

Jahns, in experimenting at 38° to 40° C. with fourteen specimens of continental mineral waters, found that Vichy (Grande Grille) gave the highest percentage, 200 parts dissolving .765 part of uric acid. From his experiments it is evident that the chlorides and sulphates have no influence in dissolving uric acid, and that the alkaline and earthy carbonates only increase the solubility of uric acid in considerable proportions. In diluted waters the solubility of uric acid remains proportional to the quantity of the alkaline and earthy carbonates; hence mineral waters poor in carbonates have little effect.

The calculation shows, moreover, that for the formation of an acid urate the following quantities of uric acid are needed:—

1	part of carbonate of lithium	= 4.54	parts of uric acid.		
1	“ “	magnesium	= 4.	“	“
1	“ “	lime	= 3.39	“	“
1	“ “	sodium	= 3.1	“	“
1	“ “	potassium	= 2.43	“	“

The greater the molecular weight of the carbonate, the greater its solvent action on uric acid.—*Ann. des Mal. des Organes Genito-urinaires*, Nov. 1883.

MEDICINE.

A Typical Case of Myxœdema.

At the meeting of the Clinical Society of London, on November 23d, Dr. DREWITT exhibited a case and described it. The patient was a woman, aged 45, who had been an out-patient at the West London Hospital during the last year. The disease was of twelve years' standing, dating from a time when the poor woman lost her husband and one of her children. At that time, she was slightly built and active; but since then she had gradually become stout and heavy, slow and languid and feeble in moving, slow and deliberate and indistinct in her speech. She was afraid of going about alone, lest she should be run over; and she could hardly lift her feet high enough to get upstairs. She was always cold, even in summer, and never perspired. Her bowels were obstinately confined. There was dyspepsia, and she had partly lost the senses of taste and hearing. All the characteristics of the disease were present—the generally swollen look; the round and fat face; the sallow, translucent, wax-like skin; broad nose; thick, coarse, purple lips. On the cheeks was the same peculiar dusky reddish purple colour, caused by dilated capillaries and veins. The eyelids were pendulous and transparent; the tongue, which was pale, swollen, smooth, and tooth-marked, was too large for the mouth, and more “cretinoid” than the intellect; the soft palate was also swollen and pale. The abdomen was greatly enlarged, as if from growth of fat; the swelling, in fact, was universal, but there was nowhere pitting on pressure. The skin of the hands and arms was rough and scaly, as in xeroderma. The hands were thick and swollen, and could no longer be clasped. The wedding-ring became imbedded in the swollen finger, and had been cut out by a jeweller. Pulse 76, feeble. The heart-sounds were distant, feeble; there was no murmur. Temperature in axilla only 95°. Urine, specific gravity 1011; it contained no albumen nor sugar. Dr. Drewitt remarked that the spade-like clumsy hand had been especially noticed by Sir William Gull in his paper read before this Society, describing the disease for the first time, just ten years ago; but he thought that the most striking physical peculiarities were

the pendulous eyelids, like alabaster in translucency, and the purple pouting lips. Tranquillity was also, in those few cases he had seen, a most marked characteristic. Though painfully conscious of their state, these patients were not irritable. As to the pathology, Dr. Ord had described the *post-mortem* appearance. The whole connective tissue of the body had been found swollen and jelly-like, and œdematous, with mucin. The swelling seemed sufficient to account for all the symptoms. The heart and arteries were obstructed by it, and hence the feeble blood-current, the deficient aëration of the blood, and the purple of the cheeks and lips. The tongue and palate were swollen with it, the intestine choked by it, the senses dulled, the functions of organs interfered with, and the patients died with all their tissues smothered by their own padding. In treatment of this patient he had found strychnia of the most value, and both muscular movement and speech had increased in briskness under it. In the appearance of the patient, however, there had been no improvement. As to the origin of the disease, it had been, perhaps, rightly ascribed to nerve-influence. Great anxiety or mental shock had occurred at the beginning of many cases. In Dr. Ord's first case, as in the one now before the Society, it followed upon the fatal illness of a husband. In Dr. Cavafy's first case it followed a shock; in his second, a bad time at childbirth. Dr. Duckworth's second patient mentioned that it came on after her husband had kicked and ill-treated her. Dr. Semon's patient had fourteen children and some miscarriages in a "comparatively short time." Great mental anxiety or distress profoundly depressed man's vitality. The secretions of gastric juice, saliva, bile were all influenced by emotion; mental shock was given as a cause of atrophy of the liver, and syncope might follow bad news; therefore, it would not be wonderful if it should be shown that the nutrition of the connective tissue of the body were altered in this way. Sir William Gull in his paper had alluded to the changes in the thyroid in true cretins. It would be interesting to know whether instances, either of atrophy or hypertrophy of the thyroid, had been observed in any of these cretinoid cases.

Dr. FELIX SEMON called attention to a most important contribution towards the etiology of myxœdema. At the twelfth Congress of German Surgeons, held at Berlin, in April of this year, Professor Kocher, of Berne, read a paper on "Extirpation of Goitre and its Consequences." His personal experience was based upon no fewer than 101 total, or partial, extirpations of goitre, and was secondary to no living surgeon's, except that of Professor Billroth. His attention was drawn to the after-state by the report of the general medical adviser of one of his patients. Professor Kocher, having seen the patient in question himself, was so much surprised, that he immediately requested all his patients, upon whom he had performed that operation—except those only very recently operated upon—to present themselves for the purpose of a re-examination. By many circumstances (death, loss from view, cancerous nature of the goitre, inability of attending personally, etc.) the number of those attending was reduced to thirty-four. In sixteen of these cases a partial extirpation only had been made; *i. e.*, one lobe, with or without the isthmus, had been removed. In all the cases belonging to this category, the result of the operation had been an excellent one; the dyspnoea, for which the partial extirpation had been performed, had disappeared, and the general health had suffered in no respect. Matters, however, were different with regard to the eighteen patients on whom total extirpation of the thyroid body had been performed. Of these, two only showed an undeteriorated, or even improved, state of health; but it was remarkable that, in one of these two cases, a small accessory thyroid gland had undergone a hypertrophic change, and that, in the other, a recurrence of the goitre had taken place. All the remaining sixteen patients showed more or less considerable derangements

of their general health, which derangements, though all of the same kind, were different in degree, the changes being much more developed in the oldest cases than in those more recently operated upon. These changes were, therefore, of a distinctly progressive character. As to the nature of the changes themselves, they were, in the order as related by Professor Kocher, the following. A few months after the operation, early fatigue, weakness, and sensation of heaviness in the limbs were complained of. In many cases, these were preceded by actual pains in different parts of the body. Soon afterwards, a sensation of coldness, especially in the extremities, was superadded. In winter time, the hands and legs swelled, became bluish-red and cold, and the patients suffered from chilblains. The mental activity decreased. Thought, speech, and movements became slower. At the same time, the patients were themselves painfully aware of these facts. About simultaneously with the above-enumerated symptoms, swellings of the face and body made their appearance. They were sometimes at first only transitory, but generally soon became lasting features. The parts most and earliest affected were as a rule the infra-ocular region and the eyelids, which showed a somewhat transparent swelling; later on, the nose became thick, the lips coarse, the hands and feet swollen, the waist stouter. The skin became dry, desquamated a little, was infiltrated, its elasticity lost; it could only be lifted in thick folds. The hair fell out. A most marked symptom in the more advanced cases was anæmia. Examination of the blood showed a relative richness of leucocytes, inasmuch as the number of the red blood-corpuscles was greatly diminished. In those cases in which the patients at the time of the operation were still growing, their development became most markedly arrested after the operation. Rarer symptoms were: slight dysphagia, giddiness, headache. Ophthalmoscopic examination, made in a number of cases by Professor Pflüger, did not reveal anything abnormal, beyond remarkable narrowness of the arteries. Professor Kocher concluded his description by the remark, that the relationship of the above combination of symptoms to those of idiotism and cretinism was unmistakable. Being himself unaware of the existence of myxœdema, he proposed for the affection he described the name of *cachexia strumipriva* (struma-goître). Similar observations had been made by Professor Reverdin, of Geneva. Having given this report, Dr. Semon said that, in a case of his own, in which Professor Lister had kindly removed the thyroid body *in toto* three years ago, great pallor and occasional swellings under the eyelids had since made their appearance, as he had ascertained by making inquiries. The patient also suffered frequently from general malaise. He was, however, far from attributing too great a value to written reports, and communicated this for the sake of completeness only. Returning to Professor Kocher's paper, he regretted that time did not permit him to enter upon the highly interesting and ingenious hypothesis, by which this author tried to explain the nature of the changes described by him. He (Dr. Semon) thought, however, that the identity of these changes with those met with in myxœdema, which he had found when reading through Professor Kocher's paper, was very evident. Not one symptom was present in myxœdema which was not met with in these cases of total extirpation; on the other hand, one symptom only had been observed in a certain number of these cases which was not present in myxœdema, viz., the arrest of the growth of the body after total removal of the gland in children. But the explanation of this difference was obvious: myxœdema was essentially a disease of adult life. Looking upon the whole question from a broad point of view, there appeared to be three conditions closely allied to each other, and having in common either absence or probably complete degeneration of the thyroid body: namely, cretinism, myxœdema, and the state after total removal of the thyroid body. In all three states, certain

conditions of arrested development of mind and body were met with, which, looked upon in the new light thrown upon the subject by Professor Kocher's observations, could hardly be attributed to anything else but to the loss of the thyroid body, common to them all. Speculations as to how these changes were brought about, and what was the exact influence of the thyroid body upon the composition of the blood and other tissues, seemed at present to be premature; but it was perhaps not too bold an hypothesis to assume that, if the absence of the thyroid gland would lead to arrested development of mind and body, it might also lead to arrested development of higher forms of organized tissue, and that under such conditions the lowest type or organized tissue, the foetal tissue, mucin, could mainly be formed, and was formed, in excessive quantities. Thus the excess of mucin in the tissues, which had been supposed to be the essential feature of myxœdema, might possibly find its explanation.

Dr. ORD remarked that, when Kocher's paper was published, his (Dr. Ord's) friend Dr. Semon at once drew his attention to it. By his advice, the speaker wrote to Professor Kocher, comparing his cases with myxœdema, and sending him some photographs. He wrote in return a letter, from which Dr. Ord now ventured to read an extract, indicating the way in which the coincidence had been regarded by him. "There cannot be the slightest doubt of the analogy of myxœdema and cachexia strumipriva. I was not aware of it before, having never seen a case of the affection. I think you will agree with me that, by my observations, the atrophy of the thyroid body, which you have found in your cases, gets much greater importance. According to what I have seen, the extirpation of the thyroid gland is the direct and sufficient cause of the whole affection. I thought that it was especially in young people that the symptoms were severe, and so it is certainly; but I have seen two cases in adults since the publication of my paper, and I grow more and more convinced that the excision of the whole organ, when nothing of it is left behind, has, as a necessary consequence, the cachexia. If that is the case, it seems not very probable that the lesions of fibres of the sympathetic nerve occasion an accidental neuritis of the same, because we do not see anything like that in excision of other organs. It would be necessary to state a peculiar relation of the thyroid body to the sympathetic nerve, to explain the constant affection of the latter. I hope to be able to have a necropsy, sooner or later, of one of my cases; and then it will be possible to compare it with the result of your most interesting *post-mortem* examination. If I am not mistaken, you do not speak of affection of the pupils or unilateral congestion of the face, or alteration of the function of the heart. I admit that the combination of affection of the thyroid gland, with irritation of the sympathetic nerve, in Basedow's disease, much induces one to think of an analogy in the opposite way. At any rate, the functions of the cerebrum seem to be impaired very soon. People lose memory, do not hear and see as well as before, cannot speak as they did before, complain of pain and excessive fatigue in all members." These observations certainly pointed strongly to the probability that atrophy of the thyroid body was, in some way or other, the cause of the condition, myxœdema. The very title of Sir William Gull's original paper; the cases of Mr. Curling; the paper of his lamented friend, Dr. Fagge, on Sporadic Cretinism; the very complete atrophy of the thyroid found at the *post-mortem* examination of his first case, all tended in the same direction. So, also, did Dr. Fagge's suggestion as to the sort of inverse ratio between goitre and cretinism, to which the report of the Sardinian Commission lent some support. But before he (Dr. Ord) could allow himself to express a decided opinion, there was still much to be observed and thought out. He handed round a photograph sent by Dr. Kocher, showing the after-condition in one of his cases. It showed, with characters of myxœdema,

marks of a cretinoid arrest of development, which did not, of course, exist in the cases where the disease had begun in adult life.

Dr. CAVAFY thought the natural history of the disease deserved much attention; so far as he had seen, the course was not one of uniform deterioration, but there were distinct periods of quiescence, or even improvement. The younger of the two cases he communicated to the Society two years ago was a good illustration of this; after leaving the hospital, she became pregnant, and, during gestation, suffered much from swollen legs and other discomfort; labour was protracted and difficult, owing chiefly to great œdema of the genitals, but the child was quite healthy. Soon afterwards, she came to the hospital to say she was much better, and all who saw her were struck with the marked improvement in her condition; the swelling of the face and hands was greatly diminished, her expression brighter, and speech nearly normal; but she gradually relapsed into her previous condition. He thought the improvement might be accounted for by the stimulus to general nutrition caused by the puerperal state. In another case, of a gentleman with marked myxœdema, whom he had seen once, he had been told that ascites supervened, and necessitated tapping on several occasions; ultimately the fluid ceased to reaccumulate, and it was then found that the characteristic signs of myxœdema had nearly disappeared, and he was better than he had been for many years. In this case, it seemed as if a deviation had taken place—the general œdema, which was probably to a great extent serous, having, so to speak, drained into the peritoneal cavity. These were the most striking instances which had come under his notice; but in every case he had seen, there had been longer or shorter intervals of more or less marked improvement, which he was unable to associate with treatment, or with any alteration in the general surroundings of the patient.

Dr. R. CROCKER said, in reference to the elimination of urea which had been observed to fluctuate in myxœdema, that too much stress must not be laid upon this. Some years ago, in making some experiments upon the influence of alcohol upon the excretions of a dog, he made a long series of preliminary determinations of urea, in order to ascertain the normal elimination of the animal, which was kept in exactly the same conditions as regards diet, etc. He found very wide fluctuations in the amount of daily elimination, and that without any apparent cause. In several cases of universal dermatitis, where the urea had been estimated, there had also been considerable fluctuations; it was obvious, therefore, that it would be necessary to carry on the observations for long periods before any reliable results would be obtained.

Dr. ORD said, in answer to Dr. Cavafy's question, that the first patient in whom he had studied myxœdema—as far back now as twenty years—bore two children after the condition was well established; and that there was no change in the symptoms during or after either pregnancy. No doubt, there were to be noticed in most cases such periods of seeming amelioration as Dr. Cavafy had mentioned; but, until within the last three years, he had witnessed in all cases a distinct tendency to progress from bad to worse. He was led by the desire to give one of his patients relief by diaphoresis to try the use of jaborandi. The effect of the drug after several weeks' use was so beneficial, that he had since used it in all cases. He might report that in all the cases it had given relief; that in some its use had been followed by a change for the better far exceeding what was observed in the ordinary changes of the disease; and that, in one or two cases, something like a cure had been effected. One patient certainly had lost all her œdema, had recovered her activity of body and of mind, and declared herself to be quite well. This was more than he (Dr. Ord) dared to say till after some longer lapse of time. The jaborandi was given in the form of a tincture;

thirty drops in a teacupful of hot water, with a little sugar, three times a day; the dose was gradually increased to sixty, ninety, or even one hundred drops three times a day; and the drug was given for months together.

Dr. WHIPMAN had heard with satisfaction the results of Dr. Ord's treatment of myxædematous patients with jaborandi. It had occurred to him some time since that diaphoresis might relieve many of the symptoms. He began by trying hot air-baths in a woman recently under his care, but at first no sweating took place; on repeating the bath once or twice, fair diaphoresis was produced. Pilocarpin, subcutaneously injected, was then tried with the same patient, in doses of one-twelfth of a grain. It was found, however, necessary to increase the amount to one-fourth of a grain in order to produce the desired effect. The patient suffered more or less from headache on the day following the injection, but expressed herself as feeling greatly relieved, and "much lighter" in consequence of it. She was eventually sent to the Morley Hospital, much improved. A few days ago, however, she again presented herself for advice, all the good effects of the former treatment having passed off. Hot air-baths having produced but little sweating, the tincture of jaborandi was tried in drachm doses, but caused severe headache and sickness. The dose was probably too large.—*British Med. Journal*, December 1, 1883.

Etiology of Tabes Dorsalis.

In 1881, Professor Erb published his first series of 100 cases of tabes dorsalis, showing the frequency of previous syphilis in this disease. In 88 of these cases there had been previous syphilis, in 12 there had been none. Since that date, Fournier, in his work on Locomotor Ataxia of Syphilitic Origin (1882), gives the percentage of cases in which there has been previous syphilis as 93; Vogt, a former opponent of syphilitic tabes, in his latest statistics, gives the percentage as 81.4. The *Berliner klinische Wochenschrift*, No. 32 of this year, contains a paper by Erb giving a second series of 100 cases of tabes dorsalis. Out of this series, 9 only of the cases had had no syphilis, while 91 had had previous syphilis. Of these 91 cases, 62 had undoubted secondary syphilis, 29 had primary sores, but no secondary symptoms were noticed. Of these 29 cases, 5 had true hard sores, 10 were treated with mercury and iodide of potassium, and in 14 the treatment and the nature of the sore are not noted. The tabes dorsalis manifested itself at the following periods after infection with syphilis: 13 cases occurred between the first and fifth years, 31 between the sixth and tenth, 25 between the eleventh and fifteenth, 15 between the sixteenth and twentieth, 5 between the twenty-first and twenty-fifth, 1 between the twenty-sixth and thirtieth, and in 1 case the period was unknown. Thus 69 of the 91 cases occurred during the first fifteen years after infection, 15 in the period between fifteen and twenty years, and 6 still later. As a check observation Professor Erb ascertained that of 1500 patients who attended his clinic, who were not tabetic, 77.25 per cent. had never had syphilis, and that 22.75 per cent. had been infected. Of these latter 10.25 had suffered from secondary symptoms, and 12.50 from chancres only. From these observations he concludes that syphilis is such an important factor in the etiology of tabes dorsalis, that scarcely any one who has not had syphilis or a chancre has a chance of becoming tabetic. As to the other factors in the etiology of tabes (viz., heredity, catching cold, fatigue, sexual excesses, and injury), he considers them of much less importance; of the 100 cases of the present series he gives in 36 cases syphilis as the only assignable cause, in 17 cases syphilis and cold, in 8 syphilis and fatigue, in 7 syphilis and excesses, in 2 syphilis and injury, in 15 syphilis, cold, and fatigue, in 4 syphilis, cold, and excesses, in 3 syphilis, fatigue, and excesses, in 1 syphilis, excesses, and injury as the assignable causes,