handkerchief with which she had been wiping her face. The physician in attendance observed, that drops of blood exuded everywhere from the skin, and that this phenomenon occurred when the pain and vomiting were most violent. Opium every hour relieved all the symptoms, and the skin only presented small spots of a yellow colour, which soon disappeared. The last paroxysm took place without obvious cause, and the perspiration of blood was confined to the face, neck, arm-pits, and anterior part of the thorax and abdomen. The blood drawn during one of these paroxysms formed into a firm coagulum.

32. A young woman, aged 21 years, irregular in menstruation, and of indolent habits and obstinate temper, had been much irritated by some remarks of her parents. She left her home in consequence; and after wandering about for some time entered an hospital. She was then suffering from violent attacks of hysteria, attended with general convulsions, and exquisite sensibility in the pubic and hypogastric regions. After paroxysms, which sometimes lasted twenty-four or thirty-six hours, she fell into a kind of ecstasy, her eyes being fixed, and sensibility and motion suspended. Sometimes she muttered a prayer, and blood would exude in drops from the cheeks and epigastrium, in the form of perspiration. The cutaneous surface appeared injected in those parts whence the blood escaped, being red, and showing a net-work of arborescent vessels. This phenomenon occurred in every unusually long paroxysm. The disease gave way in three months to local bleedings about the head and sexual organs, and strong revulsive measures.

33. *Hæmoptysis*.—A female, unmarried, aged 27 years, began to menstruate when eleven, and had always suffered from dysmenorrhœa, and frequently from amenorrhœa and profuse leucorrhœa. Eleven weeks previous to her admission into Guy's Hospital, being in the fourth month of pregnancy, she was violently kicked and struck on the chest, back, and stomach. She vomited a pint of

blood, and was insensible for three days, during which abortion took place. She subsequently suffered from acute pains in the back, loins abdomen, and left side, dyspnœa, occasional cough, and much bloody expectoration. This having been so recently published I shall only give a list of the symptoms. At the time of her admission into the hospital she had aphonia, distressing difficulty of breathing, which was accompanied by a loud sonorous noise; scanty expectoration tinged with blood; pulse 84; severe pain under the left mamma, in the back, loins, and left side of abdomen. The pressing symptoms were relieved by a blister, ether draught, and the application of leeches to the throat. At each menstrual period she had some of, or all, the following symptoms:—Epistaxis, relaxation of the ulva, hæmoptysis; pain in passing stool or urine; paralysis of the bladder; tympanitic painful swelling of the abdomen; diarrhœa, constipation, and dark scybalous stools; extreme tenderness of the *os uteri*; hysterical paroxysms; cephalœa, stupor, delirium; pains in the back and other parts already mentioned, and spasms of the right upper extremity. She at last menstruated copiously under the use of leeches to the cervix of the uterus, hydrocyanic acid, galbanum pills, and pills of aloes with myrrh; and all the symptoms disappeared.

34. Mary Vaux, aged 20 years, a short, stout-made girl, with round, full face, and rather fair complexion, was admitted into the York County Hospital under the care of Mr. Russell, on September 7th last. She had tumour and a fistulous opening near the left ear in the region of the parotid gland, enlarged tonsils, slight deafness, amenorrhœa, and spinal tenderness in the dorsal region. The muscles of the back and the angles of the ribs were equally as tender on pressure as the spinous processes of the vertebræ. The urine in one day amounted to a few ounces, and the bowels were constipated. Ten months previously she had walked nine miles, stood in the street to be hired as a servant, and walked nine miles back, all on a wet and cold Martinmas-day, while menstruating. During that day she lost her voice, and on the following the menses were suppressed, and she had pain under the left breast. Her legs then swelled, the left arm was spasmodically flexed on the chest, and the leg on the thigh. This spasm continued until the next menstrual period, when it subsided, but she found that she had lost all power over the two extremities. At the time the spasmodic flexion came on, her heart began to palpitate violently, she had a violent spasmodic cough with a loud barking noise, a feeling of irritation at the junction of the neck and chest, scanty expectoration, and frequently of blood. Her bowels became constipated, and the abdomen tumid and tender, she passed little urine, at one time not any for three days, and then it was mixed with blood. There was occasional aphonia. Animal food, but beef in particular, disagreed with her, and for several months after the attack she ate very little animal food. In three or four months her tonsils became enlarged, and a tumour formed near the ear, in conse-

quence, as she imagined, of the excessive straining caused by the cough. This last became much less violent when the tumour suppurated. A variety of remedies have been employed, and she is now, four months after admission, considerably relieved. The tonsils are still large, the back tender, and the catamenia absent. The iodide of potassium seems to have been most useful.

35. The cases of *ganglionic* and *spinal irritation*, published by Mr. Torbet in the 44th volume of the Edinb. Medical and Surgical Journal, are very interesting. One of them is a well-marked case of hysterical hæmoptysis; and on this account, as also because it presents a sort of epitome of the varied symptoms of hysteria, I shall mention very briefly its most remarkable particulars. I may refer to it again.

The patient was a young lady of precocious growth, aged 15 years. The history embraces a period of four years. An attack of typhous fever followed a cough and hoarseness, and was itself succeeded by an apparently inflammatory affection of the hip-joint. Next palpitation of the heart, dyspnœa and cough, caused a suspicion of *carditis*, and she was consequently bled freely, and treated on an active antiphlogistic plan. We find, however, some months after, that there was still palpitation, a harsh, ringing cough, and sensation of suffocation at the junction of the neck and chest. Between fifty and sixty ounces of blood were then taken from the arm in six days at four bleedings; and the symptoms were retching, a hollow, barking, dry cough, quite *sui generis*; quick and easily excited pulse; fits of cephalœa, ending in violent retching without the ejection of anything from the stomach; spinal tenderness; toothache; headache; and retchings in succession; and alternation of toothache and cough, and of retching and headache with each other; next palpitation of the heart, and then hæmoptysis continuing through several months to the termination of the case. The hemorrhage seemed at last to be vicarious. Sometimes coagulated blood was expectorated, sometimes a fluid like serum coloured red. Connected with this symptom, we find diarrhœa, a most incessant cough, difficult to number, vomiting of blood, and paroxysms of throbbing headache, incessant retching, and violent spasms of the abdominal muscles, occurring apparently every or every other evening at eleven o'clock. The feculent discharges are described as being enormously large. A new symptom next appeared. The patient fell into a trance-like or cataleptic state, and toothache, headache, and pains in the hip and knee, hæmoptysis, and all the other symptoms disappeared, but recurred on the cessation of the trance-like condition. Convulsive contractions of the neck and extremities; sobbing and weeping; dysphagia, and involuntary micturition followed, and, as if the sufferings of the poor patient were not great enough, she experienced total blindness and deafness. Her perceptions by the touch while in this state were, however, remarkably acute. "By a kind of instinct" she seemed to distinguish the individuality of each person. She more than once fell into a hysterical sobbing when a person she did not choose persisted

in offering her drink. Shortly after this deprivation she began to suffer from frequent fits of syncope and incessant yawning, and after the restoration of her hearing, and the sight of her right eye, anæsthesia, and paralysis of the extremities came on. Her various nervous affections subsequently seemed to intermit, as she had her good and bad days. On the good days, in spite of her long-continued sufferings and the active depletion practised, she had the appearance of a person in good health. After being in the country for three or four months she was much better, all the symptoms being ameliorated. She became able to drive out twice a day, four miles each time, and eat and slept like other people.

This case altogether is very remarkable. It illustrates well the metastatic nature of these affections, and the tenacity of life which the subjects of them possess.

36. *Hæmatemesis*.—Elizabeth Camidge, aged 18 years, was admitted into the York County Hospital, on June 23, 1836, under the care of Mr. Champney, as a case of diseased knee-joint. She complained of pain in the right hip and knee, darting from her back, through her hip and down her thigh to the knee. The loins and knee were tender on pressure. The tongue dry, pulse much quickened. She appeared of spare habit, rather below the middle size, had a wide pelvis, waddling gait, darkish hair and eyes, and white teeth. She menstruated for the first time when aged about seventeen. When the catamenia were flowing for the third time, she was much alarmed by falling down some steps, and they were immediately suppressed. At the next menstrual period the menses were absent, but she vomited blood. This circumstance frequently occurred during the subsequent twelve months. Small mouthfuls of a bloody fluid used frequently to rise into her mouth, without any kind of convulsive effort or attempt to vomit. The catamenia appeared occasionally during this period, but at the end of it disappeared altogether, and were replaced for a long time by a monthly vomiting or rather expectoration of blood. This was not quite regular in its periods; however it sometimes occurred twice or three times together at intervals of three weeks, and in the intervening time mouthfuls of the bloody water used to be brought upward. Shortly after the accident above-mentioned, a loud barking cough came on, almost constantly teasing her; the abdomen frequently became tumid, tight and painful, and so tender on pressure that she could not bear to wear her stays. She sometimes passed no urine for three or four days together. Her heart then began to palpitate violently on the least exertion, the blood-coloured fluid frequently rose into her mouth, and she had frequent fainting fits, lasting for a few minutes. Profuse sweats used to break out, so that her sheets and shift became as wet by them as if dipped in water. She usually slept very little, and for three or four months in succession. She was awoke from her sleep every morning about one o'clock, by a most violent pain and palpitation of the heart. She awoke always in great alarm and trembled violently. Her back was so tender that she

could scarcely bear a string to be tied around her, and was not able to stand upright. She had constipation and pain in the right hypochondriac and iliac regions. With regard to the knee, it was injured at the time of the accident, and swelled very much. For several months subsequently she was under treatment for it, blisters, leeches, &c., being applied.

The various symptoms now mentioned appeared gradually during the twelve months intervening between the date of the accident and that of her admission into the hospital, and gradually increased in intensity. Soon after admission I observed that she sweated profusely, and that her linen was soaking wet, and this almost constantly. She complained of severe palpitation, and when most severe of distressing dyspnœa. The action of the heart was exceedingly tumultuous, and from 115 to 155 strokes were made in a minute. Occasionally the fingers and thumb of the right hand became of a livid colour, mottled with dusky-red spots, and this state was accompanied by an aching pain along the arm. Spirituous lotions relieved this symptom. The pain in the hip and lumbar region, the cardialgia and palpitation, resisted every remedy. At the recommendation of Drs. Wake and Belcombe, local bleeding by leeches, digitalis, iron, quinine, opium, and the local application of veratria, were used with very little effect. Opium, perhaps, was the most efficient; its utility, however, was not well-marked. The tongue presented a remarkable appearance. It had begun to feel dry in April preceding her admission; it was now perfectly dry, and of a mahogany colour over its whole surface, except a small strip on each side. Very little saliva was secreted, and the thirst was urgent. Two months after admission, the tenderness was found to extend along the whole spine, and the sides of the trunk. The urinary secretion was suspended for three days; the catheter was then introduced regularly for a week, and an ounce or two of urine drawn off occasionally. After having remained in the hospital four months, she was discharged somewhat relieved. During the whole of this time, although suffering from such profuse perspiration, she was not at all emaciated, her arms and legs were round and fat, and the mamæ full and firm.

She was readmitted on the 4th March last. Little alteration had taken place during her absence. On the 8th, being the catamenial period, as usual she vomited, or rather three or four ounces of frothy blood rose into her mouth from her throat. I made particular inquiries, but could never learn anything to support the opinion that it came from the stomach. In a day or two the whole of the right hand became of a purple colour, and a deep red blush covered the forearm. These appearances were accompanied by considerable pain and smarting. The perspirations were incredibly profuse; the pulse 144 per minute, each stroke giving a wavy sensation to the finger as if one was prolonged into another. The action of the heart was very distinct and forcible, but no anormal sound could at any time be detected. Dyspnœa was very distressing, with acute

pain under the left mamma. I now learnt that she could take no other food than bread and beer, or potatoes and milk. She complained that animal food, and especially beef, as soon as eaten, caused a queer sharp pain about the heart, and a sensation as if she were going to die.

During the following three weeks the pulse ranged between 130 and 160 per minute. She complained of giddiness, cephalæa, cardialgia, and sleeplessness. The perspiration stood in large beads on her face, and it was so profuse over the whole surface that her bed and body linen would be literally as wet as if just taken out of water. On the 27th she complained of blood rising into her mouth like flatus. This happened when she was asleep, for, on awaking, she has found her lips and tongue crusted with blood. In the beginning of April the tonsils were observed to be very large, and during the whole of this month she frequently vomited blood. The pulse on one occasion fell to 92 per minute. At that time she suffered acute pain in the right hypochondrium, as if a knife were being thrust into it; and pain in the region of the spleen; with suffusion of the face and rigors. From May to August, in addition to the constant features of her disease, cardialgia, sleeplessness, rapid pulse, and sweats, the urine was scanty and pale; the abdomen tumid and tympanitic; alternate sweats and diarrhœa; great anorexia. Sometimes the merest morsel of bread only being eaten for two days; unconquerable dislike of animal food; frequent syncope accompanied by a sensation of choking and severe pain under the left mamma, and great tenderness of the surface of the whole body; the tonsils were very much enlarged; the tongue dry and brown, as if in the last stage of continued fever. Indeed, those medical gentlemen who have seen the case, and judged only from the pulse and tongue, were invariably of opinion that she was in a high fever. She was sent into the country on August 24th, and for some time was very much better. On returning to her home at York, (her parents are very poor,) all the former symptoms, however, returned, and she was admitted into the Hospital for the third time under the care of Dr. Belcombe, on October 2d last. At the present date she is certainly better. There is no spinal tenderness; no blood is poured into the mouth; she sweats less profusely; rarely faints, and can eat mutton or veal. But she sleeps little, has violent palpitation, especially at night, the urine is scanty, the tongue quite dry and brown, and the tonsils are large.

It would be perfectly useless to specify the remedial means adopted. A list of the names only would be very tedious. She once lost five ounces of blood, when she fainted, and all the symptoms were obviously aggravated. The coagulum was florid, gelatinous, and with only a few drops of serum. Local bleedings generally relieved for a time, but of all the remedies warm baths appear to have been most useful. She remained in them an hour or two. Four or five grains of opium taken in twenty-four hours had no apparent effect.

The general appearance of the patient is unaltered. There is no emaciation; the mammæ are prominent and firm; the nipple prominent but rather small in circumference and surrounded by a brown areola of about three-fourths of an inch in diameter.

It would not be difficult to multiply cases resembling these. Taken in conjunction, however, with several in the first class, they are amply sufficient to give a clear idea of *hysterical hemorrhage*, and of the character of its concomitant symptoms whatever form it may assume.

THIRD CLASS—HYSTERICAL NERVOUS AFFECTIONS.

This class presents an almost infinite variety of extraordinary maladies, which have been commonly named from some symptom more prominent than the rest. Thus nosologists speak of *hysterical somnambulism*, tetanus, aphonia, dysphagia, vomiting, &c. This plan I have already adopted in naming the affections combined in the first and second classes, and shall follow it also in this. I shall begin with the more simple affections, and proceed to the more complicated.

37. *Neuralgia of the Mamma*.—A girl, aged 25 years, of fair and very florid complexion, has pain just under the bosom; which extends to the shoulder, arm, and even to the elbow and hand; it ascends to the neck and descends to the hip. She menstruates regularly, the bowels are costive, and she has great pain in the loins. Her breasts occasionally swell, and she has great pain in them just prior to menstruation.

38. A woman had two small tumours under the breast, moveable under the skin, and about the size of small peas, which made their appearance at different times after a blow on the chest. The first occasioned no inconvenience, but the appearance of the second was followed by symptoms of severe hysteria. She applied at La Charité, and M. Boyer extirpated the tumour which formed last, and completely relieved the patient from her sufferings.

39. *Ecchymosis of the Mamma*.—A young lady, aged 17 years, has a bruised appearance of the breast; there is one larger and several smaller extravasations like those which leeches, had they been applied, would have produced under the skin. This extravasation of blood, to which she has been repeatedly liable, begins about a week before, and disappears a week after menstruation. Before the blood is effused, she suffers severe pain in the bosom and arm. The menstruation is irregular, occurring at distant and uncertain intervals, and then profusely.

48. Miss G., aged 21, has very large breasts, is corpulent and phlegmatic, subject to nausea, and has a very bad appetite. The bowels costive, and menstruation irregular. She has the appearance of a bruise on the right breast, which is exquisitely tender to

the touch, and the seat of great pain, extending along the inner side of the arm to the ends of the fingers.

41. *Hæmorrhage from the Mammæ.*—A woman, 24 years old, had enjoyed a very good state of health, except that she was frequently subject to bleeding from the nose, and determinations of blood to the head and chest. She married at the age of 14, and menstruated the following year for the first time. The periods recurred regularly, but at each she always suffered considerable pain in the abdomen. At the age of 17 she became pregnant, and menstruated in the first and second, and sixth and seventh months of pregnancy, and again two months after her confinement, although suckling her babe. At this time her mind was much disturbed, and she experienced an attack of severe illness, during the first three or four days of which blood exuded from the nails of both hands and from her gums. She suckled for two years, the menses being regular. When she weaned the child, the milk continued to flow freely and constantly from the breasts, without any injury to her health; the breasts remaining soft, and the menses regular. If the secretion of milk ceased for a short time, she experienced pain and tension in the breast. She gave milk to children whenever she had opportunity, and continued in this state for six years, when a physician attempted to cure her by bleeding her at short intervals from both arms, the forehead, and from behind the ears. He arrested the lactation, but in its place a discharge of blood took place from both breasts with violent pains extending to the shoulder and neck. It was of a dark colour, fetid smell, and tinged the linen of a deep red colour. The health remained unaffected when free from pain, for the breast were so tender that the slightest touch was insupportable. Menstruation made no difference. During either rainy or cold weather, the discharge diminished, but the patient suffered severely from pains, nausea, and vomiting. *Hæmatemesis* and *hæmoptoe* used to follow, and she felt speedy relief; but she remained subject to attacks of violent pains and spasms of the stomach, and vomiting on the slightest irregularity of diet, or any mental exertion. The disease resisted every remedy.

42. *Dyspnœa.*—An unmarried female, aged 22, stout, and of plethoric complexion, when aged 14, was first attacked during convalescence from fever with paroxysms of hysteria. These continued to occur until the age of 18, when, in addition, she became subject to paroxysms of dyspnœa, when all the muscles employed in respiration were thrown into violent spasmodic action, and she had exactly the manner and appearance of a person who is out of breath from violent exertion. The paroxysms was wont to last two or three days; the patient then became very drowsy, fell asleep, and at length recovered her natural respiration. During the paroxysms the heart beat forcibly, and she had a distressing sense of tightness across the chest. Previously to each, she experienced a sense of sickness, pain at the lower end of the sternum, and voracious and depraved appetite. She generally suffered from pain under the left mamma

and across the abdomen. The bowels were most obstinately confined; the catamenia regular, but painful. These paroxysms and fits of hysteria affected her for four years, and resisted a host of most powerful remedies. She was at last cured by the use of aloetics with croton and castor oils.

43. *Aphonia*.—A young woman, pregnant for the second time, had, from the fifth month of her pregnancy, been frequently the subject of a temporary loss of voice. Previously to each attack, the patient complained of weight on the breast, and of an uneasiness, and after an hour of a sensation resembling the epileptic aura proceeding from the feet to the neck, and the loss of speech followed. Complete consciousness remaining, and no other function being disturbed, at each attack a vein was opened in the foot with complete relief; the sensation of weight in the breast being first removed, and power of speech immediately following. This attack recurred at intervals of fourteen days, and completely disappeared on delivery.

44. *Aphonia, Barking Cough, Dyspnæa*.—Sarah Uplady, a single woman, aged about 28 years, the mother of one child, was admitted into the York County Hospital, May 26th, 1836, having nearly lost her voice, being unable to speak louder than in a whisper. She had also very great difficulty in swallowing, and had a violently spasmodic barking cough. I found that the cough recurred principally in the evening, and was occasionally accompanied by a sensation of imminent suffocation, suffusion of the face, convulsive efforts, a degree of sensibility, and tumefaction of the abdomen. There was great irritability of temper, cephalæa, and the nights were usually sleepless. The tonsils were somewhat enlarged, but no other change about the fauces could be detected, and an œsophagus bougie passed easily along the gullet. She complained of heat and soreness in the throat; but there seemed no greater tenderness than would naturally follow the convulsive efforts made occasionally to swallow and breathe. The mammæ were flabby, the catamenia very irregular, and occasionally profuse. She was in the hospital four months, during which time mercury; counter-irritants; leeching; local sedatives, as opium and belladonna; conium and ipecacuan in combination; and tonics were used, with very little success. Ether relieved the paroxysms, and full doses of the sedative liquor procured sleep. She left the hospital relieved. She had suffered from the same affection during the preceding year.

45. *Convulsive Cough*.—A female, aged 39 years, had been harassed for some time with paroxysms of cough, resembling hooping-cough, occurring in the evening, and especially after eating, and followed by vomiting, dreadful straining, and convulsive agitation. Leeches, purgatives, and other remedies were used unsuccessfully; but the disease was soon cured by anodynes and tonics.

46. *Hoarseness*.—A young female was bled for a catarrh a few hours after the menstrual period had commenced. The catamenia were immediately suppressed, and her voice was lost; a hoarseness succeeded, which was never removed. This was the third instance of this affection which had occurred in the practice of Dr. Cusan.

47. *Incessant Cough, Croupy Respiration, Aphonia.*—A young lady, after a walk into her garden during a damp and cold day, was seized with such difficulty of breathing and incessant cough, that her medical attendant supposed there was laryngeal inflammation, and immediately bled her, but without relief. The breathing continued with such a loud croupy sound, that no person in the house could get any sleep, nor could the young lady herself for many nights in succession. All this time the pulse was regular, the skin cool, and the tongue clean. One physician pronounced the disease to be ulceration of the larynx, and requested to be sent for when the lady died, that he might demonstrate the truth of his opinion on the corpse. One or two accused the patient of simulating the symptoms. The complaint had continued for two years, at which time she had entirely lost her voice, not being able even to whisper. Tonics did more good than any other remedies, and the disease was once completely interrupted by the scruple doses of carbonate of iron, prescribed by Sir A. Cooper.

48. *Dysphagia.*—A beautiful and handsome young woman, about 16 years of age, had menstruated regularly for a year. The sudden death of an indulgent father at the catamenial period caused an immediate flooding, accompanied with fainting and trembling fits, which seemed to be hysteric, and in a short time went off. She continued pretty well until the next catamenial period, when the fits again recurred. At the next period the menses were suppressed, but the fits again came on, and were more frequent and violent, and evidently convulsive. In a short time she was bled and emetics administered. A few days after the operation of the latter she was seized with a difficulty in swallowing, which increased so much, that deglutition became impossible; and the attempt to perform it caused fits of trembling, and “reciprocal distension of the thorax and abdomen,” ending in absolute rigidity of the whole body. The cause of the dysphagia seemed to be a spasm of the œsophagus, two inches below the larynx. She swallowed nothing for thirty-four days, when a probang was introduced, after which she was able to swallow with ease any food offered, for about three weeks; but vomited everything except her medicines, cherries, and strawberries. The bowels were constipated, and enemata were occasionally administered. After one of these she had a very considerable evacuation of blood from the anus. After an interval of rest the dysphagia returned, and she swallowed nothing for fifty-four days. During this time she was affected with fits of tetanus more violently than ever, and was insensible during them. An attempt to introduce a probang, or the slightest mental irritation, used to cause a paroxysm. After she had fasted three or four weeks she first lost her sight,—her eyeballs being drawn up with a convulsive motion,—and soon after her hearing. She knew her friends, however, by the touch, for when any of them took her by the hand, she would call them by their right names.

When she became able to swallow, she drank ale or whey, and

eat apples or pears, but no bread or other solid food for several months, during which she was confined to bed. At the end of this time, hard swellings appeared behind the ears, and she was then able to sit up and eat any kind of vegetable food, but could not taste flesh or broth. During these fastings she did not become emaciated. Her bowels were also obstinately constipated; in the second they were not moved for a month.

She died suddenly. The œsophagus only was examined, and was found free from marks of disease.

49. *Vomiting*.—Elizabeth Martin, aged 21 years, stout and well made, dark-gray eyes, auburn hair, face pitted by the small-pox, was admitted into the York County Hospital, under the care of Dr. Belcombe, May 26th, 1836, complaining of incessant vomiting. She left the hospital at the end of the preceding February, after having been treated nearly three months for a similar affection. During that time, as I learn from the physician's book, many remedies were employed, and without permanent relief. The following are the principal; emetics; blisters and leeches to the epigastrium; leeches to the region of the heart; potassa; bismuth; mercury; opium; hydrocyanic acid; quinine; strychnine; and camphor.

Her health had always been good until she was seventeen years old, when she experienced a severe attack of the small-pox. On recovery, she continued generally indisposed, and was particularly affected by rigors, not followed by heat or sweating, and accompanied by acute pain, described as if great pressure were applied to the head, pain in the epigastrium, dry, brownish tongue, and quick pulse.

She remained in the hospital eighteen weeks. An epitome of the principal symptoms which showed themselves during that period will sufficiently characterize the disease. After a rigor, as described, she used to vomit all food whatever, whether solid or liquid, for many days in succession. Sometimes the vomiting occurred daily soon after dinner, and at any time upon slight mental excitement, as, for instance, that caused by the approach of the medical officers, pupils, or strangers. Her appetite was moderately good, the menses regular, and the bowels constantly constipated, requiring the frequent use of active purgatives. The tonsils were enlarged. She complained of severe headache and toothache; of pain between the shoulders; and tenderness of the spine, but particularly over the dorsal vertebræ. The abdomen presented a globular enlargement, was very tense and tympanitic, and the patient constantly rubbed it gently with her hand to relieve the severe colicky pain she experienced in it. It would be quite useless to specify all the remedial measures adopted. The fœtid gums were of no service; acetate of morphia in large doses seemed to do some good; creosote at the first exhibition relieved the vomiting for five or six days. An incautious exhibition of a small dose of ipecacuanâ reëxcited the vomiting, and creosote was ever after of no effect. By the general means adopted, the intensity of the symptoms were

mitigated, and the patient returned to her home in the country. She subsequently became quite well. Dr. Belcombe informs me that her sister suffered from a similar affection.

50. *Hiccup*.—A lady received some melancholy news while menstruating, and the menses were immediately suppressed. On this suppression there supervened most distressing hiccup, which lasted with great violence for thirty-six hours, and then intermitted for twenty-four hours. The hiccup thus continued to recur periodically for several weeks, and with serious effects on the lady's health. It was at last cured by a course of active purgatives.

51. *Hiccup and Aphonia*.—A female, aged 24, complained of pain in the back part of the head, irregularity in the catamenia, and occasional attacks of hiccup lasting for a few hours. Sometimes instead of hiccup she suffered from complete aphonia, so that for a time she was incapable of uttering a single sound. Leeches to the anus relieved the aphonia, but the hiccup continued very distressing. Under the repeated application of tartar emetic to the epigastrium the hiccup at last disappeared.

52. *Frequent Sipping*.—Dr. Graves was called to a young lady who was represented to be in a state of imminent danger. On entering the lady's room he found her surrounded by several female friends, all in the greatest alarm. Her countenance was pale, and had an anxious expression, and about every five seconds she sipped an extremely small portion of water, which she immediately swallowed, but with a considerable effort, although the quantity was so trifling. She said that she should be immediately choked if she discontinued the sipping, for the moment she attempted it, she felt an intolerable uneasiness at the root of her tongue and in her throat, threatening immediate suffocation. So urgent were these sensations, that, if an attempt was made to prevent her sipping, she immediately screamed in agony, was agitated with convulsions, and seemed about to expire. She could make a full inspiration without wheezing or noise in the chest; and there was no appearance of disease at the root of the tongue or in the fauces. She was a young lady of an extremely delicate and nervous habit, being very sedentary, and subject to frequent attacks of common hysteria. Dr. Graves, aware of these circumstances, immediately removed a number of leeches which were attached to her throat, stopped the bleeding as soon as possible, and gave her draughts, consisting of camphor, aromatic spirit of ammonia, and black drop, under the influence of which the nervous irritation soon subsided, and she fell asleep.

53. *Masked Hysteria*.—C. Hepworth, a young female, aged 19 years, of fair complexion, light hair, and rather muscular, was admitted into the York County Hospital on July 6, 1837, under the care of Dr. Belcombe, complaining of pain under the left breast, sleepless nights, and palpitation; more particularly she suffered from a sensation in the left hypochondrium, as if a hot tin vessel was applied to the skin, or as if leeches were fastening upon it. She

began to menstruate at the age of 16 years, but the menses were very irregular until about a year ago. At each menstrual period she suffered great pain, her urine was scanty, not amounting to seven ounces in twenty-four hours, and she had great difficulty and pain in evacuating the bladder. In the preceding April she first suffered from backache, but in other respects continued well every day until eight or nine o'clock in the evening, when her abdomen used to become exceedingly tense and tender, and she was wont to vomit excessively for an hour or two, when all the symptoms disappeared, and she again felt tolerably well. Upon examining her back, the cervical and several dorsal vertebræ were tender to the touch. By occasional leechings, aloetic purgatives, and tonics, she recovered in a few weeks and was discharged.

On the 3d of September following, she was again admitted, complaining of the same symptoms. The tenderness was now over the whole surface of the back, and the arms were equally as tender on pressure as any portion of the spine. She had, in addition, frequent numbness and pricking of the legs; headache, dimness of sight; sweatings across the loins, and most obstinate constipation of the bowels; the urine was white and opaque, passed with difficulty, and in small quantities. The appetite was very variable, sleep never sound, and seldom continued for half an hour at once. The same means again relieved her in a few weeks, from the more pressing symptoms.

54. *Imitative Hysteria*.—On an afternoon about a year and a-half ago, I was hastily called into the Woman's Surgical Ward of this hospital, in consequence of a sudden attack of illness in several of the patients. A young, well-formed female, with disease of the right hip-joint, had complained of headache and neuralgic pains during the morning; she was at last suddenly seized with violent retching, crowing breathing, sense of suffocation, aphonia, inability to swallow, suffusion of the face, violent headache, and tumefaction and pain of the abdomen. A young female patient who went to her assistance became soon affected in a similar manner, the retching in her being most distressing. A third in an adjoining bed was next affected with violent convulsions, terminating in paleness of the face and complete insensibility. Her pulse and respiration could scarcely be observed. At last a fourth began to retch and vomit, and then cough incessantly, except when interrupted by a loud convulsive sob. I must confess I had no conception at first of the nature of the affection, but suspected, from the great retching and vomiting, that the patients had taken something poisonous. Under this impression I dispatched a note to Dr. Wake, at that time senior physician of the hospital, requesting his assistance, and proceeded to make the necessary inquiries. An old Irish nurse, attached to another ward, said she had frequently seen the same thing in the Lying-in-Hospital at Dublin. I then remembered Boerhaave's well-known cases in the Orphan House at Haarlem, and by administering suitable remedies, the patients were all relieved within three hours.

55. *Imitative Laughter*.—A volume might be written on the singular effects produced by the convulsive movements of one individual in another in perfect health, very commonly exciting a similar series of movements. One of the most curious instances may be found in the history of the dancing mania of the year 1374, given by Hecker in his *Epidemics of the Middle Ages* (recently translated by Dr. Babington*). This mania extended over the whole of Germany, and occurred soon after that dreadful pestilence commonly called the Black Death? An account of several such epidemics may be found in Vol. iii. of *Ed. Med. and Surg. Journ.* The preaching of the celebrated John Wesley, as is well known, was frequently followed by convulsive movements in his hearers. Many instances of the effect of great nervous excitement are scattered through his journal, the phenomena of some having a singular resemblance to the *clair-voyance* of Mesmerized patients, others being cataleptic, epileptic, &c. Wesley was quite at a loss to account for such extraordinary phenomena, the reality of which he could not doubt, except on the principles of supernatural agency. In more modern days, they have been attributed to an equally, or perhaps more incomprehensible cause. The following instances of *hysterical laughter* are quoted from Wesley's very curious and interesting journal.

“Friday 9th” (May, 1740), I was a little surprised at some who were buffeted of Satan in an unusual manner, by such a spirit of laughter as they could in nowise resist, though it was pain and grief unto them. I could scarcely have believed the account they gave me, had I not known the same thing ten or eleven years ago. Part of Sunday, my brother and I then used to spend in walking in the meadows and singing psalms. But one day, just as we were beginning to sing, he burst out into loud laughter. I asked him if he was distracted? and began to be very angry, and presently after to laugh as loud as he. Nor could we possibly refrain, though we were ready to tear ourselves to pieces, but we were forced to go home without singing another line.”

“Wednesday 21, in the evening such a spirit of laughter was among us, that many were much offended. But the attention of all was soon fixed on L. S., whom we all knew to be no dissembler. Sometimes she laughed till almost strangled; then broke out into cursing and blaspheming; then stamped and struggled with incredible strength, so that four or five could scarce hold her. Most of our brethren and sisters were now fully convinced that those who were under this strange temptation could not help it. Only Elizabeth B. and Anne H. were of another mind; being still sure any one might help laughing if she would. This they declared to many on Thursday; but on Friday 23d, both of them were suddenly seized in the same manner as the rest, and laughed whether they would or not, almost without ceasing. Thus they continued for two days a spectacle to all, and were then, upon prayer made for them, delivered in a moment.” A vast majority of this society con-

* Published in the Select Medical Library for 1837.

sisted of females, and from the expression, *if she would*, appear to suffer most from the singular convulsion.

56. *Paralysis and Tetanus*.—A widow, aged 37 years, entered La Charité complaining of violent palpitation, tightness of the chest, and pain in the left side, all which she attributed to a fall about 18 months previously at a time when she was in the habit of being bled every two months. The pulse was found to be irregular and intermittent, and the heart beat over a considerable space; no œdema was observed. She was the mother of five children, and was always well until some afflictions and misfortunes disturbed her health and reason. Bleeding from the arm and by leeches and a rigid regimen abated the cardiac symptoms, but they were succeeded by violent hemicrania, chiefly of the right side, which was relieved by the application of cold water in the night. Whenever it was thus relieved, she felt distressing numbness and stiffness in her limbs. In the course of a short time, there was complete paralysis of the right side, with loss of sensation. In the beginning of September, the right lower extremity, hitherto paralytic, became rigidly extended and tetanic. When flexion was forcibly induced great pain followed. Both thumbs were then similarly affected, and little sensibility remained in either of the arms. Moxas to the loins restored sensibility to the legs, but a most intense pain was now felt in the region of the heart, radiating from thence along the left arm. There was no fever nor convulsions. Next day a sense of constriction was felt in the throat, deglutition became difficult, and the voice was extinct. During the next four days, various hysterical phenomena showed themselves, and were ended by the appearance of the catamenia, and complete disappearance of all the previous teasing symptoms.

57. *Tetanus*.—A strong country girl was pursued whilst menstruating by a dog which she thought mad. She was consequently very much alarmed, and the menses were suppressed. They did not reappear at the usual periods, and in September following, she suffered from creeping sensations in the legs, together with slight spasms and involuntary motions. These disappeared in a few days, but returned a month afterwards with greater severity. The legs now also became forcibly flexed on the thigh, so that the heels touched the nates, and every attempt to extend them produced the most acute suffering. In five days these symptoms disappeared, the affected parts feeling weak only.

In a month the same phenomena recurred and continued again for five days only, but left her much weaker in her legs, so that her gait was vacillating. Leeching and cupping the loins, vapour of water to the pudenda, with leeches, baths, and other measures, had the effect of restraining the muscular spasms, but did not restore the catamenial discharge. Eleven months after their first suppression, the *menses* became copious, and the patient ever after enjoyed excellent health.

58. *Epilepsy and dysphagy*.—An unmarried female when a aged

30, in consequence of either trouble or fright, was seized with fits, which returned once in twenty-four hours, generally in the night, and so continued for three months. They afterwards became more frequent, especially in the summer months, when she was deprived of her memory and almost all her mental faculties. Ten years from the commencement of the illness they returned twice or thrice a week. During the paroxysm she became violently convulsed, foamed at the mouth, and was insensible. After they had continued five years, she was affected with a difficulty of swallowing, and a sensation of tightness and stricture in the throat and breast, and was unable to swallow either solids or liquids for seventeen days. Neither had she any evacuation by urine or stool, but had a small discharge of blood from her ears. On the 17th day, a probang was introduced with ease into the stomach. On withdrawing it she fainted but recovered in a quarter of an hour, had a stool, and passed a few ounces of gelatinous urine. This difficulty of swallowing, and the accompanying symptoms, continued to return regularly every month for two years, and were constantly removed as at first. When free from the dysphagia, she was constantly affected with the epilepsy. She was at last cured by the ammoniated copper.

59. *Chorea, Paralysis, Epilepsy*.—A female, who first menstruated at the age of 14 years, the menses recurring every fortnight, was frightened during their flow at the annual period, when aged 17. The catamenia were immediately suppressed, and hysterical fits and tremblings of the limbs succeeded. The latter symptoms became aggravated, and in two months she was utterly unable to remain at rest one moment, in consequence of the violent agitation of the limbs. There was one series of motions frequently repeated, which consisted in a rolling of her clenched hands quickly round each other, with a thrusting forward of the right in a very systematic manner at every third revolution.

She had occasional pains in the head, back, and loins, and under the left mamma; sleeplessness, excessive irritability, palpitation of the heart, and constipated bowels. After a few months epileptic fits came on; she had a foolish imbecile stare, and appeared almost regardless of surrounding objects; her lower extremities seemed paralytic; she had pain along the spine, and the bowels were confined. During the epileptic paroxysm she had violent opisthotonos and tumultuous actions of the heart; the fit ending in a profound sleep, which was wont to continue many hours. The slightest touch when the violence of the paroxysms was subsiding, used instantly to reproduce it. In this state she continued many months.

The chorea was removed by electric shocks through the pelvis, and the fits recurred also with diminished violence and frequency.

60. *Mechanical repetition. Coma*.—Two young ladies of very nervous temperament, active minds, excitable temper, and twins, had, for some years, and exactly the same length of time, been the subject of fits of hysteria, accompanied with a choking sensation and convulsions. In these fits they were continually affected with

a motion of the head and arms, regularly occurring in accurate time, and accompanied by the words "tic-tic," like a clock. They were sometimes insensible, sometimes sensible, and would say "I cannot help it; but there is the tic coming," and then would make a sound like that of a clock, "tic-tic." Occasionally they would utter distinct words "I cum, I cum," or "hi cum, hi cum." At last they both fell into a state of imperfect sensibility, their respirations scarcely perceptible. One of them died. The other had extreme sensibility of the surface of the trunk, "a symptom very common in hysteria, so that the slightest touch with the end of the finger gave her exquisite pain, caused her to groan and nearly shriek, and say 'hi cum,' two or three times, and then the head to begin moving from side to side, and then the hands and forearms to semi-rotate in and out, in regular time, the motions being accompanied by the words tic-tic, tic-tic; the second tic being pronounced some notes lower than the first. This morbid sensibility of the surface is purely a state of the sentient nerves." The trance-like or insensible state continued for some weeks, during which time the difficulty of swallowing was so great, that a tea-spoonful of fluid could only be got into the stomach by pressing on the situation of the arytenoid cartilage after it was put into her mouth. At one time there were great heat and throbbing of the temples. Sometimes she was so far conscious for a short time as to be able to write, or open her mouth for food, and eat it ravenously, but soon went off again. In the corpse of the deceased sister, nothing but a remarkable deficiency of blood could be observed. The brain was excessively exsanguineous.

61. A married female, aged 22 years, the mother of two children, one of which was at the breast, menstruating regularly, but in an employment which exposed her to sudden alternations of heat with cold and moisture, was attacked by neuralgic pains of the face, temples, and teeth. Soon after there was a feeling of a heavy sensation in the eyes, and the mother on examining them observed that they had a peculiar wildness. An involuntary motion of the eyelids then commenced, in which they were opened and shut with excessive rapidity for about fifteen minutes. In about ten minutes the motion commenced in the extremities; the palms of the hands were beat rapidly upon the thighs, and the feet upon the ground; the forearms were rubbed incessantly along the thighs; the radius rotating upon the ulna at the same time that the hand was turned prone and supine during its progress. The arms were at times extended, and the palms of the hands suddenly turned outwards; the back of the wrists were repeatedly and violently struck against each other, while at other times the middle-fingers, being extended inwards, struck the palm of the opposite hand, and so alternately with an almost inconceivable quickness. During these different actions of the superior extremities, the feet incessantly beat the ground, and occasionally the eyelids were opened and shut violently. This affection commonly ended in headache of short duration, with

sickness and vomiting. Subsequently she had often a sudden propensity to leap upwards, or to go into every corner of the room and strike the furniture and doors violently with her hand as she passed, the sound giving her great satisfaction. The next day, kneeling on one knee with the hand upon the back, she often sprung up suddenly and struck the top of the room with the palm of her hand. To do this she rose fifteen inches from the floor. In the evening the family observed the blows upon the furniture to be more continuous, and to assume the regular time and measure of a musical air. As a strain or series of strokes was concluded, she ended with a more violent stroke or a more violent spring or jump. The next day the motions became more regular, and it was curious to see the patient moving around the room with all the vivacity of a country-dance, or the graver step of the minuet; the arms frequently carried not merely with ease but with elegance. When she looked upwards, there was an irresistible impulse to spring up to touch little spots or holes in the ceiling. When she looked round she had a similar propensity to dart the forefinger into little holes in the furniture, &c. One hole in the wooden screen received the point of the forefinger many hundred times, which was suddenly and involuntarily darted into it with an amazing rapidity and precision. At last it was discovered that she danced with avidity to music. A drum and fife were procured, and she danced to the favourite popular air of the "Protestant Boys." In whatever part of the room she happened to be, she immediately turned and danced up to the drum, and as close as possible to it, and there she danced until she missed the step, when the involuntary motions ceased. A rapid performance, or a continued roll on the drum, would check the motions altogether. She said there was always a tune dwelling upon her mind, which at times becoming more pressing, irresistibly compelled her to commence the measured movements. She had a sensation as if insects were creeping in circles over the skin, especially upon the thighs. The alvine discharge was occasionally offensive, unnatural in colour, and slimy. Pulse from 108 to 130. During the intermissions she attended as usual to her household affairs, and her intellect was quite sound. After the disease had continued seven or eight days, an eruption appeared on the skin, particularly about the elbow, in diffused patches of a bright red colour, and went off on the third day. During the continuance of the eruption, the menses appeared, and she was soon restored to her usual health.

It was curious, that previously to her complaint she could never dance, not even a country-dance, and yet during the paroxysm she executed very difficult steps.

62. A young female, aged 15 years, of good health and habit of body, and sauguineo-choleric temperament, was picking some straws from the ground, when a large black spider ran on the back part of her hand, and, without her attempting to molest it, having heard, as she said, that it was good luck, soon ran off. The same afternoon

she had involuntary twitches in the arm and side; in the evening they were painful. Her stomach then became the seat of pain; she vomited, and on the third day had paroxysms something like hysteric fits, combined with the St. Vitus' dance. She had also a remarkable increase of sensibility. When in her fits she used to make movements with her hands and fingers as if after a tune; and when music was introduced, her motions corresponded, beating with her hands and finger-ends upon her breast as if dancing, and sometimes when, from the violence of the spasms she could not regulate her motions, and would strike too hard, it was common for some of her attendants to place their hand to receive the blows. She appeared best pleased when her father's hand was placed for this purpose; and if another person ever so gently endeavoured to substitute his own, she would immediately push away the strange hand, and seek for her father's. This she did, although to everything else insensible, and with her eyes closed, and as it appeared by the simple touch of her finger-ends. Her muscles were continually affected with spasms during the paroxysms. When the music began, it in a great degree relaxed the spasmodic tension, and the convulsive motions were changed for the measured movements of her hands, following the tune. The tension remained, however, in her fingers, which were widely separated from each other, and stiff as sticks. When the fit began to abate on one occasion, although her eyes had not been opened after, Dr. Cornstick, the narrator, entered the room, by merely feeling his clothes, she could tell the colour of each article. This faculty she possessed in such an eminent degree, as to be able to point out different colours upon one piece of cotton, linen, or woollen cloth, and discover each different material when wove into one piece. After feeling Dr. C.'s hand for some minutes with great attention, she would afterwards tell what things he had held in it. This cost her more time and study than distinguishing colours, and she was obliged to put the substances to her cheek as she had done Dr. C.'s hand previously. Dr. C. says these various circumstances were so confirmed by the most undeniable testimony, that he felt bound to believe the evidence of his own senses. Subsequently she had a surprising acuteness of the olfactory nerves, and great partiality to certain odours, and also to colours. Green and red caused the greatest pleasure, which she evinced by convulsive unnatural laughter. The sight of anything transparent, and water poured slowly from one vessel to another, had the same effect. She would turn away her head from white or black and their compounds with aversion and with seeming horror. She had now an aversion to her relations, and the touch of one of them used to throw her into violent convulsions; her eyes were generally turned up under the upper lid; she had paroxysms of insensibility, from which she could be roused by music, and if put on her feet would dance for a long period without intermission, and with all her might, leaping a considerable distance from the floor, and continuing until she fell exhausted. Her eyes were closed while dancing. By al-

lowing her to dance to music until she was exhausted, the paroxysms became less frequent, recurring every four or five weeks. During the intermission she had no unusual sensibility of sight or feeling, and did not remember what occurred in the paroxysm.

Nine months after the transit of the spider, the spot where it occurred became red, and a gangrenous eschar formed. After it sloughed off, her fits recurred less violently, but her hearing was so acute that she could hear persons whisper in the next room. The sore on her hand began to discharge green, thick, purulent matter in large quantities, and the fits ceased for five months. Once during that period the discharge suddenly stopped, and she was threatened with a return of the fits.

The fits were unaccompanied by pyrexia, nor was she at all emaciated during her illness. Once Dr. C. saw her very sick during a partial paroxysm, retching continually; what she evacuated was a mucous matter in considerable quantities, which seemed to come from the fauces.

63. *Catalepsy and Somnambulism*.—Public attention is now so much directed to the phenomena of Mesmerism, that cases of somnambulism, ecstatic delirium, coma, &c., abound. I shall, therefore, give only one short case of somnambulism.

A female, aged 20 years, suffered for some months from catalepsy. The disease then assumed a new form. After a fit of catalepsy she used to yawn, raise herself up, and speak with more brilliant wit than she was accustomed to show, when unaffected with the paroxysm. She seemed to be addressing many persons who surrounded her, accompanying her conversation with gestures and motions of the eyes. She then began to sing and laugh, used to leap from bed, walk through the ward of the hospital, avoiding all obstacles, and, returning to her own bed, covered herself with her bed-clothes, fall into a fit of catalepsy, and in about fourteen hours awake, quite unconscious of what had happened during the paroxysm. While in the sleep-walking state, Sauvages found her altogether destitute of sensibility. Loud, sudden noises, or the flame of a candle applied so near the eyes as to burn their lashes, could not rouse her or cause her to wink, or prevent her going on with her discourse. Spirit of wine was dropped into the eyes and mouth; tobacco and sal-ammoniac put into the nostrils, and needles thrust into the body, without causing the slightest appearance of sensation.

64. *Insane timidity, — Cataleptic tendency*.—Elizabeth F., aged 21, a delicate-looking girl, was much frightened by her father running after her with a knife in his hand threatening to kill her. She was admitted into the York County Hospital on March 9th, 1837, supposed insane. She was very timid, and asked if those around her were going to kill her. The mammæ were small, the abdomen flaccid, and tender to the touch. The catamenia were suppressed for three months. The countenance was fatuous, and she complained of pain in the knees. During the day she was moderately quiet and rather sensible, but at night she was very restless, could

scarcely be kept in bed, and called very loudly for her mother. Saliva dribbled from her mouth in large quantities, with some relief to the evening exacerbation. In two or three days she began to suffer from a distressing sensation of choking, and breathed like a person going naked into cold water, with short panting attempts at respiration. The day following, she vomited a good deal; her neck swelled, her face became livid; she complained of being suffocated, and immediately a fluid gushed out of *her mouth*, and another ran into a stream off her cheeks from *her eyes*. Her neck was wet with perspiration, while the rest of the body was dry. The appetite was ravenous; the pulse regular, but weak. Eleven days after admission she seemed to have no muscular energy: she used to put out her tongue when requested after considerable delay, but would then allow it to remain for some minutes in exactly the same position in which she placed it. If her arms was lifted in feeling the pulse, after I ceased to hold it, it used to continue in exactly the same position for several minutes. The dribbling of the saliva, which at one time flooded the bed and floor, now ceased, and her cries and screams at night became so dreadful, that it was necessary to remove her from the hospital, and the parish officers directed her to be sent to the York Lunatic Asylum. A few weeks after her removal I visited her, and found her laid with her head on a table, the saliva dribbling from her mouth. She answered all questions by a vacant, anxious stare. Subsequently she began to employ herself, and in January of the present year went home convalescent. No medicine was used.

65. *Insanity, Catalepsy*.—A remarkably fine young woman, well educated, aged 22 years, of fair complexion and good constitution, received an abrupt proposal of immediate marriage, to which she hesitatingly consented; but the conflicting emotions of her mind prematurely brought on the catamenia. Reluctance to disclose a circumstance of so much delicacy as an excuse for delay, and the fear of losing an advantageous match, violently agitated her feelings, and in this state of body and mind she was married, and set off to travel on the same evening with her husband in a stage-coach, to the place where they was to sleep. During the journey her passions were highly excited, and subsequent intercourse was attended with much pain. After having slept for about an hour, she suddenly awoke in a violent alarm from a frightful dream, and complained of a dreadful pain in her head. Presently she jumped out of bed, attempted to open the window, and for a short time fainted. On recovery she became delirious and furious. The catamenia ceased for this time. A medical practitioner immediately bled her, and treated her with active purgatives and strict antiphlogistic measures. In about three weeks she was much recovered, but relapsed from over-excitement, and fell into a state of melancholy, when she came under the care of Dr. Burrows. Her countenance was sullen and pale, the eyes heavy, turgid, and cast downwards; the tongue foul; the bowels inert; the pulse rather full and slow, and

the surface, especially of the extremities, below natural heat. She answered few questions, and those only in monosyllables, and was very reluctant to move. After purgatives had removed a quantity of scybalous excrement from the bowels, and mercury affected the mouth, she improved considerably, but so soon as the salivation ceased, all the former symptoms became more intense, and certain cataleptic appearances were observed. She preserved the exact posture, whether lying, sitting, or standing, in which she was placed; eat mechanically, and answered no questions. The skin was like white wax, and very cold; the pulse was feeble; the respiration undisturbed, and scarcely perceptible. The pulsations of the carotids were very quick, and so strong as to be plainly counted by sight. At last all these symptoms were suddenly aggravated; she became a perfect statue; sensation and volition were quite suspended; the evacuations were discharged involuntarily; mouth open, and saliva flowing from it in large quantities; a constant sardonic grin; the eyes immoveable, and imbedded in the upper eyelids; every limb retained the position in which it was placed, even the most painful, and that for a time impossible to be preserved by any one in health. The pulse was soft and slow. Leeches to the head, and blisters to it and to the spine, warm baths, and other means were used with considerable success. At last she arose one morning in possession of every faculty, mental and bodily. She voluntarily assisted in domestic affairs, and talked rationally and cheerfully. She had a perfect recollection of being brought into the house, and of most things prior to the attack of catalepsy; but from the accession of that affection all was a blank.

On the next day, unfortunately, she relapsed into her previous state. A seton to the occiput for six months, and then a removal to the sea-side; the use of the warm and cold sea-bath; and a great deal of exercise, caused the menses to reappear with a flow as great as occurs in many miscarriages. From this date her recovery was complete. She subsequently bore several children, and ten years after she had no return of her disease.

66. *Infanticide*.—Scarcely a week passes without a case being reported in the public papers of infants being killed by their mothers, especially by *young* mothers. Having already occupied too much space with cases, I must merely refer to various writers (especially the phrenological) on the subject.

67. *Insane Cunning*.—An unmarried woman, about 25 years of age, was admitted into the Aberdeen Infirmary, for a stoppage of the menses, which had occurred about two years and a half before. This was attended with pain in the region of the kidneys, and course of the ureters, and with difficulty in voiding her urine. Some months after this, the pains becoming more violent, and being chiefly seated in the region of the uterus, she discharged from the vagina a large round stone of a reddish colour, with a rough scabrous surface, which she said she was certain came from the uterus. From that time to the day of her admission into the Infirmary, no fewer

than twenty-five stones of the same kind were voided or extracted from the vagina by different people. At the time of her admission into the Infirmary, she required the frequent use of the catheter. She was sounded, but nothing could be discovered in the bladder. The vagina and *os tinæ* were natural. She remained about two months in the hospital, during which time, on several occasions, she complained of the pain and other symptoms which preceded the discharge of the stones. Upon examination stones were found sticking in the vagina, which in colour and appearance resembled calcined bricks. The *os tinæ* was not dilated, and there was no appearance of laceration. Deception was suspected, and such measures taken as led to her confessing the whole to be an imposition. Dr. Livingston remarks, that she had an unblemished character in the country where she resided, and that she never sought for charity of the public. A medical practitioner had entertained her in his own family for some time, with great humanity, and extracted two very large stones from the vagina. When Dr. L. hinted his suspicions of an imposition to this gentleman, he was much affronted; and some other people loudly exclaimed that Dr. L. had neither charity nor humanity, in suspecting the poor distressed woman of such an intention.

A case very similar to this is recorded in the seventh volume of the Edinburgh Medical and Surgical Journal, page 437.

It would be quite useless to attempt an apology for my apparent presumption in undertaking an analysis of phenomena so varied and extraordinary. I know of none adequate to excuse it. The lengthened details of some of the histories may appear tediously minute,—a circumstance I shall venture to notice.

When a case is reported to illustrate some special point of practice, a vivid outline is alone necessary. If, on the contrary, the object be to elucidate the philosophy of disease, minute detail is imperatively demanded, just as in any philosophical experiment; and it is the absence of this which renders a vast number of anomalous cases useless. The facts are so few and so imperfectly related, that no useful comparison can be instituted. I am, consequently, rather inclined to lament the brevity, than the length of these histories; and would shield myself under the opinion of Baglivi:—"Cæterum nil magis ad veritatem axiomatum conducit, quam exacta ac prorsus austerâ symptomatum omnium utut minimorum, utut vilium, ac penè inutilium in morbo observatorum descriptio.—*Natura NIL molitur frustra*, minimaque sunt sæpius magnarum rerum initia, et minima quoque ad notitiam grandium nos conducunt."* The following is a list of references to such of the preceding cases as are quoted.

29. Edin. Med. Essays and Observations, Vol. ii.

* Baglivi, de Praxi Medica, Lib. ii. Cap. iii. Sect. vii.

30. Van Swieten, *Comm. apud Boerhaave*, ed. 2da. Lugdun. Batavor. Tom. iv., p. 418.

31. *Journal de Medecine*, 1815, quoted in the *New London Med. and Phys. Journal*, Vol. ix., p. 496.

32. *Trans. Medicales*, 1830, and *Med. Chirurg. Rev.*, New Series, Vol. xv., p. 496.

33. Reported by Mr. Blundell in *London Medical Gazette*, Vol. xvi., p. 347.

35. *Edinb. Med. and Surgical Journal*, Vol. xli., p. 376.

37. *Illustrations of the Diseases of the Breast*, by Sir A. Cooper, Bart., Part I., p. 81. 4to, Lond. 1829.

38. *London Medical Gazette*, Vol. vi., p. 59.

39. 40. Sir A. Cooper, in *op. cit.*, p. 87.

41. *Journal Complement*. 1828, and *London Med. and Physical Journal*, Vol. ix., p. 362.

42. *London Medical Gazette*, Vol. vii., p. 30.

43. *Rust's Magazin für Gesammte Heilkunde*, 1825, and *Med. Chirurg. Review*, Vol. v., p. 525.

45. *Memoir on Visceral Neuralgia*, by Mr. Solly, noticed in *Med. Chir. Review*, New Series, Vol. ix., p. 337.

46. M. Cusan, *Archives Gen. de Med.* 1827.

47. *Med. Chir. Rev.* New Series, Vol. iii., p. 385.

48. *Edin. Med. Essays and Observations*, Vol. v.

50. 51. *Memoir on Visceral Neuralgia*, by Mr. Solly, in *op. cit.*

52. *The Dublin Journal of Med. and Chem. Science*, Vol. iii., p. 165.

55. *Wesley's Works*, 8vo. Lond. 1809, Vol. ii., p. 35, 36.

56. *Journal Hebdomadaire*, 1827, and *Med. Chir. Review*, New Series, Vol. x., p. 462.

57. *Journal Complement*. 1828, and *Lond. Med. Gazette*, Vol. i., p. 805.

57. Dr. Heysham, in *Duncan's Med. Commentaries*, Vol. vii., p. 428.

59. Dr. Addison, in *Guy's Hospital Reports*, Vol. ii., p. 496.

60. Dr. Elliotson, in a *Clinical Lecture*, *Lond. Med. Gazette*, Vol. vii., p. 728.

61. Mr. Wood, in *Med. Chir. Trans.* Vol. vii., p. 238.

62. Dr. Cornstick, of South Kingston, Rhode Island, in *Med. and Phys. Journal*, Vol. xx., p. 224.

63. *Sauvages* in *Mem. de l'Acad. des Sciences*, l'an 1742, p. 557; also in *Nosol. Method.*, Tom. i.

65. *Commentaries on the Causes, &c., of Insanity*, by G. M. Burrows, M.D., p. 185. 8vo. Lond. 1828.

67. *Edin. Med. and Philos. Commentaries*, Vol. iv., p. 452.

CHAPTER III.

Anomalous forms of Hysteria—Analysis of new phenomena—Peculiarity of female constitution—Influence of the generative organs, and particularly the ovaries—Affections of organs having a direct physiological relation with the ovaries, viz., the uterus, mammæ, larynx, subtegmentary membrane, skin and its appendages—Organs having an indirect relation—those of the neck and throat in general—Organs having a direct anatomical relation—kidneys, bladder, large intestine—dorsal and lumbar portion of the spinal cord—Organs having an indirect anatomical relation—the cervical portion of the spinal cord—The encephalon—as the organ of the instinctive faculty to reproduction.

THE causes of the phenomena of hysteria have afforded matter for speculation in all ages. The frequency of the disease, affecting in some one of its varied forms, almost every female, has been a constant incentive to ascertain its nature and cure. It has been noticed by all the best writers from Hippocrates downwards, under a variety of names, and has even been celebrated in lofty verse. Flemyng duly invoking Pallas, informs her

Morbum etenim obscurum versu illustrare Latino
 Aggredior, miseros torquet qui sæpe Britannos
 — — — — —
 Quam varias fallax species vultus que minaces
 Induat :”*

This author, with Sydenham, Whytt, and many others, considered hysteria and hypochondriasis the same disease. Hoffmann, Cullen, and Good, have distinctly drawn the difference between them. Whatever opinions have been advanced, however, respecting the seat of hysteria,—whether confounded with hypochondriasis or not, all writers agree in placing it in the nervous system. Sydenham, Boerhaave, Flemyng, Whytt, Pomme, and numerous moderns have located the disease in the brain and nerves; Willis, Van Swieten, and Lobstein in the sympathetic; Hoffmann in the uterus and membrane of the spine. By Sydenham and many after him, again, it was attributed to irregular motions of the animal spirits; by others to irregular vibrations of the nerves. Pomme† believed that all the nerves had become corneous from the evaporation of the fluid which should keep them lubricated; and brings forward some ridiculous arguments in support of his opinion. Ludwig‡ attributed it to some acrimonious principle seated in the nerves; and Frank, Bradley, Brown, Teale, Darwall, the Griffins, and Marshall, to spinal irritation. This appears to be the latest view of the subject, and possesses the same vague and generalizing character as the earlier. Although

* *Neuropathia*: *Poema Medicum*, auct. M. Flemyng, M.D. Eber. 1740.

† *Treatise on Hysterical and Hypochondriacal Diseases*, translated by Berkenhout, from 4th edition. Lond. 1777, p. 9 and passim.

‡ *Edin. Med. and Surg. Journal*, Vol. xlv., p. 447.

these opinions are all unsatisfactory, the concurrent testimony of so many different authors renders it certain that the nervous system is mainly implicated in the diseases under consideration. Our knowledge of the minute anatomy of the nervous system is of little amount, and of its physiology we know still less. Mr. Adams* has recently shown, by quotations from the old writers, that the most important modern discoveries are but confirmations of the opinions of Erasistratus and Galen, respecting the spinal cord; and of Hippocrates and Timæus, the Locrian, as regards the brain. The only direct proof we have that the chain of ganglia called the sympathetic is a nervous system, is derived from a consideration of its anatomical structure and relations. Direct experiments have as yet failed to show that it is subservient either to sensation, motion, or secretion. It may appear a paradoxical opinion; but I cannot learn that there is anything correctly known respecting it, excepting that it has none of the physiological qualities of other nerves. Perhaps the most striking demonstration of the uncertainty of our knowledge of the nervous system may be drawn from some of the conclusions of a very recent writer. Dr. Elliotson† maintains, that the experiments recently performed to elucidate the physiology of the nervous system, and the inferences deduced from them, are contradictory and strange: that Dr. M. Hall's excito-motory system is fancied and imaginary; and Sir C. Bell's respiratory tract is an anatomical fancy,—his respiratory system an untenable whim; that we possess no such imaginary thing as an immaterial soul; and that no argument nor a single fact has been adduced against Gall's phrenological (or more properly phrenorganological) doctrines.

Having, then, no correct or positive general principles, it is not surprising that those writers who have taken the nervous system as a starting point, have failed to give a satisfactory explanation of the phenomena of hysteria. Sydenham, Pomme, and Whytt, yield to no modern writer in the clearness and excellence of their descriptions, and modes of treatment; but for the reason just given, their theories are of little value.

The almost exclusive and universal liability of the female sex to these affections, and their evident connection with the generative organs, have induced all the ancient, and a large majority of the modern writers on these diseases to attribute their origin to some morbid state of the uterus. The general facts are undeniable, and the conclusions may be admitted as being partly correct.

Influenced by these considerations, and by a review of the cases detailed, as well as of a multitude of others, I am induced to take the following propositions as a guide through the analysis I propose. *1stly*, In hysteria the nervous system is implicated. *2dly*, In a vast majority of cases, it is the nervous system of females; so that, for the present, its occurrence in males may be considered an exception

* In London Med. Gazette, Vol. iii., p. 657.

† Human Physiology, by J. Elliotson, M.D. 5th ed. Lond. 1837, Part ii.

to the general rule. And, *3dly*, It occurs in an equally large proportion of females at an age when the generative organs have a dominant influence on the system. The method I shall follow, then, in my analysis, will be, to ascend, as well as I am able, from particulars to generals, reversing, of course, the above arrangement; and begin by ascertaining, *1st*, The relations existing between the phenomena of hysteria, and those referable to the generative organs of the female in health or disease; *2d*, Follow a similar plan with reference to the nervous system of the female, in particular; and then, *3dly*, With reference to the nervous system in general, whether of male or female. I propose to consider the phenomena referable to the vascular and secreting systems under the second and third heads.

Before commencing the first part of the analysis, it will be necessary to define, as distinctly as possible, the extent of influence the generative organs of the female possess over other organs, for we have no right to assume that this influence is the cause of all the distinctive peculiarities of the sex.

For instance, according to Autenreith, Soemmering, Meckel, and Velpeau, there are certain distinctive peculiarities in the size and general conformation of the sexes observable in the early months of foetal life, such as the particular structure of the thorax and abdomen, the form of the head, the extremities, and the dorsal spine, independently of the sexual organs.* It is well known that, up to the eighth week, there is no perceptible difference in the sexual organs, the ovaries and testicles being exactly alike. And at a more advanced period of development, when these and the other generative organs have assumed their peculiar form, but as yet exert no perceptible influence on the general system, a marked difference may be observed. M. Quetelet has drawn up tables which illustrate very well the difference in the weight and height of the two sexes at various ages. I shall merely give the comparative weights.

At birth, the male weighs	-	7.05 lb. avoird.—the female	-	6.41 lb. avoird.
At 1 year of age,	-	20.84	-	19.38
5 years	-	34.78	-	31.67
12	-	65.76	-	65.76
15	-	88.69	-	89.03
30	-	140.37	-	121.80
And so up to the age of 90.†				

This table shows also the effect of puberty on the system, which occurs at an earlier age in the female than in the male, thereby giving her a comparative superiority from twelve to fifteen.

It is generally stated that there is little difference in the general appearance of the sexes before puberty. This is true with regard to the years of infancy; but a single glance at the countenances

* Graphic Illust. of Abortion, &c., by A. B. Granville, M. D. proleg., p. xi. 4to. Lond. 1834.

† Edin. Philos. Journal, 1834.

and persons of a number of boys and girls of various ages, from two to ten years, will convince the observer that there is a general harshness of outline, with greater proportionate magnitude, and a less delicate expression of countenance in the boys.

Between male and female animals deprived of the organs of generation, a difference may also be observed. The ox attains a magnitude far greater than that of the spayed heifer. The following is perhaps a better illustration. In a litter of twelve or fourteen pigs of different sexes, littered at the same time, by the same sow, and mutilated at the same age, have all the most essential circumstances as nearly alike as possible. Yet the gilt pig, or sprayed sow, is readily known from the gilt hog, or castrated male. It is true the latter has lost the distinctive sexual characters of the boar, but may still be distinguished by his coarser bristles and larger limbs. This is well known to the butcher, who says the gilt pig is more bloody, that is, has smaller bones than the hog. The canine teeth of the latter are also larger, just as occurs to the castrated horse, which may generally be known from the mare by this peculiarity. The removal or non-development of the testicles by no means checks the general growth of the human male; special organs only suffer. A young man came one day to the hospital seeking advice, and, after a little reluctance, explained that he understood he was not like other men. I examined the generative organs, and found the penis and testicles of infantile magnitude; the latter could scarcely be felt in the scrotum. He was about five feet ten inches in height, of large and manly development, had a boyish voice, and no hair on his chin, chest, or pubes. He was very curious to know of what size the male organs ought to be, and wished to see plates or dried or wet anatomical preparations of them. He had erections, and had attempted coition. He stated that he was a dyer by trade, and was made miserable by his fellow workmen; the women plaguing him, and the men strapping him. He seemed very intelligent, and acutely sensible of his condition. Dr. Oppenheim did not find the mental faculties of the eunuchs in the Turkish harem at all depraved or impaired, as is commonly supposed. Nor in general is the stature or muscular power of eunuchs, if well fed and free from mental disquiet, less than that of other men.

It would appear, then, from these facts, that the opinion of Cabanis* is well founded. He maintained that the peculiarities of the mental and corporeal organization of the sexes, including those referred to the generative organs, depended upon some particular organization of the primitive nervous system. According to Geoffroy St. Hilaire, Serres and other continental physiologists, the development of an organ in the embryo has some direct ratio to the amount of nervous matter contained in it. The greater or less magnitude has certainly some relation of this kind. Consequently

* *Rapports du Physique et du Moral de l'Homme*, par P. J. G. Cabanis, 3me ed. Tom. i. p. 282. 8vo. Paris, 1815.

we have the conclusion, that the female is the result of a less energetic formative nisus, acting upon the different organs. Meckel and some of the German transcendental physiologists asserts with Blainville and G. St. Hilaire, that woman is but an imperfectly developed male; the primary formative nisus not being sufficiently powerful to carry the individuals through all the requisite phases of development.

Whatever truth there may be in the last-mentioned speculation, it is quite clear that the peculiarities of the female do not depend exclusively on the generative organs.

The less mental and muscular power of the female, and the greater susceptibility of her nervous system, are known by daily observation. Poets, whose duties it is to hold the mirror up to nature, have not overlooked these peculiarities. The Roman dramatist has put on record the mental character of the female of this day:

“Mulieres sunt fermè, ut pueri, levi sententia
Fortàsse, unum aliquod verbum hanc inter eas iram conciverit.”*

Tasso, with a bitterness warranted perhaps by his own sufferings, declares,

Femmina è cosa garrula e fallace,
Vuola e disvuola; è folle uom che sen fida.†

Our own Shakspeare must have been thinking of some peculiarly susceptible and hysterical female when he made CEnobarbus say of Cleopatra, “Cleopatra catching but the least noise of this, dies instantly; I have seen her die twenty times upon far poorer moment:—She hath such a celerity in dying.” To which Antony replies, “She is cunning past man’s thought.”‡

These well-known qualities of the nervous system of the female have been denominated by a French writer§ *affectibility*—a term which seems to be very suitable. The consideration of them belongs, however, to the second part of the analysis.

The influence which the generative organs must exert over the whole animal economy, may be easily inferred from the general fact, that the final cause of all vital action is the reproduction of the species, and the preservation of the individual. The latter, indeed, in many cases, seems merely subservient to the former. Throughout the whole chain of being we find the power to reproduce the species is the climax of development; being co-existent with the perfection of the individual. Indeed it would appear to be the sole object aimed at in the changes which many animals undergo, particularly butterflies, silkworms, and other insects which die so soon as they have performed the generative functions.

In the higher animals, the mere generation of a new being is but an initiatory part of the reproductive process; the subsequent nutrition and defence of the young animal constituting an important part

* *P. Terentii Hecyra*, Act. iii., Sec. 1.

† *Gerusalemme liberata*, Cant. xix., St. 84.

‡ *Antony and Cleopatra*, Act. i., Scene 2.

§ *Morelle*, *Histoire Naturelle de la Femme*, Tome i., p. 113.

of the same series of action, and requiring the exercise of numerous instinctive faculties by the parent: so that while the generative nisus is influencing a variety of the corporeal organs, the mental receive a corresponding impulse; and the desire for sexual congress, the secretion of milk, and the love of offspring, are equally the results of the same reproductive effort. We have thus a natural division of the phenomena connected with the generative organs into corporeal and psychological.

Before we proceed with the proposed comparison and analysis of the phenomena of hysteria, as regards the generative organs, we must take some one organ as a point of departure, and ascertain clearly its relations. The ovaries, as the most essential of all the organs of generation, are best suited to this purpose. These or analogous structures are found in every form of vital matter, whether animal or vegetable, with a constancy the most surprising. No analogy can be more striking than that which exists between the really essential generative structures of the higher vegetables and animals.

The ovaries and testicles are altogether analogous. They are equally the products of the false kidneys, and at the seventh week of fœtal life, form slender elongated bodies placed below the true kidneys;—their permanent position in some lower animals. It is at a subsequent period, as is well known, that the differences of form and position are observed. The ovaries have generally been called and considered appendages to the uterus. But the fact is otherwise. The uterus is an appendage to the ovaries, just as the penis is an appendage to the testicles. It is a recipient for the ovum, and the medium through which the latter may be vivified by the male; exactly as the penis is essentially an organ for the transmission of the vivifying fluid. And, as in the classes of birds, fishes, and oviparous reptiles, there is no uterus, so in many of the latter there is no organ of intromission; neither being required by the structure of the animal; but in all, the essential parts are found; in the female the ovaries, in the male the organ which secretes the fecundating liquor.

The ovaries and testicles perform analogous functions, and have a similar influence on the general system. On their removal, all sexual desire is annihilated. The sexual characteristics within the limits already defined disappear, and, so nearly as a mere negation of them will allow, the individual approximates to the opposite sex. Dr. Lee* and Dr. Seymour,† quoting Pott's case, make it appear that the removal of the ovaries causes the voice of the female to become hoarse, and hair to appear on the chin and upper lip. If Pott had made such a statement, it must have been received with considerable doubt. Gravity of the voice of man, as well as of other male animals, and hair on the upper lip of the former, is a

* Art. "Dis. of the Ovaria" in *Cyclop. of Pract., Med.*, vol. iii., p. 227.

† Lectures on Diseases of the Ovaries, *Lond. Med. Gazette*, vol. iii., p. 767. These lectures have also been published in a separate form.

positive characteristic of the male, dependent solely upon the presence of the testicles. But I cannot find that Pott does make such a statement. He says that, after removing the ovaries from a female, she became thinner and apparently more muscular, her breasts wasted, and she ceased to menstruate.* Dr. Allen Thompson, also, has very recently stated, that "in women in whom it has been necessary to extract the ovaries on account of disease, the voice is harsh like a man's; there is frequently a formidable beard and hair on different parts of the body."† I have searched very diligently for an instance of this sort without success; and even if one were recorded, as it would be contrary to every day's experience in lower animals, it might be very confidently pronounced incorrect. We never see the spayed sow have the boar's tusks or bristles, nor the spayed heifer displaying the neck and horns of the bull; neither could we conceive that a spayed doe would sport a pair of antlers.

Changes, however, may take place in the ovaries of females, in consequence of which certain tegumentary appendages assume the appearance characteristic of the male. Hunter‡ noticed that old hen birds assumed the plumage of the cock; and particularly advocates the opinion, that the generative organs are superadded, and give origin to all the sexual characteristics, an opinion, as I have attempted to show, not quite correct. Mr. Yarrell subsequently recognised analogous changes in young birds, and found them connected with shrinking of the ovaries. Similar changes not unfrequently occur in aged females, especially those who have been deprived of sexual congress. The voice becomes rough, hair grows on the upper lip, and the subtegmentary fat is absorbed. Occasionally young women have hair on the upper lip, and it is commonly considered to be (and I think justly) a mark of sterility.§ Mr. Bingham|| knew a young female who had a beard, that lost it after her marriage. In all these cases some change in the ovaries, not their absence, was doubtless the efficient cause of the masculine characteristics. Although the voice of the female do not become graver at puberty, it certainly acquires additional power and sweetness.

Judging from the effects on lower animals of such an operation, we might state the changes produced on the human female by removal of the ovaries as follow. A less luxuriant growth of the hair of the head and pubes, diminished deposit of fat beneath the skin, making the individual appear more muscular; inharmonious voice; wasted mammæ; amenorrhœa; sterility; and alterations in

* Works, 3d ed., vol. v., p. 184, also, works by Earle, 3 vols. 8vo. Lond. 1790, vol. iii., p. 353.

† Cyclop. Anat. and Physiol., vol. ii., p. 443.

‡ On the Animal Economy, p. 80, 2d ed. 4to. Lond.

§ Edin. Med. and Surg. Journal, vol. viii., p. 253. Bingham, Essay on Diseases of the Urethra and Testicles, p. 33. 8vo. Lond. 1820.

|| Op. cit loco citato.

the social feelings, especially with regard to the male sex, arising from the absence of all sexual or reproductive impulse. The state of the pelvis is not ascertained.

It has been usual to consider the organs implicated in these changes as influenced, negatively and positively, by the uterus. A very recent writer* states, that absence of the uterus causes the female to assume the masculine character. This does not occur to females under any circumstances, except those mentioned. In a history related by Mr. Pears in the *Phil. Trans.*† of a female in whom the ovaries and uterus were rudimentary, there were no signs of puberty nor any masculine characteristics; neither were the latter observed in a female with a similar defect, noticed by Mr. Baynham;‡ the mammæ were undeveloped, and no hair was on the pubes.

If the uterus only be absent or rudimentary, then all the external feminine characteristics are present. Dr. Dewees§ knew a young lady whose uterus was not larger than the thumb of a man, the cervix being about the thickness of a writing quill. The pubes was clothed; the mammæ developed, and there were sexual desires: menstruation had never occurred. Dr. Blundell removed the uterus from a woman aged fifty years. A year after, the sexual desires were unimpaired; the mammæ large, with full-sized glands; and the body plentifully supplied with fat.|| On the contrary, in Pott's case, the uterus was uninjured, yet the peculiarities of the female disappeared. It is plain, then, that the uterus has nothing to do, primarily at least, with these peculiarities. But the numberless instances we see daily of mutilated domestic animals, clearly prove the proposition for which I have now been contending, namely, the dominant and sole influence of the ovaries in their production. The opinion, that the menstrual discharge is in some way derived from the ovaries, or by an influence on the uterus from them is, of course, included in the preceding proposition. Its novelty renders more detailed notice requisite.

Cabanis¶ considered the menses to be excited by a particular humour, which he supposed the ovaries secrete. Dr. Vaughan** thought the menses a secretion dependent on the ovaria. Dr. R. Leet†† has the merit of having entered into some details tending to support these opinions, and concludes that menstruation depends upon some change in the Graafian vesicles. He adduces several of the preceding and analogous facts, and adds some interesting dissections of females who died during the supposed flow of the

* Dr. Davis, *Prin. and Pract. of Obstetric Medicine*, p. 512, 4to., Lond. 1832.

† *Abridg.* vol. xxiii. p. 225. ‡ *Lond. Med. Gaz.*, vol. iii., p. 732.

§ *A compend. System of Midwifery*, p. 53, 8vo. Lond. 1825.

|| *London Med. Gazette*, vol. iii., p. 798.

¶ *Rapports du Physique, &c., de l'Homme*, 3me ed., vol. i., p. 280. Paris, 1815.

** *Essay on Headaches*, p. 206-212, 8vo. Lond. 1825.

†† *Cyclop. of Pract. Med. art. Ovaria, Dis. of vol. iii.*, p. 227.

menses. They cannot, however, be considered conclusive. A sanguineous discharge must not be mistaken for the menstrual fluid, which is a secretion *sui generis*, as maintained by Haller, Bordeu, Hunter, Saunders, Dewees, Ramsbotham, and Sir C. M. Clarke. It has recently been found to redden litmus paper, and to contain free phosphoric and lactic acids,* and some phosphate of lime. In Dr. Lee's cases there is no proof that the sanguineous discharge observed at the time of death was menstrual. In Messrs. Girdwood and Webster's case, it plainly was blood, as it is equally evident that the changes in the ovaria were those of disease. In one or two of the other cases, the changes were probably those of inflammation of the ovaries, which, according to Dr. Löwendhart, occurs most frequently, either just before or after menstruation, or after accouchement or abortion.† In connection with this subject it may be stated after Dr. Davis,‡ that inflammatory affections of the Fallopian tubes have been almost invariably observed in cases of suppressed catamenia or lochia.

The flow of the menses has been considered analogous to the heat of lower animals by numerous writers. Darwin§ remarks that, in mares and bitches, if the venereal orgasm be disappointed of its object, it recurs at monthly periods. Dr. A. Thomson remarks, that the ewe, if unimpregnated, comes in heat every fourteen days; the cow, some apes, the mare, ass, and buffalo, every four weeks.|| It is quite certain that this state depends on the ovaries. These remote considerations, however, I apprehend, are altogether unnecessary. It has been already shown that the other sexual characteristics of the female are dependent upon the presence of the ovaries; and when we consider that the catemenia themselves do not appear when these organs are absent or undeveloped, although the uterus be present, there seem to be no reason for withdrawing this secretion of the uterus from their influence.

Still stronger arguments, however, in support of this opinion, may be drawn from the phenomena of conception and pregnancy. Bearing in mind the intimate analogy between the testes and ovaries, and knowing so distinctly the remarkable influence of the former in generation, we cannot object to assign an equal power to the latter.

Conception takes place in the ovarium. Meckel and others have doubted this; but Bæer of Königsberg has decided the question by his recent microscopical researches.¶ It is also quite in accordance with the mode of generation in vegetables. It is in the ovarium that the new being acquires the means and power of self-existence, until its organization is sufficiently advanced to enable it to draw nourishment from the mother by means of the uterus,

* By Retzius of Stockholm. British and For. Med. Review, Vol. ii., p. 275.

† Essays, &c., noticed in Ibid. Vol. ii., p. 527.

‡ Op. cit., p. 760. § Zoonomia, 3d ed. Vol. iv., p. 238. Lond. 1801.

|| Cyclop. of Anat. and Physiol. Vol. ii., p. 441.

¶ Granville, op. cit., Prolegom., p. iii.

and at a still more advanced period from the mammæ. It is also some influence exerted in or by the ovaries, which causes the necessary changes in these organs, for they are experiencing these changes in some degree before the ovum has left the ovarium, and suffer them to a remarkable extent in cases of extra-uterine pregnancy, in which the ovum never enters the uterus at all, but remains in the Fallopian tubes or ovary: showing clearly that these various changes are not dependent upon the presence of the embryo in the uterus, but upon causes which we can refer to the ovary only.

Lastly, in almost all the inferior animals sexual desire appears as completely abolished when conception takes place, as if the ovaries were removed.

From these and other considerations which it would be out of place to mention here, we may conclude, that the flow of the catamenia, the development of the Graafian vesicle, and the general phenomena of menstruation, are but evidences of a periodic nîsus of the whole generative system, for the excitement of which the presence and due development of the ovaries are necessary. In brutes, the most prominent evidence of this nîsus is the sexual desire it excites, which is removed by conception. In the human female, impregnation does not arrest the nîsus; for although there is not menstruation, various symptoms appear which indicate a menstrual effort (p. 69,) and are sometimes followed by abortion. Now this effort in most, if not all, mammalia takes place at hebdomadal periods, or their multiples, as every fourteen, seventeen and a half, twenty-one, or twenty-eight days, and, apparently in accordance with this law, in females commonly abortion ensues at the end of the seventh month of pregnancy. But if there be no ovaries, there is none of these periodic efforts of the reproductive system.

While contending for the dominant influence of the ovaries over every organ and process connected with generation, I by no means would exclude the reflex action which the various organs under their influence may exert upon them, and through them upon each other; but, on the contrary, would maintain that this does occur in numerous instances as in Case 38. Some such will be noticed in the following pages.

Considering, however, the preceding statements, I assume that the ovaria are the organs through and by which the mental and coporal phenomena of generation are developed, and shall consequently take them as a starting point of the analysis. I propose and shall adopt the following arrangement. I shall refer the phenomena of hysteria.

1stly, To organs having a direct physiological relation with the ovaries; namely, the uterus, mammæ, larynx, subtegumentary membrane, skin and its appendages.

2dly, To organs having an indirect relation; the parotid and other salivary glands: thyroid body, fauces, pharynx, and œsophagus; teeth; neck in general.

3dly, Organs having a direct anatomical relation:—kidneys; bladder; large intestine; dorsal and lumbar portion of the spinal cord.

4thly, Organs having an indirect anatomical relation through structures under heads 1st and 2d; the cervical portion of the spinal cord.

5thly, To the encephalon as the organ of the instinctive faculties subservient to the reproductive process.

FIRST CLASS OF ORGANS.

THE UTERUS.—We have already seen that the connection of this viscus with the ovaries is most intimate. The first appearance of its peculiar secretion, the menses, is a direct proof that the ovaries are duly developed, and its regular reappearance an index that the influence of these organs is duly exerted. The first appearance of this secretion is almost always accompanied with symptoms of hysteria, more or less severe; recurring also occasionally at each monthly period. Its sudden suppression is frequently attended by consequences plainly intimating the shock the ovaries have received while in a state of *affectibility*. Sudden fright is one efficient cause; but any severe affection of the system while the ovaries are excited, will produce the most extraordinary symptoms, especially in early life, when the generative powers are not fully established. Cases 12, 29, 33, 34, 36, 46, 48, 50, 57, 59, and 65, show the effects of fright; indeed, many others are marked instances of the effects of depressing mental excitement, typhus fever, exhausting diet, and profuse loss of blood at the menstrual period. Occasionally, suppression does not come on under these circumstances, but, on the contrary, there will be profuse *menorrhagia*, with severe neuralgic pains, and those symptoms of hysteria which are referred to the pelvic viscera, as tympanites, increased or diminished secretion of urine, spinal, abdominal, or crural tenderness.

Painful menstruation is frequently accompanied with these symptoms and some belonging to the pregnant state, as pica, longings, irritable temper, &c.* But all will disappear so soon as the monthly generative nisus is terminated. The same occur about the cessation of the catamenia.

Amenorrhœa does not necessarily indicate some disordered state of the ovaries. It may originate in imperforate hymen, non-developed or absent uterus, and also when the generative organs are perfect and vigorous. In the latter class of cases, conception will induce the necessary degree of excitement, and menstruation will go on during pregnancy. Dewees† mentions a remarkable instance; and Baudelocque and Deventer give others. Dr. Montgomery‡

* Mauriceau, *Traité des Malad. des Femmes Grosses*. 6me ed. Tome. i., p. 91.

† *Compend. System of Midwifery*, p. 97.

‡ *Cyclop. Prac. Med. Art. Signs of Pregnancy*, Vol. iii., p. 470, and work recently published.

gives numerous illustrative instances from various writers. Occasionally this monthly excitement is communicated to the intestines or kidneys, and we then have a monthly diarrhœa* or bloody urine.

The state of the ovaries during menstruation is probably in some degree analogous to that of pregnancy; in the former, when the Graafian vesicle has burst, the symptoms disappear. Sometimes the state is permanent, and we may have every symptom of pregnancy, from the earliest, to vigorous parturient efforts at the end of nine months, and yet conception not have taken place.†

Each of these states of the catemenial secretion now mentioned has a name as if it were a distinct disease. In reality it is only a symptom of varying degrees of value in proportion to the importance of those with which it is connected. The due and regular secretion of the catamenia, on the contrary, indicates, in general, a healthful or diseased state of the ovaries, but not always, just as its absence does not invariably insure sterility. These are exceptions, however, to the general rule.

Neuralgic pains of the uterus are very common in hysteria, and are generally accompanied with increased sensibility of the *cervix*: the latter, also, according to Lisfranc,‡ having in these cases the form and size it presents in the second month of pregnancy.

THE MAMMÆ have many symptoms referred to them in hysteria, on account of their close connection with the ovaries,—their very existence, as I have already shown, depending on the presence of these organs; their relations, indeed, are quite as intimate as those of the uterus, this organ, the ovaries and mammæ, forming a chain of which the ovary is the central link.

Conception is followed by increased growth of the mammæ, turgescence of the nipple, deeper shade of the areolæ, development of the follicles scattered over the latter, and the secretion of milk. It is not yet certain that any one of these changes is peculiar to pregnancy. They are all the result of ovarian excitement, and occur in other states of the ovary than those produced by conception.

The influence of the mammæ on the ovaries is very conspicuous. Sinapisms,§ suction, or leeches|| applied to them excite a flow of the menses. Hippocrates¶ recommends cupping-glasses to be applied to the mammæ as a remedy for menorrhagia. Titillation of the nipple,** as is well known to milk-maids, or the presence of offspring†† acting in the same way, excites, a kind of venereal pleasure,

* Dr. Davis, *Obst. Med.* p. 887.

† *Med. Chir. Rev. N. S.*, Vol. i., p. 495. Fothergill's Works by Elliot. p. 464. 8vo. London, 1781.

‡ *Clin. Lect. in Lancet*, vol. i., 1834-5, p. 356.

§ Dr. Paterson, *Dublin Jour. of Med. and Chem. Science*, Vol. iv., p. 193. Dr. Mondiere, *Journal Hebdom.* 1834. *The Lancet*, Vol. i. 1835-6, p. 904.

|| *Ed. Med. and Surg. Jour.* xxxviii., p. 61. *Lancet*, Vol. ii. 1838, p. 498.

¶ *Aphor.* 50.

** *Bordeu, Recherches sur les Glandes.*

†† Darwin, *Zoonomia*, 3d. ed. Vol. iv., p. 198. Lond. 1801.

erection of the nipple, and an increased flow of milk. In connections with this part of the subject may be mentioned the recommendation of Carus (in his *Gynäkologie*), to apply the infant to the breast when the placenta is slow in coming away. Dr. Rigby* has found the same procedure useful in arresting profuse hemorrhage after labour, just as Hippocrates found cupping the mammæ useful in flooding.

Increased Magnitude of the mammæ to an enormous extent is occasionally observed and has always been connected with obstructed catamenia in young females otherwise healthy. It would seem to depend on a metastasis of the ovarian influence from the uterus to the mammæ; accordingly, the most efficient remedies in reducing the size of the latter are those which restore the menstrual secretion.† In a fatal case recorded by Dr. Haston,‡ the ovaria were larger than natural, and apparently diseased, and the uterus for two-thirds of its surface was coated with lymph. The right mammæ weighed twelve pounds, the left twenty, and the changes which had occurred in them was simply hypertrophy of their proper structure. There is a curious instance of hypertrophy of the mammæ of a man from a blow on the back, accompanied with wasting of the testicles, in a recent number of the *Lancet*.§ Renauldin mentions an analogous case occurring in a lecherous young man, aged twenty-four, who had infantile penis and testicles, and feminine form.||

The secretion of milk will occur also in ovarian disease, an instance of which is given by Dr. Vaughan,¶ and independently of any generative stimulus, whatever, as shown by the numerous instances of galactorrhœa in females while menstruating regularly, in old women, and in males.

The dark *areola* is frequently met with in cases of ovarian derangement, and altogether independently of conception.

I examined the areola of two females in the hospital at nearly the same moment, and could find no difference in colour between them; yet the one, aged 22, had menorrhagia only, and had not had a child, while the other, aged 28, was in the fifth month of her first pregnancy. A late reviewer** states that he has seen the dark

* Lond. Med. Gaz., Vol. xiii., p. 786.

† Hey's Pract. Obs. in Surgery, Chap. xviii. 3d. ed. 1814. Dr. Cerutti in Meckel's Archives for April 1830, and in Dublin Journal, Vol. iii., p. 224. Dr. H. Lane in Monthly Archives of Medical Science, January, 1834. This and the preceding paper form a very complete history of hypertrophy of the mammæ, and abound in literary research. Further information may be found in a paper by Dr. Fingerhuth, translated in Dublin Journal, Vol. xi., p. 245; and in Br. and For. Med. Rev. iv. 224.

‡ Amer. Jour. of the Medical Sciences, August, 1834.

§ Vol. i. 1838-9, p. 356.

|| In Dr. Lane's paper just quoted.

¶ Essay on Headaches, p. 219.

** Of Hamilton's Obs. relating to Midwifery, in Br. and For. Med. Rev., vol. iii., p. 140.

areola in cases of dysmenorrhœa, and that he knows practitioners who have seen them in similar cases, and also in uterine irritation. Professor Hohl has noticed the same changes of colour in the areola of females who never had had children, at each catamenial period;* a fact I have verified by my own observation. All these statements corroborate the opinion of Denman, who asserts that these changes may be produced by any cause capable of giving to the breasts a state resembling that which they are in at the time of pregnancy.† From oversight I have not looked for the turgescence and follicular enlargement on the areola, mentioned by Dr. Montgomery,‡ as so unerring a sign of pregnancy, until lately. I have observed them, however, at the catamenial period in a young married female now in the hospital, and suffering severely from hysteria and spinal irritation, who assures me she is not pregnant, and who I believe is not. They disappeared at the time she said menstruation had ceased. Dr. Hamilton§ himself says, "there is a certain degree of turgescence during menstruation, which proves of temporary duration only," just as might be expected. I may venture to say, however, that very plump mammæ, prominent nipples, and dark-tinted areolæ are so frequently present in young hysterical females, as to aid with other symptoms in forming a diagnosis. I have observed these appearances, certainly not in every case, but so uniformly that they conduced to lead me to the present line of investigation.

The follicular enlargement seems not unlike that follicular excitement which occurs on the face at puberty, and in many cases of amenorrhœa.

Titillation and analogous sensations in the mammæ. These are frequently complained of, especially by females affected by hysteria, when the cessation of the catamenia is impending. They will particularly mention a sensation or tingling, as if milk were about to flow, and, indeed, many other feelings of pregnancy.

Neuralgia of the mammæ, particularly of the left mamma, is frequently observed in hysterical females. This circumstance of the left being rather affected than the right is curious, and must be noticed again. This *neuralgia* is common also in leucorrhœa, and painful menstruation.||

THE LARYNX.—This organ is intimately connected with the ovaries and testicles, and is the seat of one of the most striking characteristics of the male of many species of Aves and Mammalia. The bellow of the bull, the loud and sonorous neigh of the stallion, the deep voice of the ram, the spirited notes of the common cock, and the song of male singing bird, are all in remarkable contrast with the analogous sounds of the female and castrated animals.

* In his work on Obsteric Exploration, reviewed in Br. and For. Med. Review, Vol. i., p. 100.

† Introduction to Midwifery, 4th ed. Vol. i., p. 251.

‡ Op. cit.

§ Observations, p. 146, 8vo. Edin. 1836.

|| Davis, op. cit. p. 415.

The changes which takes place in the larynx at puberty are not so well marked in females as in men, but an attentive observer will notice even in them the break of the voice which renders the intonation of young males so ridiculous not only in man but other animals. It is more observable in some females than others. I know a young lady in whom it is quite as obvious as in a growing boy.

When the ovaries are fully developed, the voice of the female acquires its utmost melody and sweetness, which it maintains undiminished until the ovaries begin to shrink, and the catamenia cease. The songstress of the opera or the theatre rarely appears before the public advantageously after the age of forty-five or fifty. L. Villermay notices this circumstance, as well as the occasionally curious intonation of the voice of pregnant females, and the aphonia of amenorrhœa.* According to Dr. Fingerhüth, the voice of females having hypertrophy of the mammæ, sometimes becomes rough, hoarser, and somewhat double.† I have already enumerated certain characteristics in aged unmarried females, among whom a hoarse voice is very common. The hoarse disagreeable voice of prostitutes most probably depends upon some particular state of the ovaries. Parent du Chatelet‡ remarks on this peculiarity, and attributes it to their vociferous manners. If carefully observed, however, it will not be found to resemble the hoarseness of those who habitually extend their voices, but rather the break, in an aggravated form, which I have already noticed as occurring at puberty. These and similar instances offer a large field for curious and gratifying research. At present little is known on the connection between the testicles and ovaries, and the organs of voice.

Hoarse or rough voice is occasionally observed in hysteria. At the moment of writing, there is a marked case in the hospital. If accurately observed, it may be considered a good pathognomonic sign.

Aphonia is very common. Being quite as fugitive as the globus, it is seldom on the patient's catalogue of ills. However, on inquiry, she will instantly assure one of its existence. It is perhaps more common than the globus, for it almost always accompanies it, and is present when the latter is absent. Aphonia is principally noticed when permanent. It probably consist in an inability to render the *chordæ vocales* tense from paralysis of the laryngeal muscles.§

Barking and incessant cough is another symptom properly referred to the glottis, as also a *spasmodic* or *whooping-cough*. Both seem to arise from some nervous irritation of the mucous membrane. I may be permitted to use such a phrase, as expressing some unknown nervous state of the parts.

The *croupy cough* is occasionally observed in hysteria, and seems

* Dict. des. Sc. Med. Art. *Hysterie*, Tome xxxiii., p. 228.

† In Dublin Journal, vol. xi., p. 245.

‡ Sur la Prostitution dans la Ville de Paris, Tome ii.

§ Dr. Todd, Cycl. Practical Medicine Art. Paralysis, vol iii., p. 252.

very similar to the spasmodic cough from which pregnant females suffer, and which is usually preceded by retching. This cough is well known in this neighbourhood by the name of cradle-cough.

Sir C. Bell has alluded to the coughs of hysterical females, and given several instances. I am glad to observe that he attributes them to some irritation, of which the ovaries are the source.*

Dyspnœa and *frequent or panting respiration*.—These probably arise from spasmodic closure, or half-closure of the glottis. *Dyspnœa* is the most distressing symptom of common hysteria. The sensation is exactly as if the ingress of air was prevented by some mechanical impediment, and the convulsive motions accordingly are like those of a person strangling. This state of spasm is only terminated by the paralysis consequent upon the circulation of venous blood, or by the more powerful effort at inspiration, or gasp, caused by dashing cold water on the surface. This is the point in which epilepsy and hysteria differ. In the one, the respiratory muscles are convulsed, in common with the muscular system in general. In hysteria the convulsions are consequent upon the suffocative spasm of the glottis. Hey gives a case illustrative (Practical Observations, Chapter XV.).

Occasionally *crowing respiration* is the most distinguished symptom, and may arise from a partial spasmodic tension and closure of the rima. In these cases the respiration is frequent, and the loud crowing, equally frequent and incessant, preventing the patient and those around her sleeping, and causing intolerable annoyance. Case 47 is a good example.

Convulsive sobbing ought perhaps to be placed under this head. It is exactly like that which attacks a person unaccustomed to cold, when walking slowly into a cold bath for the first time. This in a more aggravated form is the *dyspnœa* of the hysterical paroxysm, and, of the person using a cold shower-bath for the first time, and, as I know from personal experience of the latter, is very distressing. Convulsive sobbing frequently accompanies and terminates a fit of common hysteria, but is as often observed in the chronic and aggravated forms, quite distinct from a regular paroxysm.

SKIN and SUBTEGUMENTARY MEMBRANE.—A consideration of the skin includes also that of its appendages. Of these the mammæ have been already mentioned, and the teeth will be noticed subsequently. The appendages of the skin have an intimate connection with the testicles and ovaria. The plumage of male birds,† and the tusks, horns, mane, beard, and the colour and texture of the hair of many males of the Mammalia, furnish proofs of this, so obvious and common, that particular reference is unnecessary. There is one of the generative structures of the skin, which deserves

* Appendix to the papers on the Nerves, in Phil. Trans, 8vo. 1820, p. 99.

† The *Ptiloris Paradiscus*, a bird of New Guinea, is an instance in which the male is clothed with feathers of the most gorgeous hues imaginable, while the female is in homely russet-brown. Vide a familiar History of Birds, &c., by the Rev. E. Stanley, vol. i., p. 77, 12mo. London, 1835.

some notice, namely, that which secretes the sexual odours of animals. These are very generally some modification of the musk odour, varying in intensity with the habits of the animal. This musk odour is certainly the sexual odour of man. Sauvages declares, "Vapor foetidus apud hircos æstro venereo percitos procul dispergitur; *mulieres* emunctæ naribus affinem huic odorem in *viris* cognoscunt."* In some persons it is very pleasant, and perhaps would seldom have that disgusting and suffocative effect if due attention were paid to cleanliness. Its principal seat is in the follicles of the axillæ, and is not given off before puberty. It is most powerful in individuals who have strong sexual powers, or are continent. The ancients said of a man who abstained from venery that he smelt like a he-goat. The scents of captive animals have a similar origin. Very offensive exhalations from the genitals are occasionally transferred to the axillæ. Aretæus says that the froth on the lips of men affected with satyriasis is not unlike the smell of a goat under the influence of the *æstrus veneris*.† It is not improbable that the odours of the flowers of vegetables are analogous to this. It is certain, however, that the hircine odour marks those vegetables used as aphrodisiacs, and, in connection with all these circumstances, it is a curious fact that the most popular antihysterical remedies are of the same nature. It is not my intention to enter on the vast field for speculation derived from the effects of remedial agencies on the generative system. The above statements are made incidentally, with the hope of directing attention to the subject.

The smoothness and softness of the skin, and delicate finish of the whole system of the human female, form a small part only of the numerous attractions she possesses, but undoubtedly are an essential portion of the machinery of that extensive system instituted to secure the propagation of the species. They, like other sexual characteristics, are dependent on the due development of the ovaries. Remove these, and the fat deposited in the subtegumentary tissue, giving the skin its softness and equality, disappears, the individual becomes thinner, and the muscles prominent, so that she appears more muscular. This state is strikingly obvious in old virgins. This subtegumentary fat is not found in the male, neither is fat deposited in the cellular tissue, generally, while the generative organs are vigorous. If a bull and an ox be fed for the same time, under the same circumstances, the latter will be fat when the former is "all beef."

This deposit of fat beneath the skin of females must not be confounded with that which takes place in spayed or castrated animals. In the latter it occurs because the system is less active from the absence of all generative impulse; in the former this impulse is the cause of it.

* Nosol. Method., tome. ii., p. 420. Tiedemann is very copious on this subject. Comparative Physiology by Gully and Lane, vol. i., p. 208, 8vo. 1834.

† De Causis et Signis Acut. Morb. lib. ii., cap. xii.

Parent du Chatelet, in the work before quoted, notices the embonpoint of the Parisian prostitutes, many of whom are perfect models of symmetry and grace. Some have attributed this state of the system to the use of mercury, and, in consequence, have actually recommended the administration of that drug to expedite the fattening of animals. Du Chatelet himself attributes it to inactivity of life, rich food, and the frequent use of the warm bath. A prostitute, aged 21, of the lowest class, was brought to the hospital severely burnt. She was from the country, had been on the town two years, and certainly could not have indulged in rich food or the warm bath, yet she presented all the health and symmetry described by Du Chatelet. It is more than probable that these appearances, as well as the harsh voice of prostitutes, have the same sexual origin. Whatever may be the cause, we have the same appearance in the hysterical female, with this addition, that the skin is softer and fairer.

This hysterical embonpoint is a most constant symptom. It is somewhat analogous to the development of the mammæ before noticed, and, like the latter, may assist materially in forming a diagnosis between hysteria and diseases resembling it. With this state of the surface the appetite is much impaired or abolished, the most minute portion of food, and that only farinaceous, being taken for months together. Yet, to the great surprise of every one, the limbs, mammæ, and trunk, continue round and plump. Indeed the most common subjects of hysteria are those endowed with this brilliant plumpness of the surface and delicacy of finish.

That this state is dependent upon some condition of the ovaries, may be admitted as the true explanation, and accounts for phenomena, considered so extraordinary until lately, as to be altogether incredible, but which, nevertheless, are real, and quite in accordance with the other phenomena of the disease.

This hysterical embonpoint is a very hopeful appearance. A female thus formed will triumph over the most prolonged anorexia, the severest forms of nervous disease, as coma, catalepsy, paralysis, and tetanus, and even the crowded leech-glass, and the lancet, so dangerous in many of these cases. After the most extraordinary suffering, the catamenia appear, or the patient marries, and perfect health follows.

Hairy Scalp.—It is probable that the luxuriant tresses of the female are dependent on the ovaries, but, in the absence of any thing positive, I shall not enter into details. The scalp is most frequently the seat of a circumscribed *neuralgia*, commonly termed the *clavus hystericus*, and also of the distressing headache which accompanies hysteria. The latter very frequently alternates with toothache, dyspnœa, and colic. The neuralgia is frequently on the median line, or on the vertex.

Change of Colour.—The face occasionally becomes dark in pregnancy. Le Cat, Camper, and Gardien, have been frequently

quoted as authorities. In the Philosophical Transactions* it is related that the face of a girl, aged 16, suffering from amenorrhœa, turned suddenly black like a negro. The black matter could be easily wiped off, the skin being white underneath. It was of an unctuous consistence.

Dark under eyelid is common in females after coition (and, I believe in males), also during pregnancy, and in amenorrhœa. It is a common symptom of hysteria.

Herpetic and other eruptions are frequently noticed in hysteria. Dr. Davis has noticed them particularly as being frequently connected with morbid states of the generative organs. Profuse sweats are very common, and are exactly analogous to the *diabetes insipidus* and ptyalism of hysterical females, as was long ago asserted by Whytt† and Sydenham.‡ This functional relation of the kidneys, salivary glands, and perspiratory organs of the cutis, is frequently observed in other diseases. Erratic discharges most frequently occur from surfaces having an originally organic or functional relation with the generative organs; as the surface of the neck, thorax, groin, &c.

SECOND CLASS OF ORGANS.

The parotid and other salivary glands, thyroid body, pharynx, œsophagus, ears, and teeth.

These organs have a much less intimate connection with the ovaries than the preceding. There are, however, certain phenomena continually occurring in which they are implicated, and which show that they have more than a general sympathy with the ovaria.

Parotid Gland.—This, as is well known, is occasionally affected by an epidemic disease, vulgarly called the mumps. The gland becomes swelled and painful, and so continues for two or three days, when the testes of males and mammæ of females become enlarged, and forthwith the parotid is restored to its natural state. Attention does not appear to have been directed to the state of the ovaries, when this disease has affected females, the more obvious condition of the mammæ arresting inquiry. It is probable that the ovaries are enlarged. We must be content, however, to remain ignorant of their real condition, as the only effectual method of ascertaining it is by an examination from the rectum,—a measure few practitioners would adopt on account of the age and sex of the patient.

It is very curious that parotitis most commonly attacks the left gland, and by metastasis the left testicle or breast. Mr. Noble has recorded a history of its epidemic prevalence on board a ship

* Abrid., vol. vi., p. 55.

† Op. citato, p. 597.

‡ Works by Wallis, vol. ii., p. 123, 8vo., Lond. 1788.

of war.* The left testicle was most frequently affected, and the metastasis was to the same side as the affected gland without a single exception.

A man of feminine voice, lately in this hospital, had abscess of the left parotid, with salivary fistula and abscess of the left testicle. A man and woman in the hospital at the same time had *spina ventosa* of the left side of the lower jaw, and abscess in the corresponding region of the parotid gland; the man had chorea. In idiopathic affections of the testicle, the left suffers in fifteen cases of twenty; and in an equal ratio the left remains in the abdomen in cases of non-descent of the testes. Louis has shown how much more frequently the left lung suffers than the right in pulmonary diseases. *Fistula lachrymalis* is much more frequent in the left than the right side. Everybody knows the inferior power of the left extremities. In free-martins and those mal-conformed individuals who possess some of the characters of both sexes, an ovary is generally found on the left side, and a testicle on the right. Now these bodies are formed out of the false kidneys, which shrink in proportion as the former and the true kidneys advance in development. In birds, the right false kidney begins to shrink before the left has reached its full size, and has disappeared entirely at a time when the left is of considerable magnitude.† This last circumstance gives an air of probability to the speculations of the transcendental physiologists on this curious subject. Pain of the left mammæ is one of the most common symptoms in hysteria. Systematic writers notice that females are rarely affected with cancer of the lip, but are subject to scirrhus disease of the parotid at the cessation of the catamenia, just as they are subject to cancer of the mammæ, uterus, and ovaries. A female patient of the hospital has something like scirrhus of the left tonsil, another, of the left root of the tongue. It would not be difficult to adduce a variety of facts from the stores of comparative anatomy and physiology, illustrating, perhaps, only remotely, the connection between the salivary glands and ovaries. I shall confine myself, however, to more practical and obvious relations.

That the salivary glands are affected in pregnancy is well established. Mauriceau‡ mentions increased spitting as a sign of pregnancy. According to Dewees almost all women have a more than ordinary share of saliva secreted during gestation. In one case the quantity amounted to from one to three quarts per diem;§ he says the American women call it "spitting English shillings" or "cotton."|| In Ireland, according to Dr. Cummin,¶ pregnant women are said by the vulgar to be "spitting long spits." Dr. Montgomery** also

* Edinburgh Medical and Surgical Journal, vol. iv., p. 304.

† Mayo's Outlines of Human Physiology, third edition, p. 408.

‡ *Traité des Maladies des Femmes Grosses*, &c. 6me ed. Tome i., p. 69.

§ *Comp. System of Midwifery*, 8vo. London, 1825, p. 115. || *Ibid.*, p. 104.

¶ *Lectures on Forensic Medicine in Medical Gazette*, vol. xix., p. 436.

** *Operibus citat.*

notices this system, and, indeed, it is well known to most general practitioners. It occasionally becomes severe, just as we may have galactorrhœa, menorrhagia, &c., and it then excites more particular notice. Dewees mentions one instance; and in a recent German periodical, the cases of two females are reported in whom it occurred fifteen successive pregnancies.* Chambon de Montaux examined the fluid vomited by pregnant women, found it to be like saliva, and concluded it to be *pancreatic*.† The following may complete these illustrations. A lady, of delicate constitution, and subject to leucorrhœa, for two or three days after her second confinement, had a free discharge of the lochia; they then were suddenly suppressed; the head became affected with stupor and giddiness; the face swelled; and copious ptyalism came on, and continued several days; So soon as the lochial discharge was restored, the salivation was arrested.‡ I have known two instances in which spontaneous salivation accompanied painful varicocele.

We may now readily conceive why salivation occurs occasionally in hysteria. Perhaps it is really present in a slight degree much more frequently than it is noticed, being overlooked, as is aphonia, from the presence of graver symptoms. Sydenham says hysteric subjects will spit a thin saliva for many weeks, as if it were produced by mercury.§ Whytt notices it repeatedly, and attributes it to “an unusual motion of the vessels.”|| Cheyne¶¶ remarks that it is common in vapours, and “usually said to be of scorbutic origin,” alluding probably to the occasional red colour of the saliva. Mauriceau,** Stoll,†† Rowley,‡‡ Darwin,§§ Villermay,||| and Burrows,¶¶¶ all notice salivation as a symptom of hysteria. The fact is abundantly illustrated in the preceding cases. It is not quite certain that in all the fluid comes from the salivary glands for, (as Dr. Graves*** has already remarked,) there is reason to think that it is secreted from the fauces.

Dryness of the mouth is common in other diseases, as well as in hysteria, and on this account has not been particularly noticed. It seems to arise from a diminished secretion of saliva. Case thirty-six is a good instance of it. The symptom is worthy notice, because when in a marked form it might readily cause the practitioner to suppose his patient had severe typhus, or a gastro-enterite, a mistake if acted on which would lead to dangerous treatment.

* Wochenschrift für die Gesammte Heilkunde, Sep. 1835.

† Des Malad. des Grossesses, 8vo. Paris, 1785, Tome i., p. 135.

‡ Pract. Obs. on Disorders of the Stomach, &c. By George Rees, M.D., p. 37, 8vo, London, 1810.

§ Op. cit. vol. ii., p. 105. || Works by his Son, 4to., pp. 531, 533, 599.

¶ The English Malady, &c. Dublin, 1733, p. 146.

** Op. cit. Tome i., p. 452.

†† *Ratio Medendi*, &c. Viennæ, 1789, pars vii., Index.

‡‡ On female, nervous, hysterical, &c., diseases, p. 142, 8vo, London, 1788.

§§ Zoonomia, 3d edition. Vol. iii., p. 261.

||| Dict. des. Sc. Med. Art. Hysterie, Tome xxiii., p. 249.

¶¶ Comment. &c. on Insanity, p. 193.

*** In a recent volume of the Dublin Journal.

Enlargement of the tonsils is a very constant annoyance to the hysterical female. The secretions of these bodies contribute to the *factor* of the saliva observed in some cases. Case 1 is a good instance. The tonsils are much more frequently enlarged in general with females than males, and, like the parotid gland, mammæ, &c., are attacked by scirrhus on the cessation of the generative nîsus. The left, I have observed, suffers oftener than the right.

THE THYROID BODY.—Hitherto little positive knowledge has been obtained respecting the uses of this structure. Speculations about them have not been wanting. The latest, perhaps, certainly the most novel, are those of Sir A. Carlisle, who considers the uses of the thyroid body to consist in keeping the larynx warm. The spleen, according to the worthy Knight, has a similar office to perform towards the stomach.* Considering the proximity of the thyroid body to the larynx, it is not unreasonable to suppose that the two are in some way connected.

Morgagni, examining the question whether this structure be glandular, or have a duct, quotes various authorities† without any positive result. Mr. White, a correspondent of the Medical and Physical Journal,‡ satisfactorily ascertained that in the horse it is a mucous gland. He states that the termination of its ducts may be readily seen as minute papillary eminences, especially on the epiglottis and anterior parts of the larynx. The excretory ducts are continued down over the *rima glottidis* into the trachea, especially its posterior part. He thinks an increased secretion from it is a cause of roaring. Bordeu thought he discovered the terminating ducts in the first ring of the trachea in the human subject. The researches of Sir A. Cooper, and more recently of Mr. King,§ show that the thyroid body secretes a glairy fluid which is poured into the absorbents. Our principal knowledge of this body is comprised in the history of bronchocele, for unfortunately, unless increased in magnitude, it is seldom made an object of pathological investigation. This disease is almost peculiar to females,—a fact most writers notice. It is perhaps as much so as hysteria or any other disease of the sex, if its hereditary and accidental occurrence in males be excluded. Of thirteen cases of bronchocele observed by Dr. Clarke in the General Hospital at Nottingham, twelve were in females.|| Dr. Manson of the same place gives a tabular view¶ of 106 cases of bronchocele he treated; of these 100 were females. Dr. Sacchi** describes the bronchocele peculiar to young girls and women, as consisting in a simple hypertrophy of its structure; a

* In a paper read before the London College of Physicians, Med. Gazette, Vol. iii., p. 617.

† *Adversaria Anatom.* i. p. 33, ed. 3a. 4to. Lug. Batav. 1723.

‡ Vol. xlv., p. 284.

§ *Guy's Hospital Reports*, vol. i., p. 429. 8vo. London, 1836.

|| *Edin. Medical and Surg. Journal*, Vol. iv. p. 279.

¶ *Med. Researches on the effects of Iodine in Bronchocele, &c.* 8vo. 1825.

** *Annali Univ. di Medic.* Dec. 1832.

change we have already found to occur in the mammæ, and which probably takes place in the tonsils also. There cannot be a doubt that calcareous water will produce bronchocele in both male and female, just as miasm or any other general morbid agent will produce its corresponding disease.

Whatever connection the thyroid body may have with the larynx, it certainly influences, and is influenced by, the generative nisus. A great proportion of the children born of goitrous women are idiots, with large heads, and the distinguishing marks of Cretinism, not only in the Alpine valleys, but also at Edmonton; (according to Dr. Richardson in Franklin's Narrative) where the disease is plainly owing to the river water. I know a woman with a large bronchocele, several of whose children have various congenital imperfections, stuttering, deafness, and mental imbecility.

Professor Odier in his *Manuel de Medecine Pratique*, says, that the disease makes the most rapid progress in females during their lying-in.

Most writers agree in making bronchocele a disease of puberty. Dr. Copland never met with it in females before that epoch, and seldom observed an instance unconnected with uterine disorder.

It is certainly effected at the catamenial periods. A young female now attends at the hospital as an out-patient for a bronchocele. She is of spare habit, and has inharmonious voice, and hairy upper lip. At every catamenial period, she assures me the tumour enlarges, and she expectorates a large quantity of glairy mucus streaked with gray lines, which she is confident comes from the tumour. Dr. Reid has frequently noticed the connection between bronchocele and obstructed catamenia.* He gives a curious instance from Verdun of vicarious menstruation from its surface. Dr. Reid also states that the custom of the ancients of measuring the bride's neck the day after marriage is practiced even now in Germany. The neck of females certainly thickens at puberty, and probably after sexual congress, as shown by the statements just given. Indeed, this appearance was formerly considered one of the signs of rape, an opinion Cabanis is at some pains to disprove.†

I have carefully avoided all allusion to the action of remedies lest I should be led astray by false facts. I may be permitted, however, to notice the effect of iodine. This medicine, as is well known, is the most efficient remedy in bronchocele and hypertrophied tonsils. Lugol‡ and various recent observers have recorded its power of exciting ptyalism. Lugol§ speaks of its emmenagogue powers, which observations have been since confirmed by various writers in the periodicals of the day, and quite satisfactorily to

* On Bronchocele, in Vol. xlvi. of the Edin. Medical and Surg. Journal, p. 45 and seq.

† Rappports sur la Physique, &c. de l'Homme, Tome i., p. 283.

‡ Essays on the effects of Iodine in Scrofulous Diseases, in Trans., by Dr. O'Shaughnessy, p. 20, 8vo. Lond. 1831.

§ Ibid., p. 23.

myself by my own experience. It has been accused by many of causing absorption of the testicles and mammæ. Dr. Simpson, physician to the hospital, has mentioned a case lately to me confirmatory of the fact. It is well known, however, that this effect of the administration of iodine is strenuously denied. I have seen it administered to many patients of this hospital, without witnessing it. This doubtful effect probably depends upon the age of the patient. The elder Cline used to state in his course of twelve lectures on surgery, that, if mercury were given to youths at, or a little after puberty, the testicles would waste.* There is something analogous perhaps in the effects of iodine in this respect as well as in others; and it is not improbable that the same state of the ovaries which predisposes to bronchocele is a cause of the special action of iodine upon structures connected with them. These remarks will sufficiently show the room there is for minute research into the relations of the thyroid body; it being my object rather to call attention to its relations with the generative organs, than, in the present want of positive information, consider it implicated in any of the symptoms of hysteria. It may be connected with the tumefaction of the throat noticed in hysteria; and also have a share in exciting some of the curious coughs to which females are subject.

The expectoration of hysterical patients is rarely from the lungs, unless complicated with pulmonary disease: it is generally watery or slightly mucous; frequently of various shades of colour, from a brown to a deep red. It unquestionably comes from the salivary glands, tonsils, thyroid body, or the surfaces contiguous to these organs. Aretæus alludes probably to an expectoration of this kind, when writing on *Hæmoptoe*. "Frequently the rupture takes place in the gullet, and if so, the blood does not flow in large quantities as from the chest; it is not very dark, but rather of a yellowish colour; is not exactly homogeneous; and is mixed with saliva. It is rejected with nausea and vomiting, and there is a slight cough. Sometimes if the disease is prolonged and becomes chronic, the patients have a great dislike to food and vomit it. The fever is by no means long continued, but is erratic."* I know of no form of bloody sputa to which this description so exactly answers as that of hysterical patients. Its chronic form, the erratic fever, vomiting, dislike of food, and nature of sputa, are almost pathognomonic.

FAUCES, PHARYNX, and ŒSOPHAGUS.—Consistently with my arrangement, these structures ought to be considered in the 4th Class. They have, however, such a close anatomical and functional connection with the preceding, as to merit notice here.

Vomiting, very obstinate and long-continued, is a symptom of hysteria as well as of pregnancy in the early months, and doubtless arises from a similar cause. This has been sought for in the

* For this information I am indebted to Dr. Simpson, who attended Cline's Lectures, and has a MS. copy of them. I am also happy to acknowledge the kindness of Dr. Simpson on other occasions.

† De Causis et Sig. acut. Morb. Lib. ii., cap ii,

stomach, as if nausea and vomiting could arise from no other cause than irritation of that viscus. The most modern explanation is founded on the sympathy which is supposed to exist between the uterus and stomach. This is no explanation whatever. The various fanciful notions of the older writers need not be repeated; two may be mentioned as specimens of the others. Etmuller* attributed the vomiting of pregnancy partly to the force of the genital aura, and partly to a fermentative motion of the humours, arising from the repression of the menses. Haller to a putrid principle in the semen, entering the circulation, and acting like a putrid miasm.

It may occur with various degrees of intensity, from simple morning retching to the most dreadful straining. Pechlin mentions an odd instance of its extravagant effect. "Gravidam nempé post conceptum viri aspectus et oscula concubitumque ita fastidisse ac fugisse, ut appropinquante marito, nausea vomituque afficeretur."† Most accoucheurs must have met with cases somewhat similar. It is a state analogous to that which occurs to the females of brutes after conception.

This vomiting is not peculiar to pregnancy or hysteria, but may occur in other states of the ovaries. La Motte knew a female, not pregnant, who vomited "sola actione coitus;"‡ and two others who had violent vomiting at each menstrual period.§ Morning vomiting is not uncommon in amenorrhœa and at the cessation of the menses.

Irritation about the fauces, as is well known, will excite vomiting, and it is very probable that the same excitement which affects the salivary glands, tonsils, and larynx, is extended to the fauces, pharynx, and œsophagus. The morning vomiting of the pregnant is generally accompanied with the spasmodic cough, before noticed as the cradle cough, and with violent retching, terminating in vomiting. These phenomena occurring in the same order as from the application of mechanical stimuli to the pharynx and fauces. I know a man subject to irritation about the fauces who frequently suffers from spasmodic cough, violent retching and vomiting upon getting out of bed.

It is well established that the stomach takes very little part in the mechanism of vomiting, and much less than is suspected in exciting it into action. Chirac, a century and a half ago, and Magendie more recently, have very satisfactorily shown, that the diaphragm and abdominal muscles are the principal agents in that mechanism.

The excitement of the respiratory muscles to action in vomiting suggests an explanation of some curious phenomena of hysteria in which they are equally implicated. These are an alternate contraction and relaxation of the abdominal and thoracic parietes;

* De Morb. Mulier, sect. vi., cap. iv.

† Obs. Physic.-Med. Lib. i., Obs. 45.

‡ In Arte Obstet. p. 54, 4to. Lug. Batav. 1733.

§ Ibid., p., 75.

anhelation, hiccup, and frequent yawning. Sauvages refers to cases of the latter related by Höchstetter and Reidlin.*

Nausea is a symptom closely connected with vomiting, and has the same origin.

Frequent sipping is an effort to alleviate a distressing irritation in the pharynx, which, when unrelieved, causes laryngeal spasm. The patient finds the constant trickling of fluid and the effort to swallow effectual in preventing closure of the *rima glottidis*; what share the epiglottis may have in the phenomena it is difficult to say. Case 52 is a very good example.

Dread of water is occasionally a symptom, at least fear of swallowing any, the patient feeling as if it would choke her, and having a spasm of the throat, and a sensation like that following the dash of the shower-bath.† This state may also depend upon pharyngeal irritation. It has been observed in nymphomania.‡ In cases of true hydrophobia, the most constant pathological appearance is inflammation of the pharynx and œsophagus.

It is well known that erection of the penis occurs in hydrophobia; and Darwin says also in violent coughs, accompanied with soreness or rawness about the fauces. These and the erection which accompanies hanging, he attributes to some stimulus about the throat.§ The connection of rabies with the salivary glands may tend to confirm the reports respecting the utility of mercury as a prophylactic in bites from rabid animals.

Dysphagia.—In all organs implicated in hysteria two opposite states of the nervous system may be observed. There may be anæsthesia or increased sensibility; paralysis or spasmodic action; arrested secretion or profluvium. In paralysis of the laryngeal muscles we have aphonia—in spasm, dyspnœa. So spasm and paralysis of the muscles of the pharynx and of the œsophagus cause dysphagia. In the one case there is no contraction on the bolus, in the other the tube is closed. In the latter it is shut equally against the egress as the ingress of anything, so that flatus ascending from the stomach cannot escape. Accumulating in the œsophagus at the point strictured by the spasm, it forms a tumour which compresses the trachea, and constitutes the *globus hystericus*.|| This pressure, however, is not the invariable cause of the dyspnœa in a fit of hysteria, for the glottis is also involved in the spasm which affects the œsophagus. Lobstein gives an excellent illustration in his work on the sympathetic nerve.

Discharges from the ears of various fluids will have been noticed as a symptom in some of the preceding cases. It is very possible that these fluids may have been forced through the Eustachian tube by a voluntary effort. Hysterical girls will feign anything. The

* Nosol. Meth., tom. i., p. 633.

† Illustrative case quoted in Lond. Med. Gaz., vol. xiv., p. 223.

‡ Villermay, Art. Nymphomanie in Dict. des. Sc. Med., p. 573.

§ Zoonomia, vol. iv., p. 199.

|| Rowley, Op. cit., p. 57.

pieces of bone found in the *meatus auditorius* of H. O. (Case 1, p. 3), were unquestionably placed there by herself; yet she really had sanguineous discharges from the ears. May not the Eustachian tube be involved in the same excitement as the salivary glands, tonsils, pharynx, &c. ?

THE TEETH.—*Toothache* is a very common symptom in pregnancy and hysteria. The teeth, like the beard, horns, and other appendages of the skin, are remarkably connected with the testicles and ovaries. The removal of the boar's tusks destroys his violent sexual propensities.* Other instances will occur to the student of natural history. I have observed an infantile size of the central upper incisors connected with retarded development in females, and with a childish love of sweets.

Dr. Ashburn advocates very strenuously the doctrine, that hysteria is frequently caused or aggravated by an abnormal condition of the teeth, and gives a large number of illustrative cases.† He remarks that those females who have the first bicuspid thrust outwards, and the second inwards, are particularly subject to pain under the margin of the ribs on the left side. Closure of the glottis is a common affection of infants during dentition.

THE NECK in general.—The consideration of this part of the subject is out of place here, but I alluded to it as introductory to the next class. The form and muscular development of the neck in males has a close connection with the testicles, as is evinced in man, and the stallion, buck, bull, and boar; castration altogether lessening the size of the neck, and making the loins heavier: these remarks are particularly applicable to the 4th Class.

THIRD CLASS.

The changes which take place in the cervical region of males at the time the testicles are evolved have their analogue in the lumbar region of females. The pelvis arrives at its normal form and size concurrently with the ovaries. We have not sufficiently numerous observations to enable us to say positively that the development of the former is dependent on, and governed by, that of the latter; all analogical reasoning is in favour of the doctrine.

The removal of the ovaries and testicles allows a deposit of fat to take place about the kidneys in the lower animals, and their shrinking in man is followed by the same deposit.

THE KIDNEYS originate from the same primary structure of the fœtus as the ovaries and testicles; during the middle months of fœtal life, and in many lower animals, these organs are in intimate anatomical relation; a relation which still holds in the adult man as regards their vascular and nervous systems. Thus not unfrequently the spermatic artery is a branch of the renal. The retrac-

* Dr. Elliotson, *Human Physiology*, Part ii., p. 440, quoted from White's *Natural History of Selbourne*.

† *Lond. Med. Gaz.*, vol. xiii.

tion of the testicle and numbness of the thigh in affections of the kidneys, calculi, in the ureters, &c., are evidence of the close relation of their nervous systems. These and the phenomena of hysteria might amply suffice to show the connection between them; but there are other facts which may be quoted. Hunter,* and afterwards Underwood,† remarked the connection between the teeth and kidneys and bladder in children; the growth of the former being accompanied with increased flow of urine, symptoms of gonorrhœa and of stone in the bladder, and involuntary micturition. Mr. Bingham corroborates these observations, and in addition, states that he had two patients with disease of the urinary organs, who always experienced a tingling sensation about the throat and ears when they wanted to make water.‡ Dr. C. H. Parry saw the metastasis to the testicle in mumps accompanied with an obstinate suppression of urine, which long required the use of the catheter.§ Mercury in large quantities will pass off by the kidneys, causing diuresis without affecting the salivary glands in the least,|| and discharges from the kidney and salivary glands alternate.¶ Whitt gives the case of a female in whom there was bloody urine in four successive pregnancies,** and Dr. Montgomery notices the peculiar urine of pregnant women.†† In *diabetes mellitus* the sexual desire is extinguished. Dr. Montgomery mentions a case recorded in Osan's Clinical Report for 1823 of a young woman who, in three successive pregnancies, was affected with *diabetes mellitus*. It completely ceased after delivery, but always returned when she again conceived.‡‡

Macculloch relates the history of a man who had an intermittent *diabetes mellitus* recurring with the most perfect regularity, and accompanied by a complete hysterical paroxysm.§§

It may, however, be considered unnecessary to multiply instances of the connection between the kidneys and ovaries, since the long list of cases under the head of hysterical Ischuria so amply illustrates it,—not to mention the succeeding histories. It appears, indeed, that some alteration in the quantity or composition of the urinary secretion is one of the most constant symptoms of hysteria, even in its mildest form, when the patient can only be said to have a hysterical constitution.

Excessive flow of urine is precisely analogous to the profuse

* The Natural History of the Human Teeth, p. 234, 3d ed. 4to. 1803.

† On Diseases of Children, ninth ed. edited by Dr. M. Hall, p. 252. Lond. 1835.

‡ Essay on Diseases of the Urethra and Testes, p. 31. Lond. 1820.

§ Elements of Pathology and Therapeutics, Vol. i., p. 384. 8vo. Bath and Lond. 1835.

|| Medical and Phys. Journal, Vol. xviii., p. 331.

¶ Haller, Elem. Physiol. Tom. ii., p. 371 (from Cammerarius).

** Works, by his Son, p. 594, note.

†† Cyclop. Pract. Med., Vol. iii., p. 489. ‡‡ Ibid.

§§ An Essay on Intermittent and Remittent Dis. &c. Vol. ii., p. 95. 8vo. Lond. 1828.

sweats and salivation of hysterical females. It terminates a common paroxysm of hysteria, but is observed in the chronic form. In the latter there is almost invariably diminished urinary secretion. Practitioners will scarcely be aware how frequently it happens, unless they question their patients closely. It is by no means uncommon for the urine to amount to no more than three or four ounces in twenty-four hours, particularly during the catamenial period. I have seen several instances in this hospital independently of those already given.

Total suppression of urine for several days or weeks is the rarest form, but certainly occurs, as shown by cases in my former paper.

The composition of the urine varies considerably according to the form the disease assumes. That of the common paroxysm is well known to be aqueous with little urea.* In chronic or aggravated hysteria, the urine frequently resembles that of paraplegic patients, being alkaline, and depositing the triple phosphate in abundance.† This condition of the urine is also observed in persons exhausted by excessive study, bad diet, and other depressing agencies.‡ This alkalinity of the urine is frequently accompanied with a mucous deposit, which stops up the catheter. Both, it would seem, are derived from the mucous membrane of the bladder. The opinion that the phosphate of lime is derived from the latter, is noticed by Prout, as being by no means novel;§ it is usually combined with the carbonate of soda, and the ropy mucus secreted by the mucous membrane. Mr. T. B. Curling thinks the alkaline urine in paraplegic patients, &c., is caused, primarily, by the morbid secretions of the bladder, and secondarily by the altered secretions of the kidneys themselves.|| Sand and calculi, it would appear, are formed in some very aggravated cases. (No. 3, 5, 8, 28.) This symptom probably depends upon a state of the general system, analogous to the gouty. It will be noticed in a future part of the analysis. In Case 5 there was the rare black deposit.

Albuminous urine is not at all uncommon in hysteria. Perhaps the milky appearance mentioned by some writers¶ as peculiar to pregnancy is analogous.

BLADDER.—Its secretions have been just noticed; the paralysis will be considered with that of

THE LARGE INTESTINE.—Flatus is very commonly generated in cases of hysteria. Gas may be secreted from any mucous surface. Thus, occasionally, large and noisy discharges of flatus from the

* Golding and Brett, London Medical Gazette, Vol. xii., p. 387.

† Sir B. Brodie, Lect. on Dis. of the Urinary Organs, *Ibid.*, Vol. viii., p. 7, and published separately, p. 162 (8vo. London, 1832).

‡ *Op. cit.* My friend, Mr. Barker, Lecturer on Chemistry, at the York Medical School, has made numerous observations on the urine in such cases, and found it to have a slightly acid reaction when avoided; within a very short time, however, or, on cooling, the urine becomes alkaline.

§ Inquiry into the nature, &c. of gravel, &c. London, 1821, p. 155.

|| Lond. Med. Gazette, Vol. xviii., p. 325.

¶ Dr. Montgomery in *op. cit.*

uterus take place many times a day.* I have read a case or cases of similar discharges from the urethra.

That the skin secretes carbonic acid, was shown by Count de Milly, Jurine, Ingenhouz, and Abernethy; and, indeed, in frogs and other animals it may perform the functions of the lungs† whose special office in the economy is the secretion and absorption of gaseous matter. Hunter ascribed similar powers to the mucous membrane of the intestinal canal; and I am not aware that any one at the present day doubts this opinion. It is probable that the stomach, cæcum, and colon, are more particularly implicated in these gaseous secretions. Recent researches‡ have shown that under certain conditions, a second digestion goes on in the cæcum, and that in function it is really an auxiliary of the stomach of graminivorous animals. Aretæus represents digestion to take place in the colon.§ It does not appear that the peculiar smell of the feces is altogether derived from the gaseous products. Perhaps it is owing to a fluid excrementitious secretion from the large intestines analogous to that from the follicles of the tonsils. However this may be, Magendie and Chevreul met with only a trace of sulphuretted hydrogen gas in the gases found in the colon of two executed criminals. They principally consisted of carbonic acid, with varying proportions of nitrogen, hydrogen, and carburetted hydrogen; the two last being in smallest quantity.|| Dr. Osborne had a case of hysteria with constipation and tympanites, in which he introduced an elastic tube into the rectum, and pumped the gas from the distended colon. It was inodorous, and extinguished flame,¶ precisely the qualities which the mixture of gases analysed by Chevreul and Magendie would possess.

Borborygmi.—Mediate auscultation of the abdomen, and the sounds elicited by compressing the intestines of the dead body by the hand, very satisfactorily show the origin of the borborygmi so common in hysteria. A constant peristaltic and antiperistaltic action seems to be going on in a limited portion of bowel in which flatus is confined, either by spasmodic constriction of the intestine or arrested feces.

Hysterical females suffer more from tympanitic distension of the stomach and colon than of any other part of the alimentary canal. The flatus unquestionably originates in many cases in the cæcum or colon. It can be traced by the patient, and occasionally by the spectator, appearing through the parietes of the abdomen like a ball

* An account of the most important diseases of women, by R. Gooch, M.D., p. 242. London, 1829.

† On the Influence of Physical Agents on Life by W. F. Edwards, M.D. translated by Hodgkin and Fisher, p. 12, 28, 37. 8vo. London, 1832.

‡ Of Tiedemann and Gmelin, Edin. Med. and Surg. Journ., vol., xxviii., p. 373, 377; and of Dr. Schultze in Ibid., vol. xlv., p. 409.

§ De Causis et Signis Diutur. affect. Lib. i., cap. xv.

|| Magendie's Elem. of Physiology translated by Dr. Milligan, p. 268. 4th ed. Edinburgh, 1831.

¶ London Medical Gazette, vol. viii., p. 825.

as it ascends from the pelvis, distending successively each portion of the tube, and at last being arrested by the spasmodic closure of the œsophagus, forming the *globus hystericus*. These phenomena gave origin to the hypothesis that the uterus ascended from the pelvis, and to the consequent treatment by fetid scents to the nostrils, and fragrant fumigations of the vulva.

Tympanitic abdomen is caused by an increased secretion of these gases, analogous to the other hysterical profluvia, namely, from the uterus, skin, salivary glands, and kidneys. It is occasionally so enormous as to give the patient the appearance of advanced pregnancy. Some of the older writers attribute the non-expulsion of the gas to paralysis of the muscular fibres of the colon. Most probably this explanation is correct.

Paralysis of the colon, rectum, and bladder, causing *constipation* and *retention of urine*, is a real paralysis, and would appear exactly analogous to that which affects the larynx, pharynx, and œsophagus, causing aphonia and dysphagy.

It has been advanced by Sir B. C. Brodie,* that this affection of the bladder is owing to the absence of all exercise of the volition. Nothing is directly stated in support of the opinion. The effect of strong moral emotion in overcoming the paralysis, may be thought corroborative. The effect of sudden surprise or terror in giving the power of locomotion to helpless paralysed patients has been frequently recorded, yet it has never been denied that in these, at least, there was a real paralysis. The hysterical retention of feces and urine may arise from deficient irritability of the mucous membrane of the viscera implicated, or there may be spasm of the sphincter resisting the usual contractions. In the one case distention by increasing the stimulus will relieve the retention; in the other, a moral cause will relax the sphincters. It must not be forgotten that the retention of urine is frequently connected with a partial suppression, so that we have diminished muscular power, diminished irritability, and diminished stimulus, all combining to produce that symptom. The effect of mental excitement in exalting and lowering the muscular power of individuals in good health is well known, but is a fact too generally applicable to be useful in illustration of the symptom under consideration, except in the same general way.

A patient with hysterical aphonia will certainly make the most painful and energetic efforts to articulate, without success.

The presence of *Scybalous feces* in the rectum and colon is a cause of constipation in hysteria, and probably occasionally of tympanites. They seem to be dependent on diminished secretion from the mucous surface of the intestines, or paralysis of the muscular fibres.

Diarrhœa, mentioned by Sydenham, Whytt, Pomme, and others as a symptom of hysteria, is the converse of this, and may be classed

* Lect. in Med. Gaz., vol. xix., p. 246, also on Local Nervous Affections, p. 48, 8vo. London, 1837.

with the profluvia already noticed. Its occasional monthly recurrence has been already mentioned; it will also assume the hebdomadal or tertian type.

Colic is a well-known and very distressing affection of the hysterical, and in the majority of cases arises from confined flatus distending the colon. A pain which

—“Vero longè dirissimus occupat omnem
Inflexi tortum coli, rem nomine monstrat.”*

It may be doubted, however, whether the pain be invariably seated in this portion of the intestine. I have witnessed a severe attack without any very obvious flatulent distension, and the latter to an enormous extent, without causing any colicky pains whatever. It may be, on some occasions, neuralgia of one or other of the abdominal viscera.

Of *Pain in the hypochondria*, which is very common, I cannot find any satisfactory explanation. It has been referred to the liver, spleen, &c., but is probably neuralgic, and analogous to the pain under the right scapula caused by diseases of the liver.

THE INFERIOR EXTREMITY OF THE SPINAL CORD.—A large proportion of those symptoms, in which the back, abdomen, and lower extremities are implicated, are to be referred to some morbid state of part, or whole of this portion of the cord, or attached nerves.

Aching pain and tenderness on pressure of the loins almost constantly affect the hysterical female. These symptoms have given rise to the idea, that the pressure affected the cord itself, or the vertebræ; and the practitioner, according to his bias, extended the patient for months on a board, as a case of “diseased spine,” or leeches and blistered for “a tender and irritated state of the cord.” Back-ache, however, as well as tenderness on pressing the vertebral column, is a common symptom of many diseases, totally unconnected with any particular disease of the spinal cord. The muscles of the back are, perhaps, never altogether relaxed, not even during sleep. A corpse will not remain on its side. In consequence of this continual tension, they are the first to feel fatigue when any cause debilitates the muscular system in general. Those who experienced a severe attack of the epidemic catarrh of last winter will not soon forget the intolerable pain they suffered at the time, in the loins and calves of the legs, exactly resembling the ache of great weariness. It is not at all surprising, that a debilitated female, unaccustomed to much muscular exertion, should constantly experience a pain in her back after maintaining the erect posture for a while.

Tenderness of the spinal column is very common in other diseases, as well as in hysteria. There is a man now in the hospital in whom the stethoscopic phenomena indicate organic pulmonary disease; pressure on the second or third dorsal vertebra will cause him to gasp. Dr. Marshall records a similar observation.† I have noticed

* Neuropathia, p. 41.

† Practical Obs. on Dis. of the Heart, Lungs, &c., caused by spinal irritation, 8vo. 1835.

spinal irritation in a case of diseased heart, with dyspnoea, anasarca, and coagulable urine.* Dr. Entz, a writer on irritation of the spinal marrow,† has found spinal tenderness in almost every case of dysmenorrhœa, and in most cases of menorrhagia which have occurred of late years in his practice. According to the Messrs. Griffin, spinal tenderness is an attendant on almost all hysterical complaints, and on numerous cases of functional disorder, and may arise from uterine disease, dyspepsia, worms, liver diseases, mental emotions, miasm of typhus and marshes, continued, erysipelatous, rheumatic and eruptive fevers, and pregnancy;‡ in the last, of the dorsal portion of the spine. There is no limit to statements of this kind. Taking the list given into consideration, are we warranted in saying that tenderness in any point of the spinal column is a mark of a diseased state of the corresponding portion of the spinal cord? for the doctrine of spinal irritation, stripped of its generalities, is comprised in the affirmative answer to this question.

Aware how little we know of the intimate relations and functions of vital organs, we are inclined to doubt a system of pathology presenting so easy and plausible an explanation of every irregular form of disease.

In affections commonly considered cases of spinal irritation, we sometimes have pain excited by pressing, or even touching gently any portion of the body, excepting perhaps the face. In most cases of tenderness, whether local or general, the severest pain is excited by pressure on the bony prominences. Thus the condyles of the femur will be more tender than the thick part of the thigh; and the patient will complain of the pressure as being equally painful, whether made on the spinous processes of the vertebræ or on the angles of the ribs. This I have verified repeatedly.

The median line of the trunk is occasionally more tender than any other part. In a female named Cleary, now in the hospital, under the care of Dr. Simpson, a slight touch or gentle pressure on the first or second bone of the sternum, accordingly as the patient is more or less irritable, will cause cough immediately. I have ascertained the fact beyond doubt. If such tenderness were in the median line of the back, the cord would be pronounced tender by the advocates of the doctrines of spinal irritation. The patient I allude to has three or four tender points on the posterior median line. In this state of the nervous system, the transit of a nerve through an osseous foramen, or over any part where it is exposed to pressure, gives rise to pain at the extremity of that nerve. But an inspection of the vertebral column in an anatomical subject will show at once how impossible it is to press the cord, or the nerves going from it,

* In a case of substernal aneurism, now in the hospital, under the care of Dr. Belcombe, gasping is excited by pressing on one or two of the dorsal vertebræ, or by blowing on the patient's face.

† In Rust's *Magazin für die Gesammte Heilkunde*, 1836.

‡ Obs. on the functional affections of the spinal cord and ganglionic nerves, by W. Griffin, M.D. and D. Griffin, M.R.C.S. p. 203, 8vo., Lond. 1834.

in the slightest degree. The length of the cervical spines, and the overlapping of the dorsal, not to mention the strong ligaments and massy muscles covering the transverse processes, render the spinal cord as secure from pressure from without, as the brain.

Organic disease of the vertebræ may go on to an extraordinary extent, and also, even of the cord itself with very little or no tenderness of the vertebral column,* and but slight functional derangement of the organs in connection with the spinal chord. Velpeau has collected twenty-five cases of disorganization of the *medulla oblongata* without disturbance of the nervous functions. In some, four inches of the spinal cord was changed into a reddish fluid, so that he somewhat hastily infers the spinal marrow is not indispensable to sensation and motion.†

These considerations are advanced not to disprove the existence of that morbid state of the nervous system recently designated spinal irritation, but merely to show that tenderness of the spinal column is a sign of little value. It might farther be shown that the nervous fibrils of the tender part are in a state analogous to that of the nerves in subcutaneous tubercle, or in epilepsy accompanied with aura commencing at a diseased or irritated nerve.

This question I shall again notice. It is universally acknowledged, however, that irritation of the nerves of one organ may be communicated to those of a second, having an anatomical or functional connection. The catamenia are seldom established without aching and neuralgic pains of the back and lower extremities; partial anæsthesia, (numbness,) and tetanic contractions (cramps) of the legs. The action of the testicles on the muscles of the back in certain states is well known, causing an aching, which is merely a sense of fatigue arising from impaired power of the lumbar muscles. The transit of a calculus along the ureter will cause pain in the testicle, and a variety of sensations in the thighs. In the diseased bladder of old men there is very constantly painful heat and tenderness of the soles of the feet. Stricture of the urethra will excite numbness inside the knees; and pain in the loins, hip, down the thighs, and in the soles of the feet.‡ The introduction of a bougie will cause pain in the thigh,§ but the most curious instance of this kind is the counter-irritation, which the New Zealanders successfully practice in traumatic tetanus, by making the urethra the track of a coarse seton thread.|| The cramps of diarrhœa, and other symptoms of a host of diseases implicating the abdominal viscera, might be mentioned, if not obvious to every one. There is scarcely a case recorded in these papers in which this principle of sympathetic irritation is not exemplified.

* Analytical review of "Travers on Constitutional Irritation," in *Medico-Chirurgical Review*, Vol. xxiv., p. 44.

† *Archives Gen.* 1825.

‡ Mr. Bingham, in *Essays* quoted, p. 31.

§ *Ibidem*, 278.

|| Such I have seen stated in some recent work on New Zealand or the Sandwich Islands.

Spinal tenderness is dependent simply upon increased sensibility of the surface, and but one of many symptoms. It may indicate diseased vertebræ or spinal chord; but it has been so frequently observed in functional or organic diseases of the viscera, that it is really more indicative of the existence of the latter than the former.

This pathological connection of the spinal cord with disease of the abdominal and thoracic viscera has been noticed by Hoffmann, Boerhaave, and others, and is the foundation of the ganglionic as well as spinal pathology of hysterical, hypochondriacal, and nervous complaints.

Mr. Stanley observed paraplegia in several cases to occur without any appreciable disease of the spinal cord or its membranes; the kidneys, however, were found inflamed and suppurated; and consequently Mr. Stanley justly concludes, that the true source of the paraplegia was in the kidneys, the spinal cord being affected secondarily.* How frequently intestinal irritation will cause paralysis or convulsions is well known. I conceive that the ovaries in hysteria have a very analogous action upon the dorsal or lumbar portion of the spinal cord, either directly or indirectly through the kidneys, uterus, or large intestines.

That the ovaries can and do influence organs having an intimate anatomical or functional connection with them is most evident from the whole chain of symptoms characterizing the preceding cases, and referred to their proper heads in the subsequent analysis. At present I do not profess to explain the nature of this influence. I am content to ascertain its existence.

The reciprocal actions of the spinal nerves and abdominal viscera render the pathology and treatment of their diseases much more obscure and difficult than is generally suspected. The vigorous treatment adopted in peritonitis by most practitioners may have occasionally been directed against the tender tympanitic abdomen, constipated bowels, coated tongue, and quick pulse of a hysterical female, and the patient literally bled to death. Such instances may probably be in the recollection of the reader.

The symptoms referable to irritation of the lower spinal nerves are so obvious in the preceding cases as to require little more than enumeration.

Spasm attacking the abdominal muscles presents one form of hysterical colic, their partial contractions giving the abdomen a knotted surface. The flexors of the lower extremities are much more frequently affected than the extensors; tetanic flexion of the leg and the thigh, indeed, in varying degrees of severity, appears to be rather a common symptom. Sometimes this state becomes chronic, but frequently disappears suddenly either by metastasis or removal of the exciting cause.

Paralysis appears under a variety of forms, and may be either local or general. Sometimes the lumbar muscles are affected, and

* Medico-Chirurgical Transactions, Vol. xviii., p. 278.

the patient cannot sit upright ;—or the abdominal muscles, and we have a feeling of sinking, or constipation and retention of urine. Occasionally the gastrocnemii or peronei only are affected, and the foot is distorted. Increased sensibility is very common. Tenderness of the abdomen need only be mentioned. It is the great simulator of peritonitis, but is much less rarely mistaken for that disease, since the able researches of the writers on spinal irritation. Tenderness of the back and sides is frequently mistaken for the latter complaint, as is evident from the cases published as instances of that affection. Pain and tenderness of the knee is now well known as the hysterical knee, and has been well described and distinguished by Sir B. C. Brodie. Its most usual seat is on the inside of the joint, and is probably analogous to the affection of the knee, which is symptomatic of diseased hip.

This symptom is obviously seated in the cutaneous branches of the anterior crural nerve. It has often been mistaken for white swelling of the knee-joint.

Various neuralgic pains, especially of the soles of the feet ; a sensation of heat, termed by the patient flushings ; partial or general formication, are all of the same class.

Partial sweats, principally on the loins and feet, are occasionally complained of.

FOURTH CLASS—THE CERVICAL REGION.

The remarks now made are equally applicable to the symptoms referable to the cervical portion of the spinal cord, and to the contiguous organs. Each of the latter are subject more particularly to increased sensibility ; hence a variety of neuralgic pains referred to various parts of the head, face, neck, and breast, according as the mammæ, thyroid body, salivary glands, tonsils, and teeth are implicated. Paralysis of the muscles of the fore-arm, causing weak wrist, trismus, tetanus, and increased sensibility, local or general, of the upper extremity ; partial opisthotonos, sneezing, and a variety of other symptoms, which I cannot even mention on account of the extent to which I have already carried this part of the analysis, are referable to irritation of the spinal nerves of the cervical region.

THE PSYCHOLOGICAL PHENOMENA of hysteria having a relation to the generative functions are next to be noticed. I enter upon this part of the subject with considerable reluctance. It is difficult, from its complicated physiological and moral relations. Man is an animal, and as such, he is under the guidance of his preservative and reproductive faculties, of which, as an animal, his intellectual faculties form but a part. Revelation, however, assures us he was made in the image of God. To that Supreme Being he is responsible for his actions, and by Him, man is required to make all those animal faculties which govern brutes subservient to his high destiny,—an eternal communion with his Maker.

The faculties of the mind by which sexual congress and the other generative acts are directed alone concern us; yet it is difficult to isolate them; for the generative nîsus influences the whole of the phenomena of mind.

The excited appetite for sexual gratification is as urgent as that for food under the stimulus of hunger. In both cases we find the natural ferocity and timidity of animals towards man and each other increased and diminished with a force and uniformity truly remarkable.

The desperate combats of the males, especially of gregarious animals, at the breeding seasons, is well known. Hunters and destroyers of vermin frequently make use of the generative odours as an irresistible lure of animals to their capture and destruction. By this means the housebreaker silences and tames the most ferocious house-dog. The love of offspring acts with equal force on the female. The timid hare will attack the eagle in defence of its leveret. Instances illustrative of the force of this sexual faculty might be drawn from the history of every species of animal.

These, and other mental changes consequent upon the generative impulse, do not take place simultaneously. The war among the males of gregarious animals terminates with the business of conception, and before the birth of the young. At this time, the female, so far from being bold and quarrelsome, is most timid and cautious.

Indeed one of the most remarkable of the faculties, and peculiar to the females of the higher classes of animals, is their artfulness or dissimulation; and seems to be given in place of those weapons of offence and defence with which the males are so generally provided.

The less muscular power, want of defensive weapons, and exalted perceptive faculties* of females would naturally engender a degree of timidity and cunning. Consequently, these attributes have been considered, and with truth, as essentially a part of the feminine constitution. Cabanis, after numerous interesting remarks on the mental and corporeal constitution of the human male and female, emphatically concludes, "Il faut que l'homme soit fort, audacieux, entreprenant; qui la femme soit faible, timide, dissimulée."†

These observations must be strictly confined to woman considered as a mere animal, and seeking, in common with brutes, the maintenance of her existence, and the gratification of her sensual pleasures. These objects of her being are distinct from the (perhaps) more

* "Vainement l'art du monde couvre-t-il et les individus, et leurs passions, de son voile uniforme: la sagacité de la femme y démêle facilement chaque trait et chaque nuance.—S'il est permis de parler ainsi, son œil entend toutes les paroles, son oreille voit tous les mouvements; et, par le comble de l'art, elle sait presque toujours faire disparaître cette continuelle observation sous l'apparence de l'étourderie ou d'un timide embarras." Rapport du Physique, &c., de l'Homme. tome i., p. 305, 3me ed.

† Op. cit., p. 294.

important object, the reproduction of the species. So soon as the organs subservient to the latter are developed, the peculiarly feminine qualities above-mentioned, acquire a remarkable exaltation, as indicated by the secrecy and dissimulation practised by women in the performance of certain offices of life, and which, in her, are both required and excused.

When the generative organs of the female are in the full performance of their functions, this artfulness is still more exalted, and in brutes practised so as to rival the highest attempts of human sagacity. The skill they display in the choice of a secret place in which to deposit their eggs or young, and the finesse with which they protect the latter from discovery and injury, must be well known to the student of natural history. Even the most ferocious female animal does not disdain to practice the most consummate cunning. The lioness, when she fears to have her retreat discovered, will hide her foot-traces by retracing the ground, or by brushing them out with her tail.

The perversion of some of these peculiarities of the female, form the most prominent physiological phenomena of hysteria and puerperal mania.

Extreme timidity is usually the consequence of a fright. (Case 64.) *Sudden impulses to do a bodily injury*, a symptom of hysteria, is perhaps the converse. The strangest perversion of all is that which impels a mother to destroy her infant,—a state of mental alienation which occasionally attacks brutes. Sows will destroy their own offspring; and I have seen a cat eat her kittens.

Hysterical imposition is a symptom which has caused the greatest speculation and astonishment. Of all animals, an artful woman is the most artful, and when we consider how this faculty may be exalted by the influence of the generative organs, there is not much real ground for surprise at the grotesque forms which it sometimes assumes in the hysterical female.

Whatever may be the cause of this propensity to deceive, it is as certainly a symptom of hysteria as any corporeal symptom whatever. It is as true a monomania as the infanticidal, and is most likely to occur in the female who is hysterical from excess of sexual development; one, possessing the utmost modesty of deportment and grace of figure and movement;—for the modesty itself springs out of the feminine timidity to which I have alluded.

The strange deceptions practised during this state of the mind, by the most respectable and amiable females, have thrown a doubt over their statements, and induced the observer to conclude, that all their symptoms were feigned, and this the more readily, because the deceptions attempted have had a reference in general to those organs, the functions of which were deranged. But this is precisely analogous to what takes place in insanity; the illusions of the insane being, according to Esquirol,* connected with some special function or organic lesion, just as the hysterical maniac,

* In a memoir read at the Institute in October 1832.

feeling the dyspnœa from laryngeal spasm, asserts a demon is strangling her. A hysterical young female has really a marvellously small appetite, and, to increase the wonder, refuses all food whatever by day, and pays secret visits to the pantry by night. She has retention or partial suppression of urine, and so she crams the vagina with stones, and drops them into the chamber-pot, to make people believe she has stone in the bladder. In all other respects she conducts herself with the most unaffected modesty and propriety. Some cases recently recorded of lizards being discharged from the alimentary canal are of this character. A young woman had nausea, profuse flow of saliva, and a sensation which she described as if some living body attempted to rise up her throat, and then fell down into the stomach. An emetic was prescribed, and (as might be expected from her sensations) the patient vomited a living lizard!* Baglivi states of the hysterical and lascivious females, especially the nuns of his day, that they would simulate tarantism for the pleasure of dancing, and that this practice was called "il carnevalletto delle donne."† There is a curious case recorded in the seventh volume of the *Edinb. Med. and Surg. Journal*. A female in this hospital, under the care of Mr. Champney, thrust pins into her mamma. Dr. Elliotson had a hysterical female who feigned hemorrhage.‡ The remarks of Dr. Seymour on this subject are the best I have read.§

This propensity is unfortunate, as it renders the symptomatology of hysteria still more difficult.

We must endeavour to avoid the equally injurious extremes of unlimited faith and absolute incredulity. The imposition itself may be useful in directing our attention to the state of the organ implicated in it, as most probably either its functions or structure will be deranged. We ought also to remember, that the propensity is a part of the disease, and its indulgence will be attempted; perhaps the best way to treat it is quietly to permit the patient to deceive us, and make its gratification subservient to the remedial treatment.

Anorexia, Bulimia, Pica, and strange longings, are characteristic of the pregnant, chlorotic, and hysterical female, and have their origin from the same common source, but forming perhaps a third or fourth link in the chain of effects. I had collected a few illustrative facts, but they would be quite inconclusive without some discursive explanations. I would merely say that the dislike of animal food is almost pathognomonic. My paper, I fear, is already too long. I must therefore close, at this point, the first part of the analysis, and, should it be received favourably, I propose considering the remaining portions in a future Number.^a

I have only to add, that I do not consider myself bound to main-

* From a German periodical in *Med. Chir. Rev.*, Vol. xxvii., p. 541.

† *De Tarantismo*, cap. vii.

‡ *Clinical Lectures in London Medical Gazette*, Vol. vii.; p. 239.

§ *Obs. on the Medical Treatment of Insanity*, p. 23, 8vo., 1832.

^a [The essay of Dr. Laycock appeared in the *Ed. Med. and Surg. Jour.*, from which it has been taken and divided into chapters for the Library.—EDITOR.]

tain any opinions I have advanced in this paper, if, in prosecuting the analysis, a more extended induction shall prove them erroneous, or involve them in more general principles. All I wish to do is, to arrange and generalize facts, and draw conclusions which may serve as a basis for a more extended synthetical analysis, and lead to a better diagnosis and treatment of these diseases.

There are some obscure diseases of females which might, perhaps, be better understood if observed with a special reference to the plan I have adopted. I have experienced its utility when examining a patient, and have elicited a variety of minute particulars altogether overlooked by the patient herself. Diseases of females, or even of males, named after some principal symptom, originating in the pharynx or larynx, are of this class, as hydrophobia, whooping-cough, bronchitis, and analogous affections, really hysterical. The idiopathic wry-neck (*torticollis*) affects young females, I believe, almost exclusively. I am sorry I have lost one or two opportunities of investigating its nature, but I suspect it to be of the same character as hysterical trismus, and that it ought to be classed with the local hysterical affections of Sir B. Brodie. Numerous analogous diseases might be mentioned as worthy of the method of investigation to which I have alluded.

We might also be led to know, why one structure is affected rather than another; the left rather than the right: the thyroid body, rather than the mammæ; the larynx rather than the fauces; and so on with the other organs connected directly or indirectly with the ovaries.

CHAPTER IV.

Laws of female development—Condition of sex influences the vascular system—Changes of the blood accompany the more aggravated forms of hysteria—Effects of hemorrhages and remedial bleedings in exciting and aggravating hysteria—Chlorosis does not dispose to hysteria—Phenomena of hysteria in relation to the nervous system.—Resemblance between the affectibility of females and that of children—Inferences respecting dentition—Influence of mental emotions—Effects of blood-letting—Effects of poisons—Phenomena of certain diseases of the Nervous System—spasmodic asthma—angina pectoris—tetanic spasms—Effects of certain poisons—hydrophobia—tarantism—cantharides—Vegetable poisons—Epilepsy—Neuralgia—Paralysis—Lateral curvature—Amaurosis—Anæsthesia—Review of some anomalous phenomena—Catalepsy—Endemic chorea—Imitated movements, &c.

IN the two first chapters of this essay, I gave a selection of cases, comprising, with one or two unimportant exceptions, every form of those diseases usually called hysterical, with a view to an inquiry into their nature and causes. In chapter second, I commenced an inductive analysis of their phenomena, by establishing three general principles as applicable to every case. These were, 1. That the nervous system is principally implicated in these affections; 2. That it is, with certain exceptions, the nervous system of females only

which is so implicated; and, 3. That these affections are observed only in females, at a time when the sexual organs are performing their peculiar functions. Commencing with the third or least general head, I attempted a synthetical arrangement of the symptoms, in connection with the organs of generation and their functions. It would be observed, that I was obliged in my former paper to anticipate various remarks which ought to have been made under the second head. These I shall not repeat here, but merely state the conclusion at which I arrived, namely, that the well-known susceptibility of the female, and her peculiarities of corporeal organization, do not depend solely upon the generative organs, but originate in some higher law of development, which involve the latter organs in common with the whole system.

By universal consent, the nervous system of the female is allowed to be sooner affected by all stimuli, whether corporeal or mental, than that of the male. As this state of the system is the source of the weaknesses, so also it is the origin of all the physical and psychical beauties of the female. If we search for a clue of inquiry into its nature among the laws of development, we shall find nothing sufficiently tangible or certain for the purpose. Pathology, however, in the hemorrhagic diathesis of the hysterical, points out an available starting point in the vascular system. In all females during the menstrual nîsus, when there is an exalted affectibility of the whole system through the influence of the ovaries, we find the blood-vessels of the uterus to assume a state analogous to that of the vascular system in hemorrhagic hysteria, and to pour out the colouring matter of the blood, together with the proper uterine secretion. So that the menstrual secretion may be considered as the type of hysterical hemorrhage. The monthly flow of blood from the urethra and rectum of some males is probably somewhat analogous. These cases do not appear very uncommon, and clearly indicate a periodical movement in the structures connected with the lumbo-sacral portion of the cord in the male.

But the law of development to which I referred has some influence on the anatomical and vital constitution of the whole vascular system in both men and women. This is clearly shown by that curious form of disease in which there is a hemorrhagic diathesis, which is hereditary in certain families, and peculiar to the males. From instances recorded by various writers in various parts of the world, it appears that the individuals having this hemorrhagic constitution may bleed to death from the slightest solutions of continuity, as the puncture of a pin, or of the vaccinating lancet, or any trifling injury of the surface; and that the females of those families in which it is observed are (with two exceptions mentioned by Dr. Elsässer*) invariably exempt. Their male offspring, however, will certainly possess the fatal diathesis, while their female children, like themselves, will escape.

* Hufeland's Journal, February and September, 1824. In these exceptions there was a tendency to ecchymosis during youth only.

With these facts before us, it is impossible to avoid the conclusion, that the same condition of the system, which determines the sex of the embryo, determines also the hemorrhagic constitution of the male, and prevents its development in the female; and, also, as a corollary, that the condition which determines the sex, influence in some way unknown the vascular system. It does not appear that there is any resemblance between the accompanying phenomena of the hemorrhage of these individuals and those of the hysterical. They agree only in the leading symptoms, and in this, that both kinds may be classed under two heads, as they present the phenomena of purpura, or an increased activity of the vascular system.*

The organs from which the hemorrhages in hysteria occur, suffer with a frequency corresponding to the intimacy of their connection with the ovaries. Hemorrhage from the uterus is the most frequent of all; next from parts about the larynx and fauces; then most frequently (in the order in which they are mentioned) from the mammæ, ears, stomach, lachrymal gland, surface of the neck, ulcers, especially of the legs, kidneys, intestines, surface of the extremities, especially of the hands and feet; and lastly, from the epigastrium. These hemorrhages must be distinguished from vicarious menstruation; although they certainly occur most frequently at the menstrual period, as *à priori* might be expected. Vicarious menstruation occurs also from organs in the order above-mentioned. Of 29 well-marked cases I have collected, it occurred in 7 from the eyelids or eyes; in 1 from the eyes and ears; in 1 from the nose; in 6 from the mammæ; from the skin and upper extremities in 5; from the stomach in 3; from the umbilicus in 2; from the rectum in 2; and from the feet in 5 cases.

The ratio in which the various constituents of the blood enter into its composition is worthy of notice, as having an intimate relation with the affectibility, natural or morbid, which I have mentioned as peculiar to the female. In a great proportion of the cases of hemorrhagic hysteria, the blood had a loose crasis, arising apparently from a deficiency of fibrin. And in those cases in which this particular phenomenon is not mentioned, we may very fairly infer from the details that the blood had this defect. Blood-

* Those who may wish to investigate this curious subject will find the following list of references to cases and monographs more complete than any yet given. Edin. Med. and Surg. Journal, xix., xxv., xxvi., xxxii., xxxvi.—Lond. Med. and Phys. Journal, xx., xl., lx.—New Lond. Med. and Phys. Journal, vii.—Dublin Journal of Medical Science, vii.; and Mr. Wardrop's work on Blood-letting.—Horn's Arch. für Medicin Erfahr. 1820, Vol. i. contains a paper by Nasse, with bibliographical references, which may be found in Vol. xxv. of Edin. Med. and Surg. Journal. To these may be added, Rust's Magazin, xxvii. B. ii. 1828.—Zeitschrift für Nat. und Heilk. v. B. ii.—Archiv. Gén. de Med. Ser. ii. Tom. xiv., and Ser. iii. Tom. i., 1838.—Suisse Gaz. Med. 1838, No. iii.—Ripp. Untersuchungen in Betreff. der Anlagen zu todtl. blutungen, Frankfurt, 1835.—Schonlein, Allgemeinen und Specielle Pathol. und Therapie, Vol. ii.—Nachricht von Zwei Blutern Mitgetheilt, von Doctor Schreyer, zu Vegtsberg un Sachs. Vogtlande.

letting will of itself produce this condition. Provost and Dumas having bled a cat largely, found 1000 parts of its blood to consist of 791 of water, 87 of albumen, and 118 of globules. Two minutes afterwards they repeated the bleeding, and found the water increased, and the solid particles diminished in quantity, and after an interval of five minutes, the bleeding was repeated for the third time, and they found the blood to consist of 829 parts of water, 93 of solid particles, and 77 of albumen. M. Le Canu obtained similar results from the analysis of human blood taken from patients who had been bled to a large amount, or were labouring under hemorrhagic affections.* These experiments are important when connected with the pathological phenomena of hysteria and of excessive depletion. It is not a little curious in connection with this subject, according to Le Canu, who made an extraordinary number of observations, the blood of women in general contains more water and less crassamentum than that of men. Le Canu found the quantity of water in 1000 parts of the blood of females to vary from 790,394 to 853; of males from 778,625 to 805,26.† Denis examined the blood of 24 men and 28 women; and the mean result of his experiments was, that the proportion of water in the blood of males and females is as 767 to 787. He found also a greater proportion of water in the blood of aged persons and children.‡ According to Le Canu, the blood of men contains in 1000 parts, about 3298 more of the components of the crassamentum than that of women. In the blood of the latter during menstruation, he found the blood to contain less clot.§ If these observations were extended so as to comprise an analysis of the blood of females constantly exposed to the open air, and in robust health, with the same results, they would go far towards elucidating some obscure points in the characteristics of the sexes. At present, however, we can only infer that the blood of females living in towns (for such I presume was the subject of Le Canu's researches) presents these peculiarities, and that the blood of females in general is more easily affected by the depressing agencies experienced in crowded societies.

But even in this limited view of the subject, the connection between the affectibility of the females, and deficiency of crassamentum or fibrin in the blood, is farther illustrated by the exceptions to one of the general principles I laid down at the commencement of this analysis, namely, that hysterical affections are peculiar to females. Hysteria most unquestionably occurs in the male. Loyer-Villermay,|| and those authors who locate the disease in the uterus, necessarily deny this, for as young men have no uterus, they cannot possibly, according to their theory, have true hysteria.

* Cyclopædia of Anatomy and Physiology, i., 413.

† Müller's Physiology by Baly, p. 119.

‡ Ibid.

§ Ibid. The whole of M. Le Canu's researches may be found in "Etudes chimiques sur le Sang humain. Thèse présentée et soutenue à la Faculté de Médecine de Paris, le 23 Nov. 1837, par Louis-Rene Le Canu, 4to, Paris, 1837.

|| Dict. des Sc. Med. Tom. xxiii., p. 230.

The affirmative is asserted, however, by many observers. Piso, Willis, Sydenham, Boerhaave, Cullen, Ferriar, Mackintosh, Johnson (of the *Med. Chir. Review*), Conolly, Brodie, M. Hall, and many others have observed hysteria in males.* I think I have seen three cases in the hospital, the symptoms of which, if they had been observed in females, would certainly have entitled their history to a place in my collection. The first was that of a small delicate youth, aged 14. He had paroxysms of violent palpitation and dyspnœa occurring regularly every night for two or three weeks together. To these were occasionally added spectral illusions, delirium amounting sometimes to furious mania, cephalæa, diminished secretion of urine, pain in the loins, constipation, and particularly, as an almost diagnostic symptom,—an unconquerable dislike of animal food, especially of beef or mutton, the smallest portion of which would make him vomit. He recovered as he approached puberty.† The other two cases were those of fat, pale-faced, effeminate-looking men. In the one, the affection was attributed to malaria, and he had flabby wasted testicles, with very scanty secretion of urine, globus, borborygmi, colic, and paralytic affection of the arm.

Epileptiform hysteria and epilepsy not unfrequently occur in the male at hebdomadal periods, or multiples of them, just as lunacy. These and the other varied forms of hysteria may occur in males from various causes, such as a feminine general system; depletion about puberty; malaria; in short, from any of the causes which engender or increase the affectibility of the human female. But the most fruitful sources, of hysteria and hypochondriasis are those agents which act injuriously on the blood, as well as on the nervous system. Diseases of mucous membranes, want of muscular exercise and due exposure to the atmosphere; improper food; vicious habits implicating the generative organs and debilitating the system; and excitement of the brain and nervous system in general, however originating. These causes of hysteria are referred to by every writer on the subject. All operate, probably, by reducing the blood to a state very similar to that of the hysterical female. Analogous to the effects of these, are the changes produced on the blood during spasmodic diseases, as tetanus and epileptic convulsions; by certain mineral poisons, as arsenic; by animal poisons, as in rabies and the bites of venomous reptiles, and by acro-narcotic vegetable poisons, as opium, strychnine, brucia, &c.; and we shall subsequently find how great is the resemblance of the pheno-

* Cases may be found under the following references: *Edin. Essays and Obs.* i. 222. *Ferriar, Med. Hist. and Reflect.* i. 128. *Edin. Med. and Surg. Jour.* ii. 303. *Med. Chir. Review, New Series,* vii. 412, xviii. 207, (from *Revue Med.* 1832.) and xxiii. 63, all well-marked cases. *Dr. Conolly, Cycl. of Pract. Med.* ii. 565, *Dr. Robertson, Med. Gaz.* xv. 460. *Dr. Crawford, suffered in his own person a paroxysm of epileptiform hysteria, Cyc. Pract. Med.* i. 469. Other cases are mentioned by most systematic writers.

† I learn that he has had a relapse since he entered a shop at Leeds as an apprentice.

mena of hysteria to the symptoms which these poisons excite in the system.

Without, however, anticipating the last-mentioned class of facts, we may conclude, from the preceding general observations, that a loose crisis of the blood, a deficient clot, or some other morbid change, is concurrent with the affectibility of the human female, and almost invariably accompanies the more aggravated forms of hysteria; and this conclusion is strengthened by the following general facts drawn from the whole series of cases.

1. Profuse hemorrhages, or other depressing accidents occurring to the female about puberty, usually excite the most obstinate forms of hysteria.

2. Repeated remedial bleedings, whether by leeches or from the arm, however much they may relieve the symptoms at the moment, ultimately induce the same form of the affection as profuse hemorrhage.

3. Profuse hemorrhages and remedial bleedings will of themselves induce hemorrhagic hysteria; the most aggravated form of the disease.

4. Moderate exercise in the open air, good plain food, and tonics; in short, all those remedial agents which tend to restore the blood to its healthy condition are the best remedies.

I think every practitioner who has witnessed cases of this kind will acknowledge at once the justness of these conclusions. If they be just, I think no one will venture to take blood from the pale, delicately-tinted, finely-formed female, without considering that the corpulence may be hysterical; the excited pulse, intense cephalæa, and sanguineous sputa are the symptoms of exhaustion; the torpid bladder and bowels, only symptoms of paralysis; and the greatly exalted sensibility of every organ, the result of debility. One bleeding of a highly hysterical female will not be repaired in weeks, and will perhaps induce months of suffering.

I would not have ventured upon these remarks, had not my own short experience painfully convinced me how easy it is to do with the lancet that harm, which prolonged anxious attention will scarcely repair. I have, therefore, resolved to err on the safe side, and not to bleed a female such as I have described, however much the symptoms may resemble those of inflammation, unless there be some cause so palpably obvious as to leave no doubt whatever of the nature of the case.

Before dismissing this part of the inquiry, I would remark, that so far as I have observed, chlorotic or anæmious females are rarely hysterical. It must be observed, however, that in these there is little evidence of sexual development. The individual grows rapidly, but there is scarcely any action in the skin; the mammæ are seldom raised more than inch above the surrounding parts; and there is no embonpoint, nor uterine secretion. When the generative organs are well-developed, and the blood contains a diminished quantity of colouring matter, we may expect hysteria

to appear with great confidence. But it must not be forgotten that there are females whose blood apparently contains an abundance, and who have a vigorous sexual system, but suffer very usually from the common forms of the disease. It is in such that every venesection produces some new or more intense symptom, until the depletion being carried beyond a certain point, the surface assumes a waxy paleness, and coma or catalepsy supervene. It is not improbable, that, in instances of this description, the congested hue of the surface, especially of the face, from which it is inferred that colouring matter abounds, may be only a symptom of that determination to the skin which obviously occurs in many cases of hysteria.

There is some obscure connection between the functions of the spleen, and the amount of colouring matter in the blood. Pain in the left hypochondrium is a frequent symptom in chlorosis and hysteria. Extreme paleness of the surface is almost diagnostic of disease of the spleen; and the same appearance constantly accompanies the enlarged spleen consequent upon agues. Müller thinks the spleen contributes to the process of sanguification, by secreting lymph of a peculiar nature, the office of which is to perfect the formation of chyle.* M. Arthaud imagined that he could show by experiment, and by facts from comparative anatomy, that the spleen is nothing more than an electric apparatus, by the agency of which the blood undergoes some modification.† M. Strauz, from some microscopical observations upon the texture of the spleen of the elephant, concluded it was a plexus dependent upon the ganglionic system of nerves.‡ Again, those substances which especially stimulate the nervous system, and to which I have already alluded as altering the composition of the blood, act particularly upon the spleen. Arthaud asserts it is always tumefied by their presence;§ but, Defermon says, it becomes smaller under the influence of camphor, strychnia, and muriate of morphia.|| The most interesting fact, if verified, is that stated by Arthaud, who states that in true acephalous cases, the disappearance of the spleen is a constant occurrence.¶ In short, it appears that the spleen is influenced by the state of the blood, and by the nervous system.

In concluding these very general remarks on the affectibility of the human female, I would observe that I do not wish to be understood as advocating the doctrine, that it is the natural state; although I believe it is. It may result equally as the condition of the blood before noticed, from the sedentary occupations and repressed feelings to which the sex in all civilized communities is liable. I simply contend for its existence; it may be compatible with general good health in females: but in males it is a morbid state; the source of hypochondriasis, and the result of causes which depress the assimilating powers, or excite unequally the nervous system. Those causes which originate it in the male, will exalt it

* Physiology by Baly, p. 571.

† Jour. der Progres, 1827. London Medical Gazette, i. 454. ‡ Ibid.

§ Loc. cit.

|| Nouveau Biblioth. Med. Mars 1824.

¶ Loco citato.

in the female; and we have then the morbid sensibility which forms so prominent a symptom in every case. The great demand made at puberty upon the assimilating organs to which the supply is unequal, and the rapid evolution of the nervous system, whether as subservient to the function of generation or to mind, are manifestly agencies of a depressing character. At that period, the influence of the sexual system is unquestionably predominant; and hence the symptoms enumerated in the first part of the analysis.

The third section of the analysis comprises a consideration of the phenomena of hysteria in their relation to those of the nervous system in general. It cannot be expected that I shall enter minutely into the details of so extensive a field of inquiry. I shall therefore select the more prominent points only in the anatomy, physiology, and pathology of the nervous system, as means of illustration, and rather sketch general outlines, than draw a finished picture. The whole of the phenomena are naturally divided into two great divisions, as they are mental or corporeal. I shall commence with the latter as being least complicated. The plan I intend to follow is very simple. I shall mark it out with reference to the previous sections; so arranging the subject, that, by a higher induction, we may be led to some more definite knowledge respecting the true nature and seat of these affections, but avoiding as much as possible all controverted points.

We must, consequently, review the whole of our previous steps, and deduce some general principles which may serve as the basis of a new synthetical arrangement, and comprehend the two divisions over which we have already passed. First, then, while we learn from the series of cases that the whole nervous system is affected, we find from the first section, that that part of the nervous system subservient to the functions of generation is more especially implicated, and, pushing our inquiry a little farther, we ascertain that, with certain exceptions, as the skin, the nerves of the organs affected have a close anatomical relation with the superior and inferior extremities of the spinal cord. By the superior extremity I mean that intra-cranial portion of the spinal cord, the *medulla oblongata* and its prolongations, from which all the intra-cranial nerves arise; by the inferior extremity I mean that part in connection with the genito-urinary organs; the large intestines to their termination; and the abdominal muscles and lower extremities. The motor nerves of the eyes, face, and neck,—the stomach and thoracic viscera and their appendages,—indeed, all the parts supplied by the class of nerves termed respiratory, are necessarily in connection with the *medulla oblongata*. This division of the symptoms, as they refer to parts in anatomical relation with the two ends of the spinal cord, is by no means new or fanciful. It is simply a higher generalization, and nothing more than the removal of the seat of the φενη of the ancients, (the *archæus* of Van Helmont,) from the epigastric region to the *medulla oblongata*; and of the seat of the θυμος, or principle

of vegetable life, from the abdominal viscera to the dorso-lumbar portion of the cord. The third or highest principle of the ancients, the *vous* or soul, is left in undisturbed possession of the cerebrum, where it was located by philosophers about 3000 years ago. This principle, upon which I propose to group the phenomena about to be noticed, has other claims to notice than its logical utility. The metastasis, to which I have more than once alluded, is particularly obvious, when the phenomena of a case of aggravated hysteria are thus grouped. Those implicating the pelvic viscera will occasionally disappear, and vomiting, dyspnœa, cough, palpitation, and cephalœa supervene; to disappear in their turn at the menstrual, or an hebdomadal period, with a completeness altogether surprising; and be succeeded by menorrhagia, diarrhœa, ischuria, constipation, vesical paralysis, and neuralgic pains of the abdomen and lower extremities, or some other of the symptoms before-mentioned. I have recently observed this metastasis so clearly and unequivocally in two cases that I cannot doubt other practitioners will notice it also if they direct their attention to the phenomena as thus grouped. Independently of this pathological relation of the two extremities of the spinal cord, there is a law of sexual development in which they exhibit apparently a kind of antagonism. The greater size of the neck and thorax not only in man, but the males of other animals, as the bull, boar, stag, and dog, and their comparatively small lumbar region, while exactly the converse occurs in females, as well as other analogous changes in the tegumentary appendages, namely, the beard, mane, tusks, horns, and feathers, deserve especial attention. They all illustrate this principle, and it will be further elucidated as I proceed.* The synthetical principle which may be deduced from the second section is, that the composition of the blood is altered in hysterical affections; and since these latter resemble the convulsive and other affections of the nervous system in general, it may be added as a corollary, that in these last there is a morbid condition of the blood also. This corollary, however, is principally applicable to those convulsive diseases which are excited by the presence of poisons in the circulating fluid.

Having premised these general considerations, I shall merely state the order in which I shall proceed. 1. The resemblance between the state of the blood and condition of the nervous system of females and children induces me to review infantile diseases in general. 2. The frequency with which mental emotions

* Since writing the above, I have met with the following remark by Cabanis. "Dans son traité du corps muqueux, Bordeu rappelant la doctrine des anciens, touchant les deux grandes divisions du corps de l'homme, en gauche et droite d'une part; et en supérieure et inférieure de l'autre; doctrine que la pratique de la médecine confirme chaque jour, mais qui les mécaniciens modernes rejetaient, parcequ'elle ne paraissait pas appuyée sur l'anatomie: Borden, dis-je, a fait voir que les grandes distributions du tissu cellulaire se rapportent, en plusieurs points, à cette division qu'avait fournies aux anciens la simple observation des phénomènes vitaux," &c. *Rapports du Phys.* &c. ii. 411. I am unacquainted with the ancient authors referred to by Bordeu,

give rise to hysteria, and their well-known action on the blood, require that their general effects on the system should be noticed. 3. Review the consequences of blood-letting. 4. The results of poisoning, so far as they bear upon our subject. 5. The symptoms of those nervous diseases which have a similar relation; and 6. The phenomena of some anomalous affections.

From this arrangement I shall occasionally deviate, when by so doing I can economise space, or more clearly elucidate the subject.

It is universally acknowledged that the affectibility of the female sex has its counterpart in that of children. This is proved by that facile excitement of mental emotions and convulsive movements which is common to both. That this excitability is not dependent upon the *cerebrum* would appear from the fact, that in early infancy, when the proneness to convulsive movements is best marked, we observe only the simplest mental phenomena, and those only which are common to the lower animals. That, previously to puberty, the *cerebrum* is in a condition differing from that which is observed after puberty, is further evident from the impulse given to the intellectual organs on the accession of that period. The difference is still more obvious, when we consider the effects of injuries done to the brain before and after it. While these are among the most fatal accidents which can happen to the adult, in children their consequences are not more serious than those which would follow an injury of corresponding severity done to any other part of the body. This circumstance cannot have altogether escaped the notice of systematic writers. Sir B. Brodie, however, is the only one I have met with who makes any allusion to it. He remarks,* that the proportion of recoveries from wounds of the brain is especially small in adult patients. I have noticed the fact repeatedly. For better satisfaction, I collected from various publications,† 81 cases of injury of the brain, with a special reference to the proportion of recoveries at various ages. The following is the result :

	Whole number.	Recovered.	Died.
Patients under 10 years of age,	- 8	6	2
Do. between the ages of 10 and 16 inclusive,	24	18	6
Do. between 16 and 21 inclusive,	- 8	7	1
Adults of all ages above 21 years,	- 41	14	27
	—	—	—
Total,	81	45	36

I have no doubt this table will be in accordance with the observations of every experienced practitioner. These various circumstances tend to show, that in children the feelings and passions

* *Medico-Chirurgical Transactions*, xiv. 417.

† *Medico-Chirurgical Transactions*; *Medical Commentaries*; *Annals of Medicine*, and *Edinburgh Medical and Surgical Journal*; *Medico-Chirurgical Review*; *Abernethy's Surgical Observations on Injuries of the Head*, &c. 2d edition; London, 1815. Sir A. Cooper's *Lectures* by Tyrrell, 3d vol. 8vo. 1824-7. Vol. i.; Sir C. Bell's *Surgical Observations*, 2 vols. 8vo, Vol. ii. and personal observations.

are not dependent on the full action of the *cerebrum*. The sphere of investigation might be much extended, by including an inquiry into the relations of the passions to the *cerebrum* in idiots and the lower animals. If we examine the convulsive diseases of children, the earliest is trismus, occurring generally within the first nine days after birth. The history is very scanty; I shall therefore pass it over. The next series of convulsions are those accompanying the evolution of the teeth,—organs in connection with the cranial end of the cord. The proximate cause of these convulsions has been attributed to irritation or compression* of the dental branches of the fifth nerve, by the walls of the unyielding bony socket of the teeth during the growth of the latter. Some change must also occur in the central ends of the nerves, by virtue of which the process of dentition is commenced and carried on. The latter, as a part of the evolution of the whole system, is well calculated to form a starting point, because it represents with tolerable accuracy the progressive evolution of the mucous, muscular, osseous, and nervous systems, which are all equally advancing to perfection. If the general development be retarded, dentition is also retarded; if the latter be anomalous, then the other structures are affected, and rickets, infantile paralysis, or hydrocephalus ensue. So that painful or irregular dentition may be much oftener an effect coexistent with convulsions, rather than their cause.

The same reasons which would lead us to exclude from this review of the diseases of dentition, the *cerebrum*, and consequently all those symptoms in which intelligence is implicated, must induce us, also, to look for no symptoms specially involving the generative organs; for as yet they exert no perceptible influence on the system. Excluding these two sources, then, of excitement and of the phenomena referred to them, we have symptoms exactly similar to many of hysteria, and indicating, that during dentition, there is a state of the nervous system analogous to that which occurs to females at the commencement of menstruation, and, in a less degree, during each subsequent menstrual nisis. The diseases of the first dentition, then, must be examined, as if they constituted but one, just as we have already examined the symptoms of hysteria with reference to the generative organs. Those usually enumerated by systematic writers† may be mentioned, and classed as follows: 1. Those originating in organs connected with the upper extremity of the spinal cord. *a.* Symptoms originating in the cerebro-spinal centre, coma, watching, and sudden starting from sleep; increased sensibility of the surface;‡ general and epileptic convulsions; opisthotonos, paralysis. *b.* Symptoms implicating the face; strabismus,

* Sauvages' Nosol. Tom. i. 572.

† More particularly in a Treatise on Diseases of Children, by the late M. Underwood, M.D. 9th edition, with notes, by H. Hall, M.D. 1835; and an Essay on *Laryngismus Stridulus*, &c., by H. Ley, M.D., 8vo., London, 1836.

‡ Cruveilhier and Parrish, quoted by Mr. Joy in Cyc. Pract. Med. Art. Dentition, Vol. i. 521.

fixed stare, sardonic grin, trismus, convulsive twitchings. c. Symptoms referred to the larynx, trachea, and *bronchi*;—aphonia, convulsive cough, hydrophobic grasp,* spasmodic closure of the glottis, croupy breathing, wheezing from increased or diminished secretion from the *bronchi*. d. Symptoms affecting the Pharynx, œsophagus, and stomach;—retching, vomiting, dysphagia,† eructation, impaired appetite. e. Symptoms affecting the Heart; palpitation,‡ syncope. f. Symptoms affecting the Respiratory muscles; dyspnœa, sneezing, hiccup, yawning. 2. Symptoms implicating the dorso-lumbar cord. Paralysis and tetanic extension and flexion of the lower extremities, serous exudation from the buttocks,§ increased micturition,|| ischuria, mucous discharges from the urethra, dysuria, constipation, diarrhœa, colic, tympanitic distension.

Systematic writers in general agree in making one or other of these symptoms the cause of the rest; the less severe having the blame of inducing the more serious. Thus the protrusion of a tooth through the gums, constipated bowels, or flatus, have had the whole catalogue attributed to their injurious influence. That they are exciting causes, may be readily granted; but if dentition necessarily caused such formidable effects, why do they not occur in every infant? or at the second evolution of the teeth? or when the *dentes sapientiæ* appear? It is true that a constipated state of the bowels will excite convulsions in infants;—but why more readily in infants than in adults? during the cutting of a tooth than in the interval? or why, indeed, is there constipation at all? The true explanation is, that this state is itself a symptom amongst others, and is frequently premonitory of approaching disease of the nervous axis; if neglected, it then re-acts secondarily as a cause. So also dyspnœa and depraved defæcation do not hold to each other the relation of cause and effect, but are simply co-existent. There is clearly some peculiar state of the nervous system of the infant during dentition; and if we separate one of these symptoms from the rest, we shall find a still more distinct resemblance between its predisposing cause and that of hysteria. The spasmodic or paralytic affection of the glottis, named *laryngismus stridulus* by Dr. Good, and so elaborately illustrated by the late Dr. Ley, will furnish an excellent example. *Laryngismus stridulus*, like hysteria, may be accompanied by most of the symptoms just enumerated; like the latter, also, it may be caused or cured by mental emotion, as fright or grief; by all depressing agencies; or by dental and other irritation. It equally constantly with hysteria attacks delicate, excitable habits; the exceptions of both being similar. Its paroxysms recur most frequently at night; it is hereditary,¶ and like the other dis-

* Dr. Ley, *Essay on Laryngismus Stridulus, &c.* p. 36.

† Mr. Kerr on *Laryngismus Stridulus*, *Edin. Med. and Surg. Journal*, xlix. p. 345.

‡ Dr. Darwell on the Management of Infants, p. 141, 12mo. 1830.

§ Mr. Kerr, *loc. cit.*

|| Underwood, quoting Moreton in *op. cit.* 394, also Whytt's Works, 4to., ed. by his Son, p. 597.

¶ Ley, North, Davies, Pretty.

eases of dentition and of the hysterical, is cured by change of air, moderate exercise, tonics, and the fœtid and volatile stimulants.* Laryngismus appears in children during dentition for the same reason that it appears in hysteria, namely, because there is a state of the system predisposing to the disease. It not unfrequently occurs in children independently of dentition.

The effects of dentition upon females after puberty, in exciting the phenomena of convulsive diseases, have been clearly elucidated by Dr. Ashburner.† In such cases there is manifestly that predisposing state of the system, through which excitants, otherwise innocuous, originate an extensive series of morbid phenomena; and they afford another proof of the proposition, that the system of the child is more excitable during dentition, but especially at the periods when the teeth protrude, just as is that of the female during the evolution of the generative organs, and at each menstrual nîsus. The child evinces this excitability in the interval between the "cutting" of each tooth, by the convulsions which morbid poisons (as that of *variola*) excite, and by other phenomena.

The facility with which irritation of the mucous surfaces excites the various symptoms enumerated, is singularly contrasted with the sensibility of the brain before mentioned. As this insensibility diminishes, as the organ is developed, so does the affectibility of the mucous membranes as age advances; so that few of the symptoms which accompany the first dentition are observed during the second. Almost all writers concur in this statement. The exceptions are observed, as might be expected, in delicate excitable children of retarded development.

At the second dentition a new set of phenomena begins to appear. The difference in the conformation of the sexes is now more strongly marked. Some traces of puberty may be observed, and the male is obviously less excitable than the female. The morbid nervous phenomena of the female at this period are especially exhibited in chorea.‡ I may here observe, that under the term chorea, I comprise irregular muscular movements only. Simple combined movements, as rotation of an extremity, or of the whole body, or rhythmical combined movements, as is Case 61, constitute a distinct class of phenomena. Sydenham, Cullen, Hamilton, Clutterbuck, Elliotson, and, indeed, almost every writer on the subject, have agreed in stating that this affection attacks youths between the ages of 7 or 8, and 14, or puberty. It has not been so generally remarked that the liability to the diseases increases as the period of puberty approaches. The following table by M. Ruzf, internal pupil at the Hôpital des Enfants Malades, shows very clearly the accuracy of this statement.

* Millar, Cheyne, Underwood, Marsh, Rosenstein, Ley, Darwall, Kerr.

† London Medical Gazette, Vol. xiii.

‡ Edinburgh Med. and Surg. Jour. xlii. 228, from Archiv. Gener. Feb. 1834.

Age.		Males.		Females.		Total.
1 to 4	-	3	-	2	-	5
4 6	-	2	-	3	-	5
6 10	-	16	-	45	-	61
10 15	-	30	-	88	-	118
		—		—		—
		51		138		189

This table illustrates another general fact, that chorea attacks females more frequently than males, in the proportion of three-fourths of the whole number, as stated by Heberden, and repeated by Dr. Elliotson.* The above cases were observed among 17,213 boys, and 15,763 girls, admitted into the hospital during the ten years from 1824 to 1833. If the number of girls had been equal to the number of boys, the number of cases in females would have been 157, so that the cases occurring in boys is a fraction less than a fourth of the whole number. I shall have to notice under the head of epilepsy that the latter disease most frequently affects boys at puberty.

Chorea generally disappears at puberty, is a rare disease after that period, and when observed in young adults, had been excited by mental emotion, or depended upon organic disease in the cerebellum. This disease may also, like a paroxysm of hysteria, or *laryngismus stridulus*, be cured by mental emotion, or excited by excessive depletion, as shown by the jactitation following blood-letting. It will be found to be accompanied by the same general phenomena, *mutatis mutandis*, as those observed in the first dentition. There is spinal tenderness,† neuralgia, obstinate constipation, tender and distended abdomen,‡ altered urinary secretion, and depraved appetite. It is frequently complicated with other spasmodic diseases. The peculiar motions always commence in parts having an anatomical relation with the cranial end of the cord. There are first movement of the eyelids and rolling of the eyes; then twitchings of the face, inarticulate speech, aphonia, sneezing.§ involuntary movements of the extremities, gradually increasing in intensity, and ending, if not checked, in tetanus, epilepsy, and idiotcy. It differs from other diseases of childhood, in this particular, that the feid medicines are of little use; mineral remedies, as iron, silver, copper, zinc, bismuth, iodine, &c., being the most efficient. This is a dissimilarity worthy notice in connection with the state of the blood in nervous diseases. The pathological appearances after death during chorea are not well ascertained. Pain in the occiput is a very common symptom during life;|| the cerebellum is so much enlarged in a littl girl now in the hospital, with chorea,

* Clinical Lectures in London Medical Gazette, vii. 652.

† Dr. Stiebel in Brit. and For. Med. Rev. iv. 505, from Wöchenschrift die Gesem. Heilk. No. i. 1837.

‡ Case by Dr. Elliotson, Lancet, ii. 1827-28, p. 410.

§ Dr. Stiebel, op. cit.

|| Cases by Dr. Elliotson, op. cit. p. 256. 733, by Dr. Addison, Guy's Hosp. Rep. Vol. ii. p. 503. Dr. Crawford, Cyc. Pract. Med. i. 408.

that it has given its exact shape to the occiput, so that the finger can easily define its lobes and extent. These circumstances, and the connection of the disease with the evolution of the generative organs, render it probable that the true cadaveric lesions of chorea will be found in the cerebellum.* Choreia, however, as regards both its symptomatology and pathological anatomy, has been considered by writers in general in a very limited manner. Like analogous affections it is only a symptom co-existent with other phenomena which have been erroneously considered its causes, as for example constipation and spinal tenderness. Thus, the transition of the disorder into epilepsy and idiocy, and the various morbid appearances observed in the brain of those who have died of chorea, must be considered as phenomena of the more advanced stage of one general disease of which slight choreal movements, constipation, &c., are the premonitory or initiatory symptoms. For further information I would refer the reader to the able account of the disease by Dr. Andrew Crawford, in the first volume of the *Cyclopædia of Practical Medicine*. Having verified a large part of the numerous references there given, I can do this confidently.

I have thus attempted to trace the appearance of certain phenomena of hysteria through infancy and childhood, to puberty, when the evolution of the sexual system, establishes a series of special relations, originates new phenomena, and renders those more prominent which complicate parts having a functional or anatomical relation to the sexual organs. In short, we are brought back to the point at which I commenced my analysis.

If we review our analysis we may deduce some positive and useful principles. We may infer that many of the phenomena of hysteria originate at other and earlier periods of development than puberty; that each period is characterized by peculiar phenomena; but also, that the great general resemblance indicates a community of origin. We may infer further, that certain general conditions of the system are necessary for the due appearance of the phenomena at any period. Dentition is not always accompanied by convulsions or constipation, nor is the period antecedent to puberty always characterized by chorea, nor puberty by hysteria. These general conditions have been considered under the second section.

We may infer, also, that the affectibility of childhood is diminished in the male on the approach, and by the accession of puberty, while in the female it is only altered in proportion as more vigorous vital powers influence the system, and becomes strikingly apparent so soon as those powers are depressed. This general fact is singularly corroborative of the embryological speculations which represent the difference of the sexes to depend upon a less or more vigorous formative nisus operating in the rudiments of the embryo.

* Case lxxviii. in Dr. Abercrombie's *Researches on Diseases of the Brain and Spinal Cord*, p. 171, is illustrative.

Lastly, we may infer—1, that the centre of muscular movements, and the seat of sensations and emotions are not in the hemispheres of the cerebrum,—the undeveloped organ of intellect,—but in close relation with the *medulla oblongata*; and 2, that the emotions of physical love and its accessory feelings act upon parts of the nervous system, which are in intimate connection with the same structures.

EFFECTS OF MENTAL EMOTIONS AND THEIR RELATIONS.—In nearly one-third of the cases of hysteria I have recorded, the disease originated from mental emotion;—fear or terror in the greater number, and grief or sorrow in the remainder, with one or two exceptions. These are all depressing emotions. I am not aware that the physical changes produced in the blood by mental emotions have been investigated. It is generally stated that the blood does not coagulate in those who die from violent mental emotion, just as when death follows the entrance of certain animal and vegetable poisons into the system. We may therefore infer, that the blood undergoes changes approaching this state in all cases of violent mental emotion.

It is also evident from the series of cases, that mental emotions not only affect structures in anatomical relation with the cranial end of the cord, as *à priori* might be expected, but also organs in connection with the dorso-lumbar. This fact may be observed generally in lower animals, which express emotions by the caudal extremity, as well as by the eyes, ears, lips, and neck. The horizontal and vertical movements of the tails of the feline and canine races express opposite passions. The lion lashes his tail from rage, the dog wags it from delight. The erected tail of the cat expresses fear, of the dog, confidence and courage. And so through the lips, the horse and dog express opposite emotions by the same movements. Grinning in the dog denotes rage, in the horse, amiability and pleasure. These illustrations might be multiplied to a great extent.

I shall confine myself principally to the effects of physical love and its accessories, and of the depressing emotions; arranging their phenomena with a reference to the skin and the two extremities of the cord.

The power of the sexual passion in exciting hysteria is evident from the general fact, that it frequently follows disappointments, and affects unmarried females. Self-pollution is mentioned by Villermay as a cause of hysteria, and I believe with great justness; other writers also refer to it; I think those cases marked by irregular arterial action originate in this practice. Strong sexuality is another very evident cause, especially when combined with continence. “*Salacitas major, major ad hysteriam proclivitas.*”* Hence that remark of Hippocrates, which has been repeated by almost every writer since his time, that the best cure of hysteria is for the patient to marry and bear children.

* Sauvages' Nosol. Meth d. Tom. i. p. 589.

The phenomena of nymphomania have not been minutely observed. Louyer Villermay* quotes from Helvetius and Chambon cases which were accompanied by the phenomena of hysteria in the highest degree. The same writer mentions an appearance of strangulation, great horror of liquids, and the excitation of pain and general spasms by the slightest touch, among the phenomena.† In a case he records there were distended hypogastrium, spasmodic constriction of the œsophagus, sardonic grin, hiccup, and irregularity of the pulse.‡ He also details a case observed by Alibert in the Hospital St. Louis, in which the slightest touch used to excite frightful convulsions, which continued for half an hour, the patient uttering lamentable cries, and exactly resembling a convulsionnaire of St. Médard. In this case the hips, thighs, and legs were surprisingly plump, while the chest and upper extremities were in a state of extreme emaciation.§ In another case, quoted from Steggmann, of a young girl twelve years old, sardonic laugh and extraordinary convulsive movements were accompanied by such an erection of the nipples, that they raised the shift.||

In satyriasis the symptoms are somewhat analogous. Duprest Rony quotes a case¶ in which there was painful sensibility of all the organs of sense, analogous to that of phrenitis or hydrophobia. Crichton gives a case at length of erotomania bordering on satyriasis, which terminated fatally on the fifth or sixth day with all the symptoms of hydrophobia.**

Villermay lays great stress on the connection of herpetic and other diseases of the skin with nymphomania. The greater part of this author's details and others may be found in an elaborate essay on this disease by Dr. Davis in his *Obstetric Medicine*, p. 444.

The passions acting through the sexual system excite singular effects. Cabanis gives a curious instance of the effect of jealousy in exciting priapism. "J'ai connu un jeune étudiant en médecine qui, dans un violent accès de jalousie, éprouva pendant plusieurs heures le priapisme le plus invincible et le plus douloureux, accompagné tour à tour de pertes de semence et d'émissions d'un sang presque pur."††

Montagne gives, in his essays, some curious instances of the effect of fear. Analogous is the paralysis of the bladder, which many experience when they attempt to pass urine in the presence of others. Mental agitation occasionally excites spasmodic stricture of the urethra.‡‡ Surprise or anxiety will check uterine action, as most accoucheurs must have noticed during their juvenile practice. Fear for offspring may be classed under this head. A lady of my acquaintance, in good health, was informed that her little boy had

* *Dict. des. Scien. Med.* xxxvi. p. 566.

† *Ibid.* p. 570, 571.

‡ *Ibid.* 580.

§ *Op. cit.* 582.

|| *Ibid.* 591.

¶ *Op. cit.* Tom. i. p. 51.

** From *Psych. Mag.* v. part. ii. article iv., in his *Inquiry into the Nature and Origin of Mental Derangement*, 2 volumes, 8vo., 1798, Vol. ii. p. 322.

†† *Rapports du Phys. et du Mor. de l'Homme*, 3d ed. ii. p. 402.

‡‡ Case in *London Medical Gazette*, i. 807.

been leaning out of a chamber window in a very dangerous position. She immediately felt sudden faintness and pain in the occiput, and soon after violent spasmodic colic and great tenderness of the abdomen. Fear in general has the most marked influence on the organs affected in hysteria. Children from very slight emotions of this kind will have diarrhœa, frequent and involuntary micturition, and involuntary movements. The effects of extreme fear will most elucidate the subject if given in a connected order.

1. Chorea, convulsions, hysteric paroxysms, syncope, coma, catalepsy. 2. Constriction of the scalp, paleness of the face, spasms of the facial muscles, spasms of the glottis, aphonia, gasping, palpitation. 3. Menorrhagia or suppressed menses, diarrhœa, increased flow of urine, and frequent desire to pass it; relaxation of the sphincters, loss of power over the legs. 4. Profuse sweats, increased or diminished secretion of colouring matter from the cutis,* suppressed flow of milk.

In the effects of grief we have the same symptoms, some being more, others less obvious. The symptoms indicating an affection of the cerebro-spinal centre are the same in both. The convulsive movements of the face and respiratory muscles, in general, are more obvious, and we have well-marked globus, sobbing, and lachrymation. The respiration is slow and oppressed, the action of the heart impeded, and there is a peculiarly beautiful sensation in the epigastrium. Dr. Crichton states, that this affection is almost peculiar to females, and that he has seen two instances in which it was accompanied by hemorrhages from the stomach, lungs, and uterus.† Sometimes the intestines will ulcerate.

After this general statement there can be no difficulty in conceiving why mental emotions should so frequently excite deranged action in the generative system and the whole train of hysterical phenomena. But there is another point in the history of mental emotions which should not be forgotten, namely, the power they possess of curing certain diseases of the nervous system. This fact is so notorious as to require no comment; and I mention it now with reference to those cases of hysteria in which imposition is suspected; for if fear will restore the maniac to reason,‡ arrest or prevent violent sea-sickness,§ excite the secretion of urine after having been long suppressed, (Case 5,) and arrest imitative convulsions or barking cough, (Case 1,) it is plain that we must not hastily conclude a patient is malingering because certain

* M. Rostan (in *Nouveau Journal de Médecine*, 1819,) relates the history of a female who was imprisoned during the French revolution, and threatened with execution while menstruating. Her skin in consequence assumed permanently the hue of the less dark negro. Blanched hair is a consequence of fright. The executed Queen of France experienced this change; and an analogous case is given in *Arch. Gen.* 1827.

† *An Inquiry, &c.* Vol. ii. p. 190.

‡ *Med. Chir. Rev.* xxvii. 540.

§ *Zoonomia*, 3d. ed. Vol. i. p. 333. Darwin mentions his personal experience while at sea.

symptoms disappear after threats have been used. In Case 49 the nurse thought the patient vomited wilfully when the medical officers visited her; yet the vomiting really followed mental excitement.

EFFECTS OF BLOOD-LETTING.—These, like the effects of emotions, are amply shown in the cases detailed. A general review of them will be useful. The convulsions and hiccup excited by great loss of blood were noticed by Hippocrates. Boerhaave mentions it in his list of causes of convulsions,* and Van Swieten states that slain animals afford daily illustrations of the fact, as well as the results of flooding in parturient females.† Dr. Armstrong says, that bleeding children to syncope may sometimes induce even fatal convulsions, and Dr. Kellie also remarks, that fits of apoplexy and epilepsy occasionally follow bleeding from the arm.‡ The effects of loss of blood are always most obvious in females and delicate males. Arranged with reference to the two ends of the spinal cord, and to their progressive intensity, we have in the first stage, syncope, convulsions, profuse perspiration, vomiting, relaxation of the sphincters, increased micturition, diarrhœa; 2. Pain and throbbing of the temples, sense of weight in the vertex, irregular action of the heart. “The respiration is affected in different cases, with panting, heavy sighing, heaving, blowing, moaning, gasping, catching, &c. There is in some cases an irritative cough, in violent fits, or in the form of perpetual hacking, apparently arising from an affection of the trachea. The stomach is liable to be affected with retching, vomiting, hiccup, and eructation, and the bowels, even in cases in which they were not previously disordered, become variously deranged with constipation, diarrhœa, and flatulency. In some cases there are various spasmodic affections; in other instances, catching pains, which are apt to be mistaken for inflammation. Every source of disturbance, or of anxiety, or of alarm, and every effort, whether of mind or body, is apt to be followed by a return or exasperation of the symptoms,”§ and there is morbid sensibility of the skin and senses in general.|| 3. Jactitation or choreal movements, delirium, paralysis, blindness, deafness, slight insensibility increasing to apoplectic coma; jerking of the legs, relaxation of the sphincters, diarrhœa or constipation, tympanitic distension. In a word, the whole train of symptoms which may be observed in a case of aggravated hysteria (*e. g.*, Cases 6, 15, 33, 35). Loss of blood, then, acts on the same parts of the nervous system as the exciting causes of hysteria, and is one of the latter.

* Comment. apud Boerhaave, Tom. i. 376, 377, ed. 2da.

† On Puerperal Fever, p. 191, 2d ed. ‡ Edin. Med. Chir. Trans. i. 105.

§ Quoted from the chapter “on the effects of loss of blood in the puerperal state,” in *Comm. on the Diseases of Females*, by M. Hall, M.D., p. 226, 227, 8vo., London, 1827.

|| “Copious bleeding excites increased sensibility of the surface, and hence the precept not to apply blisters to individuals who have been so treated.” Andral, *Lectures on Diseases of Nervous System*, in *Medical Gazette*, xvii. 586.

EFFECTS OF POISONS.—Many of these will be best discussed under the next head, as those following the bites of certain animals, namely rabid dogs, certain arachnidæ, and reptiles, and those consequent on the introduction of acro-narcotic vegetable poisons into the system. The action of the mineral poisons, mercury, arsenic, antimony, iron, gold, lead, silver, zinc, bismuth, and iodine, on organs implicated in the phenomena under consideration, and on the nervous system in general, in causing and curing paralytic, spasmodic, and neuralgic affections, is a subject of the highest importance. Thus antimony and arsenic act specially on the stomach; mercury and arsenic on the generative organs; mercury, gold, antimony, and iodine on the salivary glands; zinc, arsenic, and antimony, cure malarious diseases; iron, silver, and copper, epilepsy; mercury, iodine, and lead, cause neuralgia and paralysis.

PHENOMENA OF CERTAIN DISEASES OF THE NERVOUS SYSTEM.—I shall attempt a review of those only which specially elucidate the subject. They may all be arranged as they depend on increased or diminished motive or sensitive power, and must be reviewed with reference to the morbid affectibility of hysteria, and to their connection with the two ends of the spinal cord.

This morbid affectibility, considered in its relation to lesions of motion and sensation, is worthy of an extended notice. It may be confined to one portion only of the mucous surfaces, (including the skin,) or implicate the whole. It may exalt the sense of touch only, or all the senses, as well internal as external, and give rise to singular acuteness of hearing, seeing, feeling, smelling, and of certain intellectual powers, as those connected with rhythmical sensations and motions. With regard to its agency as the immediate cause of convulsions, a slight touch of the surface. (Cases 59, 60, 62), an attempt to swallow, or the introduction of a probang (48), or a current of cold air passing over the pharyngo-laryngeal surface; the slightest mental emotions (31, 35, 41, 48, 49); the hearing of water dropping, or the sight of it, or anything transparent, or of certain colours, especially red and green, or scarlet and white,* may all be the immediate exciting causes of convulsive movements.

As regards local affectibility. In my previous paper I have attempted to show that the circumscribed or local tenderness observed over the spinal column, in a great variety of diseases, could not be considered as a sign of tenderness of the spinal cord. The general sensibility, to use the words of Dr. Elliotson (60), “is purely a state of the sentient nerves;” and these cases of local tenderness are precisely analogous. We find the symptom almost peculiar to the median line, in which there may be some physiological connection between the two halves of the nervous system of

* Parry, Cases of Tetanus and Rabies Contag. p. 106. Bath, 1814.

the whole body. This is shown by the *clavus* and sense of weight felt on the vertex in hysteria, and by all cases of spinal tenderness. I by no means wish to advance that local circumstances, as the transmission of a nerve through a bony foramen, or its compression by a tendon, or by morbid structures, will not induce pain and tenderness referred to that part of the surface to which it is distributed, or even such a degree of neuralgic sensibility that convulsions will follow a slight touch. I rather maintain the contrary; but in hysteria, gasp (which is a sudden spasmodic action of the respiratory muscles) will rarely be excited by pressure on any other part than the anterior or posterior median line.* When gasping is so excited, it may be considered analogous to every other gasping, however produced; differing in this respect, that the spasmodic action of the parts implicated is excited by a slight cause, because the affectibility of the nerves of the skin, in connection with the pneumogastric and phrenic, is exalted. This is probably the reason why pressure on the middle of the sternum will excite gasping and spasm, as readily as if made on the cervical and dorsal vertebræ; and the access of cold air to the larynx or *bronchi*, or of cold water to the skin, have similar effects in poisoning by arsenic, † *entasia lyssa*, tetanus, *laryngismus stridulus*, or cases of hysteria. The nausea and vomiting consequent on the ingestion of animal food, a symptom so common in aggravated hysteria, probably originates in a similar morbid sensibility of the stomach. This symptom is very strongly marked in a case of hemorrhagic hysteria (Lôis, Dalton), now in the hospital, in which I suspect there has been ulceration of the stomach.

The psychological phenomena connected with this morbid affectibility will be noticed in their proper place. At present I must

* "A young married lady, who was liable to ordinary attacks of hysteria, complained of a tender spot on the anterior part of the abdomen, a little below the ensiform cartilage. The slightest pressure of the finger on it caused excessive pain, and violent convulsive movements of the whole person, resembling those of chorea."—Sir B. Brodie, *Medical Gazette*, xix. 250. A hysterical female, named Hebditch, aged 38, came into the York Hospital with extensive sloughing of the tonsils. When recovering, she complained of a tender spot on the centre of the sternum. Pressure upon it, and on the opposite point on the back, caused gasping. She would not permit me to touch both points at once; she was sure it would suffocate her. Tenesmus, griping, and flow of blood from the anus came on: she then menstruated, and immediately recovered.—See another case at page 59. It would appear from Weber's experiments that there are portions of surface on the anterior and posterior median thoracic line more sensitive in a state of health than the rest. When Weber applied the points of the compasses on a line round the thorax, two spots were found on the mesial line before and behind, on which the sensibility was more defined than elsewhere. The cases just mentioned constitute very interesting corroborative proof of the accuracy of this observation.

Exquisite sensibility of the rectum, or rather of the anus, has been mistaken for stricture of that part, but it is nothing more than a hysterical local neuralgia. There is a case now in the hospital in a very nervous female. This affection is exactly analogous to the preceding; it is a natural sensibility exalted.

† Case quoted in Dr. Christison's *Treatise on Poisons*. Edin. 1829. p. 216.

confine myself to a review of those diseases in which it is most particularly observed. These are, spasmodic asthma, *angina pectoris*, tetanus, the effects of certain poisons, epilepsy, some forms of neuralgia, and paralysis.

Spasmodic Asthma.—In the true nervous asthma we have a morbid local affectibility affecting the respiratory system, especially of males.* This is a point of dissimilarity, the investigation of which, in connection with the thoracic development of the male, might lead to some important results. It is worthy of notice, that, like a large number of paroxysmal diseases, it is heptaperiodic, or occurs at periods of seven or their multiples. Heberden mentions a case in which the paroxysm was septennial. “In one case mentioned by Wainwright, the paroxysms always returned at the menstrual period, during seven years; and in another recorded by Fransieri in the first volume of the Memoirs of the Royal Academy of Madrid, they are stated to have recurred at every new and full moon, for no less a period” than three times seven years.† This periodicity alone presents an ample field for investigation, especially in its relations to development. It is clearly an effect of some very general law. Independently of the periodical recurrence of this affectible state, all depressing causes will excite a paroxysm, as exposure to cold, indigestion, any slight exertion, mental emotions, &c. Like other spasmodic diseases its attacks generally recur at night. Dr. Forbes has traced an analogy between this disease, (which he considers spasm of the muscular fibres of the *bronchi*,) and spasm of the glottis.‡ He thinks the respiratory muscles are not involved in the spasmodic action. The spasmodic ejection of the feces during a paroxysm, and the positive testimony of asthmatics, shows that this opinion is contrary to fact. A sufferer describing his feelings says, “the spasmodic heavings of the chest during severe fits, were so violent as to produce a concavity in the abdomen, and to exhibit the muscles of the abdomen like tightly-drawn cords, stretching from the chest to the pubes.”§ So that the disease is probably spasm of both the respiratory tubes and muscles. The general symptoms accompanying a paroxysm are heaviness over the eyes, a trance-like state|| and drowsiness; impatient temper,¶ profuse flow of saliva,** sometimes tasting saline;‡‡ occasionally dryness of the mouth, and arrested salivary secretion; copious flow of pale urine and diarrhœa. “Flatus of the stomach and colon are seldom absent in spasmodic asthma;”‡‡ and there is rachialgia.§§

Angina pectoris.—This disease is also peculiar to males. Of 88 cases noticed in various writers by Dr. Forbes, only eight were in

* Dr. Forbes, and quoting Frank, in Cycl. Pract. Med. i. p. 185.

† Dr. Forbes' Essay, op. cit. 185.

‡ Journal of an Asthmatic, Dublin Journal, xiii. 24.

¶ Bree on Disordered Respiration, 4th edition, 139.

** Journal of an Asthmatic, op. cit. 25.

‡‡ Bree, op. cit. 25.

§§ Journal of an Asthmatic, op. cit. 30.

‡ Ibid.

|| Ibid.

†† Ibid.

females; one-half of these were cured or relieved, while six-sevenths of the males died, or were unrelieved, but only two females died.* It is not improbable that some of these cases, especially the cured, were forms of functional disease. *Angina pectoris* is essentially a neuralgia of the heart, and may depend upon functional or organic changes in the nerves of that viscus.† The affectibility of those suffering from angina is clearly analogous to that of certain other neuralgic and spasmodic affections. A breath of cold air, sneezing, or any slight muscular effort, or the state of the system about midnight, will induce a paroxysm. So also a mental effort will either induce or prevent it.‡ It appears to be hereditary.§ The neuralgic affectibility in this as well as other diseases of the heart extends to the median line, so that a slight touch or pressure will excite a gasp. The posterior median line, however, seems more sensible than the anterior. Just as in the analogous disease, asthma, the stomach and colon are distended with flatulence, but especially the stomach. Dr. Forbes|| thinks there is little reason to doubt that the gas is formed in the intestinal canal during or immediately before the paroxysm.¶ I have already alluded to this flatulent distension in the first division of the analysis, and given reasons for considering it to originate in a secretion perfectly analogous to the increased flow of saliva and urine, observed in nervous affections. It is not a cause of the paroxysm, as has been frequently supposed, but a coexistent effect; and in like manner, when the paroxysm is subsiding, and the stomach regains its contractile power and expels the flatus, we have not two circumstances standing to each other in the relation of cause and effect, but simply coexistent. Individuals have angina in its most incipient stage, namely, intermittent pulse, sense of uneasiness in the thorax, and flatulent distension of the stomach; but they ascribe the intermittent pulse to flatus, whereas the phenomena are all coexistent symptoms originating in one general cause. This species of angina will be occasionally excited by mental exertion without being accompanied by flatulence. It is then attributed to its right origin. I need only add, that the general remarks applicable to local neuralgia are equally applicable to *angina pectoris*.

Tetanic Spasms.—These are common in hysteria. The affectibility of the surface in traumatic tetanus is automatic, that is to say, the agents which, applied to mucous surfaces, excite the tetanic spasms do not excite painful sensations. In short, there is no neuralgic sensibility. This is a distinction of considerable importance. The tetanic state first shows itself by involuntary jerkings in the wounded limb, if the leg be the seat of the injury. This symptom

* Cyclopedia of Practical Medicine, Art. Angina pectoris, i. p. 83.

† Ibid. 86.

‡ Dr. Black, Medico-Chirurgical Transactions, vii. 75.

§ Dr. R. Hamilton, Med. Comm. ix. 312.

|| Op. cit. i. 91.

¶ Op. cit. Vol. cit. 91.

is precisely analogous to the involuntary movements of the paralytic, and the "jumping" of the fractured leg. After a while the (so called) extensors in connection with the cranial and cervical portion of the spinal cord are affected, and trismus and rigidity of the throat muscles come on, before those of the back and lower extremities are involved in the spasm. Antecedently to this completion of the tetanic state, the automatic affectibility is fully established. A very slight mental emotion will excite a paroxysm. The very sight of water,* cold suffusion,† the attempt to swallow,‡ or tapping the epigastrium gently will have the same effect.§ Even the contact of the skin of the back with the bed-clothes will cause emprothotonos or violent and agonizing convulsions.|| This is a point worthy more particular observation in connection with Bellingeri's theory of muscular antagonism. In a case of "Pott's disease," reported by Dr. Elliot,¶ in which there were violent involuntary movements without consciousness, friction upon the sacrum excited the flexors of the legs to act, while the same stimulus to the ileum excited the action of the extensors. Is it possible that stimulation of the skin of the back will specially excite the extensors of the back? or are not these extensors, physiologically, flexors? The general symptoms of tetanus are excessive cardiac action, vitiated secretion of saliva, profuse perspiration, and occasionally a miliary eruption; scanty urine, very constantly, obstinate constipation, rarely, vomiting, and never cough. This is an important point of dissimilarity. The pathological phenomena are an inflamed or highly vascular state of the pharynx, œsophagus, larynx, and bronchi; of the lower portion of the ileum and of the cæcum. Dr. O'Beirne asserts that distension of the cæcum and colon is the only constant pathological appearance. From the perusal of several dissections, I am induced to think this assertion much too exclusive. The *meninges* are frequently injected.

The tetanic spasms of hysteria differ from those of traumatic tetanus, in being accompanied by increased psychical sensibility, in which is probably involved the automatic affectibility before-mentioned. They are frequently local, being confined to one-half of the body, especially the left, or to one extremity, or one set of muscles. Cramp is a species of tetanus, the predisposing cause being the state of the nervous system during sleep, the exciting, some irritation in the lower bowels. I would here observe that spasmodic action, of whatever duration, may be denominated tetanic, and the term in this general sense may serve to include the spasms of entasia lyssa, or of hysterical hydrophobia. When the

* Dr. Symonds, Art. Tetanus, Cycl. of Pract. Med. iv. 670.

† Aretæus de Causis et Signis, ac. lib. i. cap. vi.—Dr. Parry, Cases of Tetanus, &c., p. 4.—Dr. Bright, Guy's Hospital Reports, i. p. 111.

‡ Dr. Dickson, Med. Chir. Trans. vii. 457.—Dr. Macarthur, Ibid. 469. Lond. Medical Gazette, i. 645, and vi.—Dr. Symonds, op. et loco cit.

§ Dr. Anderson, Medico-Chirurgical Transactions, ii. 319.

|| London Medical Gazette, vii. 428. ¶ Ibid. xxii. 17.

spasms are of short duration and frequently repeated, they are convulsive, as in epilepsy.

EFFECTS OF CERTAIN POISONS.—1. Of animal poisons; namely, those consequent on the bite of a rabid dog, and of certain arachnidæ; and following the ingestion of cantharides. 2. The effects of some acro-narcotic vegetable poisons.

Hydrophobia, or Entasia lyssa.—With regard to the symptoms of spontaneous rabies in the dog, there appears little resemblance between them and those observed in animals bitten. The dog has none of that exquisite sensibility which is the most prominent of the latter. Its temper is irritable, appetite wanting, or so depraved that it will eat its own excrement. The conjunctivæ are injected, there is a flow of saliva, dyspnœa, attempts to vomit, inability to pass urine and fæces, and paralysis of the head and legs.* But in poisoned pigs Mr. Gilman† found the symptoms remarkably modified. These pigs had inflamed conjunctivæ, rigors and paralysis of the hind legs, and also anhelation and violent convulsive movements on attempting to take food or drink, or from the slightest mental excitement as that produced by stamping on the ground at a distance from the animal. In short, exquisite sensibility inducing violent muscular action from the slightest cause. In the dog then, the poisonous matter is a morbid secretion, but not acting as a poison on that animal unless, perhaps, when bitten.

The principal cadaveric phenomena noticed by Mr. Gilman in pigs and dogs, were in organs in connection with the cranial cord. In pigs there was inflammation of the under surface of the œsophagus; in dogs, of the parotid and salivary glands, the uvula, fauces, under surface of the epiglottis, pharynx, œsophagus, and stomach.

In man, the first circumstance noticed is the extreme affectibility of the nervous system; this is indicated in an early stage by pain in the wound. A painful sensation is next felt about the throat, (a symptom very common in all envenomed wounds,) and a distinct increase of power to listen to sounds and detect smells which no one else can observe; light is distressing, and the skin, particularly of the scalp, is very sensible to impressions; a tickling-sensation is then perceived, which at last becomes painful, and ends in anæsthesia. There is also mental irritability, dyspnœa and convulsive movements are excited by the least noise, as a whisper, or from a current of air, or on the sight of certain colours, or of brightness. Delirium, paraplegia, and impaired senses, general tetanic spasm or convulsions, and apoplectic coma, precede death. The local symptoms arranged according to the plan I have adopted are as follows: eyes bright and rolling; angles of mouth retracted; flow of saliva; spasm at the root of the tongue; pain and enlargement of the thyroid gland; pain in the throat; violent cough; laryngeal

* Mr. Gilman, Prize Dissertation on the Bite of a Rabid Animal. Lond. 1812.

† Ibid.

spasm and anhelation on the slightest excitement; very quick pulse; nausea and vomiting; flatulent distension of the stomach and bowels; urine milky, and passed involuntarily; paraplegia.* Every one of these symptoms may be observed in cases of hysteria.

The increased sensibility, especially of the pharyngo-laryngeal surfaces, gives rise to a series of phenomena, which, being more prominent than the others, have given their name to the disease. The case, however, is really one of poisoning, and the phenomena are analogous to those of tarantism and of poisoning by cantharides, strychnia, or arsenic.

Tarantism.—Under this term are comprised the effects resulting from the bite of certain arachnidæ, especially the scorpion of South Italy, and the tarantula spider. As the existence of the disease has been denied, like that of many other anomalous phenomena, I shall defer the review of it; and merely remark here, that there is nothing so remarkable in the acknowledged phenomena of tarantism as to render their existence apocryphal.

Effects of Cantharides.—In addition to the well known effects of this drug on the genito-urinary organs, an “affection of the throat, causing difficult deglutition, and even an aversion to liquids, appears to be pretty constant.”† An instance is also related in the Transactions of the Turin Academy,‡ of tetanic convulsions and hydrophobia appearing three days after a small dose of the tincture of cantharides was taken, and continuing for several days with extreme violence; tetanus was induced by a slight touch. In a boy who took an ounce of the tincture by mistake for laudanum, general convulsions came on at intervals. During the remission he was insensible, and his limbs retained for any length of time the position in which they were placed. He seemed to recover, but he predicted the day of his death, and on the day mentioned, the convulsions returned, and he died.§

Effects of certain vegetable poisons.—Strychnia excites phenomena very analogous to those of tetanus. There are the most violent tetanic convulsions of the whole muscular system. When they remit a slight touch of the surface immediately re-excites them. This state of spasm and acute automatic (!) sensibility follows poisoning by brucia. The latter acts on segments of the nervous system through the circulation. Professor Emmert of Berlin severed the spinal cord, and inserted the poison in a wound of the hind-leg; both anterior and posterior extremities became tetanic.|| More recent researches show, that if solution of nitrate of strychnia be in-

* These are not, of course, to be expected in each individual case. The list is taken from Gilman's, Parry's, and Bardsley's respective works on the subject; especially the article by the latter, in the Cycl. of Pract. Med. ii. 483. Cases reported in Med. Chir. Trans. the Edin. Med. and Surg. Journal, the London Med. Gaz. and the Lancet, have also been laid under contribution.

† Dr. Christison, Treatise on Poisons, p. 456.

‡ Quoted in Ibid. 457, and at length by Orfila, Toxicol. Gen. i.

§ London Medical Gazette, xv. 320.

|| Quoted by Dr. Symonds in Cyclopaedia of Practical Medicine, iv. 679.

roduced under the skin of pigs, tetanic convulsions of the hind-legs do not occur after division of the spinal cord.* The roots of cicuta when eaten, excite epilepsy and tetanus.† Opium acts on frogs just like strychnia, (Müller,) exciting tetanus, &c.; solanum produces convulsive movements, heat of throat, and erections of the penis;‡ henbane,—epileptic convulsions and symptoms like those of poisoning by belladonna;§ belladonna and stramonium,—delirium, laughter, weeping, spectral illusions, somnambulism, jactitation, or choreal movements, aphonia, croupy cough, and hydrophobic gasping.||

Epilepsy.—The great variety of causes of epilepsy, as given by systematic writers, may be classed under three heads,—1. The form, the nature of which is least known, originates in an hereditary malconformation, which seems somewhat analogous to the hemorrhagic and tubercular diatheses. 2. Another kind is concomitant with organic change in the nervous centres, originating in accident or disease. 3. The third includes those epilepsies caused by functional excitement of the encephalon, or of the extremities of nerves. I shall only allude very generally to epilepsy of the last species.

In using the term epilepsy, it must be understood to have a very extensive application. Partial convulsions, as of one arm or leg, are called epileptic,¶ although they occur without loss of consciousness, or subsequent coma; simply because they frequently precede the true epileptic state. They are generally premonitory of epilepsies arising from causes under the second head. A sudden faintness with vertigo, and mental disturbance lasting but a few seconds (*leipothymia*) has been considered epileptic, from its occurrence as a premonitory symptom. It is frequently concomitant with derangement of the stomach and bowels; I have known it excited by laughter. Epilepsy may be also partial with respect to the seat of muscles involved in the spasmodic movements. In the genuine and common form, there is violent, involuntary, and alternate contraction of all the muscles of the body; but if the contraction affect the extensors only, and is not alternate but continuous, the paroxysm assumes the tetanic form.**

If we review the phenomena of epilepsy in reference to their exciting causes and the organs they implicate, little difference will be found between them and the phenomena of other paroxysmal dis-

* By Dr. Stannius in Müller's Archives, Heft ii. 1837. Also Müller's Physiology by Baly, p. 629.

† Sauvages' Nosol. Method. ii. 574. Merat et De Lens, Dict. de Matière Med. &c., ii. 282.

‡ Sauvages', Nosol. Method. vi. 414. Medico-Chirurgical Review, xx. 205.

§ Ibid. lii. 571.

|| Mr. Duffin, London Medical Gazette, xv. 194. Jour. Hebdom. 1835. Jour. Univers. xxii. 239.

¶ Boerhaave, Aphor. Sect. 1089.

** Dr. Cooke on Nervous Disorders, ii. 17. Dr. Cheyne, Cyclopædia of Practical Medicine, ii. 91.

eases of the nervous system. In most cases mental emotion will induce* and prevent† a paroxysm. Like the more violent paroxysms of hysteria, infantile convulsions, and neuralgic and spasmodic affections in general, the fit most frequently occurs during the night. Like these, the disease is most relieved or cured by mineral remedies, fœtid stimulants, change of air and regimen; like these also, it may be excited by stimuli to the mucous surfaces, especially the genito-urinary. Like all spasmodic affections not immediately fatal, and dependent on functional derangement, whether caused by poisons or otherwise, it is frequently accompanied by some morbid state of the skin. And, like several of them, its premonitory and paroxysmal phenomena implicate the external senses, exalting or diminishing their sensibility; the salivary glands; the respiratory and gastric nerves; and the parts in connection with the lower end of the spinal cord. These remarks are intended to apply especially to those cases depending on functional derangement.

The most interesting point of dissimilarity between epilepsy and hysteria is, that epilepsy much oftener attacks males than females, having the same relation to the former as chorea has to the latter. Van Swieten states, that it is from this circumstance the synonym, *morbus puerilis*, originates, and quotes Hippocrates,‡ and Paulus Ægineta.§ Celsus, probably following these, remarks the liability of young males to epileptic affections,|| and Dr. Elliotson adds his testimony to the same effect.¶ It usually disappears, like chorea, on the accession of puberty. This general fact is important when taken in connection with the supposed functions of the cerebellum, as also that expressed in the phrase which has been attributed to Hippocrates or Democritus, τὴν σονουσίαν εἶναι μικρὰν ἐπιληΐαν,** the development of the full paroxysm during the *synousia*, and by onanism,†† and its frequent heptaperiodic recurrence. Perhaps puerperal convulsions are allied.

The epileptic aura in connection with local hysterical neuralgia and neuralgic convulsions is worthy special notice. The phenomena of this aura are well known. It has been supposed to originate, firstly, from a diseased state of the nerve in which it commences, and, secondly, from organic change in the brain or its coverings. With regard to the proofs of the latter, they are merely negative. The trunks of the nerves implicated have been seldom examined through their whole extent; while changes in the brain and nerves may take place during life of which there is no necroscopic trace. In proof that the aura originates from disease in the distal extremity of the nerve or in its trunk, we have several positive

* Boerhaave and Van Swieten. Comm. iii. 402.

† A boy could ward off a fit of epilepsy by biting his tongue. Dr. Seymour, Clinical Lectures, Medical Gazette, xix. 154.

‡ De Aeris et Locis. § Lib. iii. cap. xiii. || Lib. iii. cap. xxiii.

¶ Clinical Lectures in London Medical Gazette, vii. 482.

** Van Swieten Comm. apud Boerhaave, iii. 412.

†† Medical Gazette, loc. cit.

facts. A ligature applied to the limb affected will arrest both the aura and paroxysm. This remedial measure, as well as the destruction of the part in which the aura originated, is probably very ancient. Paulus Ægineta recommends a ligature to be applied during the fit, and escharotics in the interval to the part affected. "Curatio comitialis ex aliqua parte oborti. Quum symptoma futurum est, ubi senserint, partem sive manus sit, sive pes laqueo superpositam fortiter apprehendere oportet. In remissionibus autem curationem moliri, ex ustoriis medicamentis aliquod parti adhibendo," &c.* Galen arrested the paroxysms in a boy by a ligature.† Bonetus was equally successful, and records a case in which the part swelled when the aura was felt.‡ Van Swieten expressly mentions destroying the nervous communication between the point at which the aura commences and the brain, as a means of cure. "Nullum amplius convulsionis adsit periculum, quia omne commercium inter cerebrum et nervum læsum sublaturum est."§ The use of the ligature is now practised on the continent,|| and Dr. Elliotson¶ and Sir A. Cooper have recorded instances of its successful application. Dr. Craigie has given a hypothetical opinion, that the presence of a morbid growth in the nerve is the material cause of the aura, in the 29th vol. of the Ed. Med. and Sur. Jour., and mentions the case recorded by Dr. Short,** who, by cutting out a minute painful tumour from the gastrœnemiæ, from which an aura proceeded, cured an epilepsy. Portal relates a similar instance;†† and Dr. Craigie quotes Mojon and Covercelli, as recently verifying these observations, both of whom found minute painful tumours connected with epileptic fits. Professor Mayer, of Hanover, cured a patient of epilepsy by amputating the thumb in which the aura commenced.‡‡ The inference to be drawn from these facts is, that the disease of the nervous twig is the cause of the aura, and in some instances, probably the cause of the fit; probably, because epilepsy like other paroxysmal diseases, may be cured (as I have already shown), as well as induced by strong mental emotion, the mental impression made by tying the ligature or removing the tumour, being the really curative means, as in the case of the boy, quoted page 125. A ligature will sometimes arrest a paroxysm of ague. Dr. Black's patient, by concentrating his attention, could prevent a paroxysm of *angina pectoris*.§§ Upon the whole, then, we may conclude, that a state of the nervous system precedes each paroxysm, which is indicated by the sensation of aura in any nerve in which there is already organic or functional derangement. If no one nervous twig be more diseased than another, then we have the epileptic paroxysm without the premonitory sensation. It must be admitted, however, that the touch of a morbidly sensitive fibril may

* Pauli Æginetæ, Lib. iii. cap. xiii.

† Sepulch. Anat. Lib. i. Sect. vii.

‡ London Medical Gazette, ii. 46.

** Medical Essays and Observations, vi.

†† Med. Chir. Trans. viii. 250.

† De locis affectis. iii. cap. xi.

§ Comment. Apud Boerhaave, i. 380.

¶ Lancet, xi. 222.

†† Cours d'Anatomie Med. iv. 247.

§§ Ibid. vii. 75.

be the immediate or exciting cause of the paroxysm as readily as any other excitement, whether mental or acting on the peripheral terminations of the nerves, or, as when gasping is excited by pressure on the sternum.

In *neuralgia* and neuralgic convulsions we have phenomena analogous to those of the epileptic paroxysm. There is the same general morbid affectibility, equally exalted, as in epilepsy, by quotidian or heptaperiodic causes of excitement, or by impaired functions of special organs. Any casual excitement also, whether originating in the mind, or on the mucous surfaces, may be the immediate cause of a paroxysm, and the predisposition is frequently hereditary. There is a species of neuralgia which answers to this description, but which frequently attacks males. This form ought to be distinguished from the neuralgic sensibility of the hysterical. It most frequently arises from mechanical irritation of a nerve, while that of hysteria may originate in mere vascular congestion. In the hysterical neuralgia, the whole nervous system is actively sensitive; in the other form, this sensibility, already existing as a dormant constitutional predisposition, is excited into action by local agencies. In the one, those medicines which relieve paroxysms of gout are very beneficial, but seldom so in the other. Sometimes the two forms of the affection seem combined in the same individual, as in the neuralgic stumps of females. In these cases re-amputation is seldom useful, on account of the excessive sensibility of the nervous system. Exercise in the open air, and mineral tonics, appear to have been the best remedies.

The *neuralgic convulsions* of the hysterical originate principally in this class of cases, and are sometimes followed by coma.* A very slight injury to a nervous fibril, as from the puncture of the lancet, or of a pin or needle, is sufficient to induce the local changes through which the general convulsions may be excited.† They are almost peculiar to the female, for convulsions are seldom excited in males having the neuralgic diathesis, and then only when depletion or other depressing agencies have produced an affectible state of the whole nervous system.

Subcutaneous tubercle is an occasional cause of hysterical and neuralgic paroxysms. We are much indebted to Mr. Wood‡ for his laborious inquiries into the nature of this affection. It is a neuralgia excited by a small, firm tubercle which involves a nervous twig, and generally a twig distributed to the skin. Like most nervous diseases, it principally attacks females. Of 36 cases collected by Mr. Wood, 29 were females, five males, and two unknown. In 23 the tubercle was in the lower, and in 11 on the upper extremity. In the males it followed blows or punctures, in the females, it originated spontaneously, and for the most part on

* On Morbid Local Affections of Nerves, 1st edition, p. 113, 117.

† Sir B. Brodie, Case in his Lectures, London Medical Gazette, xix. 248.

‡ Edinburgh Medico-Chirurgical Transactions, Vol. iii.

the lower extremities. The neuralgic paroxysms and convulsions, of which these tubercles are the exciting cause, are subject to the same general agencies as other nervous diseases. The paroxysms may be excited by a slight touch of the tubercle, by a cold wind, by surprise, or any affection of the mind (Swan). They occur most frequently at night (Hall, Wood, and others); during menstruation and pregnancy (Bissett, Pearson); or any general indisposition or dyspeptic state (Hall). Case 38 is an instance of this class.

After the varied general remarks on the increased insensibility of the hysterical, it will be quite unnecessary to specify the local neuralgiæ. They may originate from a morbid change of structure in the distal end of a sensitive twig, or be developed by compression or irritation of the nerve in the foramen through which it passes, or by some tumour in close proximity with it, in any part of its course from the circumference to the centre. When the affectibility of the nerve is exalted, any slight cause of these kinds will excite neuralgic pains, and this exaltation of the affectibility may originate locally, as I have already shown, from any functional or organic derangement of the viscera. Sciatic neuralgia and the neuralgic knee, in diseases of the hip, is an illustration of these remarks. The hysterical knee originates, probably, in some excitement applied to the superficial branches of the anterior crural nerve, either as they emerge from the fascia, or (as I believe much more frequently happens), during their course within the pelvis. Some similar irritation applied to the supra-scapular nerve in its course through the foramen or notch of the same name, is the cause of the sub-scapular pain observed in diseases of the liver; the sensibility of the nerve being so exalted by the diseased state of the liver, as to render those impressions painful, which otherwise would not be felt, just as occurs in spinal tenderness.

These hysterical neuralgiæ and local affectibilities, then, may be divided into two classes. The one will comprise those originating in a nerve which has to pass through a foramen, or over or round a tendon or ligament; the other, those implicating parts in physiological or anatomical relation with the ovaries, especially those which have naturally a special sensibility, as the glottis, rectum, &c. Amongst the latter may be enumerated all the various phenomena reviewed in the first part of the analysis, as convulsive cough, hydrophobic gasping, vomiting, neuralgia of the mammæ, sternum, &c.; and in the former, the neuralgia of the scalp and face, the nerves supplying which, are, more than any other, exposed to every variety of irritation in their course to the cerebrum, through the complex and highly developed osseous structures of those parts.

Paralysis.—I shall very briefly notice the phenomena included under this head. The impairment of the external senses will come again under review, and a few general remarks on loss of muscular power will only be necessary. The latter most frequently affects the abdominal muscles and viscera, and the lower extremities, then

the facial nerve and the upper extremities. The senses are also subject to paralysis in different degrees of frequency. Amaurosis is much more frequent than deafness, deafness than loss of taste, and the latter than true anæsthesia.

With reference to functional paralysis, as well as chorea,* tetanus, neuralgiæ, and partial agues, it may be remarked generally, that in females it much more frequently affects the left side than the right. This is in accordance with my previous remarks on the deficient development of the left side organs in the fœtus, and in animals generally. Amaurosis, however, more frequently affects the right eye than the left, so in Case 6 there was a discharge from the right ear, paralysis and pain on the left side. Case 30 is very interesting, from its presenting during a paroxysm a series of phenomena in regular sequence. First, the right side of the body is affected with spasms, and blood flows from the right arm and leg; then general convulsions supervene, and on the cessation of these symptoms, the left side is found in a state of tetanic flexion. It requires no great stretch of imagination to conceive, that the immediate cause of the last symptom was situated on the left half of the cerebro-spinal centre, below the crossing, while the cause of the spasms and flow of blood from the right side was situated in the left hemisphere of the cerebrum or cerebellum above the crossing. It may appear contrary to the general law of retarded or less perfect development occurring to the left symmetrical half of the body, that in the left hemisphere the voluntary powers originate which move the stronger or right half of the body. This is an exception which will lead to some important results. The following inferences may be deduced;—either that the origin of muscular power must be below the crossing, or that the nervous matter immediately subservient to muscular motion does not cross; in short, that while cerebral paralysis commonly depends on lesion of the opposite hemisphere, automatic movements may be excited in one side of the body by lesions in the hemisphere of the same side, which is the fact.† I shall probably revert to this part of the subject.‡

* Edinburgh Medical and Surgical Journal, xlii. 229.

† Müller's Physiology by Baly, p. 842.

‡ I noted 103 cases related or quoted in Dr. Abercrombie's work on Diseases of the Brain and Spinal Cord with the following results:—Males 59, females 34. Disease of right side of cerebrum 37; of both sides, but to greatest extent on the right side, 2; of left side, 29; of both, but most on left side, 7; of both equally, 9. Cerebellum, right lobe, 3; left, 11; right of cerebrum and left of cerebellum, 1; right side of both, 1; both lobes of cerebellum, 4.

Disease of right side of brain,	palsy of left side of body,	18
	palsy of right side,	3
	without palsy,	13
	with general palsy,	1

Lateral curvature.—I have already remarked (page 94) that local hysterical paralysis will give rise to distortion of the foot;* it may also induce lateral curvature of the spine. This deformity is ascribed by writers in general to unequal muscular action, and the curve is almost invariably to the right side.† Contrary to the more common opinion, I conceive the muscles of the right side are the strongest; those of the left being affected with partial paralysis, and so rendered unable to assist the greater force of traction to the opposite side. In accordance with this explanation are the facts mentioned illustrative of the greater liability of the left side to disease, the natural curve of health, and the pathological researches of Mr. Shaw, who found the muscles on the convex or right side to be the largest, and the nerves going to those of the concave or left side diminished to less than one-half of their natural size.‡ The treatment, then, which directs shampooing and other local remedies to the right side, as being the weakest, is not only useless, but positively injurious.

Amaurosis.—The optic nerves have a very intimate connection with the two extremities of the cord. Thus, injuries of the facial branches of the fifth will cause amaurosis in the eye on the oppo-

Disease of left hemisphere, palsy of right side,	35
palsy of left side,	1
with general palsy,	1
without any paralysis,	8
	—
	45
Disease of one side of brain, palsy of opposite of the body, .	43
palsy of same side,	4
with general palsy,	2
without palsy of either side,	21
	—
	70

In 11 cases in which the left lobe of cerebellum was diseased, there was palsy in 1, paralysis of right side in 2, of left in 1, and no paralysis in 7.

The cases arranged with respect to age, side, and sex.

Age.	Right Hemisphere.		Left Hemisphere.	
	Males.	Females.	Males.	Females.
Under 12,	3	3	3	2
18,	3	—	3	2
28,	3	2	2	3
50,	10	3	9	7
Above 50,	5	3	7	1
	—	—	—	—
	24	11	24	15

These numerical results may lead to the salutary conviction of how little we yet know of diseases of the nervous system. The most remarkable fact is, that, in 28 of 81 cases of diseased hemisphere of cerebrum or cerebellum, there was no paralysis; being more than one-third.

* Mr. Shaw in Further observations on the Lateral Curvature of the Spine, p. 182, 8vo., London, 1825, gives a case.

† Mr. Baynton on Diseases of the Spine, p. 42, 8vo., 1813. Mr. Shaw on the Nature and Treatment of Distortion of the Spine, p. 58, 8vo., London, 1823.

‡ Ibid., p. 68. The views of Dr. Stromeyer, who considers paralysis of the respiratory muscles, particularly of the *serratus magnus*, a cause of lateral curvature, are also in accordance. British and Foreign Medical Review, Jan.

site sides to that injured.* Difficult dentition, caries of the teeth, abscesses of the jaws, and salivation, have been mentioned as being frequent causes of this disease.† Derangement of the stomach, diarrhœa, constipation, and excessive indulgence in amatory pleasures are very generally added to the catalogue. Mental emotions, according to most writers, frequently originate amaurosis. Those who are subject to intermittent attacks have the premonitory symptoms common to all paroxysmal nervous diseases. Intermittent ophthalmia or neuralgia is occasionally heptaperiodic.‡ The connection between the optic and respiratory nerves is curious. A strong glare will excite sneezing, and the sensation of light is occasionally the excitant of the respiratory movements.§ The relations of the conjunctivæ have little in common with those of the optic nerve.

Anæthesia.—This in a chronic form, and, alone, is rarely a symptom of hysteria; it is, however, very common in coma, catalepsy, and somnambulism. Various considerations render it exceedingly probable that the sense of touch has a special point of connection with the brain, strictly analogous to that of the other special senses. The faculty of perceiving resistance, and consequently of judging of weight, is seated in the skin, and is dependent on the sense of touch; so that in cases of anæsthesia, muscular movements are regulated by the eye. Dr. Elliotson|| supports a contrary opinion, and cites Brown, Wells, Sir C. Bell, Spurzheim, and Weber, in support of the opinion, that the sense of appreciating weight and resistance is seated in the muscles. The cases of complete anæsthesia recorded by Dr. Yelloly, I think, set the question at rest. In one case the individual, it is stated, “can grasp pretty firmly; but in holding any thing he is apt to drop it, if his attention is at all called away.”¶ Of another it is said, “on turning her eyes aside, she often drops glasses, plates, &c., which she holds in safety as long as she looks at them.”** According to Weber, if the hands of a blindfolded person be supported on cushions, and unequal weights placed on them, when the difference is great it will be felt; but if it is small, it will not be noticed until the hands are raised,—“till the muscles feel what resistance they have to act against,” according to Dr. Elliotson. This is an inaccurate conclusion. Let an individual rest the back of his hand on a cushion, and a weight be placed on his fingers, the pressure of the weight on the skin is diffused while the fingers are at rest; but let the extensors of the

* Travers' Synopsis of Diseases of the Eye, 152.

† Cooper's Surgical Dictionary, article Amaurosis. 6th Edition.

‡ Dr. Bostock's case in Medico-Chirurgical Transactions, iii.; another in Journal Compl. January, 1830.

§ Jüngken (Die Lehre von den Augenkrankheiten) was acquainted with two persons who were instantaneously seized with asphyxia, if light were shut out; or awoke in the night in a state of suffocation if their taper was extinguished. A similar case is mentioned by Laennec. (Forbes' Translation, p. 414.)

|| Human Physiology, Part ii. p. 527.

¶ Medico-Chirurgical Transactions, iii. 95. ** Ibid., 99.

fingers act, and the weight be raised by a muscular effort, and we have the skin compressed by two powers against the bony prominence of the fingers; the compressing force being that of gravity in the weight, and of muscular contraction in the resisting muscles. The conclusion, then, from Weber's experiments should be, that a small difference in weight was not appreciable, until the pressure on the skin of the fingers was localized and increased by raising the weight. Dr. Wells' remarks do not seem to bear upon the point in any degree. The perceptions of position, perpendicularity, and amount of muscular effort, are analogous to many morbid sensations, as vertigo, feelings of flying, of being lifted up, being lighter than usual, &c.; all which are seated in the encephalon. Besides, it is contrary to all analogy, that a special sense should be located in muscular structures; they are constantly found on mucous membranes. I coincide, therefore, with Sir C. Bell* and Breschet,† who consider that the organ of touch is not a mere nerve, but is a special apparatus placed on the skin, and that the sense of touch is a special sense as much as seeing or hearing. The touch, like the latter senses, guides, and is assisted by muscular effort.

REVIEW OF SOME ANOMALOUS PHENOMENA.—Under this head I propose to consider various symptoms of hysteria, the existence of which has been denied or is doubtful.

Catalepsy.—In 1683, Laurence Bellini published a quarto volume on various subjects, in which he described catalepsy. Since that period cases of the disease have been continually recorded by various observers; and its existence is now established by the most complete evidence. I shall notice it very briefly. It consists essentially in coma, with an automatic contraction of the muscles when external force is applied to the limbs; that is to say, in whatever position a limb is placed, its muscles contract and maintain that position. Yet in general the contraction is not energetic, for a very slight force will overcome it and the position of the limb be easily altered. In catalepsy the extensors and flexors both act; in sleep and coma the extensors are paralysed, and the automatic contraction of the flexors is so slight that it cannot resist the force of gravity. Automatic contraction of the flexor muscles is a natural quality; the sleeping position of the common fowl illustrates this fact, as well as the contraction of the flexors in paralysed legs; it is most frequently observed in the lower extremities; but the action of the flexors and extensors of the upper extremities appear to be physiologically different. In cases of paralysis of the upper extremity during the waking state, the flexors act and flex the fingers and thumb on the palm; but occasionally on awaking from sleep the patient finds his fingers in a state of tetanic extension. I have observed two instances lately. Now in catalepsy, we have automatic action of both flexors and extensors; so that there is a

* Bridgewater Treatises, iv. The Hand, its mechanism, &c., 2d edit. 178.

† Nouvelles Recherches sur la Structure de la Peau. 1835.

due antagonism established at every change of position, and the position is maintained unless a greater force is applied than the muscular contraction can resist. This muscular contraction will of course vary from almost a tetanic to a paralytic state. A case observed by Mr. Ellis of Dublin* illustrates very well the connection between tetanus and catalepsy. In the common fowl, the flexor action of the muscles of the toes is antagonized by the weight of the body, and probably the proper excitant of this action is pressure on the skin of the foot, as is supposed by Mr. Grainger, to be the excitant of the progressive movements in general.† In brown study, or reverie, the eye is fixed by a muscular action very analogous to the cataleptic. Have not the flexor muscles some special connection with the spinal cord, as supposed by Bellingeri? Tetanic flexion of the fingers and toes is much more frequent than tetanic extension.

What is the state of the nervous system in catalepsy? In an exquisite instance, the functions of the body are performed with the least possible display of vitality. The heart almost ceases to act; the respiratory process seems interrupted; vital heat is diminished, and secretion arrested. The system is in a state of torpor analogous to that of the hibernating animal, and the vital conditions of the two states are probably the same.

The causes of catalepsy need not be enumerated. All violent emotions and depressing agencies, especially if operating on the female at the periods when her natural affectibility is exalted by the generative nisus, poisons, and malaria,‡ will excite the disease. It has also an intimate connection with other diseases of the nervous system, as coma, epilepsy, ecstatic delirium, and somnambulism; each disease occasionally appearing in succession in the same individual. Dr. Prichard particularly notices this fact, and Cases 8, 35, 63, 64, 65, are illustrative.§

Combined or connected movements.—Under this division I propose considering a class of phenomena, in which the muscular system performs a series of involuntary acts without spasmodic action. These may be arranged under five heads.

1. Involuntary combined movements, which are excited or accompanied by a sensation; sneezing with profuse lachrymation, hiccup, yawning.

2. Movements which in health are excited by or accompany a feeling or emotion; laughter, weeping, sobbing, ejaculation.

* Lancet, ii. for 1835, p. 129.

† Observations on the Spinal Cord, p. 113, 114, 8vo., 1837.

‡ Sauvages, Nosol. Method, Tom. i. 827. Stoll, Ratio Medendi, pars vi. p. 215. Vien. 1790, and quotes Rondeletius.

§ Others may be found under the following references. Pomme on Hyster. and Hypochon. disorders, by Berkenhout, 4th ed. p. 63. Sauvages, Nosol. Method. i. 825, ii. 207. Van Swieten, apud Boerhaave (from Hollerius), iii. 319. Darwin, Zoonomia, 3d ed. i. 32. Gooch on Diseases of Women. London, 1829, p. 117. Medico-Chirurgical Review, New Series, iv. 201, v. 203, xviii. 207. Medico-Chirurgical Transactions, iv. 17. Medical and Physical Journal, 1828. Annali Univ. di Med. October, 1830.

3. Combined movements in a definite direction, and originating in an impulse; choreal pronation and supination; rotation of the head, or of the whole body; rapid movements forwards, or backwards; inverted perpendicularly, as when the feet and legs are directed upwards.

4. Rhythmical movements; those excited by an involuntary impulse, or by an idea in connection with a measure of tune, mechanical repetition, true chorea.

5. Movements from what has been named a propensity to imitate, comprising most of the preceding. I shall briefly notice all in detail.

Hiccup and sneezing are combined convulsive movements, the former seldom being accompanied by a sensation, in both the respiratory muscles are, however, implicated, as in all those movements comprised under the first and second heads. They have this also in common, that they frequently form part of a common hysterical paroxysm,—ejulation, or the utterance of loud cries, being excepted. This last symptom is occasionally observed in other nervous and convulsive diseases, and in some cases of poisoning; it appears altogether automatic. The movements under the two first heads are also observed to have a periodical occurrence.*

The connection between grief, lachrymation, sobbing, and globus, is well known. In an entry in his journal, soon after the death of Lady Scott, Sir Walter remarks, "I do not know what other folks feel, but with me, the hysterical passion that impels tears, is a terrible violence—a sort of throttling sensation—then succeeded by a state of dreaming stupidity, in which I ask if my poor Charlotte can actually be dead;"—a graphic description of the effects of grief. The relations between the latter and immoderate laughter are not so obvious. Dr. Crichton observes, "that many (I am almost tempted to say most people) now and then have been inclined to laugh when a person has first begun to relate some misfortune. Nay, a more unaccountable circumstance of this kind is, that many people, when they have to tell us of the death of another person, feel themselves often inclined to laugh at the moment they begin to speak of it;"† and these individuals, he adds, are possessed of fine feelings. I knew two brothers, who had experienced poignant grief from the death of a sister. The day after her interment they walked to her grave, a distance of two or three miles, to indulge their feelings, and on their return were seized with an irresistible propensity to immoderate and loud laughter, which con-

* Case 50 is by no means a solitary instance of periodic hiccup. Höchstetter and Riedlin relate histories of quotidian yawning in girls; in some, the yawning was so vehement as to luxate both jaws. (?) (Sauvages, *op. cit.* i. 633.) A case of quotidian laughter is quoted in *Medico-Chirurgical Review*, New Series, i. 485, from *Gaz. de Santé*, No. xviii. I think there is an instance of periodic sneezing in a recent volume of the *Edin. Med. and Surg. Journ.*; Sir B. Brodie relates an instance in which it was heptaperiodic, (*Medical Gazette*, xix. 249.)

† *Inquiry into Mental Derangement*, ii. 155.

tinued for some time. I think this kind of laughter is analogous to the perverted feelings of the insane, when love is changed into hate, devotional feelings into the most scornful contempt for religious things, modesty into obscenity, &c. Of this character are the cases (No. 55), quoted from Wesley's Journal, and the gaiety displayed by individuals about to die on the scaffold. Shakspeare has not overlooked the latter:—

“How oft, when men are at the point of death,
Have they been merry? which their keepers call
A lightning before death.”

Romeo and Juliet, *Act. v. Scene iii.*

In these instances, the mental powers must have suffered from powerful emotions, confinement, and deficient food, however great they may have been previously. The gaiety is perhaps really a morbid state; I do not recollect an historical instance of it, which was not preceded by the depressing agencies mentioned. I think these remarks are of importance, because they point out a set of psychological relations hitherto uninvestigated.

Combined movements in a definite direction.—The instances of this kind may be arranged in two divisions, accordingly as the whole or parts of the body are affected. It may be observed generally of both, that their proximate causes have been for the most part functional in females, and organic in males; just as happens in common chorea. The cases depending on organic diseases need not be noticed, except as pointing out the seat of the affection.

Of seven cases, the details of which I have carefully perused, five occurred to females under puberty.* In one the patient was a highly hysterical female, aged 42, subject to epileptic fits, and the choreal movements were not strictly combined; † in the other, ‡ the patient (a female) was aged 23, and had been indisposed with a variety of complaints for seven years, so that the real period of the commencement of her disease was that of puberty. The leaping ague of Angushire was most common before puberty, that is, between 8 or 9, and 15. This general fact renders the affection analogous to chorea. The paroxysms were accompanied with other nervous affections, as tremors, cephalæa, epilepsy, coma, aphonia, hiccup, ejulation, (Armstrong, Anonymous), &c.; in some consciousness was abolished. Constipation is a symptom common to all except Armstrong's cases. Paroxysms were in general easily excited by slight agitation of mind, and the individuals were exceedingly susceptible of every kind of impression; in one, during

* Dr. Armstrong, *Medical Commentaries*, ix. 317, anonymous, *Edinburgh Medical and Surgical Journal*, iii. 434. Mr. Crichton, xxxi. 299. Dr. Watt, *Medico-Chirurgical Transactions*, Vol. i. Dr. Alexander, *Lancet*, 1827-8, i. 393.

† Dr. White, *Medical Commentaries*, iv. 326.

‡ Mr. R. Hunter, *Edinburgh Medical and Surgical Journal*, xxxiii. 261.

the paroxysm, the very idea of being touched caused a sensation of horror. (Hunter.) Forcible arrest of the movements would excite the fiercest rage. (Watt.) In Mr. Crichton's case, the attack was connected with a fright from the entrance of thieves into the house; during the paroxysms the young lady secreted her trinkets. The most constant affection was some derangement of speech. The leaping ague was thought hereditary. With regard to the particular set of movements, no one seems peculiar to a special state. In Dr. Watt's case, vertical and lateral rotation and inverted perpendicularity were observed in succession, an apparently inverted sense of relation to the plane of the horizon preceding the latter. In the Angushshire ague, if the progressive movements were prevented, the patients would leap upwards, and rotate round the rafters of the house with a motion resembling that of the fly of a jack. (Sinclair.) Retrograde movements were not observed in any of these cases, and the only one I have read of is that mentioned by Magendie,* as having been shown to him, and at the Royal Academie of Medicine, by Dr. Laurent; the patient was a hysterical female. If we trace out the analogical relations of these affections, their singularity is in some degree diminished. Dr. Elliotson remarks,† that vertigo frequently attends them, whatever be their variety; and very justly adds, that vertigo cannot be their cause. It however appears to be a sensation, (that of turning round,) originating in the same parts as do the rotatory movements. Let an individual revolve from twelve to twenty times on as small a circle as possible, and he will find on ceasing that, conjoined with the vertigo excited, there is a propensity to rotate, by which he will be irresistibly compelled to perform one, two, or three additional revolutions; so that the temporary state of the encephalon under these circumstances probably resembles that of the rotatory paroxysm. Waltzing in a small room causes the same phenomena. The propensity to move forwards has its analogy in the disease which sometimes affects hardy-worked horses. When walking twelve or fourteen miles at full stretch, I have first experienced great fatigue, and then an urgent desire to move forwards in a straight line; so that anything which has compelled me to stop a moment, or to deviate, has caused a painful sensation.

In Dr. Watt's case, the patient rested on her occiput, and, raising her feet to the roof of the bed, let them fall again, and this she repeated twelve or fifteen times a minute for fifteen hours in succession. This inverted perpendicularity is analogous to a sensation perceived after sleep, as if the feet were placed where the head ought to be, which is sometimes followed by attempts to rectify the supposed improper position. It is almost peculiar to children on waking. I have occasionally experienced it, and nothing short of complete consciousness ever removed the feeling.

* Elem. Comp. of Physiology, trans. by Milligan, 4th edition, 191.

† Human Physiology, 5th edition, p. 430.

Great facility in balancing the body, (Sinclair, Crichton,) or in climbing (*ibid.*), as leaping upon and sitting on the top of a door, or running round the edge of a table, have been observed in cases of somnambulism, as well as in these.* Something analogous is the impulse to place the centre of each foot, when walking, precisely on the line of junction of each flag on the flagged way, or of each brick or board on floors, experienced by some individuals. They may be easily known in the streets by the position of their head, and their strides of unequal length. The darting of the finger at a given point (Case 61,) &c., are phenomena of the same class.

The sensation of the body being lighter than usual, perhaps depends on a sense of diminished muscular effort combined with some degree of anæsthesia. After closer reading than usual I have felt on lying down, as if I was floating buoyantly down a stream. The same sensations have been induced by camphor.† John Hunter, after much mental anxiety, experienced a feeling of being suspended in the air, of his body being much diminished in size, and of every motion of the head and limbs, however slight, being both very extensive, and accomplished with great rapidity.‡ If these sensations had been a little more intense, probably rapid combined movements would have followed. I conceive that the whole of this class of motions and sensations originates in the same central parts of the nervous system. Pathological anatomy, and the experiments of Rolando, Flourens, and Magendie, have thrown considerable light on the subject.‡

In some cases the combined movements consists in a regular and rapid flexion and extension, and pronation and supination, so that the parts of the central nervous system affected are in some way connected with muscular antagonism.

Mechanical repetition; rhythmical movements.—The consideration of these is but a step higher in a continuous chain of phenomena. We have traced infantile convulsions to common choreal jactitation, the latter into the combined movements just investigated, and the latter, it may now be observed, are generally connected with rhythmical chorea, or with combined movements repeated mechanically. In Case 61, flexion and extension, pronation and supination, *malleatio*, propensity to leap upwards, and true rhythmical chorea appeared in succession in the same individual. The same phenomena are here observed somewhat more complicated by being in relation with a measure of time.

As it would be, therefore, impossible to do justice here to this subject, I shall make a few general remarks only. An impulse to

* Dr. Elliotson has collected a number of interesting examples of somnambulism, those at p. 643, sqq. of his *Human Physiology*, 5th ed. are illustrative of these forms of chorea.

† *Orfila Toxicol. Gen.* ii. 406.

‡ *Life*, in *Works by Palmer*, Vol. i., p. 62.

§ *Magendie, op. cit., loc. cit.* Elliotson, *op. et. loc. cit.*

rhythmical movement is common to man with many animals. It may be observed in birds. Dogs and horses will trot in the most regular time. Children delight in measured movements, as may be observed daily in their sports, or when congregated round the hurdy-gurdy. The conductors of infant schools have made this circumstance extensively available for the purposes of instruction, as any one may see by attending them. I observe few individuals can walk out of time when a street organ is grinding a suitable tune in their hearing. The propensity to mechanical repetition excites the simplest of rhythmical movements. A good illustration is presented by the awkward practices in which some people involuntarily indulge of wagging one leg across the other, drumming with their fingers, (but not to a tune,) hitching up a shoulder, drawing their hand across their chin as if for the purpose of ascertaining whether the beard be growing. Any one who will take the trouble to time the movements of these social gadflies, will find that they are done at distances of time precisely equal. People in general are not aware how rhythmical our actions are. Darwin has shown that verses may be divided into the bars of triple or common time.* The same observation may be applied to the prose composition of many writers; Johnson's sonorous stately style is an instance. Darwin remarks "some prose has its melody and even measure."† Most public speakers talk and gesticulate rhythmically, and also individuals in animated discourse. Every form of muscular movement may be repeated mechanically. (Cases 59, 61.) The tic-tac sounds (Case 60) probably originated primarily from the patients having been constantly in the room with a loudly ticking clock or time-piece; it is analogous to a "tune dwelling on the mind," (Case 61,) and to the secretiveness manifested during a paroxysm by Mr. Crichton's patient who was frightened by thieves. People who have heard a pleasing air at a concert will be constantly humming it for weeks after.

Tarantism.—I have shown already that animal, mineral, and vegetable poisons, will give rise to many of the phenomena of hysteria; and in this disease we have an additional illustration of the fact, the poison of certain arachnidæ having the effect of exciting a propensity to choreal movements, dislike of colours, &c. Case 62 is by no means a solitary instance, as is evidenced by the history of the *tarantati*. Just as arsenic, belladonna, and other poisons, produce various symptoms, according as the dose, the individual's idiosyncrasy, or other circumstances vary, so also does the poison of the tarantula; it does not necessarily excite true chorea, no more than arsenic necessarily excites vomiting. A young Tuscan, aged 15, was bit on the second toe of the left foot by a tarantula. The toe inflamed, the patient's penis became erect, the abdominal muscles assumed a state of tetanic contraction, the extremities were convulsed, the countenance had an expression of

* Loves of the Plants, Interlude iii.

† Ibid., Interlude i.

terror, the skin was cold and moist, the strength prostrated, and there was an irresistible tendency to sleep. The patient was cured by stimulants.* These symptoms, with one or two exceptions, are common to several animal poisons. No mention is made of the state of the throat, which is generally the part in which uneasy sensations are first felt in these cases. It cannot be denied that numerous errors are mixed with the medical histories of the effects resulting from the bite of the tarantula. But Baglivi's essay† on the subject appears to me to possess the same cautious philosophical character as his other works. He remarks, that the symptoms of tarantism are remarkably analogous to those of melancholia, chlorosis, and similar diseases (Cap. i.). He shows that the Tuscans are "macilenti, impatientes, iracundi, insomnes," &c. (Cap. ii.) That the tarantula produces its most remarkable effects during the hottest days of summer; that only those which are in the burning plains are poisonous; that if it be removed to a colder climate it becomes harmless (Cap. v.); that different species of the insect produce different symptoms (Cap. vi.); that the bite of the scorpion produced the same effects, and consequently, that tarantism was ascribed to it by the old Greek writers and the vulgar. (Cap. vii.) The *tarantati* are usually females (Cap. vii.). If the patient does not dance but recovers, the disease returns the next year, and he is affected with yellowness of skin, febricula, loss of appetite, oppression at the epigastrium, &c.; and if he eat mutton, cucumber, or melon, he is immediately seized with a sharp pain of the stomach. (Cap. vii.) Baglivi made a tarantula bite a small dog on the lip; the dog died comatose on the fifth day. The symptoms first observed are those of a malignant fever (cum coagulatione); there are sense of strangulation, and an almost fatal depression of the vital powers; suffocation seems impending; the lips and cheeks are livid (Cap. vii.); the wound is surrounded with a livid circle; there are numbness and tremors of the limbs, or great sensibility of the surface; aphonia and spasm of the tongue (Cap. xi.). The bite of the *Uvea tarantula* is followed by pain and swelling of the bitten part; spasms, rigors, and general cold sweats; aphonia; frequent vomiting; dyspnœa, and sense of impending suffocation; tympanitis and erection of the penis, with the other symptoms just mentioned. (Cap. vi.) In all these statements there is nothing marvellous.

Then, with regard to the rhythmical chorea, it appears that the patients do not show the propensity to dance unless music be played in their hearing, and then each patient must hear his own favourite tune; so that the musicians have sometimes to play three or four tunes before any effect is produced. Rapid tunes are the most enlivening to them (Cap. x.), as they are, I suppose, to most dancers. The effect of the music is first to mitigate the symptoms;

* From *Osservatore Medico* in *Lancet*, Vol. ix., p. 129.

† *Disertatio de Anatome, morsu et effectibus Tarantulæ*, in *Op. omnib. Lugdun. Batav.* 4to., 1733.

the patient then moves his fingers, next his hands, feet, and legs, and at last leaping up, begins to dance, which he continues to do for a length of time without weariness. A slight discord (of which country clowns, previously quite ignorant of music, become very susceptible) will excite constriction of the chest, gasping, and sobbing. The sight of any thing black will have the same effect; but that of naked swords, or of scarlet, red, and blue, gives them pleasure (Cap. ix.). Sometimes the patients show symptoms of nymphomania, or run forwards, or revolve on the ground (Cap. vi.), appear to be intoxicated, or as if they had lost the use of their senses; they do not notice their friends, &c. (Cap. ix.)

I do not see anything so very marvellous in these symptoms. They are, in fact, quite analogous to many hysterical and toxicological phenomena. We have the heart and respiratory system being paralysed by a poison, just as occurs after a large dose of opium. The affectibility of parts of the nervous system is exalted by the same agency; and the proneness to rhythmical movements is analogous to the increased susceptibility of the effects of certain colours. It is readily excited into action by suitable music; and dancing, by keeping up the action of the heart and vascular system until the poison is eliminated, does that for the tarantati which the muscular movements excited by nettles and stripes effect for the narcotized. I think this means of cure might be made applicable to other cases of poisoning, as by the bites of venomous reptiles, and by some vegetable poisons, particularly belladonna and stramonium. It would be of importance to commence the treatment early, to select a favourite air, and to have it performed in quick time on an instrument connected with old or familiar associations, as the bagpipes, fiddle, or drum.

The inhalation of vapour of ether excites gay delirium. Nitrous oxide excites laughter and beautiful dancing, but a disposition to fight, also, in some individuals of pugnacious propensities. I have witnessed both effects in the Chemical Theatre of London University College.

Endemic Chorea.—Sauvages gives instances of chorea being endemic in Africa and various parts of Germany.* The leaping-ague of Angushire is probably of the same character.

Imitated Movements.—All these various movements may be imitated. An individual yawns, and all around him yawn; one wags his leg, and his neighbour's wags too. Of fifteen men I observed seated on a bench at a public sale, six were performing mechanical or rhythmical movements. M. Chevreul wished to know whether it was true, as he had been informed, that a pendulum formed of a heavy body and flexible cord, oscillated when held over a certain body, although the hand be not moved. In a letter to M. Ampère, he states, that he found, when his eye followed the oscillating pendulum, he felt a sensation of a tendency to motion, which was

* Nosol. ii. 231, sqq.

satisfied in proportion as the pendulum described larger arcs. When his eyes were bandaged, the oscillations were very feeble.* This is the simplest form of imitated movements. Those complicated with emotions are somewhat different. For the due development of these there must be a predisposing state of the system; and this may be either natural, developed, or excited. It is natural to females and children, and constitutes the affectibility which I have already illustrated. It may be exalted or developed in males by all depressing agencies, and excited in both males and females by emotions. The orator who weeps or laments with the purpose of infecting his hearers, first prepares them by certain emotions. If a stranger came to hear his harangue at the moment his tears were falling, the former would consider him very probably rather an object for ridicule than imitation. The infectious mirth of the social is very analogous. Let an individual join a laughing party, and he will think or say, a very little wit makes fun for them, and will scarcely relax his features. The convulsions of popular assemblies are not strictly imitative, since the affectible state, originating in mental emotion, must precede their accession.

Exaltation of the Mental Faculties.—It appears from the preceding remarks, that these variously combined movements originate in a morbid excitability of the natural faculties by which they are guided, which itself forms but a part of one general symptom,—a morbid affectibility. I shall not here consider the whole series of the psychological phenomena of hysteria, but shall merely notice those which are or appear anomalous.

Exalted Sense of Touch.—In connection with this there are only two faculties to be noticed, namely, of distinguishing individuals and colours by the touch.

The perfection to which the sense of touch may be brought by the blind is exceedingly illustrative of these various phenomena. Julia Brace is an inmate of the Deaf and Dumb Asylum at Hartford, United States, and is deaf, dumb, and blind. She recognises the various inmates of the house by the touch and smell, and can distinguish a silver spoon among 120 of baser metal.† Casper Hauser's senses were all morbidly exalted; he could distinguish metals by the touch through paper and even oil-cloth.‡ There are differences in individuals not appreciable by our senses but distinctly so by inferior animals. In certain fevers, and in cholera, the touch of the patient excites a sensation very similar to an electric shock,§ or that experienced by Hauser when touching metals; so that the recognition of individuals by the touch is clearly within the bounds of possibility. The perception of colours by the touch, remarked in

* Lond. Med. Gaz. xii. 830; and Dublin Jour. iv. 141. This is a very interesting paper on some muscular movements.

† Journal of a Tour through the United States, by E. S. Abdy, Fellow of Jesus College, Cambridge, 3 vols. 12mo., 1835, Vol. i. 229-230.

‡ Dublin Journal, v. 150.

§ Dr. Grieve, in London Medical Gazette, xiii. p. 593.

some hysterical cases, (62,) is a faculty which has been repeatedly attributed to the blind. A very respectable medical gentleman has mentioned to me an instance of this kind which came under his own observation. It is not impossible that each colour may be connected with some molecular organization peculiar to itself, and perceptible by an acute touch. It is not a little remarkable that in Cheselden's oft quoted case of cataract, the first visual perceptions were imagined to be those of touch. To suppose, however, that the usual aids to vision, as convex glasses, can aid the touch, (as asserted in Miss Macavoy's case,) is absurd.*

Can a somnambulist see with his eyes shut? This feat is not impossible; but the assertion that there may be sight without eyes, or hearing without suitable apparatus, is incredible. There is, I believe, not a single instance of anything of the kind throughout the whole animal series. Most acute vision in the dark is not uncommon. Animals which prey by night see well in comparative darkness. Casper Hauser, could "read after sunset the number of a house at the distance of 180 paces, which in daylight he would not have been able to distinguish so far off. It was proved by experiments carefully made, that in a perfectly dark night he could distinguish different dark colours, such as blue and green from each other."† The vision is rendered very acute by disease. Dr. Bostock, while suffering from a remittent ophthalmia, could see the chairs and tables in a room in which other people had to grope their way.‡ The committee appointed by the Royal Academy of Medicine, to investigate Mesmeric phenomena, report of an individual who read while in Mesmeric somnambulism with closed eyes. "We remarked that the ball of the eye was in a constant rotatory motion, and seemed directed towards the object presented to his vision;" a very plain proof that the optic nerves carried the impressions to his brain, and not those of the skin covering his finger ends or epigastrium, and affording ground for a suspicion that imposition was practised.§ Somnambulists are said to read with their eyes even when firmly shut and bandaged.||

* The individual alluded to above could distinguish the colours of cattle by the touch; but all these instances must be received with great caution. A gentleman, resident near York, who is utterly blind, is very generally supposed to be able to distinguish, by the touch, the colour of flowers, of which he is an amateur cultivator, and has great pleasure in showing to his friends. Medical and other friends, upon whose powers of observation every reliance might be placed, have positively assured me of the fact; yet I learn from the individual himself that it is a vulgar error. He informs me that he can readily distinguish the form of the flower, and from thence infer the colour. He thinks that the colour of dyed cloths might easily be ascertained from a difference caused in the smoothness of the wool by the dye.

† Dublin Journal, v. 147-148.

‡ Medico-Chirurgical Transactions, iii.

§ Isis Revelata, ii. 333. From this and later statements of the same kind, there seems reason to doubt all facts of this most extraordinary and unaccountable description.

|| See cases quoted by Dr. Elliotson. Human Physiology, 5th ed. p. 652.

Painful and agreeable perception of Colour.—This is a symptom more common in disease than is usually supposed. It is occasionally the most prominent symptom in hysteria. The pleasurable perception of colour is one of the earliest phenomena of infancy. I am gratified by looking on a bright red or scarlet, or a gorgeous purple. The sight of a beautiful autumnal sunset affords me greater pleasure than musical sounds or sweet flavours; the sensation is analogous to that excited by the smell of a hyacinth. Lower animals have a painful and pleasurable perception of colours. Mackerel are caught by a bait of red cloth;* perch by bread coloured with red lead. A military friend informs me that the green snake of India will dart from the trees at the brass on the soldiers' caps, especially when glittering in the sun, as happens during a march. Scarlet or red is particularly obnoxious to bulls, vicious cows, turkey-cocks, and occasionally to horses. Vegetables thrive better in red or orange rays than in any other.† In hysteria, certain colours produce pleasure and pain, and evidently according to some general law. Dr. Parry knew a lady who could not endure to look at anything of a scarlet colour.‡ Dr. Elliotson had a patient who was made so thirsty by being put into a ward full of red curtains, that she drank seven quarts in one day.§ In *entasia lyssa* the sight of vivid colours excites gasp; in tarantism black produces the same effect; in Case 62, white and black caused pain; black, white, or yellow, were offensive to Dr. Elliotson's patient.|| Dr. Parry knew a lady who could bear no light colour whatever, and whenever he visited her in white stockings he was presented with a black silk apron to cover them, so that black was not disagreeable.¶ Blue and green were agreeable to this lady, and also to Dr. Elliotson's patient. Case 62 exhibited convulsive unnatural laughter at the sight of green or red; blue and red pleased the tarantati; Dr. Elliotson's Mesmerized patient, O'Key, noticed particularly the "nice tidy" gentleman who wore white trowsers.**

There cannot be a doubt that these various sensations depend upon changes excited in the brain and nerves by the physical action of colours; and it appears equally certain that the perception of colour is a special sense. An individual may have acute vision, and not know one colour from another. I have known such an one. It may be observed, that, as colours have a species of antagonism in exciting pleasure and pain, so they have in other respects. After the eye has been long fixed upon a green surface, the colour appears dull and gray, but the eye becomes more susceptible of red rays, and views them with relief and pleasure; and if the

* Yarrell's British Fishes, Vol. i., p. 128, and hence a proverbial expression, "women and mackerel are caught by red."

† Dublin Journal, iii. 126.

‡ Cases of Tetanus, &c., p. 108.

§ Clinical Lectures in Medical Gazette, viii. 381.

|| Ibid.

¶ Op. cit.

** The Lancet, 1837-8, ii. 282.

eye have been long accustomed to the red, it becomes more susceptible of the green rays. The same relations exists between yellow and violet, and blue and orange.* Precisely analogous are the phenomena of accidental or complementary colours. The accidental colour of any particular colour is the colour exactly opposite to it, if the colours of the prismatic spectrum be arranged in a circle. A bluish-green is the accidental colour of red; a violet-red that of green. When the colour and its accidental are mixed together, white rays are produced. Sir David Brewster has mentioned an ingenious theory† in explanation, which is incomplete, because it does not explain why some individuals cannot perceive the difference of certain colours. Upon inquiry it will be found that they cannot distinguish the accidental colour from the true colour. This is obviously true with respect to red and green, and the apparent exceptions are influenced by the same general law. The person described by Dr. Nicholl‡ called green, red. Dugald Stewart could see no difference in colour between the fruit and leaves of the Siberian crab-tree. To Mr. Harris, shoemaker of Allanby, the fruit and leaves of the cherry-tree had the same colour. Mr. Scott mistook full-red for a full-green.§ Mr. L. the individual with whom I was acquainted, called green, red. It is curious, that in cases of poisoning by henbane, objects have appeared to the patients of a scarlet colour,|| and that in some states of the nervous system green appears red, or green spectral spots are seen before the eyes.

Other physical phenomena of light are under the same general law as regards the physiological action of colours, particularly those of dichroism. Crystals of potash and muriate of palladium are of a deep-red colour along the axis, and of a vivid green in a transverse direction. Mr. Herschel observed a variety of suboxy-sulphate of iron to be of deep blood-red colour along the axis, and of a light-green perpendicular to the axis.¶ Analogous are the scarlet and green tints of the plumage of tropical birds. The two ends of the spectrum antagonize, also, as respects their illuminating, heating, magnetic, and chemical action,** and their effect on the vitality of vegetables.†† The most curious analogy with respect to the pleasure and pain produced by colour, is that first noticed by Sir I. Newton, between the seven musical notes of the gamut and the primary colours.‡‡ He found that the latter are proportional to

* Dr. Darwin on Ocular Spectra, Philosophical Transactions, Vol. lxxvi.—Professor Muller, Physiology by Baly, p. 60.

† Treatise on Optics, being Vol. xix. of Lardner's Cabinet Cyclopædia, p. 305. This chapter on Accidental Colours is very interesting.

‡ Medico-Chirurgical Transactions, vii. 477.

§ Sir David Brewster, op. cit. p. 311.

|| Beck's Medical Jurisprudence, 5th edition, p. 883.

¶ Treatise on Optics, p. 249. See also p. 184, for analogous facts in the action of doubly refracting crystals.

** Treatise on Optics, p. 88, and sqq.

†† Dublin Journal, iii. 126.

‡‡ Optics, Book i. Part ii. Prop. 3, 6.

the former, or to the intervals of the eight sounds contained in an octave, or as follows :

Sol.	La.	Fa.	Sol.	La.	Mi.	Fa.	Sol.
Red.	Orange.	Yellow.	Green.	Blue.	Indigo.	Violet.	
1	1	1	1	1	1	1	
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
9	16	16	9	16	16	9	

Dr. Darwin argues from these facts, and the phenomena of ocular spectra, that the same laws must govern the sensations of both colours and sounds.* In acoustics, every fundamental sound is accompanied by its harmonic sound; and the same term has been applied in painting to the accidental or complementary colours in the primitive colours, because they harmonize with each other. We can perceive an analogy in the sensations excited by certain sounds and colours. Scarlet has been compared to trumpet notes; and deep-blue or gorgeous purple is to me like soft, deep, base chords, such as are heard in some part of *Der Freischutz*.

From various considerations, I am inclined to think the general laws, of which we have here only a glimpse, govern others of our sensations, as of smoothness, softness, form, &c. Those versed in optics and acoustics would be able to cultivate this hitherto untrodden field with the most delightful success. An agreeable mixture of the shades of accidental and primitive colours might be called a chord; and a series of such, as in a painting, a harmony, &c.

Painful and agreeable perception of Sounds.—Sensibility of sound in general is analogous to sensibility to light. Various sounds, however, will, like colours, excite pleasure or pain. The painful sensation in the teeth, originating in very acute tones, commonly called the teeth being on edge, is an instance.

No observations have been made sufficiently precise to illustrate this subject. Sounds must be distinguished from noises. Ideas may be excited by noises, which will react on the system, or part of it. The noise of water dropping excites the idea of water, and this will cause the hydrophobic gasp.

Exalted Sensibility to Musical Sounds.—The faculty which originates this system is compounded of two simpler, namely, those which measure the time and the harmony of sounds. I think these have occasionally been confounded. An individual may keep excellent time, and have no ear for music. He probably confounds the fundamental and harmonic sounds, just as individuals see no difference between the harmonic or complementary and primitive colours. Baglivi states, that the tarantati are very susceptible of discords. A propensity to sing is a symptom in many cases of hysteria, mania, and poisoning. In hysterical somnambulism, a musical talent is occasionally developed during the paroxysm,†

* Philosophical Transactions, Vol. lxxvi.

† Dr. Abercrombie in his work on the Intellectual Powers, (4th edition, p. 294.) relates a remarkable instance.

The same has been observed in Mesmeric delirium.* The power of composing poetry and music developed in the insane, (especially females,) and occasionally during sleep,—the quotation of poetic fragments by the hysterical,—“capping rhymes,” and other analogous phenomena, belong to this head.

Exalted faculty of perceiving the lapse of Time.—I merely refer to this obscure subject for the purpose of noticing a phenomenon observed in Mesmeric and normal somnambulism. Individuals under the influence of Mesmerism have been found able to name the hour when a watch was placed to the nucha or epigastrium, under such circumstances that they could not have seen it. The solar plexus and sympathetic system have been dragged in to explain this and other circumstances. Independently of the impenetrable obscurity which must envelope any theory in connection with these structures, such appears to be unnecessary, at least so far as regards the watch experiment. People know what hour it is when asleep, without watch or clock near them. I have fixed an hour over-night at which to awake in the morning, and I have more than once awoke within two minutes, and frequently within five minutes of the hour fixed. This has not occurred from habit, because I have awoke at three o'clock when my waking hour was seven. My experience in this respect corresponds to that of other individuals. For myself I can state, that I am utterly unconscious of any mental effort during sleep; and I have awoke at the hour at once, from what has appeared to me a most profound slumber. Various circumstances, I find, will modify the results. Intense anxiety to awake at the hour makes me anticipate it, and awake much earlier. Great mental or bodily fatigue, as might be expected, causes sleep to be prolonged beyond the hour. A plausible explanation of this mental power may be attempted, but its existence cannot be denied; and if we may arrive at a consciousness of the precise hour when apparently in the most profound slumber, there can be no reason for denying the possibility of its existence in the somnambulist. Some paroxysmal diseases will recur at the same hour most precisely. This occurred in Dr. Watt's case of chorea.

Erratic Secretion.—The reader will be able to form his own opinion respecting the cases of erratic secretion of urine recorded in p. 3. A highly respected medical friend assures me, that he arose from their perusal with the conviction that vomiting of urine was impossible. This opinion is worthy of notice, because it is calculated to stop all inquiry, and is contrary to those of physiological writers of repute, as Haller, Elliotson, Alison, and Müller. It is first asserted, that no well authenticated instance has yet been observed; and when cases 5, 7, 8, and 13, are referred to, we are assured that hysterical females will feign anything, and that well authenticated instances of deception more marvellous than these are on record. I certainly

* Dr. Elliotson's patient O'Key, *Lancet*, 1837-38, ii. 282, and another, *Human Physiology*, p. 630.

agree with the latter part of the opinion; indeed, so marvellous are they, that to me they appear utterly incredible, and to require a very great love of the marvellous and considerable credulity to insure a due belief in their truth. Some of them, when considered as cases of disease, are intelligible enough. Let the most wonderful case of Phineas Adams, a youth aged 18, who was lodged in jail for desertion, be viewed as a case of *catochus* induced by fright, and we can at once understand how thrusting snuff up his nostrils, and under his finger-nails excited no signs of sensibility; and how, that during the operation of scalping, he uttered only a groan when the bare cranium was scraped.* Bonetus relates the case of a deserter (George Grogratzi), who was apprehended while making merry in an alehouse. He was so terrified that he gave a loud shriek, and immediately became speechless. When brought to a court martial, he became immoveable as a statue, and appeared unconscious of everything which was going forward.† Phineas Adams was fortunately fed with wine and eggs when insensible; not so this poor fellow, for he died in twenty days, during which time he took no kind of nourishment. Dr. Fitzpatrick‡ relates an instance of cataleptic *catochus* in a female, who was laid out for dead with the usual parade, such as lighting a candles, tying her feet together, &c., of all which she was quite conscious, but could not move a muscle. Dr. Fitzpatrick tried a variety of stimulants without success; but assures us that he at last made his patient wince by introducing some aqua fortis and oil of vitriol into her nostrils; and that, by perseverance in a stimulant plan of treatment, in two hours she was enabled to open her eyes. This is not a solitary instance. No wonder Adams groaned when his cranium was skinned. It is inferred that this youth was feigning, because he was at work two days after his discharge; but we may conclude with equal justice, that the joy excited by his return home, and escape from scalping and from death as a deserter, acted as a remedial agent. It is painful to observe, that in a few instances in which the reported malingers confessed the imposture, the confessions have a strong resemblance to those extorted from the victims of the Inquisition. Few men, when suffering under real disease, and cruelly tortured as impostors, would hesitate to criminate themselves, if by so doing they could at once escape a hated service and the remedial treatment.

It is true that in hysteria we are peculiarly liable to be imposed upon.

If, however, we examine into the question of erratic urinary discharge as a matter of fact, the proof that it has occurred is ren-

* Edinburgh Annual Register, Vol. iv., Part ii., p. 159; and Beck's Medical Jurisprudence, 5th ed. p. 18. Scraping the cranium causes a peculiarly painful sensation, which vibrates through the whole body.

† Medic. Septentrion. Lib. i. Sect. xvi. Cap. vi., quoted by Dr. Crichton in op. cit. ii. 264.

‡ Med. Comment. x. 262.

dered as complete as possible by the following table of recorded instances.

	Vomit.	Stool.	Ears.	Eyes.	Saliva.	Nose.	Mammæ.	Navel.	Skin.	Tot.
In cases in the selection,	19	2	2	1	0	2	3	5	5	39
In cases from authors,	14	18	2	3	5	1	1	29	12	85
Total,	33	20	4	4	5	3	4	34	17	124

Cases are omitted under the head "stool" in which there was a known communication between the rectum and bladder! in two of the number given it was ascertained that no such communication existed.* The numbers in which the discharge took place from the umbilicus are not very precise. But if we suppose, that in the whole of the cases under the heads of stool and navel, there was a direct communication with the bladder, ureters, or kidneys, we have still 70 instances to account for;—were they all feigned?

Haller thought that almost all secretions may, under the influence of disease, be formed by each and every secreting organ, an opinion which I think will be found to be consistent with facts.† Müller denies its correctness; true vicarious secretion of milk, for example, he observes, never occurs.‡ "The excretions, those matters which exist ready formed in the blood, and of which urea is an example, can alone, after the destruction of the excreting organ, be eliminated from the vessels in all parts of the body by the process of exudation."§ If this be a correct statement of the fact, the erratic urine would necessarily permeate the muscles and cellular tissue; no such case, however, is recorded; urinous effusions into the ventricles of the brain and cavity of the peritoneum have occasionally been observed, but these are free surfaces. The urea excreted by exudation from free mucous surfaces must necessarily be mixed with the proper secretions of those surfaces, and there might or might not be the urinary salts and colouring matter. Yet we find in some cases a fluid was vomited, resembling common urine even to the nebula. (Case 7.) Schenck relates the case of Prince Severinus, of Saxony, who had suppression of urine, and who "sex aut octo horis priusquam animam ageret, urinam meram colore et odore, cuius astante facile agnitam, evomit." After death a fluid like the urine of dropsical patients oozed from the skin.|| I think this history a little doubtful; it happened 300 years ago, when princes were occasionally poisoned. The following is, however, conclusive. A female died at the age of 14, who had

* Acta Helvetica, Tom. i. Bonetus Sepulchret, Sect. 24. Obs. vi. § i. Vide Morgagni, Epist. xiii. Sect. 46.

† Elementa Physiolog. ii. 369.

‡ Manual of Physiology, translated by Dr. Baily, p. 475.

§ Ibid. 431. I think no one so well fitted to give an opinion on this subject as Professor Müller; his researches into the minute anatomy of mucous structures are most important and invaluable, and it is consequently with considerable hesitation that I have ventured to express my dissent from his opinions.

|| Lib. iii. Obs. 199.

from birth a continual discharge from the navel of a liquid resembling urine. On examining the corpse, the anus was large, and occupied the place of the vagina; the umbilicus was on the *mons*, the urachus terminated insensibly on the integuments, was very long and of unusual size; the umbilical vein was large, and the kidneys, ureters, and bladder, were absent. The cause of death was gangrene of the liver, and suppuration of the pancreas.* The discharge from the umbilicus in this case was something more than simple exudation, and can only be considered as an excretion of urine from the urachus instead of the kidneys.

An extended history of secretion would amply confirm Haller's opinion. This, however, would be nothing less than a history of mucous membranes, which would comprise the facts regarding them in natural history, embryology, human and comparative anatomy, physiology, and pathology; and those which afford evidence, that there is some central part of the nervous system which constitutes a common centre of mucous structures.

I shall defer stating the inferences which may be drawn from the whole of the preceding statements, until I enter upon the last division of my analysis; and would only add, that I reserve to myself the right of abandoning, without prejudice to my argument, any opinions I have ventured upon, if more general facts prove their incorrectness.

[It may be interesting to the readers of Case 1 (p. 3,) to be informed, that H. O. lately returned to the Hospital and attempted to pass herself off as her sister, and when charged with the imposition most positively denied that she was the H. O. She was kept in the hospital three or four days until her mother came for her. I think it impossible to meet with a better marked instance of monomaniacal cunning.]

CHAPTER V.

Phenomena of hysteria in which consciousness is involved—Speculations on the nature of mind.—Phenomena of life—Apparatus for functional display—Consciousness—encephalon the organ of—Nervous system—its functions—Attention—Coma—Spectral illusions—Somnambulism—Hysteric cunning—Mesmerism—Nature and seat of the diseases before mentioned—Functions of the cerebellum.

1. THE phenomena of hysteria remaining for review are those in which consciousness is directly involved; namely, coma, delirium, spectral illusions, and somnambulism. Before I can enter fully into their consideration, it will be necessary to make some preliminary

* Dr. Moulon, in *Journal des Progrès*, quoted in *Lond. Med. Gaz.* i. 710, 1828.

remarks on the nature of consciousness; and as these cannot but have a continual reference to the functions of the nervous system, and as also it will be necessary to review some points in the physiology of the latter, previously to instituting such a general summary of facts and inferences as may lead us to some more precise information respecting the nature and seat of those diseases I have been investigating, I think it will be better to commence this review at once, and conduct it with a special regard to the objects to be attained.

2. As, in the course of this inquiry, I shall unavoidably be led into various unsatisfactory hypotheses and speculations, I must, at the outset, solicit the indulgence of the reader, and request that he will peruse them in the same feeling with which they are written; namely, an anxious desire to ascertain the causes and relations of the various phenomena displayed in health and disease. With such a feeling he will be much more careful to ascertain the amount of truth than of error contained in them.

3. Perhaps no one subject has engaged the attention of man so much as the nature of his own mind; and, consequently, upon no other subject has so much been said and written. It would be altogether foreign to my plan to review the various theories which have been adduced respecting life, organization, the nature of the Deity, and a future state. They may, however, be cursorily noticed, and made available in limiting the points of inquiry to what is really useful.

4. Nothing strikes the mind so forcibly after a perusal of these various theories, as the similarity of all, whether they be those extant at an era long antecedent to the earliest Grecian, as recorded in oriental literature,—the profound disquisitions of Pythagoras, Plato, and Aristotle, the metaphysical commentaries of the hypotheses of the moderns, founded on gravitating, electric, magnetic, and attractive and repulsive forces—they all present more or less prominently three essentials, namely, intelligence, force, and inert matter.

5. These essentials, under various guises, have also entered into the popular metaphysics of every age. The early Greek writers derived their opinions from the east; and the moderns are equally indebted to the same source through the Holy Scriptures, the language of which is imbued with the philosophy of the eras at which they were severally written. St. Paul, in that celebrated passage in his sermon to the Athenians, "For in Him we live, and move, and have our being; as certain also of your own poets have said," embodied the essence of the Platonic philosophy; the true meaning of the passage in the original being, that from the supreme mind or intelligence, or universal soul, we derive consciousness, force, and animal life.* So Aristotle in his treatise *Περί Κόσμου*, writing of the cause which keeps the universe together, observes,

* Ἐν αὐτῷ γὰρ ζῶμεν, καὶ κινούμεθα, καὶ ἐσμεν : Τού γὰρ καὶ γένος ἐσμεν.

that, according to an ancient tradition which has been transmitted to every tribe of the human race, all things have proceeded from God, and are every moment dependent upon him for their continuance and mode of existence.*

6. This opinion, taught by Plato and Epicharmus, was derived from the Védanti School of India, the fundamental tenet of which was, that solidity, impenetrability, and extended figure depended upon a continued effort of the Divine energy; and consequently the secondary qualities of matter also, derived from these the primary qualities.† In modern days Sir I. Newton supported the opinion, that gravity was the primary force of the universe, and dependent upon a continued volition of the Creator. Such also was the opinion of Dr. Clarke;‡ and Professor Stewart advocated very similar doctrine.§

7. As the cause of vital and psychical phenomena has been confounded with the phenomena themselves, so the cause of cosmological phenomena has been confounded with its effects; and philosophers have erected that into a deity which is but an instrument of the Supreme mind. It was thus that the philosophers and people of the East came to worship fire; and thus Hippocrates, in expressing not only his own sentiments, but those of Heraclitus and many of the stoics, says, "It appears to me that what is called heat (the elemental fire) is immortal and omniscient; that it sees, and hears, and knows, all things, present, and to come."|| Doubtless much of the figurative language of the Old Testament has the same Eastern origin.

8. Heat also has been considered the animating principle. Cicero quotes Lucilius Balbus as maintaining, that whatever lives, be it animal or plant, it lives by its *calor inclusus*.¶ Harvey attributes life to an animating principle in the blood;—a *calidum innatum*, totally different in its operations from ordinary heat, and analogous to the element of the stars.**

9. According to Diogenes Laertius, Anaxagoras the Clazomenian was the first who considered mind as well as matter to be a primary independent principle; commencing his work with this sublime observation: "All things at first existed together in a state of confusion: Mind then came and arranged them (*διοκοσμησε*)." He maintained also that mind was the cause of motion; "νοου μεν αρχη"

* An Inquiry into the Opinions, ancient and modern, concerning Life and Organization, by J. Barclay, M.D. Edinburgh, 1822. P. 430.

† D. Stewart, Philosophy of the Human Mind. 2d edition, Vol. ii. Note B.

‡ "All those effects which we commonly say are the effects of the natural powers of matter and laws of motion, of gravitation, attraction and the like, are indeed (if we will speak strictly and properly) the effects of God acting upon matter continually and every moment," &c. Clarke's Works, fol. ed. ii. p. 698.

§ "Matter, therefore, is not a thing which has a separate and independent existence, but an *effect* which is continued by the constant agency of Divine Power." Philosophy of Human Mind, 2d ed. ii. p. 188.

|| Barclay, Op. cit., p. 82.

¶ De Natura Deor. lib. ii. § 9, 10, 15.

** De Generat. Animal. Exercit. lxx. Lond. 1651.

κίνησις.* Analogous but more specific are the doctrines of that ancient and remarkable system of cosmogony written by Moses, and which has been ridiculed by pretenders to philosophy, because they had not the grasp of mind sufficiently large to comprehend it. Moses declares, that "God said let there be light, and there was light." The term in the original translated light does not mean the light of the sun, or of a luminous body simply, but rather the cause or matter of both light and heat; corresponding, in fact, to the fire of the ancients, and the caloric of the moderns;† which latter is now considered by many as nothing more than a modification of the primary forces of matter, or of those powers of repulsion which Boscovich attaches to unextended elements to constitute matter of itself.‡

10. The theories of Aristotle and Leibnitz are very similar, and may be easily resolved into the same general principles as the preceding. Even La Place's cosmological theory, so far as it goes, corresponds almost exactly with the Mosaic account. See *Édin. Rev.*, Vol. lxxvii., p. 297.§

11. It is a remarkable fact in the history of the human mind, that the opinions of the wisest men of all ages, respecting cosmogony and life, have such a striking general coincidence. All the cosmological theories that have been hitherto produced differ only in the terms in which they are announced, in their comprehensiveness, or their illustrations. I believe it would be utterly impossible for the finest genius to originate a hypothesis entirely novel.|| The three

* Barclay, *op. cit.*, p. 37.

† Dr. Adam Clarke in *Commentary*.

‡ Daubeny on the Atomic Theory, 8vo. Exley's *New Theory of Physics*, 8vo. 1829.

§ The French neo-platonic school holds doctrines nearly resembling those of Leibnitz; there is little more than a difference of terms. De Lamartine, the most popular living poet of France, is of this school; and in its spirit he thus writes of the atoms seen in a sunbeam.

"Pourtant, chaque atome est un être!
 Chaque globule d'air est un monde habité!
 Chaque monde y regit d'autres mondes peut-être,
 Pour qui l'éclair qui passe est une éternité!
 Dans leur lueur de temps, dans leur goutte d'espace;
 Ils ont leurs jours, leurs nuits, leurs destins, et leur place;
 La pensée et la vie y circulent à flot;
 Et pendant que notre œil se perd dans ces extases,
 Des milliers d'univers ont accompli leurs phases
 Entre la pensée et la mot!"

"*Jocelyn*, an Episode," 12mo, 1838, Tom. i., p. 196.

|| This resemblance is kept up even in the details. Thus when Dr. Elliotson, in ridicule of the doctrine that the soul is an independent entity, asks, "where the depôt of souls is; how they learn when a youth has impregnated an ovarian vesicle; and how they fly and get into it," &c., (*Physiology*, 5th ed. p. 41,) he merely resuscitates some Lucretian banter:—

"Denique connubia ad Veneris, partusque ferarum,
 Esse animas præsto, deridiculum esse videtur;
 Expectare immortaleis mortalia membra
 Innumero numero, certareque præproperantur
 Inter se, quæ prima, potissimaque insinuetur."

Lucret. lib. iii. 777.

essentials already mentioned must constitute the basis of any theory of mind.

12. It is to be regretted that speculations respecting the immortality of the soul are still mixed up with the physiology of mind. The knowledge of the existence of God; of ourselves and of matter; of a future state; of right and wrong; and of moral liberty, are inherent in our nature: and if they were not confirmed by revelation, ought no more to be questioned than mathematical truths. No inductive arguments can render our perceptions of them clearer, or throw a stronger light on these abstruse subjects.* Nor would I have entered at all upon the consideration of these, had it not been absolutely necessary to understand clearly the point at which we may safely commence our reasonings about things as they are.

13. It appears to me the more reasonable and philosophical to assume, that there is an agency in man (and for anything we know in other animals), distinct from matter and organization, but dependent upon organization for the due display of its effects. The consideration of its essence, its origin, or its future state, is in no degree connected with the question. Its nature appears to me as incomprehensible as that of the Deity. I find, however, that mind perceives the existence of matter by its qualities, which are dependent on force; and I am compelled to conclude, that force could not have existed without mind; † that finite minds could not perceive matter without force; that matter without mind and force would be inert, or essentially nothing.

14. Mind is that which originates motion or wills; perceives the qualities of matter; and compares the perceptions or thinks. ‡ What the infinite mind is to the universe, a finite mind is (physically) to its corporeal organs. “*Princeps ille Deus, qui omnem hunc mundum regit, sicut animus humanus id corpus cui præpositus est.*” § There is this remarkable difference, namely, that the Supreme Mind originates force, while the finite only transfers it; || or in other words, excites motion; the former originates the qualities of matter, the latter can only feel their effects on organized matter; the Divine Mind thought before matter existed, we think with our brains.

* Dr. Reid advises us “to take our notions of the qualities of body from the testimony of our senses, with the Peripatetics; and our notions of our sensations from the testimony of consciousness with the Cartesians.”—*Inquiry, &c.*, Chap. vii. This eclectic spirit of inquiry has always been the most successful.

† “I agree with Sir Isaac Newton, that power without substance is inconceivable.”—Reid on the Intellectual Powers, Essay ii., Chap. 14.

‡ “Mind, we say, is that which feels, which thinks, which has the power of beginning motion.”—D. Stewart on the Active and Moral Powers. Edin. 1828, Vol. i. Notes, p. 401.

§ Cicero, *Somnium Sci.* § iii.

|| “Yet neither by life nor the subject of it, do I mean a principle of motion; the universal stock of motion as that of matter being neither increased nor diminished, but only transferred; but I mean a certain power to determine the manner of its being transferred,” &c.—Grew, *Cosmologia Sacra*, Fol. 1695, p. 65.

15. In assuming the power to will and perceive changes in matter as the efficient cause of mind, in the popular sense of the term, I am quite willing to concede that it is not necessary that the physiologist should decide whether this efficient cause be independent of the brain or not. With regard to myself after duly considering the subject, I feel certain it will be; but in this world we can know nothing of it, except as manifested by its effects on the brain; and through the brain on the nervous system. By these effects, and by our consciousness, we are assured of its existence. By our own consciousness, because we are as sensible of the power to will and perceive, as we are of the action of light; and it would be just as rational to deny the existence of the one as of the other. By its effects, because motion plainly follows volition, or, in the words of Locke, "sensation convinces us that there are solid extended substances, and reflection that there are thinking ones; experience assures us of the existence of such beings, and that the one has power to move body by impulse, and the other by thought."* In short, the will exerts a force on organized matter—the brain, in exciting motion, as plainly as the force of matter acts on the nerves in exciting sensation. As any attempt to explain the nature of these forces would only be to reason in a circle, I rest content with having ascertained their existence. Their effects are the legitimate object of scientific research.

16. The most superficial observation has rendered it certain that the effects of these forces on the phenomena of life are manifested through a complicated apparatus. And certainly nothing has tended so much to retard the progress of psychological knowledge as the neglect of vital mechanics by those who have studied mental phenomena; while the conflicting theoretical details of metaphysicians, and the mistaken zeal of well-meaning philosophers, have combined to drive the physical inquirer from the field of psychology, and to set up a mode of investigation, which, prosecuted principally by metaphysical inquirers, was utterly insufficient, because directed to the elucidation of ethical philosophy, and limited to the objects of man's consciousness, or, in other words, to his own thoughts. The effects of external stimuli on the mind were altogether unnoticed, or only mentioned incidentally as belonging to the domain of the physician.† Even Locke scarcely ventured to refer to the brain and nervous system; but it is not a little curious that brain may be substituted for mind in numerous passages of his works. He speaks constantly of the mind as the organ, and of the will, and understanding or perception, as the agents. Professor Stewart overlooked the phenomena of vital mechanics, while Gall and his followers have paid too exclusive an attention to them as partially exhibited in the brain. In both these instances we have

* Essay on the Human Understanding, Book II. chap. 23, § 28, 29.

† Metaphysicians too are bad observers. This Dugald Stewart plainly acknowledges and explains. (On the Human Mind, ch. vi. § vii.) And it is because young men are better observers than logicians that they are materialists.

been deprived of the benefit which would have resulted from a combined consideration of psychical and vital phenomena.

17. In general, the action of the molecules of matter on each other excites motion; but it is by the reaction of gaseous and solid matter that the greatest amount of force or impulse is developed. In solid matter, the particles are compelled to occupy less space by what has been called the force of cohesion; in gaseous matter they are supposed to be repelled from each other by a repulsive force, which is eliminated or set free whenever the gaseous matter becomes solid. This force (9), stored up in the atmosphere may be considered the prime mover not only of those machines of the present day, which exemplify in so remarkable a manner the power of mind, but even of the vital mechanism which they mimic.* From the sensation which it excites when acting on a living body, it has been called heat, or the matter of heat. Separating the particles of water from each it produces steam, varying in power according to the amount of repulsive force or heat acting on the particles. If the supply of air be cut off from the furnace of the steam-engine, decomposition is arrested, heat is no longer evolved, and the motion of the whole machinery connected with the boiler is stopped. So if the atmosphere be excluded from the galvanic battery, decomposition ceases at the poles, gaseous matter is no longer evolved, the weight drops from the helix, and light cannot now be produced.

18. So too, we shall find that the amount of temperature and of capillary and muscular action required by animals have a distinct ratio to the consumption of atmospheric air (8); or, in other words, the respiratory apparatus will always have a magnitude proportionate to the activity of the vital movements of the individual.

19. It may also be stated as a principle applicable to all organisms, whether vegetable or animal, that an apparatus for the mutual action of solid and gaseous matters must constitute the basis of every individual organism.† In plants, as is well known, the leaves are the respiratory organs, and the roots the nutritive; corresponding in function to the stomach of animals, and indeed have been likened to a stomach turned inside out.

20. If we would obtain a large and definite knowledge of the action of force upon matter and intelligence; in exciting the phenomena of life and thought as displayed in man, we must examine the laws of its action as exhibited both in every living organism, and in the molecular changes of inorganic matter. A thousand circumstances assure us that between these last and the highest efforts of human intellect, there is a continuous chain of phenomena, although we have been unable to follow it link by link. These links are so continuous between certain vegetables, and animals of

* "La sensibilité se rattache, peut-être, par quelques points essentiels aux causes et aux lois du mouvement, source générale et féconde de tous les phénomènes de l'univers."—Cabanis, *Physique de l'Homme*, Mem. ii. § iii.

† La vie est une suite de mouvemens qui s'exécutent en vertu des impressions reçues par les différens organes."—Cabanis, op. cit. Mem. i. § iii.

the lowest class, that naturalists have been unable to decide whether the organism should be placed in the animal or vegetable kingdoms. And even when there can be no doubt of the nature of the individual, circumstances still show forth the similarity of laws by which all organisms are governed. Thus in plants we find the male and female organs in the same individual constituting a true hermaphrodite; but in animals which have the male and female organs in one individual with the power of locomotion, the congress of two is required. Some animals, however, are without this power, as the acorn shell-fish, which consequently impregnates itself like plants, and is a true hermaphrodite.

22. This and numerous other illustrative instances show the close connection of all organic matter, and render it probable that no bio-molecular movements take place in animals of even the highest organization, which have not their counterpart in vegetables and animals of the lowest forms.

23. In the last mentioned there is no central nervous system, as in animals of a higher grade. The nutritive and respiratory functions are carried on by powers originating in, and connected with, a mechanism diffused through the tissues of the organism; so that a leaf, or a portion of a polypus or planaria, possesses, independently of the parent being, the essentials to continued vital action, namely, a respiratory and nutritive apparatus.

24. If we advance a step higher in the animal scale we find a distinct nervous system having a centre of action (a ganglion); and just as a plant, so may an individual animal be really a congeries of individuals; each segment or ganglion with its dependent tissues having a power of maintaining a continued and independent existence when separated from the others. Illustrations of this fact are afforded by sections of some Annelida, as the Nereides and Naiades.*

25. Advancing in the scale of development we find that, just as the diffused nervous system became dependent upon a central ganglion, so these various ganglia become dependent upon some one or two which have attained a development superior to the rest, and which are essential to the integrity of the functions of the whole; these more important ganglia are subservient to the nutrition of the whole system; respiration is still diffused, and when the ganglia are separated from each other they will still present vital movements, the intensity and duration of which will be always in proportion to the power of nutrition and respiration possessed by the segment, and to the amount of force required for their continuance.

26. It is thus the parts of articulated animals (as insects) which have a large respiratory apparatus diffused through the body, dis-

* "As each segment of the *tænia* is complete in itself, and capable of independent existence, so each segment of the body throughout the helminthoid classes may be viewed as a separate being, with its exterior covering, and its muscles, its vascular and digestive apparatus, its brain and its nerves of motion and sensation."—Dr. Grant, Lectures in *Lancet*, ii. 1833-4, p. 487.

play vitality long after mutilation; it is thus also that parts of certain cold-blooded Vertebrata, as the salamander, frog, and turtle, display such remarkable tenacity of life. In these we have various circumstances favourable to continued vital action. 1. The vital movements can go on at the temperature of surrounding bodies, so that force is not expended in keeping up the heat of the vital mechanism; nor is the action of the latter impeded by its diminution, as in hot-blooded animals. 2. The skin is a respiratory organ, so that force is still obtained from the atmosphere by this, and perhaps even by the moving tissues themselves,* long after the proper respiratory apparatus is destroyed. Cuvier was partially right in asserting that the irritability of muscles is directly proportioned to the quantity of air the animal consumes; but he might have added also to the quantity needed, and to the diffusion of the respiratory apparatus; the air being the source of both motive power and warmth. (18.)

27. But in the higher Vertebrata, the ganglia are more centralized, the vital mechanism in connection with them requires a higher temperature, and the only source of this is a highly complicated apparatus, the action of which is solely dependent upon a central ganglion; so that the animal is absolutely individualized, and the destruction of the respiratory ganglion will arrest the movements and functions of the whole system. Consciousness itself (which is seated in the brain) is thus abolished, and hence the mistake of Mr. Mayo, who, finding destruction of that part of the *medulla oblongata* which contains the respiratory ganglion to produce this effect, supposed this portion of the nervous axis to be the seat of consciousness.†

28. Now, just as the diffused nervous system embodies the elements of the ganglionic; and the movements in connection with the former (the movements of irritability) are typical of those dependent on the latter—the reflex or excited; so are the ganglionic phenomena illustrative of the cerebral; and the mode of action of the brain itself as the organ of the mind, may in some degree be ascertained by an analysis of the series of phenomena just reviewed.

29. The discoveries of modern anatomists and physiologists have not yet been made available for this purpose; and the physiology of the brain has been studied altogether independently of that of the ganglia of the cord. The labours of Tiedemann, Meckel, Serres, Cuvier, Grant, and others have, however, accumulated a mass of facts and analogies of the highest utility, especially in establishing the identity of structure of the brain and spinal cord. I would refer the reader, in particular, to Mr. Solly's lucid compilation as clearly establishing it.‡

* It is probable also that the tissues themselves are specifically different in their functions from those of the hot-blooded, and analogous to those of the cold-blooded articulata and animals with a diffused nervous system.

† Outlines of Human Physiology, 3d edition, p. 229.

‡ The Human Brain, its Configuration, Structure, Development, and Physiology. London, 1836.

30. Leaving the reader to ascertain the truth of the following propositions for himself, from a perusal of the various facts collected in Mr. Solly's and the works of various writers on comparative anatomy, I shall simply assume, that in man the hemispherical ganglia are ganglia central to the whole system, and the seat of mind (14); that other portions of the encephalon form distinct nervous centres; that each pair of nerves originates from a series of ganglia in the spinal cord, analogous to those of the Articulata, but concealed by the addition of fresh parts, and by those nervous tracts in connection with the central or terminal ganglia; that the ganglia on the posterior roots are not the ganglia of the sense of touch, (which probably form a constituent part of the encephalon, See p. 131.) but are accessory to the secreting structures imbedded in the skin, and precisely analogous to the ganglia of the sympathetic, (which aid the secreting structures of the viscera,) and to those diffused in the tissues;* and, lastly, that all these ganglia, whether cerebral, spinal, sympathetic, or diffused in the tissues, have the same generic character. (28.)

31. It is by no means my intention to review the whole of our knowledge respecting the structure and functions of the ganglia; I shall confine myself to those prominent points which may illustrate the principal phenomena of those diseases I have been investigating.

32. The phenomena first to be noticed are those in which consciousness is directly involved, and which I have already enumerated. (1.) That the encephalon is the organ of consciousness, is a proposition almost universally acknowledged. It was the received opinion of the ancients; Newton, Dr. S. Clarke, Locke, Malebranche, Hooke, Des Cartes, Reid,† and others among metaphysicians, have more or less admitted it; and it has been asserted by a host of medical observers, who are certainly the most competent to give an opinion. Among these may be mentioned Willis, Haller, Sömmering, Prochaska, Portal, Sabatier, Vicq-d'Azyr, Gall, Cuvier, and C. Bell.

33. It is in the encephalon, then, that those changes, which are excited by external and internal stimuli, are manifest to intelli-

* Schwann observed microscopic ganglia in the mesentery of a frog; and farther researches on the mode of termination of the nerves in the tail of the larva of the toad have confirmed these observations. Muller's Physiology, translation, p. 604. Gall observes that ganglia have been found on the nerves of the arms and thighs, "Anatomie et Physiol. du Syst. Nerv. Tome i. p. 65." I remember finding a ganglion on a nerve in the wrist. In the 42d vol. of the Ed. Med. & Sur. Jour. a paper by M. Camus will be found, in which certain bodies resembling small ganglia are described as placed on the nervous fibrils, distributed to the plantar and palmar surfaces. I think all these must be considered as analogous to the optic and other small ganglia of the face. More may be found if carefully sought for, especially in parts of special sense.

† There is, therefore, sufficient reason to conclude, that in perception, the object produces some change in the organ; that the organ produces some change upon the nerve; and that the nerve produces some change in the brain. Essay 2, ch. ii.

gence; or, in other words, consciousness consists in a perception of the changes thus originated in the brain by the forces of matter; yet not in the brain as a whole, but especially in the cerebral lobes or hemispherical ganglia. The will also is seated in this part; and as we are conscious of the power to perceive, so are we conscious of the power to will. These faculties, however, admit of no investigation, except through their relations to vital mechanism. (24.)

34. We find that the changes excited in the system by the action of external forces are communicated to the brain and other ganglia by the sensitive nerves; that the will acts upon the muscles so as to excite motion through the motor nerves: and that a third class of nerves, the organic,—which are subservient to the perfection and repair of the vital mechanism, are influenced by certain mental agencies, of which we are conscious, but which are independent of the will; as happens in all the vital changes connected with emotions.

35. Of these nerves it may be stated, that they all communicate with a hypothetical point of perception and volition seated in the brain, and termed the *sensorium commune*: this point constituting the central, and the opposite, the peripheral termination of a nerve. It is not intended by this to advance the common doctrine, that all the nerves depart from one common centre; but rather, that they communicate with several central points situated on one common circle. Professor Müller conceives the nerves to be all spread out at their central extremity to receive the influence of the will, and compares them “as they lie side by side to the keys of a piano, on which our thoughts play or strike.”*

36. The convolutions of the cerebrum and cerebellum have been described by Gall and Spurzheim as consisting of two fibrous layers, containing between them a layer of gray matter;† or, in the more recent language of Mr. Solly, they are an extensive surface of cineritious neurine, to which medullary fibres present their extremities. When we consider the enormous surface which these ganglia must thus possess, and the fact, as demonstrated by Weber and Smith, that the sensible points of the retina measure no more than $\frac{1}{80000}$ of an inch in diameter,‡ which may be considered the diameter of the sensible points on this surface, there is much less ground for surprise at the infinite variety of our sensations.

37. It was inferred long ago from the phenomena of health and disease, that the fibrils of the nerves must be insulated in their whole course from the periphery to the centre, and *vice versa*, but it is only recently that the microscope has enabled physiologists to demonstrate the fact. For this we are principally indebted to Ehrenberg and Müller.§ To the labourers in the new field of research

* Physiology, p. 636 of Dr. Baly's translation. This seems a favourite idea, as it is repeated by the Professor.

† Anatomie et Physiol. Gener. du Syst. Nerv. &c., i. p. 299, sqq.

‡ Prof. Müller's Physiol. p. 702 of translation.

§ Ehrenberg's Researches may be found in Vol. xlviii. of the Ed. Med. and Surg. Jour., and with Professor Müller's in the Physiology of the latter.

opened out by Sir C. Bell's discoveries, we are also indebted for a vast number of facts exceedingly elucidatory of the phenomena of nervous diseases. It is to the laws of sensation which have been thus illustrated that I must principally confine myself.

38. The doctrine of the excito-motory functions of the spinal cord; which, although not discovered, have been investigated and promulgated with much zeal and perseverance by Dr. Hall; and the numerous facts accumulated by a careful observation of the phenomena of life, as well in vegetables as in animals, render it certain that there may be all the recognised phenomena of sensation, without consciousness. Thus the eyelid of the comatose will shut when the conjunctiva is touched; and decapitated cold-blooded Vertebrata and Articulata exhibit a variety of combined movements long after removal of the cerebral ganglia.* Now, as conscious sensation depends on the latter, I shall consider the phenomena just mentioned as indicating physical sensation. In this term I comprehend the efficient cause of the motions of vital matter which follow the application of an external stimulus; so that the sensitive plant has physical sensation as much as the decapitated turtle or apoplectic man.

39. These movements in animals are simply the results of vital mechanism excited into action independently of the will. When the mechanism is not complicated, as in muscular fibres, or vegetable structure, it is said to be endowed with irritability. If complicated, the resulting motions are termed involuntary, instinctive, automatic.

40. If the continuity of a sensitive point with the brain be interrupted, external stimuli applied to it excite no sensation; and when the sensitive nerve of a limb be divided the extremity is as insensible to burning, pricking, &c., as if it had been altogether separated from the trunk. But if the cut extremity still in connection with the general system be irritated, sensation is excited as if the terminal point on the limb had been irritated, and not in the part touched. These facts are too well known to need illustration.

41. Independently of the common inference drawn from them, it may be added that, as one function of the spinal cord, as regards the sensitive and motor nerves, is that of a conductor, all irritation of a sensitive nerve, whether in the spinal cord, or, even as far as its termination in the brain, must excite sensation referred to the peripheral point. Sir C. Bell was the first, I believe, to point out these facts. Dr. Combe has also illustrated them,† and Professor Müller has pushed these inquiries still further. As his facts and in-

* The proboscis or *antlia* of a common butterfly will coil up and uncoil when touched, three or four hours after separation from the insect. Kirby and Spence, Entomology, iv. 191.

† "If we select a filament of a nerve of sensation, whether it be pricked or injured in the foot, thigh, spine, or brain, the perception arising will be referred to that part of the skin where the remote filament is distributed."—Sir C. Bell on the Nervous System, p. 18. Dr. Combe's remarks may be found in his Observations on Mental Derangement, p. 8 sqq.

ferences, so far as they go, resemble those which I proposed to publish in the Ed. Med. and Surg. Journ. some time before I saw his, I refer the reader to the Professor's excellent Manual of Physiology for further information; and with greater confidence from the circumstance just stated. Nevertheless, I think these laws of sensation are capable of further illustration and application.

42. It may be inferred, that each point of a sensitive nerve has the same properties as the peripheral extremity; for, if stimulated, the same mental perception is excited as if the latter suffered the stimulus; if its extremity in connection with the brain be destroyed, its functions equally cease; and since it is matter of fact (40), of a legitimate inference, that these may be predicated of a point in a sensitive nerve in any part of its course, even to the last globule, it is a fair inference that, so far as regards consciousness, the powers of the central and peripheral termination of a sensitive nerve are identically the same.

43. Sensation is not a perception of the qualities of bodies, but of the changes, which these excite in the terminating molecules of the sensitive nerve; and which changes, when derived from the periphery, appear to be propagated from molecule to molecule, just as the (so called) electric or galvanic fluid, (14, 34,) consequently, any sufficient cause acting upon the molecules of a sensitive nerve in any part of its course, will excite these changes, or increase or diminish its susceptibility of change, as much as if applied to either end. Thus in inflammation, such changes are excited in the peripheral terminations of the sensitive nerves, that we are conscious of heat and pain; and those impressions formerly unfeared or pleasurable now excites pain; provided similar changes be excited in any point continuous with the brain, or in the terminal point on the brain itself, there is a precisely similar affectable state of the peripheral end, as occurs in inflammation; although it be not involved in any disease whatever. Tic-doloureux, phrenitis, and hysterical neuralgia, illustrate this inference. So also, if the ganglia receiving the central termination (36) be rendered incapable of propagating the change, (33,) either by disorganization, or narcotics, we have sensation abolished equally as if the peripheral had been so paralysed. These principles are of the highest importance, and admit of most extensive application to all the phenomena of consciousness.

44. The same laws of action, *mutatis mutandis*, are as applicable to the motor nerves; and it is exceedingly probable that the action of all nerves is essentially similar.* Motion, like sensation, may be excited in vital mechanism, by internal and external agencies.—1. We have the change in the central termination, which originates motion when excited by the will. 2. There are the involuntary movements excited by internal stimuli, as by the passions, organic

* At least of those on similar apparatus. Thus the loop-like termination of nerves observed both in the brain, and muscular structures, (Müller, op. cit. p. 603, 606,) may indicate an analogy of function.

disease. 3. The reflex, or those excited by stimuli applied to the periphery of the nerve, still in connection with its ganglionic centre; and 4. The movements of irritability, or those excited by stimuli applied to the nerve, as it is diffused among muscular fibres, and separated from the general system.

45. Sensations may be classed into simple or primary, and complex or combined, just as movements; and may not they be characterized under four subdivisions similar to the preceding? (44.)

46. *Firstly*, can such changes as shall become objects of perception be excited by volition? When we recal ideas by a volition, we re-excite those changes in the brain which constitute the original sensation. Thus, when a painter makes a picture of a friend who is absent or dead, he recalls the features by an act of will, and makes them an object of thought as much as if they were afforded by the original. It will be remarked that I am reviving the opinion of those who considered that all our perceptions are connected with changes in the brain; and although so high an authority as Dugald Stewart has pronounced opinions of this kind unphilosophical, yet I must venture to adopt it after many ancients, and Malebranche, Hooke, Locke, and Haller. If we acknowledge the brain to be the organ of the mind (32), I cannot possibly conceive how we can assert that no changes take place in it during our mental operations; if such be the fact, of what use is that wonderful and complicated piece of machinery? But daily experience is utterly opposed to such doctrine. In what these changes consist it is unnecessary to inquire; we may be certain, however, that they do not differ essentially from other vital changes, and that their type must be sought for in those occurring in the diffused nervous system, or in the ganglia. (28, 30.)

47. That volition will excite changes in the fibrils in connection with the perceptive and intellectual organs is plain from the phenomena of attention. We are conscious that we attend by an act of the will; and it is analogous to the excitement of motion by the will in this, that the greater the energy of voluntary attention, the longer appears the duration of time.

48. Attention (which may be either voluntary or involuntary) may be directed either to the changes excited by external stimuli, when it consists essentially in the production of such physical changes in the central fibres as to render them more susceptible of impressions, whereby more vivid perceptions result (43); or it may be directed to the changes produced by internal stimuli, as our own thoughts. In the latter case the action of the will is intermittent,* as it probably is in the former. So, also, when we will motions

* When we are employed in studying an object not interesting, Professor Stewart says, "it is not an exclusive and steady attention we give it, but we are losing sight of it, and recurring to it every instant; and the painful efforts of which we are conscious are not (as we are apt to suppose them) efforts of uncommon attention, but unsuccessful attempts to keep the mind steady to its object," &c.—Philosophy of the Human Mind, Chap. vi. § i.

the volition is not continuous but intermittent, as any one may learn by listening to the contractions of his own masseter muscle.* Dr. Elliotson allows that we may will attention but denies that we can call up a feeling at pleasure. However, the fact is otherwise.

49. By an act of the will we can also excite new sensations. Let an individual concentrate his attention upon the interior of his head for a few minutes, and he will experience various sensations on the skin, analogous to formication (43). Any one may will a sensation in their finger end by directing their attention to it (48). Dr. Elliotson mentions instances of this kind,† and the phenomena of Mesmerism (so called) are continual illustrations of the power of the will over the brain, either directly or indirectly through attention. To these I shall refer again. It is thus people can ward off attacks of nervous disease by an effort. (See p. 119, 125.)

50. Internal stimuli excite involuntary movements (convulsions); can they excite involuntary sensations? or, in other words, such changes in the brain that perceptions may be excited? Internal stimuli may consist in organic disease of the fibrils; in increased or retarded circulation of the blood through them; in alteration of its constituents as by poisons: or in changes induced in it, or in the nervous system by the passions. Dreams and spectral illusions of every kind are thus excited; so also are all sensations primarily connected with things external, but re-excited by functional or organic changes in the brain or spinal cord. Thus nervous patients complain of primary sensations, as whizzings, flashings, hammerings, explosions, and voices. Once, when half awake in bed, I heard my own name called most distinctly in my ear, yet no one called. A person had a continual smell of pus which nothing could relieve; after death an abscess was found in the *corpus callosum*.‡

51. Maniacal illusions are frequently spectral, but the individual cannot perceive their incongruity with impressions derived from without; and hence incongruous sentiments and actions. In these cases the ideas or changes are secondary or complex; and may originate in false primary sensations. These various sensations and affections of the sensitive fibres may all be considered analogous to convulsive or involuntary motions.

52. External stimuli produce such changes in the nervous cen-

* Dr. Wollaston's acute observation first made us acquainted with this fact. (Phil. Trans. 1810, p. 2. § sqq.) He found the intermissions to be about 20 or 30 in a second. Dr. Elliotson (Physiology, p. 479), attempts to disprove the accuracy of Dr. Wollaston's conclusions, but forgets the important fact that these vibratory motions are not of a set of muscles, but of particular fibres. I have easily listened to them many times in bed, by placing the side of my head and face close to a moderately firm pillow, and then closing the jaws forcibly, so that the contracted masseter may press the pillow. The vibrations will be found to be quickened according to the force of contraction excited. I have counted 140 in a minute when using a gentle force. Is there not an analogy here to the peristaltic class of movements, as of the heart?

† Human Physiology, 5th edition, p. 497.

‡ Cabanis, Op. cit. Mem. iii. § i.

tres that the involuntary motions termed reflex, follow:—can they produce analogous sensorial phenomena?

53. Dreams have hitherto been among the most inexplicable of the phenomena of mind. Nothing, I think, can equal the clearness, acuteness, and originality of Professor Stewart's explanations, which have been treated with much unmerited neglect. Acknowledging the influence of the will in exciting mental phenomena, he remarks, that in sleep it "loses its influence over all our powers both of mind and body; in consequence of some physical alteration in the system which (he adds) we shall never probably be able to explain."* In accordance with this proposition he explains the incubus by supposing it to differ from ordinary sleep, in this, that uneasy sensations render us distinctly conscious of our inability to move.† Stewart explains dreaming by supposing that the thoughts arise from associated ideas only; the voluntary power over the ideas being suspended (49); and he attempts to establish two propositions, 1. That the succession of our thoughts in sleep is regulated by the same general laws of associations as when we are awake; and 2. That the circumstances which discriminate dreaming from our waking thoughts are such as must necessarily arise from the suspension of the influence of the will.

54. This is not the whole truth, but it is quite correct as far as it goes. Stewart's explanation of the action of opium on ideas, and of the phenomena of somnambulism, are equally clear and philosophical as regards the altered relations of the will to the brain; and superior in this respect, I think, to the more modern of Macnish and Elliotson, who have copied from him. By changing a few terms, and adding those explanations derived from physiological facts, with which Stewart was not conversant, it will be easy to show, that the excito-motory phenomena of Dr. Hall, confined by him to the spinal cord, have their analogues in the cerebral hemispheres. In short, that there is a large class of combined involuntary sensations of ideas which are excited secondarily by stimuli from without, and may be termed excito-sensory, if Dr. Hall's nomenclature be followed.

55. The only motions now remaining, then, for which we have to seek an analogue in sensorial phenomena are those of irritability. To save the time of the reader, I must here hypothetically assume that the brain is not only a centre but a periphery, corresponding to the external periphery from which sensitive nerves originate, and in which the changes originated by matter commence; but itself originating fibrils which carry changes in the opposite direction, so that the action of the will on this internal periphery in exciting sensation and emotion must be considered as analogous to that of force on the external periphery (15,) (36).

56. The action of force and will on organized matter, then, may be considered as identical; and the molecular changes induced by the will on the internal periphery as analogous to those

* Op. cit. Chap. v. Part v. § v.

† Ibid.

induced by the forces of matter on the external. Consequently, the changes indicated in Section 50 are analogous to those of irritability.

57. And I may here add, that these peripheries correspond in their powers in other modifications of life and thought. Tickling the feet will excite as hearty and involuntary laughter as tickling the fancy by a ludicrous idea; in the latter case, the series of molecular changes combining to produce this spasmodic action of the respiratory muscles, and propagated to the proper centre, originate on the internal periphery; in the former, on the external.

58. Having thus sketched a very broad outline of the doctrine, that vital actions are essentially the same, whether displayed in vegetables, or in animals, with a diffused nervous system; whether in these, or ganglionated animals; or, whether in the spinal cord or brain; I shall be able to review the remaining phenomena of hysteria synthetically presenting them as illustrations; and shall also possess a new starting point for an analytical inquiry into the seat and nature of the whole series.

59. Coma consists in an abolition of consciousness. There is no volition, nor any perception of external or internal stimuli; and life consists in a series of automatic movements. It is scarcely necessary to particularize its numerous proximate causes. It is frequently a very alarming symptom of hysteria, and, as might be expected from my preceding remarks (see p. 103), is consequent upon every exhausting agency of a certain degree of intensity, as profuse blood-lettings or other evacuations; debilitating diseases of mucous surfaces, mental or bodily fatigue, and violent passions. It is very frequently induced by poisons, whether they enter the system by absorption, or consist of the excrementitious matter accumulating in the blood from deficient elimination; as when the excretion of bile, urea, or carbonic acid is prevented by diseases of the kidneys, liver, or lungs. Profound sleep is the type of coma; in both, there is complete paralysis of the brain, and the usual changes which constitute ideas and excite volition, are not originated by any stimulus whatever.

60. When the causes of coma acts with less intensity, changes are excited which we perceive; but there is still paralysis of the primary organs of perception and volition. We can both perceive and will, but the changes in the motor nerves necessary to motion cannot be excited, nor can we perceive the primary changes or sensations in the sensitive fibrils resulting from external stimuli. These, however, originate other changes which become objects of perception, and which are analogous to reflex movements (53, 54).*

* The opinion, that the perceptions of our dreams are resuscitated ideas, is very common; but the above remarks refer to the mode in which they originate. The following will illustrate the text. I dreamt I was perambulating some of the narrow dark alleys of the parish of St. Giles, London, visiting dispensary patients; I breathed in them with difficulty; and, at last, in one I felt as if suffocated. I awoke in affright, and found the bed-clothes twisted about my face, obstructing

61. Delirium originates from all the causes which will excite coma or paralysis, only they act with less intensity than in exciting the former. We have a less amount of paralysis of the cerebral organs; ideogenous changes, or changes producing ideas, (33, 43,) are more complicated, because the primary sensations derived from without are more or less perceived; the motor nerves may in an equal degree be influenced by the will; and the sensory apparatus is also in part under the same control, for the individual is capable of an act of attention (48); or, in common phrase, he will listen or speak when aroused;—the act of will placing the sensory apparatus in a state such that external stimuli produce a more vivid impression, removing, in fact, the paralysis during the effort, just as motor paralysis may be removed by the same means.*

62. Spectral illusions are dependent upon similar morbid states, the affection being frequently circumscribed, and there being no paralysis of the primary sensitive fibrils. Consequently, all the senses give correct impressions, and unless the individual be insane, that is, have paralysis of the comparing and judging organs, he is perfectly aware of their real nature.

63. The causes of spectral illusions are the same as those of other nervous diseases, of which they are frequently a symptom, and are influenced by the same circumstances. They are observed in cases of epilepsy, loss of blood, injuries of the scalp, &c. They are most frequently perceived in the night, as are the other phenomena of functional nervous diseases; and are perhaps more common in children than usually suspected, their tales of ghosts being generally disbelieved. The spectres are of those classes of objects which are more familiar or impressive to the individual, or have been early or deeply impressed on the mind.† They follow indeed the laws of memory in every respect.

64. Another peculiarity is, that the spectres are most frequently dressed in red. Mr. Abernethy mentions an instance of this kind;‡ and Mr. Macnish asks why they should appear in red rather than blue.§ The solution of this question must be sought for in the laws of the sensorial action of colours, a glimpse of which I have already indicated (See p. 142).

65. Other sensorial illusions are analogous to the spectral, as of voices, and tactile sensation.¶ One remarkable illusion is that in respiration. I dreamt of running and walking rapidly, least I should be left by a party; and awoke in my hurry as wet with perspiration as if I had been using the most violent exertion. Now, in these instances, I conceive the sensations of perspiration and obstructed respiration became associated with other ideas, and gave them their connection.

* In these cases the attention or effort of will is involuntary. Sensorial paralysis or insanity may, as well as common paralysis, be removed by the same means. A case of a lunatic cured by fright may be found in *Med. Chir. Rev.* xxvii. p. 540.

† *Dr. Alderson's Cases in Edin. Med. and Surg. Journal*, Vol. vi. Mr. Craig's case, with remarks, by Dr. Craigie, in *Ibid.* Vol. xlv. *Wesley's Journal*, *passim*.

‡ *Lectures in Lancet*, Vol. xi. p. 27. § *Philosophy of Sleep*, 2d ed. p. 261.

¶ Case by Dr. Bright, in *Guy's Hospital Reports*, No. iv.

which the individual refers his sensation to some other person. A man comes home exceedingly drunk, and is positive his servants are too drunk to undress him. A delirious patient when he was hungry said his nurse was.* I visited an individual dying of sphacelus of the leg. He clutched at the air, expecting to grasp a fish-hook, (being an experienced angler,) (63,) and when lying still and moaning, turned round and asked occasionally, "Who was disturbing him so?" "Who was in pain!" An individual returns late at night from a public assembly, where he has taken more fluids than customary, and he dreams of the company, and that some one is in great distress from a distended bladder, which he strongly recommends the supposed suffering individual to evacuate. The pain increases; the whole assembly appear conscious of it, and is disturbed; and at last he awakes to find that the distended bladder is his own. This mistaken individuality is sometimes observed in the insane.

66. Spectral illusions vary in degree from those of complete delirium and mania, to that state in which the perceptive organs are in full vigour; and, as another proof that the sensorial fibres are in some mode under the control of the will, it may be mentioned that they may be made to appear or disappear in some cases by an act of will, and have actually become a source of amusement to the patient, who has diverted himself by calling up or dismissing the phantoms at pleasure. One individual informs me that his illusions have very much the character of the phenomena of the kaleidoscope. He can make them disappear by shutting his eyes, although they appear in the night.

67. Somnambulism is also one of the same class of sensorial affections as dreaming, delirium, and spectral illusions; and it has the same affinity to other nervous diseases. It would but weary the reader with a repetition of illustrative facts.† It is much more common in children than suspected, being overlooked because their actions are less definite, and the attack does not depend upon permanent change in the brain. Like other nervous diseases it is hereditary and heptaperiodic,‡ and almost invariably occurs in the night.

68. Somnambulism has attracted considerable attention from its facile excitement in hysterical females, by various movements called *passes*. I have already pointed out that an act of attention is, in fact, an act of the will; which, I may now add, produces a state of the sensorial fibres analogous to that resulting from various nervine alteratives, as strychnia, opium, loss of blood, &c.

69. It must be remembered, however, that although all sensorial volitions are necessarily accompanied by exalted affectibility of that portion of the nervous system willed on, other portions become by a law of our constitution less affectible in various degrees,

* J. Hunter's Works, i. p. 335.

† See *post*.

‡ Macnish, op. cit., p. 162, 171. Elliotson, op. cit., p. 659.

to complete *anæsthesia*; and in the same order, as occurs on the approach of sleep, or in cases of mania, poisoning, exposure to excessive cold, or in great fatigue.*

70. When about to sleep, external stimuli cease to excite primary sensations, long before the secondary ideagenous changes they produce are no longer objects of consciousness. The maniac or delirious, wrapped up in one idea, and with exalted faculties of music, poetry, or mimicry, will have almost lost the sense of touch; and will thrust his feet into fire without the slightest expression of pain.† In intoxication the system is at first over-excited, and then there is loss of common sensation, so that the tippler is most happily unconscious of external injuries, even the most severe, although his mental powers be at the same time exalted. And such precisely is the effect of intense attention. Marini, an Italian poet, while revising his poem Adonis, had the *anæsthesia* of attention so remarkably, that he burnt his leg severely before he was aware.‡ How often, when absorbed in thought, do loud sounds fall unnoticed on the ear? The most instructive illustrations of the connection between cerebral excitement and partial *anæsthesia* are found in those cases in which inflammatory action within the cranium occurs during the progress of phthisis; when all pulmonary irritation so completely ceases that it has been supposed there was a metastasis from the thoracic viscera to the encephalon. Dr. Abercrombie,§ and Dr. Storer,|| have noticed this class of cases.

71. Any proceeding, then, which will concentrate the attention of a person endowed with an affectible nervous system, upon any portion of the brain, will excite that portion, but at the expense of the affectibility of other portions; and according to the degree of affectibility, the amount of excitement, and the varying powers of the organs acted on, we may have phenomena varying in intensity.

72. There may be simple headache only, or anomalous sensations in the parts to which the attention of the Mesmerized individual has been directed (49); coma, spectral illusions or delirium (68), characterized as loquacious, musical, &c., according to the portion of brain most affected; and *lastly*, the higher phenomena of connected dreaming or somnambulism may appear.

73. Complete *anæsthesia*, excitement of the brain giving rise to vivid spectral illusions, and voluntary power over the motor fibres, are the distinguishing characteristics of somnambulism.

* Dr. Burrow's Comment. on Insanity, p. 465, and other writers.

† We have the authority of Captain Parry, and Colonel Shaw for the fact, that both these will excite a state resembling that of intoxication.

‡ D'Israeli's Curiosities of Literature, Vol. ii., p. 397. Cabanis makes a variety of interesting remarks on consciousness, with reference to the more uncommon forms of nervous affection. He unfortunately compares it with a fluid, the quantity of which is determined; so that if it be increased at one point, it is proportionally diminished at another. (Rapports du Physique et du Moral, R. Mem. ii. § vi.)

§ On Diseases of the Brain and Spinal Cord, p. 49.

|| Edin. Med. Chir. Trans., Vol. iii., p. 613.

74. It is very improbable that the somnambulist derives any primary sensations from without. His actions result altogether from internal sensations; and if they appear to have the precision of waking, it is because the somnambulist is in a locality corresponding to his dream. Remove him from the locality, and he gropes and stumbles.

75. Sometimes, however, the anæsthesia is not complete. The individual is rather delirious than sleeping, and secondary sensorial changes which have a relation with his dream are perceived.*

76. The spectral illusions of the somnambulist are, like those in other cases, derived from objects familiar to the individual, or which have impressed him at an early age. Their vividness also will depend upon the amount of power by which the attention is concentrated, which itself will be a definite ratio to the anæsthesia; there being no changes excited in the paralyzed sensorial organs, such as to direct the act of will to them. There are individuals who possess a remarkable power of forcibly impressing upon their imaginations any scenery they have heard described or witnessed. The blind have this faculty in an eminent degree; and so the re-excitement of these impressions during delirium or somnambulism would be proportionally more vivid in them. We have thus, I think, a natural and plausible explanation of those marvellous instances in which the soul is supposed to leave the body, (just as the vulgar imagines it acts in sleep,) to visit objects and cities it had never seen. The catch-penny tale of Colonel Stone's mental journey with a blind Mesmerized female to a distant city at which she had never been, is simply the history of a somnambulist dream.

77. An act of the will on the sensorial organs is strictly analogous to common motor volition in this, that it becomes easier by repetition, and at last involuntary. After an individual has been Mesmerized repeatedly, certain movements (*passes*) are no longer necessary to the excitement of sensorial volition; it has become a habit, is produceable by the slightest associated circumstance, and may even be under the direct control of the will. The phenomena themselves are not willed, but the changes which excite them are; and this, I conceive, has been the mode in which disinterested observers have erred. There cannot be a question that the O'Keys thus excited real phenomena† just as hysterical girls can bring on

* Occasionally somnambulism assumes a form very similar to drunkenness. Sauvages (*Nosol. Method. Tom. ii.*) relates the case of a female who was insulted by a rustic while menstruating; periodical attacks of cataleptic somnambulism were induced in which she would mistake her medical attendant for her enemy, and follow him, or his shadow round the room. She had no recollection of her husband. The comic annals of drunkenness abound with analogous instances, *e.g.* a lisping young gentleman was intoxicated and fell into a ditch on his way home; after swallowing a mouthful of the water he very politely exclaimed, "not a sthup more, thank you." Worms in the alimentary canal are sometimes coexistent with a similar state; a case may be found in Vol. xlii. of *Edinb. Med. and Surg. Journal*.

† *Lancet*, Vol. ii. 1837-8, *passim*, especially the leading article of Sept. 8th.

convulsions at will, and anybody ideas, sensations and mental emotions, with more or less facility.* Consequently there can be no question of the possibility of voluntary common somnambulism, being induced by Brahmins and Fakirs, as stated by Dr. Elliotson from a French writer.†

78. There can be no doubt that this voluntary power of exciting real phenomena has frequently aided impostures. An epileptic may thus easily induce a fit. The Pythian priestess, the wizards of Kamtschatka, the whirling dervises of India, the serpent-eaters of Egypt, the second-sight men of the Highlands, the "wise men" (*μαγιοι*), and prophets who may still be found in Yorkshire, and the O'Keys, are all of the same family. All knowing how to excite convulsions, delirium, spectral illusions, and somnambulism in themselves or their dupes by mental acts or drugs.‡

79. The prophetic power, (so called,) observed in cases of ecstasy, somnambulism, &c., is probably a very simple phenomenon. It may be considered as nothing more than an exalted faculty of judging and comparing, itself the result of morbid excitement. Many religious enthusiasts have exhibited it:§ it has been observed in dreams; individuals in the delirium of death have prophesied. Aretæus observed the power developed in the patient towards the fatal termination of *καυσος*, or brain fever;|| Patroclus when dying foretells the death of Hector; and Hector in his last moments the death of Achilles. Virgil, in imitation of Homer, makes the dying Orodes predict the death of Mezentius,¶ and Shakspeare has similar scenes. Sir H. Halford has witnessed an instance of this kind.** Mr. Madden explains this lightening of the mind before death by

* "We can excite a sensible degree of the passion of anger in our own breast, by imitating the looks and gestures which are expressive of rage."—D. Stewart on the Active and Moral Powers, Ed. 1828, p. 119. This is one of the great secrets of good acting.

† Human Physiology, 5th ed. p. 692.

‡ An act of attention may be and often is involuntary or instinctive. Point at the hand of a nervous female and she will complain of a sensation as if cold or warm air was blowing upon the part pointed at; this I have often verified. The sensation probably depends upon changes in the central termination of the sensitive nerves, (43, 48,) excited by the action of attention. Of this character are many sympathetic phenomena.—*e. g.* A female aged 48, who had not menstruated for eight years, while attending her daughter during a tedious labour, experienced uterine pains, a sanguineous discharge from the vagina, and on the third day the mammæ swelled and became painful to the touch; a milky fluid escaped from the nipples for five or six days, and the symptoms then disappeared. Dr. Paillard relates a similar case (*Med. Gazette*, i. p. 550). Sir B. Brodie has had patients who, having a friend with cancer of the breast, have worked themselves up into the belief that they had the same disease. (Had they tumour of the breast?) Sir Benjamin also remarks, "that there is no part of the body but what seems to be in pain during a state of disease, if the patient's attention be drawn to it."—*Lancet*, i. 1838-9, p. 40.

§ Wesley's Journals. || *De Caus. et Sig. Acut. Morb.*, Lib. ii. cap. iii.

¶ *Æneid*, x. 740.

* *Essays and Orations*, 2d ed. p. 60. This essay (the 6th) contains numerous classic allusions,

supposing that venous or deficiently aërated blood acts as a stimulus, producing effects resembling those of opium. Physical pain is lulled; the sensations exalted and soothed; long forgotten pleasures recalled, &c.* Most persons must have witnessed at one time or other the ecstasy of dying piety; and which must be considered as the testimony of a well-spent life, for it is but the re-excitement and exaltation of previous ideas and feelings by the physical changes in the brain which precede death. (50.)

80. As a general fact, it may be stated, that gradually impaired or interrupted function of both the sensitive and motor nerves, is preceded by increased affectibility and exalted energy. This is continually shown in sleep, mania, poisoning, loss of blood, &c. Professor Müller also notices this general fact, distinguishing the states by the terms excitable and paralytic.†

These, and the remarks made on hysteric cunning (see p. 96), will amply suffice to explain the phenomena of Mesmerism, without having recourse to the dreamy theories of the Germans, and of their imitators in France and England.

81. Before dismissing this part of the subject, I may be permitted to call the attention of physiologists to the sensorial action of colours, as affording a clue to a further analysis of sensorial phenomena, with especial reference to their chemical relations to light and its alteratives. Red and its complementary colour, green, present the most prominent points for inquiry. (See p. 142.)

82. In attempting to ascertain the nature and seat of the diseases I have been investigating, I shall follow the synthetical plan, with reference to those symptoms which implicate the cerebral ganglia.

83. We have found that a large number of vital phenomena are performed without consciousness (38); consequently, there must be a class of nerves to which the laws of consciousness are not applicable; and which must be the organs of physical sensation (38) and involuntary motion.

84. It is only within the last years that the division of nerves into motor and sensitive, for many years hypothetical, was experimentally demonstrated by Sir C. Bell. The nerves of the sympathetic system have always been distinguished from every other; and have been most recently investigated under the name of the gray or organic nerves. Dr. M. Hall has very recently advocated the theory of a system of nerves, distinct from the preceding, which he has termed the excito-motory, and which comprehends two sets of nerves, the incident and reflex; and which Mr. Grainger thinks he has demonstrated.‡ Lastly, the researches of Bellingeri, and numerous observations on muscular action in health and disease, lead to the inference that there is another set of antagonising nerves distributed to all antagonising muscles.§ These

* The Infirmities of Genius illustrated, 2 vols. 8vo. † Op. cit. p. 711.

‡ Observations on the Structure and Functions of the Spinal Cord. London, 1837.

§ In Vol. xlii. of Edin. Med. and Surg. Journal, p. 400.

nerves, according to Bellingeri, are distinguished as well in their origin as termination; the brain and anterior columns of the spinal cord being in connection with those that regulate the motions of flexion and abduction; and the cerebellum and posterior column, with the nerves of flexion and abduction.

85. The nerves, then, are, 1, of common sensation; 2, of special sensation; 3, of voluntary motion; 4, of incident sensation; 5, of reflex motion; 6 and 7, of the antagonizing system; and 8, of secretion. It may be remarked, however, that if the principle upon which this division has been founded be once admitted, the genera and species of nerves may be extended indefinitely. The nerves of secretion may be as numerous as the secretions and excretions; and we may very fairly infer from the physiological action of colours that there are special fibrils for the perception of each. Whether the principles be correct or not, such an arrangement would be inconvenient, and I shall therefore adopt the usual division, with certain modifications.

86. The sensitive nerves of both systems (the voluntary and involuntary) may be divided into nerves of special and common sensation, or, in other words, into cerebral nerves of special conscious sense and common sensation (33), and ganglionic nerves of special physical sense and common sensation (38).

87. The nerves of special conscious sense are distributed to the organs of the senses, including the tactile apparatus on the skin; and perhaps ought to be considered as essentially nerves of physical sense prolonged to the ganglia of consciousness. Their office is to communicate to the sensorium the effects of force on the peripheral molecule of the nerve (43), whether displayed in the various primary qualities of matter, as resistance, (comprising hardness, elasticity, &c.,) weight, and temperature; or displayed on ethereal media, and giving rise to the phenomena of hearing and vision. They are all distributed to special apparatus both of sensation and motion, together with nerves of special ganglionic sense, as in the sphincters; but are in direct connection with the hemispherical ganglia.

88. The nerves of special ganglionic sense communicate physical sensation (38, 39), to the encephalon and ganglia in connection with instinctive and involuntary movements.* That the sensitive nerves of the sphincters (which latter are in fact the terminations of the external tegument) are both cerebral and special ganglionic nerves, is proved by such facts as the following: Irritation of the nerves of the bladder being communicated to the spinal cord, excites, in

* In illustration of the text, I may state that ganglionic nerves of special sense are, like the cerebral, distributed on special apparatus; it is thus that reflex movements are excited more vigorously by touching certain points of the surface than the trunk of the nerve, a fact noticed by Whytt, Volkman, and others. See translation of Prof. Müller's *Physiology*, p. 722, and the note by Dr. Baly, p. 710, Mr. Grainger reports experiments most pointedly illustrative of the fact in his recent work on the *Spinal Cord*, p. 55, sqq.

addition to involuntary muscular action, such changes upon the sensory fibres traversing that part of the cord, and derived from the skin covering the perinæum, groins, thighs, and orifice of the urethra, that sensations are perceived in them according to a general law (41, 43), but not within the bladder or urethra; irritation of the intestinal canal (as from worms) may excite a reflex movement (tetanus); or the sensation of tickling or itching of the nose and anus, and probably irritation of the pharynx, and consequent vomiting. The pain of colic or of stone is seated in a nerve of common sensation, and differs altogether from those affections of special sensitive nerves which, when irritated, always give rise to the sensations peculiar to them. Thus, the optic nerve, when mechanically excited, originates sensations of light, the auditory of sound,* &c., and so disease of the spinal cord causes tingling in the skin, never in the stomach or intestines.

89. Tickling the sides of the thorax excites the same sensations and movements as a ludicrous idea; so will tickling the feet (57). In the latter case, when disease of the spinal cord has destroyed the continuity of the nerves with the hemispheric and respiratory ganglia, we have neither laughter nor conscious sensation (87); but if the dorsal or lumbar ganglia be uninjured, and are in an affectible state, we have convulsive retraction of the extremity. It is upon these and analogous phenomena that the excito-motory theory is founded. But I think it a more simple explanation, to suppose that the phenomena vary according to the ganglia in which the changes excited in the peripheral end of the nerve terminate (56, 87), or according to the affectibility of those which the nerve traverses. If the series of changes could be arrested in the respiratory ganglia, we might have loud laughter without consciousness (88). The relations of the cerebral and ganglionic sensitive nerves to the secretory are analogous to the preceding. Secretion like motion, may or may not be accompanied by sensation.

90. When the instinctive or involuntary movements are accompanied by conscious sensations, they appear to be simply those of pleasure and pain, which powerfully aid in the conservation of the animal, and continuance of the species.

91. Galen's experiment on a fœtal kid was perhaps the first which demonstrated that instinctive actions were at least independent of experience. But the bias to metaphysical theory for a long time prevented them being viewed in their proper light. In 1771, Unzer pretended (to use the words of Gall) that the irritation of a nerve, whether it arrived at the soul or not, could of itself, and independently of the will or power of the soul, produce an impression upon the nervous and muscular systems, and excite movements. He thus attempted to explain the actions and habits which appear spontaneous in certain animals. He showed also, that, in those classes

* Gall and Spurzheim, op. cit. Tom. i. p. 130. Muller, op. cit. p. 623.

of animals which were supposed to possess a soul, and in man himself, movements take place without the participation of the soul, and which consequently continue a certain time after death.* Prochaska treated largely of those movements subservient to the conservation of the animal; and showed how they might be excited by external stimuli, without the intervention of the will or consciousness. (39.) Mr. Grainger unacquainted, apparently, with these writers, takes up the same doctrine.

92. Dumas inferred from various facts, that voluntary movements and consciousness do not depend upon the brain, which was an error. In support of the doctrine, he quoted the experiment of Duvernay, who removed the brain from a pigeon without apparent injury; it continuing to live, eat, and perform various functions. He also referred to the experiment performed by Perrault on a lizard or viper, which lived and ran to its hole after its head was cut off and intestines removed.

93. Gall does not appear to have suspected the great truth concealed beneath these facts. He was certain that the opinion of Dumas was erroneous; but he never supposed that there might be all the phenomena of conscious sensation without consciousness, and independently of the hemispherical ganglia. He therefore treated the facts as unworthy of credit; called them edifying tales; and recommended physiologists to verify observations before they founded theories upon them, which contradicted all the known laws of organization.† Gall was a man wrapped up in one idea, or he would have taken the trouble to verify the observations himself at the nearest fishmonger's.

94. Yet he acknowledged that analogous phenomena, namely, the instinctive actions of young animals, take place without consciousness; and even attempts to explain them.‡ Although Gall thought he triumphantly refuted the accusations of those who maintained that he was renewing the old doctrine of innate ideas, he does not satisfactorily explain why a chicken with the shell still on its tail will peck at a spider or a grain of corn, or why the calf of a tame cow by a wild bull exhibits unusual fierceness. No one will imagine for a moment that chickens learn by experience what is their proper food, or that the calf learns from its dam.

95. But Gall extended still farther the doctrine of innate ideas, (for such it really is,) and fell into the views of Unzer and Prochaska (91). He maintained that joy, sorrow, fear, &c., are not excited by the will, but are felt before the individual has so much as dreamed of them. All that passes is an arrangement produced by nature, intended for the external world to secure "la conservation de l'animal et de l'homme, sans qu'il y ait conscience, reflexion, ni participation active de l'individu."§ He also asserted

* Gall, op. cit. Tome i. p. 7.

† Op. cit. ii. p. 11.

‡ Op. cit. i. p. 81.

§ Op. cit. ii. p. 12.

that these passions, when of a certain intensity, are accompanied by actions which are independent of the will and of consciousness; but which all tend towards the end proposed by nature, the conservation and ease (90) of the individual. Thus in fact classing the phenomena of the passions with the movements excited by external stimuli independently of consciousness and of the brain, and which have been remarked on by Unzer, Haller, Prochaska, Hall, Müller and Grainger.*

96. This slight historical sketch furnishes ample proof, in addition to that I have already given, of the truth of the proposition, that the cranial ganglia, although the seat of consciousness and will, are subject to the same laws as those which govern the other ganglia, the diffused nervous system of lower animals, as the *Hydra viridis*, and the vital mechanism of vegetables (28). In short, that in the whole series there is a machinery perfectly adapted to external nature.

97. In man, however, there is certainly something more. While brutes merely follow the impulses, simple or compound, derived from pleasure and pain, man has a mechanism adapted to a moral world, and in this the will forms a prominent feature. A consideration of its relations is the object of ethical philosophy.†

98. The physiological and pathological facts upon which the excito-motory theory is founded are quite analogous to the preceding, and may be found at length in the works of Dr. Hall, in Professor Müller's Manual of Physiology, and in recent volumes of the British Medical Journals. I may also add, that the cases and illustrations I have published constitute a series of similar facts.

99. With regard to the whole class of combined movements with sensation, noticed in my last paper, (see p. 133,) and which themselves are the phenomena accompanying various forms of ideas, emotions, and impulses, and are consequently involuntary, it may be remarked, that they furnish additional proof of the existence of the hypothetical internal periphery before noticed, (57,) as corresponding to the external. Whether its components be essentially distinct, as Dr. Hall supposes those of the external periphery to be; or whether there be two peripheries, one the organ of conscious, the other of physical sensation, in connection with the instinctive or automatic movements, is matter for further inquiry.

100. The causes of these combined movements are similar to those by which combined ideogenous changes are excited, and which constitute spectral illusions of every kind. (50.)

101. Special or general convulsive movements, being with the

* Professor Alison must also be added to the list, if he still maintains the opinion given at p. 355 of his Outlines of Physiology.

† It is not probable that inferior animals have a moral consciousness; that is of the power to will or not will, and of a Deity. "Quæ est enim gens aut quod genus hominum, quod non habeat sine doctrina, anticipationem quondam deorum? quam appellat *περοληφιν* Epicurus," &c. Cicero de Natura Deorum, Lib. . § 16, 17.

exception of the antagonizing movements (see p. 133, § 3, 137), dependent on the spinal ganglia, are never perhaps connected with sensorial changes, except in so far as the affectibility of the system is increased by acts of attention, whether they be voluntary or involuntary (48, 68, 78, note). It is thus the sound of water dropping, or the perception of brightness, or mental emotions, excite hydrophobic gasp, and tetanic and other convulsive movements. (See p. 117, *sqq.*)

102. The organs implicated will, of course, vary according to the parts of the nervous system in which there is a morbid action; and according to the varying influence of the hurtful agents. Thus we have found that, in females, the organs under the special influence of the generative system are peculiarly liable to morbid action, the phenomena of which constitute the largest portion of the symptoms of hysteria. (See p. 68, *sqq.*)

103. We have now to inquire what central parts of the nervous system are implicated in these diseases. I have already partly ascertained this. In a previous page, (see p. 105,) I deduced the synthetical principle that the organs in connection with the two ends of the spinal cord were principally affected.

104. The general relations of the cranial ends of the cord are obvious from the foregoing inferences. We have found that the fundamental organs in all organisms are a nutritive and respiratory apparatus; and that the due action of these is necessary to the continued existence of the individual (19). External stimuli act upon these in vegetable and the lower animals, solely; there is no sensation nor consciousness, because there are no ganglia.

105. In higher animals the mechanism of these functions is concentrated in the cranial cord, (25, 27,) being still, however, under the same general laws; and as we find a variety of mental phenomena subservient to the same purposes, and regulated also by the same general laws, (95,) it is a fair inference that the seat of these is in a part of the same nervous system; in short, that mental emotions and physical sensations act upon a sensorial system in anatomical connection with the ganglia of respiration and nutrition.

106. The connection of the lower end of the cord with the generative organs is also obvious, from the first part of the analysis. (See p. 105.) But the physical sensations in connection with the reproductive functions do not differ in their nature from those of the conservative; are equally imperative and extensive (see p. 95);* and, as appears from the whole series of phenomena, are closely connected with the respiratory ganglia (103). So that both the conservative and reproductive mechanism within the cranium, and connected with sensation, will be found in connection with the ganglia just mentioned.

107. The phenomena resulting from the centralization of the functions of the respiratory apparatus and its dependencies in the

* "Le plus grand acte de la nature, est la reproduction des individus et la conservation des races."—Cabanis, in Analytical Table by D. Tracy, prefixed to his Memoirs, p. lv.

respiratory ganglia and from their connection with cranial ganglia of involuntary sensation and movement, constituted the basis of all those medico-metaphysical theories of the ancients and moderns, which located a soul in the epigastrium, diaphragm, and heart. But the varying states of the blood, and its consequently varying action on the nervous system, received merely a secondary consideration; or were noticed only in the conflicting theories of the Humorists and Solidists.

108. The blood is the product of the respiratory and nutritive apparatus; there is a remarkable similarity existing between the phenomena of hysteria and those resulting from a morbid state of the blood (see p. 103, *sqq.*); the processes of secretion and excretion, upon which the healthful state of the blood depends as well as the action of mental emotions and sensations upon the processes themselves, are, for the most part, involuntary; so that we must look to the same nervous centres for a common centre of secretion; or, at least, we may be quite sure that the centre through which the secreting organs in general are influenced by the passions, (see p. 113,) is seated in those parts of the nervous system indicated in section 105.

109. We find that the appearance of physical love is dependent upon the development of certain organs,—the ovaries (see p. 64 and *sqq.*) not less than the due evolution of other structures, as the uterus, mammæ, &c.; and it becomes a matter of some consequence to inquire, by what means the ovaries exercise this influence. That is to say, 1. Whether it be communicated directly to the organ implicated through special communicating nerves; or, 2. Whether a similar communication exists between the ovaries and the nervous centres, in connection with the ovarian dependencies; or, 3. Whether the ovaries pour into the blood a secretion which has a special action upon these structures.

110. With regard to the first proposition, I think it altogether untenable. It may be stated in favour of the second, that emotions or passions act upon precisely the same structures, and excite analogous phenomena, and we are certain that the influence of these is unquestionably from the centre to the circumference. So that sensorial changes may be propagated from the generative structures to their appropriate nervous centres, and there give rise to a series of changes, to be reflected, on the one hand, to the sensorium of consciousness; on the other, to the organs on the external periphery; and so give rise to intellectual phenomena, and a series of movements and secretions.

111. The third has a general fact, also, in its favour, namely, that substances taken into the circulation will act upon one part of the nervous centres in preference to another. It is not certain, however, that these act so exclusively from the nervous centres as mental emotions.*

* Cabanis advocated the doctrine, that there were different centres of sensibility; but he confined them to the abdominal ganglia. "Il existe dans le corps vivant,

112. The disciples of Gall conceive that that talented individual has set the question at rest; he, as is well known, having appropriated the cerebellum to the sexual passion; and made development of the generative organs and of their accessory structures dependent upon this portion of the encephalon. Gall has immortalized himself by his persevering maintenance of the indubitable truths, that the brain is the organ of the mind, and that it is a compound organ; but he was not free from the very common and pardonable fault of all discoverers of general principles, that of pushing the application of them further than warranted by fact.

113. The appropriation of the cerebellum solely to the sexual impulse is as contrary to the first principles of phrenology, as the assertion, that the brain is the individual organ of mind. The cerebellum is generically analogous in structure to the cerebrum (36); and, *à priori*, it appears unreasonable to appropriate so extensive a surface to acts, which, in many animals, occupy a most disproportionate portion of their existence. The natural history of its development, its anatomy, and anatomical connections, and numerous physiological and pathological facts, furnish also irresistible proofs that Gall's doctrine is erroneous; and that the cerebellum is as compound an organ as the cerebrum.

114. That the cerebellum is connected with the involuntary system is evident from many facts; and that it is in some way connected with the phenomena of hysteria, is now a very prevalent opinion. These propositions, and its peculiarly central position with regard to all nervous structures, induce me to take it as a starting point.

115. The cerebellum is connected with the antero-lateral and posterior columns of the spinal cord inferiorly; and with the posterior lobes, optic thalami, (posterior cerebral ganglia,) and *tubercula quadrigemina* (optic ganglia) superiorly.

116. Mr. Solly thus arranges the fibres connecting the antero-posterior columns with the cerebellum.* There is a superficial and a deep set; one part of the superficial fibres cross the surface of the cord immediately below the *corpus olivare*; emanating from the *corpora pyramidalia*, and decussating with those of the opposite side.† Another portion takes the same direction posterior to the inner side of the *corpus olivare*, and form the outer part of the *corpus restiforme*, as they ascend to the cerebellum.

117. The deep set arise posteriorly, and are separated from the posterior columns by the posterior fissure.

118. The posterior columns in ascending to the cerebellum form

indépendamment du cerveau et de la moelle épinière différens foyers de sensibilité où les impressions se rassemblent en quelque sort, comme les rayons lumineux, soit pour être réfléchies immédiatement vers les fibres motrices, soit pour être envoyées dans cet état de rassemblement, au centre universel commun."—Mem. vii. § ii.

* Op. cit. p. 155.

† When hemiplegia occurs from disease of the opposite half of the cerebellum, may it not be explained by these decussating fibres?

a portion of the *corpora restiformia*, (which Mr. Solly calls the auditory ganglia,) and are partly overlapped by, and partly interlaced with the fibres from the antero-lateral columns.*

119. In addition to these, Gall states, that fibres from the anterior pyramids cross in the *pons Varolii* at right angles to commissural fibres from the cerebellum; and decussate in the proper sense of the word.†

120. The *processus è cerebello ad testes* (the oblique inter-cerebral commissure) connect the cerebellum superiorly with the parts indicated, Section 115.

121. According to Mr. Solly, the fibres on the surface of the *processus è cerebello ad testes*, and the valve of Vieussens (which is itself a ganglion), may be traced distinctly to the optic ganglia.

122. The external fibres go first to the side of the optic ganglia, from thence to the posterior cerebral ganglia, and (Mr. Solly thinks) to the hemispherical ganglia.

123. The deep or descending fibres interlace with the ascending fibres of the sensory tract; and then pass through the *locus niger* of the *crus cerebri* to become continuous with the motor tract, and also with the portion of the fornix which takes its origin from this point. Are these distinct from the fibres described by Gall? (119.)

124. These nervous connections must not be considered as being confined to the cerebellum, for they distinctly bring the posterior cerebral and optic ganglia into relation, not only with the cerebellum, but also with the external and internal peripheries. The connection of the respiratory ganglia with the latter structures, the cerebellum, and the posterior cerebral and optic ganglia, is next to be ascertained.

125. The respiratory ganglia are connected with the whole of the external periphery. Professor Müller remarks, that "the whole system of respiratory nerves can be excited to action by irritation of any part of the mucous membranes from the mouth to the anus, from the nostrils to the lungs;"‡ and Dr. Marshall Hall makes the spinal nerves distributed on the skin to be excito-motory nerves of respiration.§ This is nothing more than might be inferred from their natural history and comparative anatomy. (23, sqq.) The vagus in many animals, as Professor E. H. Weber has shown, supplies in great part the place of the sympathetic. This is the case in snakes, for instance, in which it is distributed to a great part of the alimentary canal. In the myxinoid fishes the vagus extends as far as the anus, and the sympathetic nerve is absent.||

126. Sir C. Bell has described a lateral tract of nervous matter which he termed the respiratory, and which is in relation with the olivary bodies. This opinion has been very generally neglected; but whether justly or not may be doubted. If the doctrine just advanced be true, there must be some such tract composed of those

* Op. cit. p. 225.

† Ibid. Tom. i. p. 276.

‡ Op. cit. p. 715. § Lectures on the Nervous System, London, 1834, passim.

|| Professor Müller, op. cit. p. 726.

nervous fibrils which connect respiratory ganglia with the externa periphery; and I think it is now proved beyond question, that the olivary bodies are these ganglia.* These bodies must also be the ganglia of the nutritive apparatus when we consider the distribution of the nerves with which they are connected. Consequently, if the inference in Sect. 105 be just, we must seek for the seat of the instinctive movements in parts having a close connection with the olivary bodies.

127. According to Gall, a considerable band (*fort faisceau*) of fibres proceed from the olivary bodies behind the gray matter of the *pons Varolii*, and between its transverse fibres into the *crura cerebri*, of which they form the posterior and inner part. After being increased in the *locus niger*, they ascend and form the posterior cerebral ganglia.† Previously to entering these some fibres have been observed to turn inwards, so as to give the *tubercula quadrigemina* their medullary investment, and to enter the valve of Vieussens. In other words, there are fibres connecting the respiratory, optic, posterior cerebral, and hemispherical ganglia.

128. Sir C. Bell does not appear to consider the bands springing from the olivary bodies as connected with the latter; he names them cerebral strands of sensation, being separated from the motor in the *crus cerebri* by the *locus niger*. Neither does Mr. Solly adopt Gall's views; he describes the fibres as ascending principally to the outer side of the *corpus olivare*, and plunging into the *pons Varolii* to pursue their course to their appropriate ganglion, the posterior cerebral as stated by Gall.‡

129. If we would have a right view of the functions of the optic thalami we must consider them as independent ganglia, just as the olivary bodies, and having their own special and independent relations. It is probable that the changes impressed on the external periphery of sensation undergo here some modification or combination previously to their final perception on the hemispherical ganglia. From various considerations I shall adopt the anatomical views of Gall, as exhibiting the nearest approximation to the truth, and consider it probable that the parts mentioned, Sect. 127, are those through which the passions act on the respiratory apparatus, and the whole external periphery. (125).§

* Solly, op. cit. p. 146, sqq.

† Op. cit. i. p. 278.

‡ I think the anatomical views of Bellingeri throw considerable light upon this question. He considers the lateral portion of the antero-lateral column to be a distinct band, which he names the lateral strand. (Bell's respiratory tract.) Upon this the respiratory ganglia are placed, and from it, according to Bellingeri, the accessory nerve arises. (See Vol. xlii. of Edinb. Med and Surg. Jour. p. 392, 394.)

§ Bellingeri advocates the doctrine, that the filaments derived from the lateral strands regulate the instinctive, involuntary, and organic motions, as maintained in the text. But he considers the restiform bodies to be the respiratory ganglia. This I think is disproved by numerous vivisections. In support of the view taken in the text, it may be observed, that the optic lobes in fishes are developed in an equal ratio with the optic nerves and olivary bodies. Dr. Grant also agrees with Gall in stating that the latter chiefly form the optic lobes. Lectures in Lancet, ii. 1833-4, p. 553, and I think the opinions of Tiedemann are also similar.

130. There are a number of conservative acts excited by impressions derived from the visual, auditory, and olfactory apparatus, and consequently there must be some connection between the nerves of special sense distributed to them, and the nervous centres just indicated. This connection is obvious enough with regard to the optic nerves, but very obscure with respect to the olfactory and auditory ganglia. An analysis of the various uncertain statements respecting their anatomical relations would occupy considerable space with but an unsatisfactory result. I must, therefore, leave this part imperfect, with the hypothetical opinion, that some such connection must exist, and the hope that these opinions may lead anatomists to a new train of investigation. Physiological and pathological observations point out a close relationship between the optic, olfactory, and auditory nerves, and the organs of respiration.* Sounds induce hydrophobic gasp; the action of light excites respiratory acts, (see p. 130,) and some odours vomiting and dyspnoea.

131. If we revert to the doctrine, that all ganglia are formed upon the same type (30), and examine the anatomical connection of the cerebellum with other parts of the system as just given with special reference to the functions of the spinal ganglia, as demonstrated by Hall, Müller, and Grainger, it would appear that the cerebellum corresponds in function to the posterior columns of the spinal cord, and the optic, posterior cerebral, and hemispherical ganglia (which must be considered extended surfaces (36)), have the same relation to the cerebellum as the external periphery in connection with each spinal ganglion has to the posterior segment. In the latter case the movements of those muscles only which are in connection with the ganglion are excited, while in the cerebellum we have a ganglion in communication with the whole muscular system.

132. When suitable changes, then, are excited in the ganglionic peripheries just indicated, and propagated to the cerebellum, combined movements may follow analogous to the reflex.

133. Whether the cerebellum be the organ only of combined movements subservient to the conservation of the animal and the continuation of the species, and involving the whole muscular system, or whether it be the channel through which mental emotions act on the respiratory apparatus, I am not prepared to say. It is quite certain, however, that the passions do act through a channel different from that of the will, if it be granted, that when a nervous fibril is incapable of responding to a volition, it cannot be excited to action by a common mental emotion. Of this the following case is a pointed illustration.

134. A young married female, labouring under a disease analogous to those I have been treating of, had palsy of the muscles of

* I ought to state that I have traced a most unequivocal connection between the olfactory nerves and the optic commissure, in the form of a fasciculus of fibres stretching across the *substantia perforata*. Is it not equally distinct in every brain? I have also noticed the appearance of a canal in the olfactory nerve.

the face. She was unable to retain the saliva; while speech and the power to produce articulate sounds was completely lost; and she had no command over the muscles of the face. But the eyelids, although not under the influence of the will, closed involuntarily on the sudden approach of a body towards the eye. The patient smiled and laughed, and the muscular emotions thus produced were the same as those observed in the normal condition. The sound of her laughter, also, proved that the muscles of the larynx, although beyond the reach of volition, were capable of being affected by an internal stimulus.*

135. In this case we have, 1. The excitement of the will cut off by disease, corresponding to division of the spinal cord. 2. There is an internal or mental stimulus derived from the brain, corresponding to the excitant of reflex movements derived from without. 3. We have laughter excited independently of the will by this stimulus acting upon the ganglionic connection of the respiratory muscles. (57, 89.) Taking this case† and the anatomical details just given into consideration, I think we may fairly suppose that there is a communication from the seat of emotions (129) to the respiratory ganglia, independently of the will-fibres.

136. Whether this communication be through the cerebellum, or more directly, does not appear; but it will be at once seen that the preceding remarks are quite corroborative of the theory, that the cerebellum is the seat of combined movements, and which has been more or less acknowledged and advocated by Hertwig, Flourens, Bouillaud, Rolando, Foville, &c.

137. Many of the symptoms which consist in deranged muscular action, and the results of vivisections, are quite in accordance with this doctrine. Epileptic convulsions, chorea, and combined movements, as I have already shown, are all in close relation with each other. (See p. 110, 125, 135,) found that rigors (a constant attendant on convulsive paroxysms, especially the hysterical), and convulsions followed irritation of the *tubercula quadrigemina*. Extirpation of one of them caused blindness of that side and involuntary rotation—an observation confirmed by Hertwig and Bouillaud. Flourens gradually sliced away the cerebellum. During the removal of the first slices, only a little weakness and want of harmony in the movements occurred. As the experiment proceeded, disorderly and abrupt movements were excited; and the faculty of flying, walking, standing up, &c., were gradually lost; and when the entire cerebellum was removed the animal was totally unable to perform regulated movements. Bouillaud makes the important remark, that the phenomena differ accordingly as the cerebellum

* Recorded by Dr. Magnus in Müller's Archives, 1837. See Br. and Foreign Med. Review, iv. p. 500.

† This is by no means a solitary case. Dr. Alison states that he has met with several instances of the same kind; and quotes Sir C. Bell's Exposition, p. 212, and his Appendix to papers on the Nervous System, p. 120. The latter case was communicated by Dr. Abercrombie. (Outlines of Physiology, p. 361.)

is irritated or destroyed. If the cerebellum be only irritated, he says, its functions are not destroyed, but are thrown into confusion; and there are jumping, falling heels over head, whirling, and all the puzzling movements, (p. 135,) which are executed with such impetuosity that the eye cannot follow them. Sometimes the motions are like those of the epileptic. Magendie found that animals, when wounded in the cerebellum, made an effort to advance, but were immediately compelled to retrograde.

138. The last mentioned physiologist is much more remarkable for the number and variety of his experiments, than the accuracy or comprehensiveness of his inferences; and I think it is one of his errors to infer that certain parts of the brain subserve to movements in definite directions. These experiments are certainly much more in favour of Bellingeri's views of muscular antagonism. Section of a *crus cerebelli* cuts off the communication of the cerebellum with one-half of the body, and paralyzes it; the opposite side consequently is not antagonized, and an instinctive muscular effort is concentrated upon the corresponding muscles, and throws them into violent action. It must also be remembered that the motor fibril, along which the will acts, are still uninjured; and this will modify the results very extensively. It is perhaps from loss of control over the muscles that we have the motion forwards in section of *corpora striata*, for our will acts as frequently to resist the instinctive movements as to assist them; indeed it is upon this power that moral responsibility is founded. It may also be remarked, that reflex movements are more readily excited in proportion as the mass of nervous matter is diminished, to which the peripheral changes are propagated. This is probably the reason why, when the spinal cord is divided in the loins, reflex movements are so much more readily excited in the lower extremities than in the upper, still in connection with the cerebral mass. Something similar may occur in separation of the spinal cord from the cerebellum.

139. Pathological anatomy confirms experimental physiology. Dr. Foulmouche, in a paper published in the Memoirs of the Royal Academy of Medicine, gives many instances of horses having a total inability to move forwards, or an uncontrollable propensity to move on; these symptoms were connected with inflammation of the arachnoid covering the cerebellum, *medulla oblongata*, and *tuber annulare*. He mentions similar instances in the human subject, and adopts a modification of Magendie's doctrines. Andral mentions a case of cancer of the cerebellum, in which there was a momentary retroflexion of the head and trunk.* A man affected with rapid rotation of the head and paralysis died in the Hotel Dieu. He had a small tumour on the *tuber annulare*, which adhered to the cerebellum.† A child had a curious movement of the head alternately from right to left, and *vice versa*; a cyst was found

* Lectures in Lancet, ii. 1836, p. 102.

† London Med. Gazette, xv. 143.

in the right lobe of the cerebellum, which contained numerous calculi.* A child, aged 3 years, had a peculiar unsteadiness in walking, and want of control over its arms in attempting to lay hold of anything. In the posterior part of each lobe of the cerebellum there were two tubercles of the size of walnuts, and the cerebellum was extensively softened.† Serres stated to the Royal Academy of Medicine, that, in four cases of chorea, he found the *tubercula quadrigemina* altered. An individual was unable to walk, there were frequent convulsions; and intelligence, respiration, deglutition, and articulation, were all imperfect. The *corpora olivaria* and *mammillaria*, and the *crus cerebelli*, were in a state of cartilaginous hardness.‡ A female, aged 35, had cephalæa, tremulous walk, and hysterical symptoms; a tumour was found at the base of the cerebellum, springing from both lobes, and descending into the spinal canal as far as the sixth nerve.§ In twenty epileptic patients, there was not one in whom the cerebellum was not much smaller and softer than usual.||

140. Symptomatology furnishes us also with corroborative facts. Chorea is frequently accompanied by occipital pain, (see p. 111,) and in most convulsive diseases, frontal headache is experienced, which is an almost inseparable companion of irritation of the cerebellum, or parts in connection with the ganglia of nutrition.

141. Those poisons which produce symptoms resembling those of hysteria act upon the same structures. M. Flourens has shown by experiments that belladonna acts on the *corpora quadrigemina* (see p. 124,) and *nux vomica*, alcohol, the ethers, camphor, &c., on the cerebellum; each substance (according to him) leaving marks after death which distinguish the affected organ.¶ He confines the action of henbane, lactuca, and opium, to the cerebral lobes; but it is certain that opium acts on the whole nervous system, as is demonstrated by the state it induces in frogs analogous to that excited by strychnine. In a case of poisoning by *nux vomica*, related by Orfila and Ollivier, there was found much serous effusion over the cerebellum, and its structure was softened.** It is exceedingly probable that all poisons act upon the same structures. (108.)

142. With regard to the special action of the generative organs upon the respiratory ganglia and their connections, I conceive it is exceedingly analogous to that of the foreign substances just mentioned. It is a natural agency, which (unlike the preceding) is continuous and permanent. Hence permanent changes in the structures mentioned, p. 68, sqq.

143. There is, therefore, no special phrenological organ of phy-

* Andral, Clinique Med. v. 720.

† Dr. Abercrombie, op. cit. p. 78.

‡ Ibid. Appendix, Case xviii.

§ Ibid. Case i.

|| Greding's Med. Aphor. in App. to Crichton on Mental Derangement, ii. p. 425.

¶ Revue Med. Jan. 1824.

** Christison on Poisons, p. 642. 1st ed.

sical love ; and the cause of any preternatural development of the passion must be sought for in some change in the generative organs, or the special ganglia with which they are connected. That a morbid state of these may excite a secondary morbid state in the nervous centres under consideration, is highly probable, and might, I think, be readily demonstrated. But poisons will produce the same. All the arguments in support of Gall's doctrine, which are based on the magnitude of the cerebellum, are inconclusive, because, in all animals, it is as proportionate to the activity of the vital movements of the system in general, as of the generative organs in particular. Compare, for instance, the difference in the magnitude of the cerebella of birds and reptiles with the difference in the number and complexities of the movements of conservation and reproduction exhibited by the two classes. In the one, the tending of the young requires the exercise of various powers ; in the other, a hole is scratched in the sand for the egg. Men with large cerebella are remarkable for the large development of the muscular system as their sexual properties.

144. The sexual stimulus excites the whole system as much as opium or arsenic ; and in frogs induces a state of tetanic sensibility, exactly similar to that excited in them by opium or strychnine ; a circumstance which has been made available in conducting vivisections of these animals. I have already referred to one or two psychological phenomena resulting from this stimulus (see p. 95) ; in general it develops an exalted and pleasurable perception of the system of the rythm of sounds, colours, and time. The song and more brilliant colour of male birds have this sexual relationship to the generative instinct of the hen-bird ; and we even perceive the same general law acting upon mankind. It is an observation of Lacon, confirmed by daily experience, that love makes many rhymers. The agency of the music and dance of the ball-room, on the sexual passion, is well known ; and a homely proverb (which must surely be heretical) has linked the fair in the same breath with mackerel, in saying that they are caught by red. (See p. 143, note.) There cannot be a doubt that there are psychical as well as vital stimuli of the action of which we are quite unconscious.

145. Having thus attempted to ascertain the seat of these diseases it only remains to inquire into their nature. It is very obvious that the term hysteria is altogether inapplicable to the varied forms of disease which I have made the subject of analytical investigation. The terms nervous diseases and nervous affections are equally vague, as we may readily discover by attempting to arrange them in their proper place, in the nosological systems of Linnæus, Vogel, Sagar, Sauvages, Cullen, Macbride, or Good.

146. We find, however, that they present two distinguishing characteristic : 1, an increased affectibility of the nervous system : 2, a morbid state of the blood. The former, perhaps, is most fre-

quently dependent on the latter, but, unquestionably, the affectibility is frequently a predisposing and exciting cause of the morbid state of the circulating fluid.*

147. The affectibility of the nervous system may be either local or general; it may be seated in the right or left half of the body; in a single ganglion, or in the whole series; or in nerves of physical, or of conscious sensation.

148. When the affectibility is local, its cause has only a limited sphere of action. Thus structural or functional disease of the liver will originate affectibility of the supra-scapular nerve, (see p. 128,) of the skin corresponding to it, or of the right arm; so will disease of the heart excite affectibility of the sensitive points on the anterior and posterior median line of the thorax, (see p. 118, note, 119,) or of the nerves of the arm; so also will disease of the bladder affect the lumbar sensitive nerves. (88.) In these and similar cases, it is of importance to observe that the diseased viscus excites a state of the spinal cord, so that the changes originating in the peripheral point of a sensitive nerve are magnified, as it were, when passing through the affected portion, on their way to the *sensorium commune* (43). Physical sensation may likewise be thus exalted or diminished (88); and this is the mode in which counter-irritants and other local remedies act when applied to the skin.

149. This principle admits of extensive application to diagnosis and therapeutics. For instance, an individual suffering from exhaustion and confined to bed, experiences diminished irritability of the bladder; there is no physical sensation excited, and it becomes painfully distended. Under these circumstances, a Lytta-plaster applied to the sacrum for half a hour, or an hour, will act upon the spinal cord, so as to excite such affectibility of both the motor and sensitive nerves, that the usual sensation shall be felt, and contraction of the bladder follow. It is by the same principle we can explain and make a correct diagnosis of the various local neuralgiæ and convulsions enumerated in my previous chapters; and, lastly, it is by this principle that we understand how the ovaries excite those symptoms of hysteria connected with the dorso-lumbar portion of the cord.

150. There may be general affectibility originating in a morbid state of the sensory tracts just before they terminate in the cranial ganglia, or in the ganglia themselves; according to the principle laid down in section 43. A morbid state of the blood is, in the latter case, a cause of the general affectibility. It may also be the cause of local neuralgiæ, when a morbid local state is grafted on the general cachexy.

* Perhaps good general terms for these diseases would be *neuræmia* and *neuræmiosis* (*νευρον* and *αιμα*), restricting their application to the functional diseases of the nervous system, *dependent* on the efficient causes mentioned above, and comprising *hypochondriacal* affections. Greek midwives, according to Galen, were the first who used the term Hysteria.

151. There is also a general state of the nervous system recurring at regular periods, according to some general law; when it is more affectible, and when, consequently, all causes of anormal motions and sensations act with more facility and energy. The most important periodic movements in the system are the quotidian and heptaperiodic.

152. The most obvious quotidian movement is indicated by the necessity for sleep, and the period of its continuance may be subdivided into two distinct portions. The first commences about midnight (sooner or later according to the habits of the individual), and continues until two, three, or four o'clock in the morning; when the second portion begins and continues until six. During both these, the cerebral ganglia are affectible; but it is in the first that asthma and other paroxysmal diseases of the respiratory organs make their attacks; and in the second that cholera, asphyxia, and other intestinal affections commence.

153. The heptaperiodic movement may be observed in almost every disease; upon it is based the doctrine of critical days in fevers; it is clearly shown in all nervous diseases in which there are well-marked symptoms, and which do not affect materially the general health; but it is most distinctly marked in the phenomena of development and reproduction.

154. The septennial phases of existence in man have been recognised by many observers, both ancient and modern, but numerous modifying circumstances render the observation of them difficult. It is in the phases of fœtal life that these periodic movements of the system may be best ascertained; and it is remarkable to observe, how invariably the transition from uterine to independent existence occurs in various classes of animals at hebdomadal periods or multiples. The following brief table of the periods of gestation and incubation in various animals illustrates this fact; and the list might be much more extended if naturalists would be exact in noticing the time to the half or even a-fourth of a week.

1½ Weeks.	2 Weeks.	3 Weeks.	4 Weeks.	4½ Weeks.	6 Weeks.
Humming-birds.	Canary and other small birds.	Raven, hen, and most birds.	Duck, goose.	Rabbit, hare.	Ferret, cat, Swan.
9 Weeks.	4 Months.	5 Months.	6 Months.	7 Months.	8 Months.
Bitch, Isates.	Sow.	Lioness, ewe, Chamois.	Brown bear.	Porcupine.	Rein-deer, hind, Fallow-deer.
9 Months.		12 Months.			
Cow, Nylghau.	Camel, ass, mare, buffalo.				

155. The doctrine that there are mensual movements in man, as well as in woman, is rather ridiculed in England, but many continental writers have advocated it, and it was well known to the ancients. The same circumstances which have prevented a clear perception of the septennial movements, have also interfered more particularly in temperate climates to prevent us obtaining an exact knowledge of the mensual in man. It is however clearly marked

in the heptaperiodic recurrence of various well-marked nervous disease, as lunacy; epilepsy, &c. and in some hemorrhages.*

156. It is, however, universally acknowledged to happen in woman, because the menses present a visible sign of its existence, and one which cannot be confounded with any other. In the female of inferior animals the analogous heptaperiodic movement is accompanied by exalted sexual appetite, if the powers of the generative organs be not already divested to the nourishment of the young animal. In women, this state of the system predisposes to conception as well as to attacks of the nervous affections I have endeavoured to illustrate. (144.)

157. Much stress has always been laid upon the state of the menstrual discharge, both by medical men and females themselves, and, in many instances, with very erroneous views of its relation to the general health. Its due flow indicates that the heptaperiodic movement is normally performed, as regards the uterus at least; and its suppression is a sign that the movement is deranged or irregular, but, I think, is rarely a cause of the irregularity, it being seated in the nervous centres or depending upon a morbid state of the blood. And so, also, when after suppression, the menses reappear, we are in error when we say the flow is the *cause* of the returning health; it is simply a *sign* that the periodic movement is normally performed; and, consequently, that the system has recovered its healthy tone. It therefore differs in no degree from other signs of returning health, as manifested when the secretions from the kidneys, bowels, &c., become normal; only it is more tangible, more evident, and more observed from habit and custom.

158. The same remarks apply, of course, to other secretions. Suppressed urinary secretion in hysteria is not a cause but an effect of a morbid state already existing; although the retained urea may act secondarily as an injurious agent, and is also in other morbid states of the viscera. (See p. 109.) These remarks are equally applicable, too, to profluvia. The secretion of flatus into the stomach is not a cause of disease but an effect of it. It occurs in all cases of local affectibility depending on visceral excitement, as by diseased heart. (148, and see p. 120.) Illustrations of these principles I must leave to the experience of the reader.

159. The left half of the nervous system is more affectible than the right; and, of course, all the structures in connection with it are more liable to disease. A series of accurate statistical observations are only wanted to enable us to make this principle extensively available in practice. We may predict, for instance, that disease will appear in the left tonsil, left salivary glands, mammæ,

* It would be easy to fill two or three pages with references to cases of anomalous nervous affections, paroxysmal diseases, inflammations of various structures, and hemorrhages, recurring every 42 hours, or every $3\frac{1}{2}$, 7, 14, 21, or 28 days, as well in men as women. Almost all treatises on nervous and intermittent diseases contain them. They are glaring instances of a general law, copious illustrations of which, I hope, ere long, to lay before the public.

or testes, sooner than in the right, in a person of cancerous diathesis. Some illustrations may be found in p. 78, 129. Numerical observations would furnish us with the laws which regulate the action of this principle.

160. The two ends of the spinal cord have some kind of antagonism. It would appear that the centrifugal action of mental emotions must necessarily be most exhibited on the parts in connection with the cranial cord, as it is the portion which is first affected, and which is in closest relation with the seat of the emotions. Illustrations of the connection which exists between the two ends of the cord, may be found in p. 105, and case of Hebditch, p. 118, note.*

161. As the cardiac symptoms of hysteria have not been noticed in this summary, before closing I would briefly state that the heart is subject to the same laws as other muscular structures. The lining membrane is supplied with nerves of special physical sense, the powers of which are exalted or destroyed by nervine alteratives of every class. Paralysis of the nerves is the cause of death in many cases of poisoning.† The motor or white nervous fibrils of the heart are derived from the spinal cord as well as the sympathetic; and are analogous in structure to spinal motor nerves. (Müller.) The heart being developed from the vascular layer of the embryo (which is derived from the serous and mucous layers), it must partake in some degree of the properties of both the voluntary and involuntary systems. It is thus, that, like portions of intestine, the heart acts after removal from the body, and thus, also, that a motor excitement traversing the spinal cord is propagated to the heart. We have consequently increased cardiac action commensurate with the excitement in the nervous centres; and it is thus that the pulse is quicker when standing than lying; the muscular efforts being greater in the former than in the latter posture.‡ Without indulging in numerous illustrations, we may confidently infer that the laws of affectibility are as applicable to the heart, *mutatis mutandis*, as to other sensitive and motor structures.

162. The question may be asked, what are the efficient causes of this affectibility? To answer it, we must first have ascertained the nature of the changes excited in the nervous system by will and force (33, 55, 56); the bio-chemical laws regulating vital mechanics; and the mutual action of the blood and neurine on

* In a case of neuræmious affection, (if I may be permitted to use the term,) recorded by Mr. Cockburn in the forty-sixth volume of the Edinb. Med. and Surg. Journal, this metastasis took place; and Dr. Craigie notices the fact, p. 32. There is a case in Med. Chir. Review, vii. p. 227, and another related by Dr. Abercrombie, op. cit. p. 73. With reference to the remarks in the text, it may be observed, that in the entomoid classes, the last abdominal ganglion is frequently as large as the supra-œsophageal or cerebral.

† Professor Müller makes some interesting observations on this subject, op. cit. p. 735.

‡ For recent notices respecting the alternation produced on the pulse by posture, &c., the reader is referred to Professor Müller's work, p. 741, and Dr. Guy's paper in Guy's Hospital Reports, No. for April last.

each other. But although at present the question cannot be solved, we need not despair of success. We are but beginning to apply the power of physical science to the investigation of vital laws; yet we have already conquered vast difficulties. The opinion of Ehrenberg, that the decolorized globules of the retina and similar parts, (36,) are formed directly from the blood globules, is curious.* Close microscopic observation of the changes produced in the blood-globules and the ganglia by nervine alteratives, would lead to important results; and afford a clue to the discovery of those originated by external and internal stimuli. The consideration of these subjects, and of the supposed remote causes of affectibility, as irregular distribution of the nervous fluid, congestion, irritation, &c., I leave to others.

163. In conclusion, I may be permitted to express my regret that this chapter should contain so many hypothetical views. However, I trust the reader will give me credit for attempting to apply them as much as possible to their legitimate use; namely, the orderly arrangement of facts. He will also consider that they have partly originated in our still very imperfect physiological knowledge; and I am not without hope, that he will find the principles I have advocated to be capable of daily application to the diagnosis and treatment of nervous affections in general.

* In the forty-eighth volume of the Edin. Med. and Surg. Journal, p. 288.

York, 10th October, 1838.

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