from what is well known as regards confirmed diabetes and its hereditariness; the fact that many cases attribute the onset to prolonged or heart-breaking anxiety; that some are the direct outcome of injuries to the nervous centre; that anon it follows acute and nerve-depressing illness, such as diphtheria. But this position is, I think, still further advanced and strengthened when transient glycosuria is brought into the same view, because the evidence is rendered much more complete. Transient glycosuria and the persistent form, or diabetes, then become part and parcel of one process, corresponding closely in these two features of remission and duration, with other maladies or states with which we are quite familiar, and whose neurotic origin no one would question.

For instance, I see their parallel in the simple heart-beating that is an everyday occurrence in the hundred and one excitements of life, and in that persistent rapidity of pulse occasionally seen in aortic and other cardiac affections, which is one of the most distressing and intractable complaints which we are called upon to treat. Again, they correspond in many ways to common blushing, also an everyday occurrence, and to the remittent blushing or flushing so common and so worrying in a multitude of phases in the neurotic woman, or in those whose sexual functions fail of development or fulfilment. And the resemblance perfects itself in that state of perpetual blush which is exophthalmic goitre, and even to this detail: that exophthalmic goitre is occasionally associated with remittent glycosuria—as I have reason to know from the case of a lady whom I occasionally see with Dr. Uthoff, of Brighton. In none of these affections can we yet demonstrate a lesion, and I think that from the study of the remittent forms of each, it becomes clear that, as diseases, the whole group is on the borderland of pathology only, which can never be very easy of demonstration, for, though morbid in one sense, it is but physiological excess in another.

The practical bearing of all this would seem to be that, as in some phases of this vasomotor disturbance, as it is—and I believe rightly—called, so in those that are glycosuric the early conditions are very successfully treated, without the necessity for any great anxiety on the part of the doctor, by good nerve tonics, such as strychnine, arsenic, quinine, and hydrobromic acid; by careful dieting and relief from worry; by rest from brain work, and change of scene. When the conditions are pronounced with either one or the other they are very intractable; and that they are not then easily remediable let both diabetes and exophthalmic goitre bear witness.

I think, too, that as opium is a remedy of unquestionable value for diabetes well established, so with paroxysmal glycosuria. Small doses of that drug have a steady power over the nervous system or circulation which is of value in the wrecked conditions which seem to me so often to precede and accompany it. And for the same purpose it might be well to make trial of antipyrin in these cases. I say this with some hesitation, first, because I have no experience of my own to relate; and secondly, for the reason that, being recommended for nearly everything nowadays, one eyes it askance as an acquaintance who has got into bad company, and whose reputation is hardly up to his professions. However, there are records of such cases. My friend, Dr. Battiscombe, of St. Mary Cray, told me lately of two such that he had seen, and it naturally occurs to one that a drug of so undoubted a value in migraine, in some cases of chorea, of whooping-cough, and other conditions that may all go under the head of paroxysmal neuroses, it might quite possibly be of value in such a condition as that now under discussion, and certainly is worth a trial.

ULSTER MEDICAL SOCIETY.—At the meeting of this Society on December 4th, the adjourned discussion upon the Notification of Infectious Diseases Bill was resumed. After some debate, the following resolution, moved by Dr. Lindsay and seconded by Dr. O'Neill, was carried unanimously: "That this Society approves of the application to Belfast of the Notification of Infectious Diseases Bill, provided that suitable accommodation for the reception of infectious cases be afforded by the municipality. It is also of opinion that the carrying into effect of the provisions of the Bill should be vested in the chief sanitary officer." Dr. O'Neill showed two interesting and successful cases of nerve suture. Dr. Lewers read a paper upon "The Abuse of the Out-patient Department of Dispensaries and Hospitals," the discussion upon which was adjourned to the next meeting.

ON THE CENTRAL MOTOR INNERVATION OF THE LARYNX.

A PRELIMINARY COMMUNICATION.

By FELIX SEMON, M.D., F.R.C.P.,

Assistant Physician in Charge of Throat Department, St. Thomas's Hospital.

AND

VICTOR HORSLEY, B.S., F.R.S.

Professor of Pathology, University College; Assistant Surgeon to University College Hospital.

(From the Laboratory of the Brown Institution.)

In 1886 and 1887 we carried out a large series of experiments (over 100) on different species of animals—monkeys, dogs, cats, and rabbits—with a view of investigating the central motor innervation of the larynx. Circumstances have hitherto prevented us from completing these researches; but we have received so many requests from those interested in the subject that we should publish our results, if only in a preliminary form, that we desire to comply and to add the deductions which we think may be legitimately concluded from our experiments. At the same time we wish to state distinctly that this is only a preliminary communication, and that we shall lay a full account of the experiments on which our conclusions are based, together with a complete theory of the motor innervation of the larynx, before the Royal Society in next May or June. We shall also give a full description of the same before the International Medical Congress at Berlin in August next.

The conclusions which we have arrived at are as follows:—

1. There is in each cerebral hemisphere an area of bilateral representation of the adductor movements of the vocal cords, situated in the monkey¹ just posterior to the lower end of the præcentral sulcus at the base of the third frontal convolution, and in the carnivora in the præcrucial and neighbouring gyrus. This area has a focus of intensest representation in the anterior half of the foot of the ascending frontal convolution. Stimulation of this point produces complete bilateral adduction of the vocal cords, which lasts as long as the stimulation is continued. Should, however, the latter be unduly prolonged the "*besoin de respirer*" overcomes the influence of the artificial stimulus and evokes a momentary but powerful abductor movement of the vocal cords. Stimulation of the more peripheral parts of the area evokes less and less perfect adductions as we proceed from the focus outwards, and when the extreme margin of the area is excited only what is known as the "cadaveric position" is assumed by the vocal cords.

The above description applies to the monkey, dog, and rabbit. In the cat we have observed curiously different conditions, for which, at present, we are not prepared to offer any explanation.

2. We have not been able to find an area of representation in the cortex of the abductor movements of the vocal cord.²

3. If one of the cortical areas for adduction be so completely excised that stimulation of the neighbourhood of the lesion produces no effect upon the larynx, and if the wound be allowed to heal aseptically, no paralysis of the cords is observed. Further, if subsequently the corresponding area in the opposite hemisphere be excited, just as completely bilateral an adduction of the cords is produced, as if the opposite area were intact.

From the above facts we infer that:

(a) Unilateral irritation produces bilateral effect. Thus clinically in any irritative unilateral affection of this area, spasm of the glottis, that is, bilateral adduction of the vocal cords, may occur, for example, in laryngismus stridulus. That this view is not purely theoretical is shown by the association, in severe cases of the last-named illness, of the glottis spasm with the so-called carpo-pedal contractions. This association is most easily explained on the assumption that we have an overflow of energy from the laryngeal to the neighbouring cortical areas for the limbs.

(b) Unilateral destruction produces no effect. There is, therefore, no such thing as unilateral paralysis of a vocal cord from lesion of a cerebral hemisphere, as has been asserted. The truth of our statement is made evident by the fact that motor aphasia is not identical with aphonia. Moreover, the observation by one of us [F.S.] of several patients with complete

¹ Demonstrated to the Physiological Society, 1887.

² *Vid. sup. re the cat.*

aphasia and right hemiplegia, only a few hours after the apoplectic stroke, has conclusively shown that in such instances the movements of the vocal cords are perfectly preserved.

4. We have observed that on powerful or long-continued excitation of the laryngeal area true epilepsy of the vocal cords supervenes, gradually spreading to the neighbouring muscles of the face, neck, head, and upper limbs. From this we conclude that the epileptic cry is not, as has been so long believed, the result of a discharge primarily from the medulla oblongata, but rather represents a stage in the cortical excitement popularly termed an epileptic fit.

5. Whilst we have found so distinctly specialised an area of representation of adduction in the cortex, and no corresponding area of abduction in this region, we have, on the other hand, found that direct excitation of the accessory nucleus in the medulla oblongata evokes abduction of the cords, and never anything else.

From all the foregoing it follows that our results are in complete harmony with the most recent views of the relation of the cortical to the lower centres; for our experiments have shown that the representation of the laryngeal movements in the cortex is essentially that known as purposive or volitional, since it is adduction, that is, phonation; whilst, on the other hand, the bulbar representation of the larynx is as essentially adapted for the so-called automatic processes of organic life, that is, abduction-in-spiration.

Finally, this series of experiments, as well as those we have previously published³ on the peripheral innervation of the larynx, corroborates in the fullest manner the ideas which one of us [F. S.] has put forward in his first papers⁴ on abductor paralysis, namely, the proclivity of the abductors to fail in organic, and of the adductors in functional, disease.

ENGLISH AND FOREIGN WINTER RESORTS.

By I. BURNEY YEO, M.D., F.R.C.P.,

Physician to King's College Hospital.

RECENTLY, both in the medical and lay press, some severe criticisms have appeared reflecting on the conduct of those "fashionable London physicians" who recommend certain patients to pass their winters out of the island of Great Britain. As I have been for some years past a considerable offender in this respect, I have felt the severity, although I have not been able to admit the justice, of these animadversions. I had, however, no intention of offering any comment on these criticisms, as I knew well that time and experience—a bitter experience probably to some—would prove their baselessness. Moreover, the absence of all competent knowledge of the subject was so apparent in many of the communications, that there was nothing worth calling an argument to reply to, and it is always an unprofitable task to combat mere assertions. But now that Sir Edward Sieveking has published, in the *JOURNAL* of December 14th, some reliable statistical details as to the winter climate of Falmouth, where we are invited to send those invalids who are usually sent abroad, I am afforded an opportunity of dealing with facts instead of mere assertions or impressions, and I am given the means of presenting a comparison which should prove instructive, especially to those who are accustomed to look to facts for their instruction.

When we recommend patients a winter change of climate, we usually desire to submit them to the beneficial action of some very definite physical influences. The chief of these are (1) sunshine—exposure to health-restoring sunshine in the open air; (2) a warmer temperature, which usually accompanies more abundant sunshine; (3) absence of atmospheric humidity; and (4) absence of rain. No one who has any right to express an opinion on the subject will deny the paramount importance, in the selection of a winter climate for delicate persons, of those four conditions. Now I will take from my bookshelves, as a fairly representative

account of an ordinary, somewhat commonplace Continental winter resort, Dr. Hassall's work on San Remo, and it is especially appropriate in this connection, as Dr. Hassall had had a prolonged personal experience of a well-known English winter resort, Ventnor, with which he is able constantly to make instructive comparisons, and I will compare the facts as given by Sir Edward Sieveking of the winter climate of Falmouth in the four particulars I have named, and those collected by Dr. Hassall of the winter climate of San Remo. It is usual to regard the invalid's winter as consisting of the months of November, December, January, February, March, and April; or we may speak of November, December, and January as the three winter months, and February, March, and April as the three spring months.

Let us first take the three winter months, and compare the mean amount of sunshine to be obtained at Falmouth in November, December, and January, with that obtainable at San Remo.

In Falmouth, the mean amount of bright sunshine in hours for eight years was, in November, 70.9 hours; December, 57.8 hours; January, 46.6 hours:

Dr. Hassall's mean of three years at San Remo, November, 185.6; December, 219.5; January, 194.0 hours.

I must remark here that it is to me quite inexplicable that a place in which the mean amount of sunshine in the month of January reaches only 46.6 hours should be vaunted as a winter resort.

Let us next take the three spring months, February, March, and April.

Hours of Sunshine.				
		Falmouth.		San Remo.
February	...	71.3	...	209.5
March	...	130.8	...	261.7
April	...	174.1	...	267.9

Taking the whole six months, we get 551.5 hours of sunshine at Falmouth, against 1,338.2 at San Remo; but if we take the four wintry months of November, December, January, and February we get the truly enormous difference of 246.6 hours of sunshine at Falmouth, against 808.6 at San Remo.

In the second place, let us look to the condition of a warmer temperature.

Mean Temperature.				
		Falmouth.		San Remo.
November	...	47.5°	...	53.54° (+6.04°)
December	...	44.3°	...	49.25° (+4.95°)
January	...	43.6°	...	47.23° (+3.63°)
February	...	41.1°	...	50.19° (+6.09°)
March	...	44.2°	...	52.00° (+7.8°)
April	...	47.2°	...	57.04° (+9.84°)

A very sensible difference of temperature throughout the whole winter, and remarkably so in the spring months of February, March, and April, the period when invalids suffer so much from the protracted winter low temperature in these islands.

Thirdly, as to absence of humidity. At Falmouth the mean humidity for the winter six months is 83.6. At San Remo Dr. Hassall's means ranged from 67.2 to 72.7. The observations at the Government Observatory, being taken on higher ground, give a mean of 59.5, against Dr. Hassall's 67.2. The mean humidity at Falmouth then is high.

Finally, as to the rainfall and the number of rainy days. In Falmouth the mean rainfall for the six months mentioned amounts to 27.418 inches. Dr. Hassall's means at San Remo for the same period vary from 10.26 (1879-80) to 16.64 (1881-82) inches. But the average annual rainfall for ten years was only 28.7 inches, that at Falmouth being 49.358, and, when we come to compare the number of rainy days, the contrast becomes even more striking.

Number of Rainy Days.				
		Falmouth.		San Remo.
November	...	22.3	...	5.6
December	...	21.9	...	3.7
January	...	19.6	...	5.0
February	...	17.8	...	4.3
March	...	17.2	...	3.6
April	...	14.3	...	7.0
Total	...	113.1	...	29.2

It will be seen, then, that at Falmouth, during the winter months of November, December, and January, two out of every three days are "rainy;" at San Remo, less than one out of six.

It is unnecessary to pursue this comparison further. I would, however, point out to the medical practitioners who censure those whom they are pleased to call "fashionable" physicians for sending patients out of England, that these physicians would soon

³ On an Apparently Peripheral and Differential Action of Ether upon the Laryngeal Muscles. By Felix Semon and Victor Horsley. *BRITISH MEDICAL JOURNAL*, August 28th, 1886, p. 405.

⁴ Clinical Remarks on the Proclivity of the Abductor Fibres of the Recurrent Laryngeal Nerve to become affected sooner than the Adductor Fibres, or even Exclusively in Cases of undoubted Central or Peripheral Injury or Disease of the Roots or Trunks of the Spinal Accessory, Pneumogastric, or Recurrent Nerves: *Archives of Laryngology*, 1881, vol. II, November 3rd. Ueber die Lähmung der einzelnen Fasergattungen des Nervus Laryngeus Inferior (recurrens): *Berliner Klinische Wochenschrift*, 1883, Nos. 46-49, etc.