accurate method of managing inhalation, which (it may be here noted) I have found equally available for nitrous-oxide gas in certain cases.

Having reviewed the best methods of employing inhalations of oxygen, it remains to notice its introduction into the system by means of the stomach.

1. *Oxygenated water*, which has latterly been used a good deal in France by Ozanam and others, as well as in this country, is highly to be commended in many cases; but I have very little reliance upon ordinary water charged with the gas. The only oxygenated water in which any confidence can be placed, is that which was patented by Barth some years ago, and which has been somewhat over-lauded in advertisement, notwithstanding its real merits. In preparing this water, all the atmospheric air is expelled by the conversion of the water into steam, pure oxygen gas then taking the place of the atmospheric air by being brought into contact with the steam under high pressure. Thus the water may be regarded as a saturated solution of oxygen, and, even when all the effervescing superfluity has disappeared, the water still retains all the gas upon which its virtue depends. The worst point in connection with this water is, that it is flat to the taste like distilled water, and that it has hitherto been found impossible (without exciting low vegetable organisation) to give it a slight piquancy, even with a mineral acid, except at the time of drinking.

2. *Nitrous-oxide water* is somewhat more pleasant to the taste, but not so generally useful as pure oxygenated water; although in some nervously-depressed and hypochondriacal patients I would give it the preference. It was twenty or thirty years ago the subject of a patent (Searle's).

3. *Solution of peroxide of hydrogen* has been recommended by Dr. Richardson for internal use. I am compelled to say that I find it only exceptionally useful; and there is an additional drawback in its unpleasant flavour of oxygen, to which patients much object. I will recur to the former point when speaking of the *modus operandi*.

4. *Ozonified oil*, discovered by Dugald Campbell, was introduced to the notice of the profession by the late Dr. Theophilus Thompson. Although it must not be regarded as a very general remedy, yet it has its limited sphere of usefulness, and ought not to have the stigma "rancid oil" attached to it. Where it does not disagree with the stomach, in some cases of rapidly increasing tubercular vomicae and strumous ulceration generally, much benefit will occasionally be found from its use, other more approved remedial measures failing or demanding an auxiliary. For external use I have found it still more applicable; and in some few well-marked instances its superiority over other stimulating oils, as well as oils combined with ordinary stimuli, has scarcely admitted of question.

5. *Perchloric acid, chlorate of potash, and the permanganates*, may be rightly regarded as media for the conveyance of oxygen into the stomach. The first, hitherto little used, appears to exert a powerfully tonic and purifying influence upon the blood and secretions in some sanguineous but cachectic subjects (e.g. in anthrax), but it requires considerable circumspection in selecting cases for its administration. The second is well known for its valuable febrifuge and purifying properties. Permanganate of potash, now so valued as a deodorising and disinfecting agent when brought in contact with putrefactive matters, can scarcely be recognised for internal use, owing to disagreeable taste and astringent quality when administered in sufficient strength; except it be in passive hæmorrhage from the stomach or bowels in cachectic subjects, or as a gargle in foul conditions

of the mouth and throat. It is here specially named, because its transmission into the stomach has been in some quarters rather earnestly advocated.

Having in this first paper reviewed the principal methods by which oxygen gas may be administered, I hope shortly to offer a second paper on the *modus operandi* and doses under various circumstances, and afterwards to proceed to the therapeutic indications for its use, with illustrative cases.

ON THE PRECEDING AND SUCCEEDING CHANGES IN THE SECRETION OF THE KIDNEYS IN DIABETES.*

By JOHN GRANTHAM, Esq., F.R.C.S., Crayford.

In the second volume of the *Medical Times and Gazette* for 1858, page 243, I published the following statement; viz., that the function of the kidneys in malassimilation occurs thus. First, there is an elimination of the lithates; secondly, the phosphates; thirdly, the saccharine, unless there be fatty degeneration in the glandular system: then there is necessarily the albuminous condition of the urine.

In 1855, I attended a case of diabetes mellitus. The patient was a female, aged nine years, with pallor of the skin; muscles thin and flaccid; mentally depressed; very restless, with incessant thirst; tongue red; bowels constipated; urine increased in quantity, and irregular. I was informed that the father died in an epileptic fit, the result of delirium tremens; and that the patient was one of two children remaining after losing four others from epilepsy.

I made an analysis of the secretion of the kidneys, and found the following facts. Specific gravity 1028; colour pale straw; transparent; no traces of the urates in excess, nor phosphates or albumen. Under the microscope, I observed a few crystals; but there was unmistakable proof of the presence of sugar, both by Moore's and Trommer's tests, which, I infer, had succeeded the phosphates.

The treatment proved successful, which was a mixed diet, animal and vegetable, avoiding all kinds of saccharine fermentation; no fruit; also abstaining from satiating the feeling of thirst. I gave the nitro-muriatic acid in pure water, immediately before breakfast and dinner, in full doses. After twenty-one days of this treatment, I ordered the acetate of iron after the meals, enjoining daily exercise in the open air, and not permitting any mental occupation, which had the effect of removing the diabetic symptoms. The disease returned in the following spring and autumn, but in a less degree. She was in March 1858, and is at this time, in perfect health.

In the month of May, 1866, I was consulted in another case of diabetes, in a female aged 23 years, unmarried, who had long been the subject of general debility, attended with irregular colon law, which derangement incapacitated her from continuing any kind of employment during the last seven years. She had not experienced any relief from medical treatment, change of air, or regulation of diet. On examining the patient, I could not detect any organic lesion either in the chest or abdomen. She com-

* Read at the West Kent District meeting of the South Eastern Branch of the British Medical Association, at Dartford.

plained of great lassitude, and an inability to maintain the erect position of the body for any length of time; with febrile symptoms, great thirst, constipation of the intestine, and passing of an increased quantity of urine, which, on analysis, I found to contain sugar by the tests of Trommer and Moore; specific gravity 1032. (In order to prevent the possibility of any mistake being made from the accidental admission of sugar into the secretion, I never rest satisfied with the first analysis, but repeat the examination with urine that may pass on the next day, laying great stress on the importance of scalding the vessel with hot water which receives the urine, and also the phial and cork; and, furthermore, I test the urine at intervals during the treatment.) Regarding this case both in its early stages and its present, I inferred the diabetic symptoms to be of recent origin. Nevertheless, my prognosis was unfavourable, simply reserving the possibility of suspending, or rather preventing an increase, in the loss of water and sugar.

The treatment advised was the recumbent position of the body when in the house; to take moderate walking exercise in the open air; the diet to consist of milk, eggs, fish, meat, aerated bread, well-boiled greens, with salt, spice, and vinegar; lemon-juice in water that had been boiled for ordinary drink; avoiding potatoes, carrots, parsnips, sugar, beer, and ripe fruit. I gave the mineral acids and the acetate of iron, in the same form and time as in the former case.

In September, I found the patient decidedly better, both as to muscular and nerve power. On the 21st of September, I made an examination of the urine, and found all evidence of sugar gone, but displaced by the triple phosphates, and that in great abundance; the specific gravity 1026. The mineral acids having been omitted during the last six weeks, I resumed them before breakfast and dinner, which removed the elimination of the phosphates. She is now taking the acetate of iron after dinner, and living as much as is possible out of the house.

This transition supports the statements I made in reference to the order of change; viz., phosphatic to diabetic, and diabetic to phosphatic. On reflection, I am inclined to seat the primary cause of diabetes in the ganglionic system of nerves, *not* in the glandular system; but, secondly, particularly in the hepatic function. Thus far I have maintained the statement made by Sir Thomas Watson in his *Lectures*, p. 606: "That there are three objects to be kept in view in the treatment of diabetes: first, restore the defective power of the digestive apparatus; secondly, to cut off, or restrict as much as possible, the supply of saccharine matter from without; thirdly, to mitigate the most distressing symptoms. If we could achieve the first of these objects, the other two would fall out of sight; for the disease, which is really a variety of dyspepsia, would be cured. But hitherto all resources of our art have in this respect been baffled."

I do hope my cases, from their favourable termination, may lead to the necessity of making early analysis of the urine whenever there is general debility with *pallor of the skin*.

PROFESSOR TURNER, the successor to Professor Goodsir in the chair of anatomy in the University of Edinburgh, delivered his first lecture to a large class of students on Thursday afternoon. On entering the class-room, Professor Turner was received with loud and prolonged applause by the students. After some preliminary remarks, the professor delivered a lecture on "The Anatomy of the Heart."—*Pall Mall Gazette*.

Reports

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

UNIVERSITY COLLEGE HOSPITAL.

CASE IN WHICH, AFTER SYMPTOMS OF STONE IN THE BLADDER HAD BEEN PRESENT FOR MONTHS, AND A SMALL CALCULUS HAD BEEN DETECTED ON SOUNDING, NONE WAS FOUND ON CUTTING INTO THE PERINEUM WHERE AN ABSCESS HAD FORMED.

(Under the care of Mr. ERICHSEN.)

This case deserves to be placed on record as one which is almost unique of its kind, and as a fit pendant of the one mentioned in Mr. Cooper Forster's work on the *Surgical Diseases of Children*. The rational symptoms of stone in the bladder, as will be seen from the following history, the particulars of which were kindly communicated to us by Mr. Poore, house-surgeon, had been present for months; and, on sounding the child after his admission into hospital, unequivocal evidence had been obtained of the presence of a stone in the bladder, from the distinct click heard by several persons besides Mr. Erichsen himself. The formation of an abscess in the perineum seemed again to point to impaction of a stone in the prostatic portion of the urethra, and to an attempt at what has been termed the "natural cure of stone", of which an instance was lately brought before the notice of the Pathological Society by Mr. Henry Thompson. A calculus, of the size and shape of a white-heart cherry, made its way outwards in a child, through the formation and bursting of an abscess in his perineum. In Mr. Erichsen's case, the operation performed was not that of lithotomy; but merely consisted in cutting down upon the perineal abscess, with the view of at once extracting the stone supposed to be impacted there. As none was found at that spot or in the bladder, and as, since then, all symptoms of vesical irritation have entirely passed away, the conclusion must be that the stone must have been voided *per urethram* with the urine, and have escaped detection.

Joseph Chaplin, aged 3, a pale, sickly-looking child, was admitted on February 10th. His father stated that, since the end of last year, the child had had a difficulty in passing his water; he would cry and pull on the end of his penis, and, when he relaxed his hold, the water would come away "with a gush." As the last drops of water were being passed, the pain apparently increased, as the child then cried more loudly than ever. No blood was ever noticed with the urine. The child often complained of pain in the back; and, since the difficulty in making water first showed itself, he had fallen off a good deal.

On February 15th, the child having been put under the influence of chloroform, Mr. Erichsen passed a No. 4 sound into his bladder, and detected a small stone, against which the instrument could be heard plainly to strike. No further step was taken that day; and, as the child looked in a very unfavourable state of health, Mr. Erichsen decided on having him examined by one of the physicians before operating on him. The report of the physician having pronounced the child to be able to bear an operation, he was brought into the operating theatre on March 8th; but Mr. Erichsen, failing to detect the stone with the sound or staff, the operation was deferred.