lieve that the explanation is to be sought for in Africa, in the Desert of Sahara. This immense tract of sunburnt sand, which covers a considerable portion of the continent of Africa, may be considered one vast furnace. The atmosphere heated on its surface is constantly rising up into the higher atmospheric regions, and thus creating a vacuum. To fill this vacuum, the Mediterranean winds, north, north-east, and east, are pulled down before they reach the coast of Spain, probably within fifty or a hundred miles of it. Thus diverted, they pass over the Algerine or Mount Atlas Switzerland; there deposit their moisture, making it in winter and spring a moist verdant region, to lose themselves in the great sandy desert.

That the boisterous winds which make the western Mediterranean so troubled a sea in winter, are thus diverted, is certain. The coast of eastern Spain is proverbially a calm sea. At Alicante there is a saying that their sea is "a sea for women and children." The steamers from Marseilles to Algiers pass between the Balearic Islands, about seventy miles from the mainland, and constantly in winter they have to contend with very bad weather. As constantly do they escape from it by steaming east to the Spanish coast. This is so much the case, that a detention on the Spanish coast going or coming from Algiers is a common, at some seasons a regular, incident of the voyage.

Whatever the explanation, the fact is certain that from Malaga to Barcelona, on the east coast, there is very little rain, not more than forty days in the year, often not that—much less than on the Genoese Riviera, also an exceptionally dry region. The winter temperature is also so exceptionally mild that there can never be more than a few degrees of frost, as evidenced by the flourishing existence of orange and lemon trees, of subtropical palms, and of other plants which cannot stand more than a few degrees of winter frost. I only found, however, at Malaga, flourishing in the open air, the cool stove plants, heliotropes, lantanus, pelargoniums, etc., which I and my neighbours grow in our gardens, unprotected, at Mentone and in the more sheltered parts of the Riviera. At Murcia and Valencia, these plants were grown in pots and placed under cover in winter. The conclusion which I legitimately draw is, that the winter temperature is as warm, indeed a shade warmer, at Malaga than at Mentone, but that, on the rest of the Spanish coast, the winter temperature is rather lower than at Mentone and the more sheltered regions of the Riviera. The climate, soil, and vegetation are, however, the same in both regions. Medically speaking, therefore, they are suited to the same morbid states, to all who require a dry, sunny, bracing, stimulating, mild winter climate. Malaga would, thus, be one of our most valuable resorts were it not for its filthy, unhygienic state, which renders it unfit for the residence of a healthy, and still more of an unhealthy person. Although most sincere in the expression of my convictions on this score, and most anxious to be impartial, it may be thought that a prepossession in favour of my winter home makes me a prejudiced witness. I therefore refer to the testimony of Dr. Madden, an enthusiastic admirer of the climate of Malaga. In a pamphlet entitled *The Climate of Malaga in the Treatment of Chronic Pulmonary Disease*, Dublin 1864, he says very graphically, and very explicitly:—

"The hygienic condition of Malaga is as defective as it can well be. In a great many of the houses there is no provision for sewerage of any kind; and even in the more civilised part of the city, in the hotels on the Alameda, the drainage is very bad indeed. The main sewers, which run under the principal streets, are choked up by the decomposing accumulation of years, and, being provided with immense square openings through which the dirt and rubbish is thrown into them, in the centre of the streets, the mephitic gases evolved below freely escape into the atmosphere of the narrow lanes of the city. The bed of the Guadalmedina is really the main sewer of Malaga; and as for nearly ten months annually it is little more than a wide dry bed of gravel, being dependent on the torrents in winter for its purification, the odour it exhales in warm weather renders a residence near it as disagreeable as it is unhealthy. The connexion between epidemic disease and bad sewerage is, I think, very well illustrated in Malaga, which has at all times been remarkable for the prevalence of zymotic disease. I have collected from the older Spanish writers notices of no less than twenty-two epidemic pestilences, some of which almost depopulated [the city between 1493 and 1804]. The earlier of these seem to have been epidemics of genuine Oriental plague, and the latter generally assumed the form of yellow fever. Of late years, since 1834, these pestilences have not appeared, but their place has been taken by Asiatic cholera, which has several times ravaged the town."

Such is the description of this favourite resort for consumptives, given by Dr. Madden, himself an ardent supporter of it. May I not ask, in cool, sober, common sense, whether it is not sheer insanity to send miserable invalids, young and old, already stricken with disease implying decay of vitality, lowered organic power, to a town where the de-

fective hygiene of the cities of the middle ages reigns supreme; where filth-engendered pestilence stalks abroad day and night, as in former days; where the Oriental plague is succeeded by yellow fever, and yellow fever by Asiatic cholera?

There are other towns on the east coast of Spain—Murcia, Elche, Alicante, Valencia, Seville—but in none of them is there any suitable accommodation for invalids. The hotels are merely inns of a third or fourth class, frequented by, and supported by, commercial travellers, and situated in the middle of these unhealthy cities. Tourists can put up with them, but they are not fit for real invalids. In the course of time, commercial enterprise will no doubt provide suitable accommodation in this really good and favoured climate of the east coast of Spain. But in the meanwhile, real invalids, who require a dry, bracing, sunny, mild, winter climate, had better keep to the Genoese Riviera. For further details on the subject of this paper, I must refer to the last edition of my work on the *Winter Climate of the Mediterranean*.

METEOROLOGY AND CLIMATE OF PLYMOUTH.*

By J. MERRIFIELD, Ph.D.

MR. PRESIDENT AND GENTLEMEN,—Believing as I do that climate and health are very closely interwoven, I must urge this as an excuse for bringing forward the subject of the meteorology and climate of Plymouth; and, as I am unaware of any other consecutive registers of meteorological phenomena kept in the neighbourhood, I beg to offer to the Association the few deductions I have drawn from my own observations, although I could wish this honour had fallen into abler hands.

In speaking of the climate of any place, I must guard my hearers against using that term indiscriminately with weather.

Weather expresses the condition of the atmosphere at any particular time in a certain place.

Climate means the condition of a country with regard to its meteorological phenomena generally, or it is the mean or average of all weathers taken for a very long period. Weather is changeable; climate is uniform. Time enters as a factor in weather; from climate time has been eliminated. "Climates are different in different places; whereas the weather, though changeable in any one place, may be the same at the same time in many places."

My recorded observations extend over about seven years; viz., since October 1864, and the deductions I may draw should be received with all the caution due to the short time during which I have registered systematic data. Then, again, by using check instruments I have found reflected heat where I little expected, and hence sometimes too high a maximum has been recorded; and at others I have left thermometers exposed by night, when by radiation under a cloudless sky, with a small amount of vapour in the atmosphere, I have registered too low a minimum. As an instance of this, I have several times found ice formed on the top of my house, when a screened thermometer in the open air close by has not sunk lower than 35 deg. Fahr. The material of which the screen is composed, the colour of the paint used, and a countless number of so-called trifles, tend to introduce discrepancies between observers who are otherwise as careful as it is in man's nature to be. Again, among observers I believe proper allowance has not been made for the character of the soil near which observations have been taken: thus on Dartmoor, near the peat-bogs, the heat from the sun is absorbed by the black marshy soil, and is at once transformed into what scientific writers of the present day call "potential energy", by converting the water into vapour; but I have become sunburnt on the moor, when a shaded thermometer there has stood many degrees below one under similar circumstances in Plymouth, where the sun's heat has been reflected and radiated from our lime-stone soil. No doubt part of the effects of the direct rays of the sun was due to the small amount of vapour in the atmosphere on the high ground of Dartmoor, whilst in the air at Plymouth more vapour is found.

I have felt bound to make these introductory remarks; because, if any observer compare his observations with mine, attention to little matters may reconcile many apparent discrepancies.

In comparing my observations, I find the mean temperature of Plymouth to be 52.31 deg. Fahr. This mean would obviously be best found by recording for a long period twenty-four hourly observations and taking their average; but Mr. Buchan, the Secretary of the Scottish Meteorological Society, has shown that the mean between the maximum and minimum between every day in the year is too great only by a frac-

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

tional part of a degree; and this is the method which I have adopted. I find that the mean temperature corresponds to the mean of those taken at 8 A.M.; this, I believe, is much earlier than is generally supposed. The months of April and October give nearly the same means as the year.

Our hottest months are June, July, and August, when the averages are 61.01 deg., 64.5 deg., and 62.8 deg. Fahr., thus showing July to have the advantage. Our coldest months are January and March; the averages being 42.2 and 43.4 deg., the latter, on the whole, being colder than either December or February. Like every other place, we have some extreme readings; but these in Plymouth, as in all the south-western district, are comparatively rare. The maximum temperature in the shade which I have recorded is 93 deg. Fahr. on June 27th, 1866. The minimum is 14 deg. Fahrenheit, on December 27th, 1869. The maximum should be received with caution, because I am afraid heat must either have been reflected or radiated from surrounding substances. I have many instances of the temperature reaching from 85 deg. to 90 deg. I find that the maximum for the day is generally from 2.30 to 3.30 P.M.; but the time is modified from the effects of clouds, etc.; so much so, that I have occasionally found the maximum as early as 8 to 9 A.M., and as late as 7 P.M. Our mean maximum is 60.01 deg.; our mean minimum 44.61 deg. Fahr.

The average difference between our wet and dry bulb thermometers is 2.6 deg. Fahr. Very frequently at 8 A.M., and even throughout the day, we find our dry and wet bulbs indicating the same temperature; thus showing the atmosphere to be completely saturated with aqueous vapour. I take this to be a phenomenon common to the whole south-western district, because with a south-west wind coming from a warm ocean the air must be highly charged with moisture; and when it is cooled by contact with the land complete saturation takes place, and we get drizzling rain lasting for hours, perhaps days, and yet the rainfall for that time is comparatively small. Then, again, on June 22nd, 1865, I found 15 deg. between the readings of the bulbs; the dry being 78 deg., the wet 63 deg., and the barometer 30.336 inches. This would give the dew-point, or temperature at which dew will begin to be deposited, 52.6 deg. Fahr., the relative humidity 41, complete saturation being 100, and 4.3 grs. of vapour in a cubic foot, whilst it would take 6.0 grs. more of vapour to saturate the air. This is the least humidity I have ever observed in Plymouth, and was after several days of continuous easterly winds. In June month I find, as a rule, the least relative humidity, and in November the greatest. The readings of the dry and wet bulbs should be carefully attended to in all districts, as by means of such readings, with Glaisher's tables, the dew-point may always be calculated and the minimum temperature on the ground predicted very nearly. Knowing that this is of great value to all such as have tender plants which will not bear low temperatures, I may also point out that, with the aid of the hygrometer (as it shows the temperature and dryness or humidity of the air), an artificial climate may by very simple means be produced; and those whose circumstances in life or condition of health prevent them from seeking a climate suited to their peculiar constitution can, to a great extent, make up for the deficiency by the assistance of this instrument.

I am aware that the existence of the Gulf Stream has been questioned by many eminent men; but I have never seen another valid explanation for the finding of articles of West Indian produce on the western shores of the British Isles, France, and Norway. A few of these, by the kindness of the Local Secretary, Dr. Littleton, I am enabled to exhibit: these were, I believe, found on the coast of Cornwall. Then, again, Maury (one of the very highest authorities on this and kindred subjects) positively asserts that the water of the Gulf Stream differs from other waters "not only in colour, transparency, and temperature, but also in specific gravity". Again, by comparing temperatures, he proves that the ocean reaching the western shores of the British Isles is much warmer than the latitude would indicate without such a current; and Professor Wyville Thomson (one of the principals associated with Dr. Carpenter in the *Porcupine* Expedition of 1869), in his address delivered before the Meteorological Society of Scotland in July last, gives corroborative proof of this superior temperature of the ocean coming up from the south-west (*Nature*, vol. iv, pp. 251 *et seq.*). Until these observations are proved untrustworthy, I for one shall accept the deduction. Whether there be a Gulf Stream or not (but of whose existence I have no doubt), from the fact that the temperature of the ocean is higher than the latitude warrants, and from the great specific heat of water, our winters must be ameliorated and our climate rendered more humid than it otherwise would be, making us contrast very favourably in temperature with ports and watering-places on the eastern shores of Britain.

I find the greatest range of the thermometer to be in the summer months of June and July, when the average range is above 20 deg. Fahr. The least range is during the winter months of January and February,

when it is less than 10 deg. Fahr. I can account for this only by the fact that the vapour in the atmosphere during the summer months is far more attenuated or rare than in the winter months; and hence the heat-rays from the sun are absorbed more in winter than in summer, whilst radiation from the earth is prevented from the same cause during the same time. This is simply an illustration of Professor Tyndall's theory of absorption and radiation. The greatest daily range of temperature I have ever registered was on April 27th, 1865, when it was 44 deg.—viz., the minimum 42 deg. and maximum 86 deg.—and on June 20th and 22nd, 1865, and June 27th, 1866, when the range was 40 deg. on each occasion. In very many instances I have found it to be more than 30 deg. Fahr. As a contrast to these, on December 22nd last, 1870, I found the daily range to be but 2 deg. Fahr.—viz., the minimum 26 deg., maximum 28 deg. Fahr.—and on several occasions the daily range has been but 3 deg. Fahr.; the maximum being about 50 deg., and minimum about 47 deg. Great daily ranges are indicative of dry weather, whilst small ones show rain or great cold. The connexion between great daily ranges of temperature and health, as affected by certain diseases, would be an interesting problem for some medical man with time on his hands to solve; *i.e.*, whether great ranges of temperature on several successive days tend to increase the mortality caused by some diseases: if so, then the treatment at such times is obvious, and localities with small extremes of temperature for invalids with these diseases should be chosen. Another question is, do extreme temperatures, even if they last for some days, affect health as much as great daily ranges of temperature?

The atmospheric pressure, as shown by the barometer, has fluctuated between 30.822 inches, the maximum on 15th Dec., 1865, and 28.500 inches, the minimum on the night of 10th January, 1866; a difference of pressure amounting to about $2\frac{1}{2}$ inches of mercury. These readings are reduced to the mean sea-level at 32 deg. Fahr. I have found the pressure seldom to fall below 29 inches. This occurred on four mornings in 1865, two in 1866, three in 1867, three in 1868, three in 1869, and not at all in 1870. The month of greatest mean pressure is June, the average being 30.120; the month of least mean pressure is January, the average being 29.844. The mean pressure for the whole time is 29.953.

We next come to speak of the winds. I find in the six complete years of which I have records, that on 407 mornings we had wind from north to east, on 444 from east to south, on 671 from south to west, on 564 from west to north, and 97 mornings calm; whilst from sickness, absence, and other causes, no register was made for 8 mornings. These numbers give 18.58 per cent. for the wind from north to east, 20.27 from east to south, 30.62 from south to west, 25.74 from west to north, and 4.42 per cent. calm; thus winds with a westerly tendency or calm amount to 60.78, whilst those with an easterly tendency are only 38.25 per cent. The months in which we have the greatest amount of easterly winds are March, April, and May; those with the greatest amount of westerly winds are February and July; whilst those with most calms are April and September. The strongest winds blow almost invariably from south to west, and increase in violence as they veer—that is, as they follow the course of the sun. This, no doubt, is occasioned by the rotation of the earth. Plymouth is pretty well sheltered by high ground, except in the south, and is especially so from north to east; hence the full force of the wind from that quarter cannot be felt in the town, and the proverbially baneful east wind is robbed of its sting.

Rain next claims our attention. If not less than $\frac{1}{16}$ of an inch fall in twenty-four hours, it is usually classed as a rainy day; it should be as a day on which rain falls. The number of days on which rain, snow, or hail fell was 189 in 1867, 168 in 1868, 177 in 1869, and 118 in 1870. The quantity in 1869 was 30.01 inches, and in 1870 was 24.11; and these are the only years in which I have kept a register of the rainfall.

From the last quarterly weather report issued from the Meteorological Office, taking the average of the five years from 1866 to 1870 (both inclusive), I find that the mean annual rainfall of Plymouth is 38.95 inches; January contributing 5.32 inches, September 4.92, and December 4.58 inches, these three months being those in which most rain falls. June contributes but .77 inch on the average, or only 2 per cent. of the rainfall, this being the least. We sometimes experience very heavy showers. These, in my opinion, are the results of electrical discharges. The heaviest shower I ever witnessed was on Saturday, July 29th, 1871, from 9.30 to 10 A.M., when in less than half-an-hour about three-quarters of an inch was registered. These very heavy rains are of rare occurrence. The humidity of a district should be judged more by the number of rainy days than by the quantity of rain which falls; because fine rain falling for several successive days, not amounting to nearly as much as a single heavy shower, will render a climate more moist than another where the rain falls heavily and then stops. I have the authority of Mr.

Scott, F.R.S., for saying that the amount of rainfall is well determined in scarcely a large town in England; and in Plymouth the gauges are peculiarly misplaced, being either on the tops of houses where the draught through the streets interferes considerably with correct results, or in sheltered spots. In my own case, the gauge is situate on the edge of a vertical wall twenty-six feet six inches from the ground, and is sheltered from S.S.W. to W. by N. by another house. Experiments conducted by Mr. Chrimmes of Rotherham, and published by Mr. J. G. Symons in his *British Rainfall*, show that the amount decreases with elevation; and for the height of my gauge about 16 per cent. should be allowed. From the Rotherham experiments, extending over fifty-six months, Mr. Strachan, F.M.S., has calculated that the mean inclination of rain is 42 deg. from the vertical (*Brit. Rainfall*, 1870, p. 53); and, as the highest part of the chimneys of the adjacent house makes an angle of 45 deg. with the vertical, there can be but little effect from its position, although with a strong wind some rain must be lost to my gauge. Then, again, I have observed that, when the rain accompanies a south-east wind, the latter strikes against the wall, is forced over it, and carries the rain away from the gauge. From these causes it would be manifestly unfair to draw comparisons between the amount as measured by me and the rainfall at other places. For example, at Tavistock, about fourteen miles due north, and nearer the moor, the measurement is many inches more than at Plymouth, whilst at Dartmoor prisons nearly double the amount is registered. Although so near the sea, and in the path of the counter trades, yet we sometimes, but rarely, experience a want of rain; for example, from March 18th to July 2nd, 1870, during which time, if we omit a thunder-shower on the 12th May, only 1.3 inches of rain fell in 106 days: in fact, the whole year was very dry, there being but $\frac{1}{3}$ of the average rainfall. We go many days in the year without a sight of the sun, the sky being completely overcast; and it is but seldom our atmosphere is free from cloud.

I have said nothing about the ozone at Plymouth, because I have kept no record of the amount; and until some method be adopted for measuring the amount of nitric and other acids in the atmosphere, with the quantity of air which passes over the test-papers, no reliance can be put in the amount of ozone measured by the colour given to these papers. When I speak of ozone, I mean that peculiar condition of oxygen which renders it more readily able to combine with other elements, and thus it neutralises what obnoxious gases the atmosphere may contain. From its powerful oxidising properties, it is generally considered an allotropic condition of oxygen; and Professor Tyndall

says it may be an aggregation of atoms of oxygen into molecules. Seeing that electricity is generated in such large quantities on the sea-shore, and more especially where the sea breaks in large rollers on the beach, and as it is known that ozone is produced simultaneously with electricity, no doubt we have a large amount in the south-west district. Then, again, it is known that sea-water holds from $\frac{1}{50}$ to $\frac{1}{10}$ its volume of air in solution; but the air in the sea contains 32 per cent. of oxygen, instead of 21 per cent. as the atmosphere over land does. By agitation, we may reasonably suppose a portion of this air surcharged with oxygen is given off, and during storms the quantity is most likely much increased and the effects on health are highly beneficial. This I take to be one of the chief reasons why a seaside residence is so conducive to improved health among invalids. Now in Plymouth and in the whole south-western district, we have the broad stormy Atlantic whence we draw our supply of this element; whilst on the east coast the storehouse is narrowed into the comparatively narrow North Sea or German Ocean.

The months of January and November seem to bring more severe atmospheric storms than any other months; but Plymouth appears to enjoy an immunity from electrical storms, thunder and lightning being but seldom known; thus whilst electricity may be generated on our coasts, and the sky often bears tokens of the existence of electricity in large quantities, yet it is generally carried inland before a violent discharge takes place. I have no doubt that a large quantity is silently discharged through our damp atmosphere, and is unperceived by us.

Our average barometrical pressure being 29.953, our temperature of the air 52.31, and difference in the wet and dry bulb thermometer 2.6, we have an average dew-point of 47 deg. Fahr., relative humidity, 82.4, and 3.7 grains of aqueous vapour per cubic foot in the atmosphere. Hence I conclude that our town is warm and moist, arising from the large proportion of westerly winds (the return trades) which blow over us; we have few extremes of temperatures, few electrical or atmospheric storms; a cloudy sky, but not a large rainfall.

The records and diagrams from which I have drawn my conclusions now lie on the table for the inspection of anyone who feels an interest in the subject; and I would particularly draw the attention of such to the illustration of the fact that, with a low barometer, we get a high temperature, and *vice versa*. One more illustration is worth noticing; that, when we have a fall of the barometer, and the dry and wet bulbs are far apart, wind is foretold; but if the readings of the bulbs approach with a falling barometer, then rain may be expected.

Averages of Meteorological Register, extending over Six Years, from 1865 to 1870 (both inclusive).

MONTHS.	BAROMETER Reduced to mean sea level at 32° F.			TEMPERATURE.			HYGROMETER.							NO. OF DAYS ON WHICH WIND BLEW.					RAINFALL.		
	Average Barometer.	Maximum Barometer.	Minimum Barometer.	Average Maximum.	Average Minimum.	Average Temperature.	Average Dry Bulb.	Average Wet Bulb.	Average Dew Point.	Elastic Force of Vapour.	Vapour in a Cubic Foot of Air.	Vapour more required to saturate a Cubic Foot of Air.	Degree of humidity. Saturation = 100.	From N. to E.	From E. to S.	From S. to W.	From W. to N.	Calm.	For five years from 1866 to 1870 inclusive. (Taken from the <i>Quarterly Weather Report</i> , from Jan. to March 1870.		
																				Rainfall in Inches.	Equivalent Percentage.
January ..	29.844	30.660	28.500	46.92	37.50	42.21	41.38	40.09	38.48	.233	2.7	0.3	89	4.33	6.67	12.33	5.83	1.33	5.32	13.7	
February ..	29.972	30.679	28.602	49.30	39.49	44.39	42.96	41.65	40.08	.248	2.8	0.4	90	3.00	3.50	12.83	7.67	1.17	3.65	9.4	
March	29.887	30.676	29.005	49.99	36.71	43.35	42.39	40.14	37.39	.224	2.6	0.5	83	9.50	4.67	6.33	9.83	0.67	3.48	8.9	
April	30.000	30.494	29.164	60.95	42.76	51.85	51.88	48.73	45.52	.305	3.4	1.0	79	6.67	7.00	7.67	6.50	2.00	2.17	5.6	
May	29.928	30.410	29.113	64.26	45.37	54.81	56.01	52.35	48.91	.346	3.9	1.1	77	4.83	10.83	9.33	4.83	1.17	3.15	8.1	
June	30.120	30.574	29.280	71.56	50.46	61.01	63.34	58.36	54.15	.420	4.6	1.8	72	5.83	5.83	7.83	9.00	1.50	0.77	2.0	
July	30.001	30.438	29.270	74.46	54.54	64.50	65.54	60.81	56.96	.465	5.1	1.8	74	5.00	5.17	9.67	9.50	1.67	1.89	4.9	
August	29.968	30.320	29.396	72.39	53.19	62.79	62.88	59.44	56.46	.457	5.0	1.4	80	4.17	6.67	9.17	10.00	1.00	2.50	6.4	
September ..	29.895	30.534	28.877	68.70	51.56	60.13	60.20	57.74	55.58	.443	5.0	0.8	85	4.83	7.00	11.00	4.67	2.50	4.92	12.6	
October	29.903	30.516	29.057	60.38	45.76	53.07	52.80	51.31	49.81	.358	4.0	0.5	89	5.83	5.33	7.50	10.67	1.67	3.51	9.0	
November ..	29.993	30.640	28.840	52.55	39.46	46.01	45.15	43.95	42.56	.273	3.1	0.3	91	7.00	5.17	9.00	8.17	0.67	3.01	7.7	
December ..	29.924	30.822	29.034	48.63	38.50	43.57	42.93	41.70	40.22	.249	2.8	0.4	90	6.83	6.17	9.17	7.33	0.83	4.58	11.7	
Totals ..	29.953	30.822	28.500	60.01	44.61	52.31	52.29	49.69	47.1	.324	3.8	.86	83	67.82	74.01	111.83	94.00	16.18	38.95	100.0	

AN ANALYSIS OF STATISTICS OF LATERAL LITHOTOMY.*

By the late WILLIAM KEITH, M.D., M.R.C.S.E.,
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CASE CVII.—W. Thompson, aged 74, a mason, was admitted on June 28th, 1852, and was operated on August 14th. He was at the time, and had been for some time before, suffering from diabetes

mellitus. The stone weighed 4 drachms 1 scruple, and measured 1½ inches by ¾ inch by 1½ inches. Suppression of urine came on, and he died comatose on the 25th. At the *post mortem* examination, a considerable amount of effusion was found between the membranes of the brain and in the lateral ventricles. The lungs were healthy, except that they were somewhat emphysematous at the apices. The intestines and bladder were natural. The wound in the latter was nearly closed. The kidneys were both diminished in size and much diseased.

CASE CXVI.—W. Nicol, aged 79, miller, was admitted on November 11th, 1853, and was operated on February 11th, 1854, when four

* Concluded from page 322 of last number.