2. In Class A the average number of days is greater than in Class B, or, in other words, those in which the date of delivery is after the estimated date are nearer the latter than those in Class A.

I argue, then, from these facts that, in Naegeli's method, the number of days added on is too great, and that by adding fewer days a still nearer approximation to the date of delivery might be got, and this conclusion comes into line with the average length of gestation arrived at from the authorities quoted above, which is less than that given by Naegeli. If two days less be added the result corresponds both to the average length of pregnancy which I have quoted, and with the average (practically) in Class A.

Where available—which, unfortunately, is seldom—Löwenhardt's method will be found to be more accurate than Naegeli's, and the two will be found to correspond almost exactly, provided two days fewer are added to the latter. In fifty other cases which I calculated by Löwenhardt's method, the date of delivery was in all within 1.6 days of the estimated date. Löwenhardt's method consists in counting the number of days between the last menstrual period and the one preceding that and multiplying by ten. The date can then be got by tables.

REFERENCES.

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SCROFULOUS ULCERS OF THE LEGS (BAZIN'S MALADY)

SUCCESSFULLY TREATED BY HIGH-FREQUENCY CURRENTS.

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MR. JONATHAN HUTCHINSON, in his *Archives of Surgery*, vol. v, p. 113, referring to Bazin's malady, says: "It is a name given to a manifestation of scrofula occurring mostly in young women, in which multiple ulcers, the consequence of a subcutaneous and self-infective inflammation occur on the legs, such ulcers being difficult of cure, prone to relapse, and presenting appearances very likely to be mistaken for syphilis." He further quotes in the same volume, p. 32, a translation by Dr. Colecott Fox of Bazin's description of the disease associated with his name.

The case now to be related must, I believe, be regarded as an example of Bazin's disease. It is true that the ulcers were present only on one leg, and that the symmetry, which has been a prominent feature of most of the cases recorded, was therefore lacking. But in view of the physical character of the ulcers, of their recurrence, and of the age and constitutional tendencies of the patient, this absence of bilateral distribution can hardly affect the diagnosis, and support for this position can be found in the fact that Mr. Hutchinson includes among his records at least two instances in which a similar limited manifestation of the disease existed.

The patient, a young lady aged 16, who had spent the greater part of her life in Eastern Europe, was brought to me by Dr. Alexander Thomson of Glasgow early in January, 1904. She was tall, of dark complexion, and somewhat phlegmatic disposition. With the exception of a number of ulcers on her left leg, and some evidence of anaemia, she appeared to be free from definite signs of disease. There was, however, a degree of coldness of the extremities, and at various times, it was said, she suffered from enlargement of the glands in the submaxillary region, facts which may be quoted in favour of the diagnosis here suggested. Neither in the family history nor in the physiognomy of the patient was there anything to suggest the possibility of a syphilitic taint. There is no history of tubercle in the family. The more recent history of the patient is included in the following note by Dr. Thomson:

History.

In April, 1897, I was called to attend Miss K. T., a young girl of 11 years of age, suffering from chicken-pox. The attack was a very severe one, the eruption being very copious, and the fever running high and lasting long; and a considerable degree of debility followed. The patient's home was in the Balkan States, and she was in this country merely on a visit. The coldness of the climate here made her always feel uncomfortable. Her personal history was free from any serious illness, but she had never been robust, and was always of a lethargic, indolent temperament.

After recovering from the attack of chicken-pox, she went to the coast for the month of July. On her return to town I was sent for to see her on account of the condition of her left leg. On the outer aspect of the

middle third of that limb were six or seven punched-out ulcers of various shapes and sizes. The largest was about $\frac{1}{2}$ in. in diameter, and the smallest about $\frac{1}{4}$ in. across. The ulcers presented a grey, unhealthy surface, and were discharging a thin, serous fluid. The skin in their neighbourhood was of a livid blue colour, and was much infiltrated.

The history given was that within a few days of going to the coast, nodules were observed on the leg in the affected region. These were not painful, but gradually rose above the surface and then slowly broke down to form ulcers. Under complete rest in bed for several weeks, the use of cod-liver oil and iron, and local application of lotions of boracic acid, etc., the ulcers gradually healed.

In September, 1897, the patient returned to her home in the East and remained there until September, 1902, when she once more came to Glasgow. During these five years she enjoyed fairly good health, and the leg gave her no trouble. For some months after coming here she continued well, but in June, 1903, nodules began to form in the region that had been affected six years previously. The stages through which these nodules passed were an exact repetition of what had taken place in 1897—namely, slow formation and elevation, breaking down, and ultimate formation of ulcers. The main difference noticeable was that the edges of the ulcers were on this occasion hard, white, and callous. They were seven in number, and the condition of the surrounding skin was as it had been during the former attack. The blue colour was, if anything, more deep, and the scars of the old ulcers were sharply defined as white patches. The new ulcers partly encroached upon the scars of the former ones.

On this occasion the treatment adopted in the former attack proved quite useless. The patient remained in bed for two or three months, and took malt, hypophosphites, syrup of iodide of iron, and cod liver oil. Locally the ulcers were treated with a great variety of dressings, including sulphate of zinc, black wash, compound tincture of benzoin, antiphlogistine, etc., but they utterly refused to heal. The only improvement noticeable was that the surrounding induration lessened and the ulcers had a cleaner and healthier appearance after being dressed for some weeks with antiphlogistine. Thorough scraping of the ulcers was also tried on two separate occasions, but without benefit. Seeing no improvement was being made, I requested my friend Dr. Somerville to try upon my patient's leg the effects of the high-frequency currents. I shall leave him to describe his treatment, the results of which proved highly satisfactory, and shall only add that I have seen the patient on several occasions since the electrical treatment was stopped, and that the ulcers continue soundly healed. With the exception of a temporary attack of acne she has, indeed, enjoyed her usual measure of health.

Comparing the facts of the case with the descriptions of Bazin's malady, I have no doubt that it is an example of that disease, though it must be placed among the rarer members of the group in consequence of the ulceration affecting only one of the lower limbs.

When the young lady came to me I found on the anterior aspect of the left leg seven punched-out ulcers ranging in size from a threepenny-bit to a florin. The ulcers had undermined irregular edges resembling markedly the ulcers produced by specific disease to which, as Mr. Hutchinson points out, cases of Bazin's malady are apt to be referred. The skin in the immediate neighbourhood of each ulcer had the dark-red "violaceous" character described by Bazin, and was free from irritability and tenderness.

Dr. Thomson has noted the treatment adopted by him. The high-frequency currents were first applied by me on January 12th, 1904, and were continued till March 28th, 1904, forty-one applications in all being employed. The patient sat for about eight minutes on the auto-condensation couch; thereafter the limb was treated by the spray éffluve and also with a flat glass electrode of high vacuum connected with the top of the Oudin-Dean resonator. Very shortly after treatment was commenced the ulcers began to take on a more healthy appearance; they gradually filled up, and the usual healing line was soon noticeable, till finally they were covered entirely with healthy skin.

I saw the patient at the end of January of this year, when I found the ulcers perfectly healed, the skin of the limb quite smooth, free from induration, and was surprised to learn that a short time previously the young lady had walked no less than thirty miles in one day without any evil effect, and had been climbing hills during the summer holidays.

THE CORNEAL REFLEX THE MOST RELIABLE GUIDE IN ANAESTHESIA.

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THE number of signs of anaesthesia which students are now supposed to take into consideration is altogether beyond the grasp of many men in moments of doubt. In addition to this, I believe that the common resort to the evidence of pupillary variations which are also produced by partial asphyxia, strong light and operative influence, quite

as much as by the anaesthetic, is liable to render indecision and nervousness in administration more profound. I desire, even at the risk of being considered dogmatic, to lay down two principles for guidance in the administration of chloroform and ether and mixtures of the same, which have been of inestimable value to me in my own practice:

1. Keep the airway clear.

2. Never completely abolish the corneal reflex.

First, the airway must be kept clear throughout anaesthesia, because if the jaw is allowed to fall back at all, carrying the base of the tongue over the epiglottis and producing even moderate stertor, an element of asphyxia is introduced which more than doubles the dangers of the anaesthetic state. I mean by this that it is the administrator's duty to relieve all forms of stertor directly they arise.

Secondly, when an anaesthetic drug is in course of administration we require to know how deeply the patient is affected by its paralysing action at every given moment after loss of consciousness and during surgical manipulation.

It is known and admitted by all that primary reflex actions are paralysed gradually one after another before (always before and never after) the truly automatic reflex actions, examples of the latter being the respiratory and cardiac movements.

The corneal reflex, which is produced by touching the centre of the patient's cornea, and both watching and feeling the responsive closure of the upper eyelid, is one of the last primary reflex actions to become paralysed. When this has been abolished, the fourth stage of dangerous anaesthesia has been entered, because the next centres to become paralysed will be those automatically controlling respiratory and cardiac action. Therefore, whilst some degree of corneal reflex can be elicited, a condition of overdosage is impossible.

What can be more simple than always to retain a trace of corneal reflex? To constantly test it in both the patient's eyes, and to give more or less anaesthetic respectively according to the brisk or slow response elicited from the upper eyelids.

The proper method of eliciting the corneal reflex in the anaesthetized subject is to stand behind the patient and raise the margin of one of the upper eyelids by gently inserting the pulp of one finger only between the lids, then drawing the upper lid upwards with it till the cornea is well exposed to brush definitely against the centre of the cornea and edge of the upper lid with that finger and let go suddenly. Both by feeling and watching the brisk, moderately rapid, or slow responsive closure of the upper eyelid the presence of the first, second, and third stage of narcosis is demonstrated.

There is often a difference in the activity of the two upper eyelids, and if the more active of the two is always taken as the true test it may be trusted to as a sheet anchor for keeping the patient in the harbour of safety.

The principle which this involves is never to abolish the corneal reflex completely—that is, if the drug be pushed unduly till it does disappear, to withhold it until the corneal reflex returns in a slight degree, and to endeavour then so to adjust the subsequent dosage that this condition of a dulled, but not absent, reflex is maintained.

SOME POINTS IN THE TREATMENT OF BRACHIALGIA AND SCIATICA.*

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JUDGING from the large and increasing number of cases which are sent to health resorts year by year for special treatment, it would seem that painful affections of the cervico-brachial and sciatic nerves in many instances tend to assume a chronic course, and thus exert a most debilitating and depressing effect on the health of the patients. During the past seven years over 700 cases have been treated by my partner, Dr. Armstrong, and myself at Buxton.

Although in some cases of sciatica and brachialgia the pain is purely neuralgic, in the majority there is an inflammatory condition of the nerves or of their sheaths, and it is desirable to classify them as—

(a) *Sciatic or Cervico-brachial Neuralgia*.—It is frequently of a very temporary character, and may be simply functional, probably showing no change whatever in the sheath or in the nerve. When the general health of the patient is low, however, it is often of considerable duration. The pain is generally intermittent in character, and is not

usually confined to one part of the nerve as it generally is when the condition is due to inflammation.

(b) *Perineuritis*.—It is probable that the majority of cases of sciatica and brachialgia are due to this condition. This pain is of a peculiarly "toothachy" character, and there is tenderness over the roots of the affected nerves as they emerge from the spine and also at various points in their course. In sciatic perineuritis the patellar reflex may be intensified. There is often some degree of tingling and numbness of the extremities.

(c) *Neuritis*.—This is infinitely the most serious and intractable condition with which we have to deal. There is great tenderness of the nerve itself, and sometimes over the parts to which it is distributed. The temperature of the limb is reduced, there are areas of anaesthesia, tingling, and numbness of the extremities, and in the later stages muscular atrophy.

The causes of these affections are in some cases difficult to trace. The great majority of patients have a gouty taint, and many are rheumatic. We found that in a striking number of instances the patients had been subjected to great worry and over-pressure, which had lowered the general nerve tone, thus inducing defective metabolism and tardy excretion of body waste. A large number of these cases occurred in overworked business men. The exciting causes of sciatica and brachialgia are cold, damp, and traumatism. Pressure from tumours or aneurysms, and in sciatica from constipation and uterine displacement must be borne in mind. Neuritis is often caused by the action of such poisons as lead, arsenic, and alcohol, and it should be remembered that the subjects of glycosuria and diabetes are very liable to this affection of the nerves. In not a few cases neuritis occurs as a sequel of influenza.

Treatment.

In the acute stage, whatever variety of the disease is present, rest is absolutely essential. The leg may be placed on a well-padded splint, or the arm in a sling. Dry heat applied by means of the Greville or Dowsing apparatus, or, if these are not available, by indiarubber hot-water bottles, will be found most effective.

With regard to drugs no combination has, in our experience, been found so effective as the following: Aspirin 6 gr., phenacetin 5 gr., salicylate of quinine 2 gr., and codeine $\frac{1}{4}$ to $\frac{1}{2}$ gr. The bowels should be well cleared with small doses of calomel followed by salines. In those cases in which the pain is not relieved an occasional injection of morphine with atropine may be necessary, but this is a remedy which should be used with great caution and not too frequently repeated, as it tends to interfere with the excretion of body waste, and may also lead to the establishment of the morphine habit.

Subacute Stage.

It is in this stage, which is often so protracted and troublesome, that the various spas become of service. In sciatica we have found nothing so serviceable as the half-combined bath. The patient sits in a vapour bath which comes up to the waist line only; this, while not exhausting the patient as much as the full vapour bath, allows a higher temperature to be borne by the affected parts. Thus, a temperature of 115° F. can be tolerated with advantage from ten to fifteen minutes. At the end of this time the patient sits in a bath of the Buxton thermal mineral water heated to a temperature of 95° F. for eight minutes, and during the last three minutes a hot undercurrent douche at 102° to 110° F. is applied to the affected limb.

In affections of the brachial nerves the full combined bath is used, or if the patient is too weak for this, the arm alone is placed in the vapour box before he goes into the immersion bath. In this stage also electricity in various forms is used with excellent results. The sinusoidal electric water bath (200 alternations per second) or the high frequency currents of d'Arsonval are the most useful, as they have a distinctly anaesthetic effect upon the nerve whilst improving its nutrition. Acupuncture has often been found beneficial at this stage, as has also the application of a blister over the head of the affected nerve or the use of the thermo-cautery. The administration of fairly large doses of potassium iodide three times a day for three or four days is sometimes beneficial, as is also the application of a menthol liniment or plaster.

Chronic Forms.

In the treatment of the chronic forms of sciatica and brachialgia it is essential that distinction should, as far as possible, be made between true neuritis and other forms of these complaints. Where neuritis is not present the Aix massage bath with the douch applied to the painful part is of great value, as are also dry and electric massage, followed by gentle stretching of the nerve in cases where adhesions are

* Communicated to the Derby Division of the British Medical Association.