pended in the fluid. It contained mucous cells and a very few fat-globules. A number of large flat epithelial cells were seen, and these were studded with fatty points.

February 25th. She stated that she passed some milky urine this morning; but, through carelessness, I was not furnished with any of it for examination.

February 26th. She had a fit in the mill this morning, and had to be taken home. She again complained of great pain in the head, chiefly the frontal region. She had been sick once or twice. The urine passed this afternoon, three or four hours after the fit, was of very pale colour, of specific gravity 1011; no albumen. Under the microscope, it was seen to contain large rounded epithelial cells studded with fatty points. A few small fat-globules were also seen floating about. Croton-chloral-hydrate was ordered.

March 1st. I had seen nothing of this woman for the last two days. She was very well to-day. She stated that the medicine relieved her headache. Ophthalmoscopic examination gave negative results. The urine passed this morning looked thick and turbid; it was acid, and had a specific gravity of 1028. Addition of ether did not altogether remove this turbidity. The urine to-day was found to contain albumen, 4 per cent. Under the microscope, myriads of fat-globules of various sizes were seen. A few squamous epithelial cells were seen, and these were studded with fatty points. Two or three octohedral oxalates were present.

March 3rd. She felt pretty well to-day. She had had slight vertigo and headache, and slight inclination to vomit. The urine was of specific gravity 1016, clear; no albumen.

March 8th. She was not so well to-day. She had had two fits, and complained very much of headache and dimness of vision. The bowels were constipated. The urine was of specific gravity 1016; no albumen. It contained a few mucous cells, octohedral oxalates, and fat-globules. The compound jalap powder and liquor ferri perchloridi were repeated.

March 11th. This morning I examined the specimen of urine which was sent to me on the 1st of March. There was a thick milky-looking scum on its surface, which, under the microscope, was seen to be composed of myriads of oil-globules, and there were also seen the ova of the fungus *mucor mucedo*. The ova were elongated, and had not the glistening look of the oil-globules.

March 13th. The urine was of specific gravity 1030, acid, of a light yellow colour, with a fawn-coloured deposit of urates. A few oil-globules were present.

March 25th. She had, since March 13th, been pretty well until to-day, when she had another fit in the mill. She looked very pale. The bowels were constipated. The urine was of specific gravity 1032; it was not examined microscopically.

July 16th. I had seen nothing of this patient for the last two months.

CASE II.—September 21st, 1877. Mrs. D., aged 37, draper, had been subject to epilepsy for the last ten or eleven years. At the age of seventeen, she had one or two attacks of *petit mal*. Her husband lived apart from her, and his intemperate habits had caused her much anxiety. Her youngest child was nearly a year old. When she was carrying him, her feet swelled very much; at present, only the right foot was swollen. Headache was the most prominent symptom. She was sallow, pinched, and worried-looking—the latter condition was probably aggravated by the cares of business. The epileptic fits usually came on at her menstrual periods, at which time the discharge was pretty profuse as a rule. She improved for a time under the administration of any remedy; iron, quinine, bromide of potassium, and chloral had all done good. I had frequently examined her urine, and found it at times to contain albumen.

September 22nd. The urine passed yesterday morning was sent to me to-day. It was of a pale straw colour, with a specific gravity of 1025. On heating the urine, it became turbid; but this disappeared on the addition of a drop or two of acetic acid. Under the microscope, it was found to contain a large number of fat-globules of various sizes, crystals of phosphates, a few mucus-corpuscles; no albumen. Yesterday, she complained of not feeling well; she had pain in the epigastric region, and altogether felt ill and indisposed from lassitude.

September 23rd. I was only furnished with two or three teaspoonfuls of urine for examination. It contained a few small fat-globules and phosphates.

September 25th. The urine was very pale, of specific gravity 1013, acid; very little sediment. A few crystals of uric acid and one or two epithelial cells were all that could be detected under the microscope.

March 8th, 1878. This patient was still in very indifferent health. She was subject at times to epileptic fits, but was able to conduct her business.

Frequently I have detected the presence of albumen in the urine after

epileptic seizures; and it was this fact that led me to an examination of the urine in these two cases. The patient Mrs. D. is, in my opinion, the subject of chronic Bright's disease (contracting form); and I base my opinion on such facts as these: a steady but progressive emaciation, almost persistent headache, her sallow tint, the occasional presence of albumen in the urine, and the tendency to menorrhagia; and other circumstances, which might be considered factors of production, are not wanting, such as extreme anxiety and worry from domestic troubles and the cares of business. If this diagnosis be correct, then it is just possible that the kidneys have reached the stage of what Dr. George Johnson calls the "granular fat kidney", in which there is a fatty degeneration of the cells in the cortex, a tendency for these fatty molecules to form globules, which, by a solution of the cell-wall, escape into the tubules and get carried away by the urine. This is the only explanation I can offer for the presence of fat in her case; and for its presence in the urine of the other I can offer no explanation. In the case of C. F., albumen was detected in only one out of the eleven samples of urine furnished for examination; and although tube-casts were earnestly sought for, they were never detected. Of the questionable relationship of the discharge of milky or fatty urine to the epileptic seizures, I can say nothing. The presence of fat in the urine may be only a coincidence. The connection of the discharge of a milky urine with the fits was a fact which had been observed by the patient herself, and which I had the opportunity of corroborating on one or two occasions.

Since writing the above, I have been informed of three similar cases, which occurred in the practice of Dr. Hope of this town. The urine was milky in all the cases, and, under the microscope, was extremely rich in fat-globules. Fat was found in the urine of a woman after parturition, and in one of the other cases it occurred at a time when the patient had been exposed to prolonged muscular exertion with a good deal of anxiety, and its voidance was followed by an extreme degree of prostration and faintness. All of his cases, too, improved under the administration of iron.

A CASE OF DIPLEGIA.*

By JAMES CUMING, M.D.,

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A NUMBER of cases of double facial paralysis, or diplegia, as the affection has been termed by Wachsmuth, are on record; but the malady is rare; and I have thought that a case of this affection which I have had an opportunity of observing with some care might interest the section.

The patient, a girl aged 17, had been employed in a factory, where she worked in a very warm room. As she found the heat disagreeable and weakening, she applied to the manager, and obtained a change to a cold room. A little time after this, she became affected with facial paralysis of the right side, with its accompanying distortion of the features. At the end of three or four days, the unpleasant twisting of the face ceased, in consequence of the paralytic condition involving also the muscles of the left side. A fortnight afterwards, she was admitted to hospital, complaining that she could not shut her eyes, and that she could not open her mouth when she laughed.

The face presented the peculiarities which have attracted the attention of all observers of this disease; a smooth expressionless aspect, which has been likened to a mask; a watery tearful appearance of the eyes, which the patient was unable to close; a partially collapsed condition of the alæ nasi, and the lips parted, the patient being unable either to close them or to open them widely. When she laughed, which she did readily enough, a strange disagreeable chuckling sound was produced, which was not in the slightest degree suggestive of merriment, and which showed not only how much of the pleasurable effect of laughter depends on facial expression, but also how much the character of laughter is modified by the lips. Sensibility was quite perfect; there was no embarrassment in mastication, except that caused by the alimentary materials getting between the cheek and the jaw, and requiring to be pushed between the jaws. The saliva escaped from the mouth when the head was bent forward. Deglutition was quite unimpaired, the appetite was good, and the general health excellent. There were no symptoms pointing to any cerebral lesions.

When the head was bent forward, on investigating the less obvious phenomena, it was found that the velum palati hung down in a more perpendicular and less arched manner than usual, and that the uvula was flaccid and moveless. The tongue could be protruded without difficulty, but not in a horizontal direction. When asked to put it far out,

* Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Cork, August 1879.

she always turned it downwards towards the chin; and, when an effort was made to turn the tip upwards, she could not touch the skin of the upper lip at all. The tip, indeed, could only be very slightly directed upwards, so as to reach the mucous membrane of the upper lip.

The sense of hearing seemed altogether unchanged; she experienced no undue sensitiveness to noise, and no abnormal acuteness of hearing. The voice was slightly nasal in tone; the labial consonants *p* and *b* could not be pronounced; *o* and *a* seemed to be articulated fairly enough, but, of course, without movement of the lips.

She stated that for the first day or two, everything had had a saltish taste, but that this had passed off, and that there was now nothing particular in her sense of taste. She was tested, when blind-folded, with solutions of salt, sugar, quinine, tartaric acid, aloes, and other substances of a pronounced taste; and it was found that there was no diminution or perversion of taste; on the contrary, the perception of gustatory impressions seemed very prompt and decided, rather above the average in acuteness, and certainly was keener than in several of the students who assisted in the investigation.

On examination of the electro-muscular excitability, it was found that no muscular contractions could be produced by the induced current applied directly over the muscles, and used up to a strength which was smartly painful, and a good deal in excess of what caused vigorous contractions in the forearms and on the faces of some of the assistants. Nor could contractions be produced by exciting the nerve near its emergence at the stylo-mastoid foramen. With the voltaic current, however, it was quite different; the poles of a small battery, composed of four small pairs of Stöhrer's elements, excited smart contractions when the current was slowly interrupted. Excitation of the nerve by the voltaic current had no effect whatever.

The treatment consisted in galvanisation of the muscles, and subsequently in the employment of the induced current. Blancard's pills were also given. Voluntary power gradually returned; first to the side originally affected; afterwards, and more imperfectly, to that which had been last paralysed. Excitability under the induced current did not return till some time after a certain degree of voluntary power had been regained.

REMARKS.—This case seems to raise some questions of considerable importance in relation to the pathology of the facial nerve. The involvement of the palatine muscles is generally held to indicate distinctly that the nerve is affected as high up as its geniculation. Physiologists are pretty well agreed that the connection of the facial with the innervation of the palate is made by some motor fibres which pass from the geniculate ganglion through the great superficial petrosal to the sphenopalatine ganglion, although it seems somewhat doubtful what are the exact muscles which thus receive their motor supply. When the morbid condition of the nerve reaches a point so high as this, it is usually regarded as pretty certain that the sense of taste will be in some degree impaired or rendered less prompt, in consequence of the fibres of the chorda tympani in the facial trunk suffering as regards their power of conduction.

The relations of the chorda tympani to the sense of taste have been somewhat differently explained by physiologists. Claude Bernard supposed that the paralysis of the motor fibres in this nerve led to a deficient erection of the papillæ of the tongue, and so prevented proper contact between them and the sapid substances which might be applied to them. Schiff is of opinion, however, that gustatory fibres pass along the chorda tympani in a centripetal direction, reach the trunk of the facial, and thence pass probably by the great superficial petrosal nerve to the sphenopalatine ganglion, and ultimately to the superior maxillary division of the fifth nerve. So far as this case goes, it indicates that the sense of taste is not dependent in any appreciable degree on the integrity of the chorda tympani.

Next as to the sense of hearing: Roux was the first to direct attention to this, having noticed it in himself when suffering from facial paralysis; and it was afterwards made the subject of an elaborate paper by Landouzy. It has been said that an unusual susceptibility to noises, or an abnormal power of hearing musical notes, is present in a considerable number of cases of facial paralysis. This has been variously explained: by Brown-Séquard, as the result of hyperæsthesia of the auditory nerve from paralysis of its blood-vessels, causing hyperæmia; by Longet, by paralysis of the tensor tympani, which he supposes to be supplied by a branch from the facial, allowing the membrane to enter into undue and excessive vibrations; and, more recently, by Lucae and Hitzig, who refer the phenomenon to paralysis of the stapedius muscle, and resulting overaction of the tensor tympani. Now, not only was this symptom absent as far as regards undue sensibility to loud noises in this case, but it was also absent in every case of facial paralysis that I have seen for many years; and I have carefully examined a number of cases with special reference to this question. The singular kind of suscepti-

bility to electrical excitation by the voltaic current when the induced has no effect was first pointed out by Halli and Baierlacher, and has been called by Erb, rather unhappily, the "reaction of degeneration". It coincides in point of time with, and is probably caused by, incipient changes in the muscle. Neumann has suggested that muscles which have undergone a certain degree of pathological change lose the power of reacting to currents of very short duration, while they react more intensely to currents of longer duration. Even a strong voltaic current will not, he says, cause a reaction if its duration be only momentary. It was very remarkable how, as improvement took place, this exaggerated sensibility to the voltaic current gradually diminished; and how, even after a certain degree of power of voluntary motion had been attained, no contractions could be induced by a pretty strong electro-magnetic machine.

Finally, a point of the highest practical importance, as indicating the line which should be followed in dealing with affections of this nature, is the determination of the nature of the morbid process in such cases. Is it merely functional disturbance, or congestion, or of the nature of inflammation? The way in which the effect of a peripheral morbid impression ascends along the continuity of the nerve would seem to point to something of an inflammatory character; but we have as yet obtained no certain data from *post mortem* examination to enable us to do more than guess at this most important question.

TREATMENT OF PUERPERAL ECLAMPSIA BY CHLORAL.*

By HUGH W. THOMAS, M.R.C.S.Eng., L.S.A., Birmingham.

THE therapeutic value of chloral-hydrate as a hypnotic has long been recognised by numerous authorities both at home and abroad. Its value as an anæsthetic, more especially in puerperal eclampsia, is none the less evident. My experience of the drug, compared with other remedies in the treatment of this disease, has hitherto been very favourable, as will be shown in the brief notes below.

CASE I.—The patient was an anæmic multipara, aged 28, in her eighth month of pregnancy. She seemed to have enjoyed excellent health up to seven days preceding her confinement. Then the extremities became oedematous, and her urine diminished in quantity. When attacked, she was suddenly seized with a convulsion lasting about three minutes, followed by others of increased intensity at short intervals. Her medical attendant gave half-drachm doses of bromide of potassium every two hours without the least effect. When I first saw the patient (about seven hours from the commencement of attack), she was writhing under an intense paroxysm accompanied with all the other phenomena peculiar to the disorder. In fact, she was hardly free from a convulsion. Owing to the injured and swollen state of the tongue, it was impossible to give anything by the mouth. Thereupon, a dose of forty grains of chloral-hydrate was administered *per rectum* in thin gruel made with milk and the yolk of an egg. In less than five minutes, she became perfectly quiet. This was repeated at intervals of half-an-hour, and thus she was kept under perfect control until her delivery two hours later.

On examination, the os and cervix uteri were found to be two-thirds dilated and dilatable, the membranes were entire, and a vertex presenting. After gradual dilatation, the membranes were ruptured, Simpson's long forceps was applied, and the child (still-born) delivered without difficulty. The placenta gave no trouble, nor was there any *post partum* hæmorrhage. There being no return of the symptoms, the injections were now discontinued, when she fell into a sound sleep. About forty-eight hours after delivery, consciousness returned, the faculties being unimpaired, although the interim was a perfect blank. The uterine contractions were not in the least interfered with by the use of the remedy. Some catheterised urine was examined, and found to contain one-third of albumen. On the fourteenth day, the patient was out of bed, and in a month went into the country as well as usual.

CASE II.—The next case was one in which eclampsia occurred, on the third day following parturition, in a plethoric multiparous patient. Here the attacks came on at intervals of one and two hours. The dose of chloral ordered was half a drachm every three hours. Suffice it to say, there was no return of the symptoms after the first dose of medicine. She was up and about on the twelfth day.

In conclusion, I would offer a few remarks on the claims which chloral has upon us for its advantages over other remedies in the treatment of the disease under consideration. According to Professor Liebreich, it is a quick anæsthetic, non-excitant, leaves no bad after-

* Abstract from a paper read before the Midland Medical Society.