would be conveyed by the communicating vessel into the umbilical vein of the healthy child. A similar explanation would, of course, hold good as regards the arteries."

A propos of foetal circulation, Dr. Stokes, of Dublin, recently mentioned to me that he had tried once to find out what he could hear with the stethoscope on examining the abdomen of a pregnant cat. The cat was within a few days of her bringing forth, and the experiment was made with care and repeated several times. The cat had four, or perhaps five, kittens; but nothing was heard but the well-defined sound of a *single* foetal heart. In answer to my question, whether he had detected twins in the human subject by the stethoscope, Dr. Stokes observed that he had never examined a case of twins or triplets. He remarked, "It is said that twins have been detected by auscultation. I suppose it was by the different intensity of sounds in different portions of the hypogastrium."

THE CLIMATE OF SIDMOUTH, WITH RESULTS OF METEOROLOGICAL OBSERVATIONS FROM 1865 TO 1870.*

By J. INGLEBY MACKENZIE, M.B. Cantab.,
Physician to the Sidmouth Dispensary; Fellow of the British and Scottish Meteorological Societies.

THE temperature of the body in health, and the deductions to be obtained from variations from the normal temperature in different diseases and in various stages of the same malady, have been an object of research to many of our profession both at home and on the Continent. It does not appear that the profession, as a rule, have made observations on the air of the room in which such temperature has been taken, or of the external atmosphere at the same period—a circumstance which undoubtedly would make a considerable difference in the temperature indicated.

The temperature, the moisture or dryness of the air in which we are existing, must have great influence on our human economy. The depression caused by a "muggy" day; the brightness which is proverbially the concomitant of sunshine, without entering more into detail—a matter of but little difficulty—are ready evidences of this fact. So also the climate in which we live—whether the air be dry or moist, the temperature equable, or extremely cold or hot—ought to be a study equally deserving our attention with the phases of disease which are in no small measure dependent on changes of temperature, etc. The Registrar-General's weekly returns, with which are now published the temperatures, afford most palpable proofs of increase and decrease of disease with the alterations in the temperature of the air.

Having called attention to these points, before I proceed to the subject of this paper—the climate of Sidmouth—I must remark that the public, and I fear sometimes the profession likewise, look rather dubiously on remarks on climate made by a member of our profession, as if it were impossible but they should be, from interested motives, put in too favourable a light. Fortunately, I am enabled to place in juxtaposition, in confirmation of my own observations on the climate of Sidmouth, some observations taken by a most careful observer, not liable to any bias, which coincide entirely with mine; and, in addition to this, I am able to state that the instruments and their positions have been examined and approved by Mr. Glaisher.

The works on climate of Sir J. Clark and Dr. Scoresby Jackson, though most admirable as wholes, cannot but fail of necessity, from the magnitude of the ground they cover, to be sometimes in error. The account of Sidmouth in the former is founded on observations taken one mile out of Sidmouth for a period of less than one year only. The account in the latter is obtained from some other publication. Here let me suggest the publication of a "Dictionary of Climate", with short descriptions written by observers conversant with the localities of which they write, which would doubtless be valuable in time as a work of reference.

Sidmouth lies in the eastern part of Devon, almost centrally in the district bounded by the Axe and Exe. It lies at the centre of the segment of a circle which forms the great bay bounded on the west by Berry Head and on the east by Portland Bill. Its latitude is 50 deg. 43 min. 40 sec. N., longitude 3 deg. 13 min. 3 sec. W. The town of Sidmouth lies in a winding land-locked valley trending downwards towards the sea, bounded on each side by lofty hills 500 feet in altitude, and closed in on the northern side by another range of hills. It is exposed, therefore, to the south only. It is stated, and apparently on

as yet uncontroverted authority, that the bay, at the head of which Sidmouth is situated, was hollowed out by the action of the Gulf Stream, dividing at the Land's End; part passing to the westward; the eastern portion working up and forming the bay. And it has been argued from this hypothesis, that this is one of the reasons for the warm winter-temperature of Sidmouth. Observations on the temperature of the sea have been but rarely taken on this coast; though, by the exertions of Mr. N. Whitley, they have been taken in some parts of Cornwall; and the Scottish Meteorological Society are actively pursuing the same object, not only on the North British coasts, but also in Sweden and Iceland. The general impression is, that the sea is susceptible of less change of temperature than the land; and, if so, we may fairly argue that land lying close to the sea is liable to enjoy a climate more equable than that further distant. And, if the temperature of the adjacent sea be elevated, as suggested in the above hypothesis, doubtless it will affect the neighbouring land. That the climate of Sidmouth was not unknown to previous generations, the fact of its having been the chosen resort of H.R.H. the late Duke of Kent, and that it was here some of Her Majesty the Queen's earliest days were spent, is sufficient evidence.

The points to be observed in the climate of Sidmouth are: *a.* The equability of its temperature; *b.* Its comparative dryness—though possessing a moist atmosphere—in relation to the other parts of the county; *c.* The rapidity with which the soil dries after rain, thereby rendering exercise available for the invalid on almost every day in the year.

a. The Equability of its Temperature.—The avoidance of the extreme of heat or cold is what is generally understood by equability of temperature, or, in other words, where the difference between the highest reading of the thermometer and the lowest is smallest in the day, month, or year.

The average daily range of temperature during the years 1865-1870 inclusive was only 13.4 deg.; that of the summer months being 15.1 deg.; of the winter, 11.8 deg. In the years 1856-1863 (omitting 1862), the same averages (by Mr. Heineken's observation) were severally of mean daily range, for seven years, 9.8 deg.: summer months, 11.1 deg.; winter months, 8.2 deg. Hence during the winter months the temperature does not vary above from 8.2 to 11.8 deg., or in the summer from 11.1 to 15.1 deg., during the twenty-four hours.

The extent of the variation of the thermometer in each month in the year, between the extreme highest and extreme lowest, is only 30.6 deg.

The coldest days in 1870 were the 23rd, 24th, 25th, and 31st days of December. In a list of fifty-one places given by Mr. Glaisher in his Quarterly Report, on which the temperature was specially observed, it was found to be as low as 1 deg. at Taunton (that is, thirty-one degrees below freezing-point); 9.8 deg. at Greenwich (or twenty-two degrees below that point). The thermometer at Sidmouth never indicated a lower temperature than 19.4 deg., or twelve degrees below freezing-point, being ten degrees warmer than Greenwich, and eighteen warmer than Taunton.

The extreme range in the course of the year, during the six years (1865-70) to which reference has been made, is 55.6 deg.; that is, calculating the extreme from the hottest day in summer to the coldest day in winter during the whole of that period.

In proof of the equability of the climate, I have drawn up a table giving in columns the mean temperatures respectively of Sidmouth and Greenwich in each month during these years, showing thereby that, though the annual mean temperatures do not vary by more than half a degree, the temperature in each winter month at Sidmouth is warmer than that of London by from one to four degrees nearly; and, on the other hand, the temperatures of the summer months are proportionally cooler. The same has been proved above in reference to the extreme of cold, and might be also of the extreme of heat.

b. Its Comparative Dryness.—Devonshire is supposed to be, or has the credit of being, one of the wettest counties in England. According to an average for the year 1869, calculated by Mr. Pengelly of Torquay from the data in Symons' *Rainfall*, and published in the *Transactions* of the Devonshire Association for the Advancement of Science, it stands only seventeenth in degree of wetness or quantity of rainfall (or sixteen counties were wetter than Devonshire in 1869). The same gentleman, in another part of his paper, states: "During four years, Prince's Town was the wettest station in the county, and Sidmouth and St. George's Clyst the driest." Again: "The mean daily rate of rainfall on wet days during the four years (referred to) was .41 inch at Sheepstor, where it was greatest, and .18 inch at Sidmouth and Broadhembury, where it was least." From the same table it may be gathered that, of forty-two rain-gauge stations in Devonshire in 1869, the quantity of rain which was registered at Sidmouth was less than at any other station, with one exception, in Devonshire, the mean an-

* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Plymouth, August, 1871.

nual rainfall for four years being the lowest in Devonshire, St. George's Clyst having the same average.

I append a table of my own rainfall observations for six years, giving the quantity of rainfall and the number of rainy days in each month during that period, the result of which tallies exactly with Mr. Pengelly's, giving an annual rainfall of 31.68 inches, one hundred and seventy rainy days, and a fall of .18 inch on each rainy day.

Closely following the subject of rainfall is that of the relative humidity of the climate. Dr. Parkes states (*Practical Hygiene*, 3rd edition, p. 465) that "the most agreeable amount of humidity is between 70 and 80, saturation = 100. In chronic lung-diseases, however, a very moist air tends to allay cough. The evaporation from the lungs produced by a dry atmosphere appears to irritate them. Warmth and great humidity are borne as a whole better than cold and great humidity."

The great desideratum in a climate to suit persons suffering from phthisis is a moist atmosphere of a certain character—i.e., not too moist, for that is depressing and relaxing; nor too dry, for that is irritating to the mucous membrane of the air-passages; but, as near as possible, a mean betwixt these two extremes.

It appears from observations taken that the mean relative humidity for six years is 81; the mean relative humidity of the winter months, 82; of the summer months, 78. I cannot conclude this part of the subject better than by quoting from Dr. Shapter's work on the *Climate of South Devon*, 2nd edit., p. 128.

"From its size and climate, Sidmouth affords an agreeable residence to persons who have lived long in warm latitudes; it is well adapted to those labouring under affections of the liver, and during the autumn, winter, and spring seasons, for the consumptive invalid; it is probable that during the spring months it is the best place on the coast for those liable to pulmonary complaints. It has been asserted that Sidmouth is peculiarly injurious to persons labouring under menorrhagia. The experience of the local practitioners does not bear out this opinion; on the contrary, they deem it beneficial in those cases, as well as in dysmenorrhœa. It is also serviceable in cases where undue wear and tear of mind is followed by mental depression and nervous irritability. Calculus and typhus are unknown, and it is remarkably free from epidemics." These remarks of Dr. Shapter need not be taken even *cum grano salis*, which might be the case were they written by a local physician, though, in an experience of eleven years, I can confirm them in their entirety. That the climate is relaxing I strongly deny. I am quite ignorant of epidemics existing; and as to the palliative effect of the climate in phthisical cases, I could (would time permit) produce notes of numerous instances in which, if the malady were not cured by the climate, it lay dormant in some cases as long as twelve to fourteen years. To my mind, the mistake committed by many practitioners in sending their phthisical cases to warm climates is the sending them *too late*; it is in the stage of phthisical cachexia, before the mischief has developed itself too prominently by physical signs, that these climates are of use, not in the later stages, when the patient is only sent off to pass the last few days, or perhaps weeks, of his life at a distance from his home, his friends, and connections. And here there is the advantage of an English residence over a foreign one; it is more within reach of home; the houses are built to exclude cold, not (as I know to my cost in the so-called sunny south) built so as to be cool in the summer; it is within a few hours of anxious friends; it entails no sea-voyage; it has no temptations to sight-seeing; a cozy English fireside is obtainable, and there is hardly a degree of difference in the temperature. I have received letters from Nice when the snow has been reported as lying there, whilst consumptive invalids have been sunning themselves on the beach at Sidmouth. I fear I shall be accused of approaching the realms of poetry and romance, but I am prepared with data on which to ground my statements.

c. *The Rapidity with which the Soil dries after Rain.*—The town itself is built on a diluvial deposit of gravel overlying the red sandstone. To the geologist, the different strata rising up from the sea to the layer of flints on the summit of the hills afford an interesting study; the soil is of a porous character, dries most readily, so much so that in ten minutes after the heaviest rains, the esplanade, a raised walk facing the sea, is available for pedestrians.

I trust I have in some measure proved the facts with which I started. I might have added tables on the direction of the winds, showing the greater prevalence of winds from the seaward points of the compass, giving warmer feeling to the air in winter and a cooler one in summer; or referred to the quantity of ozone in the atmosphere, especially with sea-borne winds; the quality of the water; the lowness of the rate of mortality; the absence of phthisis and asthma amongst the natives of the locality; the entire freedom from epidemics; but I refrain, having already exceeded my limits.

I can only repeat that, I trust my statements may be taken not as a local matter, but as a mite thrown into the treasury of the British Medical Association on the score of the meteorology of Sidmouth.

The Tables referred to were too voluminous for insertion.

CLINICAL OBSERVATIONS ON THE DIAGNOSIS OF THE GENERAL PARALYSIS OF THE INSANE.*

By JOHN HITCHMAN, M.D.,

Superintendent-Physician of the Derby County Asylum.

GENTLEMEN,—It was not from the feeling that I should be able to convey any additional knowledge on the subject of "general paralysis" (or, as it has been named by an able Dutch physician, Dr. Salmon, "general paresis") of the insane, to gentlemen whose attention in practice has been especially directed to this malady, or to those who have made themselves acquainted with the writings of Calmeil, of Rodriguez, Baillarger, Meschede, Conolly, Griesinger, and others, on this grave disease, that I yielded to the solicitation of your Secretary, and consented to make some remarks on this subject, but because, as a matter of fact, I have often found, in consultation with the busy general practitioner, that he is less familiar with this disease than with others, and that a prognosis has often been given which would have been withheld had the true nature of the disease been understood.

It occurred to me that, without entering into a minute description of all the characteristics of the malady, which would occupy too large an amount of your time—without pretending to reveal what had been hid from other observers in this special path of practice, or attempting to evolve a new theory upon an obscure disease, but by simply illustrating the more prominent and diagnostic symptoms of the affection in the persons of two or three patients, I might occupy profitably a few minutes of this meeting. As I have previously stated, the malady has not received much of the attention of the general practitioner; and the aspect of the patient in the early stages of the disease is often so hopeful—the appetite, the sleep, the general appearance of the patient are often so good, and the body so well nourished, that, within my frequent observation, the medical attendant has held out to the patient's friends the most sanguine expectations of recovery; while to the experienced eye, the sufferer has evidently been smitten with an incurable disease—i.e., incurable as far as our present knowledge extends; not more hopeless, indeed, is acute miliary tuberculosis, than is the general paresis, or paralysis, of the insane.

The late Dr. Conolly, in his lectures on this malady before the College of Physicians in 1849, said: "It is extraordinary that scarcely a trace, if even a trace, of a description of a paralysis so distinct and peculiar in its character should be found until we come to the writings of physicians yet living." Delacy in 1822, and Calmeil in 1826, appear to have been the first to give us a full and lucid description of this malady. It appears to have been more frequent in France than in this country. It is said to be exceedingly rare in Italy. Guislain informs us that it is seldom observed in an asylum at Aversa containing three hundred and sixty beds, although intemperance is a frequent cause of insanity in that region; and he found no example in an asylum at Genoa containing two hundred and seventy beds. It has, I believe, increased considerably in this country; increased with the increasing wealth, luxury, social ambition, and display of the present time, although not unknown in a remote age. There are some who recognise the portrait of this malady in the description by Ulysses, as given by the illustrious Shakespeare in the play of *Troilus and Cressida* (Act 2nd, Scene 3rd):—

"Things small as nothing, for request's sake only
He makes important: *possessed he is with greatness*
And speaks not to himself, but with a pride
That quarrels at self-breath: imagin'd worth
Holds in his blood such hot and swol'n discourse,
That 'twixt his mental and his active parts,
Kingdom'd Achilles in commotion rages,
And batters down himself! What should I say?
He is so plaguily proud, that the death-tokens of it
Cry—*No recovery.*"

"Possessed he is with greatness", certainly reminds one of the disease; and the cry "No recovery" is a striking sentence. The whole condition constitutes a good seed-bed for the development of general paralysis; but the portrait is incomplete, for there is wanting the physical disorder which, in association with swollen and exaggerated ideas of personal

* Delivered at the Annual Meeting of the Midland Branch.