

ART. IX. NOTES ON THE WEATHER AT HALIFAX, N. S.,
DURING THE YEAR 1867. BY FREDERICK ALLISON.

IN this, the first paper which I have the honour to read before this Institute, I have endeavoured to keep close to a review of 1867, without exploring bye-paths leading to subjects which might tempt one beyond ordinary limit—subjects requiring *more* full treatment than I could give them to-night.

The plan followed in observing the several features of the weather, described below, has been this. Cloud is classed by figures from 0 to 10, the former being a perfectly clear sky, the latter complete cloud. The intermediate numbers being so many tenths of the sky obscured. The mean temperature of each day is calculated from 12 observations, read from a Negretti and Zambra Thermometer, placed five feet from the ground, with a N. N. W. aspect, and always in the shade. This thermometer has been satisfactorily tested in water just at the point of freezing, and is frequently compared, to ensure its continued correctness, with two other thermometers similarly tested; and which, under the same conditions, mark alike. The 12 observations are read directly from the thermometer, except those at 2 a. m. and 4 a. m.; which, with the aid of the Minimum Register, and the midnight and 6 a. m. readings, can safely be set down at an estimated point so as to be taken into the calculation of the Mean. Some observers do, for convenience sake, take observations at 7 a. m., 2 p. m. and 9 p. m. only, and calculate the mean from these, which give, on ordinary days, a very close approximation to a more elaborate calculation. But it is evident that on days with abnormal changes of temperature this plan runs a great risk of being erroneous. The minimum of the 24 hours is read from a Negretti and Zambra Thermometer, with self-acting Register in spirit, placed as above mentioned. The Maximum read in the usual way. During the year immediately under consideration this evening, I could only mark the number of *hours* of rain; now, through a friend's kindness, I have an accurate rain guage, of the simplest, and, as I believe the best kind. Wind is noted, as cloud also, at 7 a. m., 3 p. m. and 11 p. m. The direction of wind is taken from an ordinary vane, but the force I have to estimate from observation and

practice, 0 being a calm, and rising through the regular classification to 10, which would denote a hurricane. In absence of an anemometer these observations of wind can only be taken as *generally* correct. The barometer which I formerly used, being out of order, I was not able last year to observe the pressure of the atmosphere. With this instrument again, I have found these of least complicated construction to prove the best, where you read the pressure from the simple tube. In the clock-faced kind, the hands of the dial are apt to get out of order, through a rusty pivot, or other cause. For the comparisons between Halifax and Windsor, I have been indebted to the kindness of my good friend Dr. Heusley, who placed at my disposal the result of the observations at King's College, made by himself and brother Professors between 1857 and 1864. From others in different parts of the Province I have derived much valuable information regarding phenomena, at different periods, and especially as to the opening of blossoms, ripening of fruit, &c., from year to year. But I hope to see the day, when, at least through Nova Scotia, we may have a regular system of weather stations, conducted on one plan; and a head station, where all the reports may be digested, compared, and shaped in monthly review; and also to be in constant communication with the other portions of this Dominion and the States of the neighbouring Republic. The benefits of this system have been so well proved in Great Britain, and the Continent of Europe, that from me no remarks upon its utility is necessary. The advantages gained from forecasts, by commerce and agriculture, have been widely acknowledged, even while, with the data at their disposal, observers stand but at the threshold of a science, which time, accumulating facts in its yearly course, must of itself complete. But I was lately struck by an instance, to me a new one, of their utility. A photographer told me that, although his business was not very large, he could probably save from ten to fifteen dollars for every day of the many he was now deceived by threatening mornings, preventing him from preparing plates for customers; or by clear mornings inducing him to prepare for a good day's business, and presently the cloud and rain left on his hands his morning's work altogether spoiled. These frequent

misnaps could to a great extent be anticipated, by signals giving the probable coming weather.

I now propose to take up 1867, month by month; always mindful that in this country where our stock of statistics is as yet so scanty, our first care should be to add to the mass, so as to form a foundation for future calculations.

January was on the whole a fine month, but we had some heavy snow storms, and an extraordinary depth fell notably on the 6th, 17-18th, 21-22d and 26th. I measured after the different falls an aggregate of 40 1-4 inches, which is more than twice the usual depth as I have noted it either here or in Windsor, in any other January. The steady cold preserved the snow, and the sleighing, which was at least tolerable on every day in the month, can only be equalled by 1866, when it was even better. But 6 hours rain fell in January, viz., on the forenoon of the 22nd. The mean temperature $19^{\circ}.10$ was $3^{\circ}.22$ below the corrected mean of the 5 years from 1863 inclusive, and it is worth remarking that of these five, each succeeding January has been colder than the one immediately preceding it. The range of temperature was very limited and the maximum but 37° . The minimum being $9^{\circ}.3$ below 0. N.W. wind, as usual prevailed, but the mean force was excessive, rising twice to a gale, and frequently blowing very strongly, generally with (or just after) snow. The temperature fell below 0 four times; but the month was more remarkable for *continued* than *extreme* cold.

February was very free from cloud, more so even than 1866, which was clearer than ordinary. The latter part of the month was particularly fine, and steadily cold after the 17th, which brought down the mean temperature considerably, the weather having been mild from 1st to that date. The mean $25^{\circ}.11$ varied little from that of 1863-67 inclusive, which is $24^{\circ}.24$. Both the maximum, $53^{\circ}.1$ and minimum $2^{\circ}.4$ were high, making the range of temperature much as usual. A great deal of rain fell on 10 different days, while snow was very deficient; the total being 3 1-2 inches. I notice that in 1866 there was a like want of snow in February. The prevailing wind, N.W., though frequent in February is generally surpassed by S.W. The

force was extreme, never being equalled by any month that I have recorded since May 1857, either here or in Windsor. A beautiful display of Aurora Borealis on the night of the 8th was followed on the 9th by a high S.W. wind, rising to a gale about 5 p.m., and continued till midnight of 10th, at times blowing very heavily, darting from S.W. to S. and back; finally settled through W. to N.W., and broke on the morning of 11th, when the temperature which had been high fell quickly to only 5°. We had 11 days sleighing, but mostly bad. The mercury was below 0 on 2 days. A Lunar Halo on the 12th was followed by mist, drizzle, and mild rain for the greater part of two days.

March 1867 was rather clearer than usual; but we had three snow storms, besides considerable snow in other lighter falls, reaching altogether the great depth of 27.41 inches. Rain was very scarce. The maximum temperature, 50° 4 was low, and the minimum high. The thermometer never marking below 6°, being a range of but 44°. However, though extraordinary cold was absent, a steady low temperature reduced the mean of the month to 26.94 which is over 1° below the mean of March since 1863, and a figure seldom reached in this month. But one day, the 27th, passed without frost. N.W. wind prevailed, which is common in March, though scarcely more so than N. or W. In this month the winds are very variable. The mean force was again extreme; only being equalled by last year, but though the winds were brisk and strong almost continually, they never rose to gales. Gentle snow showers fell during a partial eclipse of the moon on the night of 20th with a light W. breeze, and during the day the wind passed slowly through N. to N.E. There with some trifling variations, it remained till the night of the 26th, the weather being dry during the whole period, when rising very high from S.E. we had on the 27th a warm rain, followed by a long succession of snow, and cold rain, in storms and squalls, for many days. There was sleighing, generally good, from 3rd to 21st, which was the last of the season. Robins were seen near Windsor on the 23rd, but did not appear generally in the open fields either there or here till the 5th of the next month, or about the time that they are usually heard first. Snow drops blossomed at Windsor on the 30th.

April was a very wet month—much rain falling on many days, interspersed with snow storms, which latter reached a depth of 9 1-2 inches, being much more than usual. The temperature did not exceed $61^{\circ}.2$, which is a low maximum, and the minimum 17° , was extremely low, especially when we remark that it occurred as late as the 14th. The mean temperature, $37^{\circ}.63$, was nearly 3° below 1866, and 6 lower than 1863–7 inclusive. The customary N. wind prevailed, and the force continued very great, rising to a gale on the 19th, driving into drifts some four inches of snow which had fallen during the previous afternoon and night. The weather for some days before this had been very stormy; a southerly rain-storm setting in on the 16th and continuing with scarcely any intermission till the change to snow just mentioned, the wind backing through E. to N. Pansies blossomed in Windsor on the 5th; and the crocus in Cornwallis on the 11th, and Windsor on the 15th, and smelt were caught in the Avon on the same day. On the Saturday before Easter, the 20th, I picked full blown mayflowers in the Tower woods, and on the same day they were picked near Windsor, some 10 or 12 days later than usual. Frogs were heard at Spa Spring, Windsor, on 21st, and 23rd near Halifax. Dent de Leon in full leaf 26th. Thunder and lightning were noted about midnight between the two warmest days of the month, the 22nd and 23rd.

May was a very cloudy month, and well sustained its reputation for moisture; 20 of its days being marked as wet. No snow fell, however; the last of the season coming here mingled with rain on the night of 28th April. The thermometer ranged over 48° —from 71° 2 to 23. The maximum was unusually low, and I have no record of so low a figure as was attained on the morning of the 5th, 23° . The mean temperature $47^{\circ}.86$ was 31 above the five years, 1863–67; S. E. winds prevailed, which though often blowing at this time of year, are generally outnumbered by north winds. The mean force was still very great, but no gales; nothing beyond the very high wind which accompanied the rain-fall on the last day of the month. Daffodils blossomed on the 3rd, and asparagus was fit to cut on the 17th. On the 28th the narcissus was in flower, and the cherry was not

in full bloom till the same day, one week later than in 1866, and two weeks later than in 1865. Pear blossoms were not so much behindhand, being well opened on the 30th—9 days later than in 1865, but one day earlier than on the same tree in 1866. Though, as mentioned above, no snow fell in Halifax during this May, there were squalls over the higher lands in the interior, and the hills were whitened and remained so during the 19th and 20th in various parts of the Province.

The month of *June*, generally one of the most dry in the year, was in 1867 by no means so. Rain fell, and frequently heavily, on 16 days; but there was also much bright sun, reducing the mean cloud to a small amount. The mean temperature $58^{\circ}.71$ was lower than the usual mean for June in Halifax. Taken by itself, the month was on the whole, a very favourable one for farmers, though in conjunction with preceding and succeeding weather, the usual dryness of June would have been more profitable. The maximum temperature was scarcely 77° , remarkably low; and on the 11th the last frost of the season occurred, the mercury barely touching 32° . In 1866 there was no frost in June, but the event is by no means uncommon. South wind was most prevalent, exceeding slightly the usual S. W. The mean force was great, and we had some very high winds, but no gales. Lilies of the valley blossomed in a favourable spot near Windsor on the 1st, and at Gorsebrook on the 5th. Apple blossoms were fully out in Windsor on the 5th, and here on the 9th. The double cherry in Windsor on the 7th, in Halifax Cemetery on the 12th. The horse chesnut also in full bloom here on the 12th; having come out in Windsor on the 8th. The lilac flowered in Windsor on 10th, Halifax 14th. The Kamschatka rose in Windsor on 12th, honeysuckle 13th, and Pon Pon rose 15th; on the latter day the first shad was taken in the Avon. On 18th the hawthorn blossomed in Windsor, 23rd in Halifax. On 22nd wild strawberries were plentiful there; here not till 29th. In Windsor the yellow rose was in full bloom on 23rd. You will notice that these flowers and fruits were all four or five days earlier in the valley of the Avon than on the shores of the Atlantic; and in so far as my statistics yet denote, they were about six days late on the whole. The

earlier blossoms being a greater distance behindhand, and the later ones, as the month progressed, gradually gaining up to their usual period, and in some instances fully reaching it. The *shad* seldom vary more than a day or two, and in 1867 put in an appearance in the Avon on their usual day, the 15th.

July. I have never recorded, nor have I heard any mention of so wet a July as that of 1867. Rain fell on 22 days, covering in all over 143 hours, and from the 15th to 31st but one entirely dry day occurred. The 4th, 13th and 26th were very wet days; and the violent storm of 18th, 19th, 20th and 21st was a rare event in midsummer; during these days the wind shifted uneasily between S.E. and N.E., dwelling at times due E., and on the 20th it rose occasionally with the force of a gale, and the temperature became much diminished. The whole month was rather cold. The mean temperature $61^{\circ}.92$,—maximum $87^{\circ}3$ and minimum 46° , the latter a very low figure. W. winds with still great force prevailed; though E. N. E. and S. E. were more common than usual. Three times at night was thunder heard and lightning seen; never were either very near. After a light shower on 16th, a beautifully defined double rainbow was seen opposite the setting sun. It was just one week before we saw the sun again; the storm noticed above occupying great part of the intervening time. Green peas were picked in Windsor on 2nd, and were in market here on 4th. The moss rose blossomed there on 9th, and cherries were ripe on 12th. New potatoes of a good size were dug in Halifax on 14th. The raspberry ripened in Windsor on 23rd, currants on 25th, and dahlias bloomed on 26th. Ripe blueberries picked near Halifax on 31st. These dates agree very closely with those of 1866, but average about 10 days behind 1865, which for most fruits was an early season.

The season still continued very moist. Though *August* had not quite so many wet days as the earlier summer months, I am sure the quantity, could I have measured it, would have proved largely in excess of the mean fall for the month. Two bright terms and several detached dry days kept down the average of cloud close to the usual amount. It was a hot month, $4^{\circ}.56$ above the mean of 5 years; and on the 10th the temperature

reached 88° , a rare height in Halifax. This was a very warm day, the mean being $73^{\circ}.84$, and with the three preceding, formed the hottest period of the summer. The minimum, $47^{\circ}.2$, occurred on the 1st, and the first and the last days of the month were the coolest two days. High winds and strong breezes were still frequent; and the terrific gale from S., from about midnight on 2nd to 7 on the morning of 3rd, blew with a force fortunately not often known in this latitude; many large trees were uprooted throughout the Province, and damage done to buildings, fences, &c. We had had showery weather with brisk S. E. breezes for two days previous, and on the afternoon of the 2nd the wind veered to S. with fog; during the evening backed to S. E., and very thick. At 11 p.m. there was a high wind, but the real gale rose very suddenly, chopping quick from S. E. to S., as far as I could judge, the greatest strength seemed to be from 2 1-2 to 6 a.m. Heavy showers fell about the latter hour, and by 7 a.m. the force had abated, though a very high S. wind lasted nearly all day, succeeded by another foggy night and showery forenoon, with wind from S. W. at times very high. On the evening of the 4th this thick and stormy weather at last ceased, and a rainbow appeared, a herald of warm dry weather, which set in for several days. On 8th lightning was reflected in the West. 7th the musk melon ripened; 9th gooseberries, and 17th blackberries. The Madeline pear was ripe in Windsor on 19th, and on 22nd the ordinary harvest apple, also in Windsor. Nectarine plums were picked on 23rd, and the Maiz or Indian Corn in Windsor on 28th, and here I heard of it on 29th.

September was not as wet a month as in 1866, but still more so than usual: much rain falling especially during the last week. Many bright days, however, made about an average amount of cloud. The maximum temperature, $81^{\circ}.7$, was reached twice; viz., on 6th and 9th. The minimum was $33^{\circ}.6$; but thrice was there frost on the grass; the first of the season was on morning of 12th. The mean temperature $57^{\circ}.95$, was within 3-10 of the last September and 1-10 of September 1865, and very close to the mean of five Septembers. N. W. winds were prevalent with a mean force below that of any other month in the year. The

20th, 21st and 22nd passed with fine dry weather with cool nights; a little rain fell on the morning of 23rd, and that evening a beautiful band of auroral light more plainly seen on the 24th, was followed by much stormy weather continuing into October. The month ended with a violent rain fall, and a N.W. gale that evening accompanied the wintry weather which then we were entering upon. The "Maria" pear was picked in Windsor on 9th, and the "Bon Cretien" 13th; "Washington" plums 12th, and green gages 18th. These fruits, as those of August, were about eight or ten days later than usual, and two to three weeks later than in 1865.

October as a whole was neither very clear nor cloudy, but its division of wet and dry days was very unequal. Out of 14 wet days 9 occurred before the 14th of the month, and many of them were very wet. Again from the 17th to the end of the month but 5 wet days are found, and but one storm. The rain mentioned on 30th September changed on 1st October to snow, and for four hours in the morning, and nearly as long in the afternoon, the flakes came down briskly, well whitening the grass and house tops. In many counties from 4 to 6 inches fell, according to report. The mean temperature $45^{\circ}.60$, though slightly in excess of 1866 or 1865, is scarcely equal to a five years average which I calculate at $46^{\circ}.32$. The range was not great, being from $68^{\circ}.8$ to $25^{\circ}.9$. The mean force of wind was above the average. The prevailing direction N. W., not a very common wind in October, W., N., or S. W. being generally more prevalent. A notable rain storm on the 11th, 12th and 13th, was accompanied on the morning of the second day by a S. E. gale. Rain fell at that time for 37 consecutive hours. Water was first frozen on 4th, when pools were skimmed with ice. Capiauman and Cycle Pears thoroughly ripe in Windsor on that same day. In 1866 Capiaumans were picked ripe from the same tree on September 27th, and in 1865 on September 16th. We had thunder and lightning on afternoon of 22d, but neither loud nor vivid.

Dry weather in *November* was very rare; but once had we two consecutive days without some rain or snow; and only seven in the whole month. As a consequence cloud was in excess of

the mean. Rain storms occurred on the 4th, 11th, 16th, and 30th, and 5 1-4 inches of snow fell in this month. Since 1857 I have no record of so much snow in November, except in Windsor in 1859, when 6 3-4 inches fell. On the 20th, 21st, 22nd and 23rd, there was tolerable sleighing in the city. In the N. E. of this Province, and the central counties of Colchester and Hants, there was good sleighing on the 15th, and it lasted twelve and thirteen days. A very unusual occurrence. The mean temperature, $36^{\circ}.60$, was very low; and a great degree of cold for the season, 13° , was reached on the 20th, while as early as the 7th the thermometer marked before sunrise but 14° . 59° was the maximum, giving the wide range of 46° . This, again, was a windy month, and some damage was done by a strong gale on the early morning of the 3rd, swinging from N. W. to S. W., following four showery days, and preceding a rain storm with high S. E. and S. winds. Another gale rose as the storm of 30th cleared, and blew fiercely from W. during the last hours of the month. Many ponds in the neighbourhood of Halifax bore well on the 8th, and good skating was general on 19th. Once more were we disappointed here in the great meteoric shower, which was visible generally throughout America and Europe. For six days before the looked-for 14th fog and thick cloud, rain and snow had obscured our skies, and, though a partial clearing on the very afternoon excited some hopes, night closed in dark and wet, and the opportunity was lost.

December generally the most cloudy month of the year, was wanting in 1867 in that characteristic. Detached showers were most common, and though parts of many days were bright, we escaped without rain or snow but on 6. The snow fall was most extraordinary, 27 1-4 inches, against an average of but little over 10. On 23 days we had sleighing; but the snow came generally in small amounts, the only fall of any consequence being on 20th-21st. The maximum temperature, $43^{\circ}.4$, was very low, and in every year that I have recorded has risen above that. The minimum, $-7^{\circ}.9$, was lower than I have ever observed in Halifax; but in Windsor, on Christmas Eve, 1865, the thermometer marked -8° , and on 21st in 1862, $-7^{\circ}.5$. But the most remarkable result of this month's record is the exces-

sively low mean temperature, $18^{\circ}.52-9^{\circ}.36$ below December 1866—nearly 5° below the mean of three years in Halifax, corrected to 1867, and nearly 7° below this month's mean from 1857 to date in Halifax and Windsor; in other words a deficiency of heat within a small fraction of 28 per cent. N. W. is far the most prevalent wind in December, but this year there was more W. wind, and generally greater force than is usual. But once, however, it rose to a gale—S. to S. W., with warm rain. The Dartmouth Lakes bore well on the 5th. Temperature was at or below 0 on 5 days, viz.: 9th, 12th, 20th, 30th, 31st. I have no record of its being so more than 4 times in any previous December, and the average for eleven years is only twice. I never knew the temperature below 0 earlier than the 12th till this December, when it fell to 2° below on the 9th.

Review of the Year 1867.

In bringing together the results of the observations, the chief of which we have just run over in monthly notes, the following phenomena stand out most prominently from the year's collection. There was less cloud than usual, although the year was a remarkably wet one throughout, with the exception of late summer and early autumn. Rain or snow fell on 222 days, but many storms occurring, and showers, often clearing rapidly, left room for the brightness already alluded to. Much more snow than usual fell. In January, March, November, and December we had a great deal; and the woodman's work, and all traffic on the roads was much facilitated by the long periods of good sleighing. Though the summer was very wet, and the rains of July damaged much hay, the comparative dryness of August, September, and October saved the later crops, and much fruit was gathered in good condition, and often in abundance.

The mean temperature of the year was $41^{\circ}.98$ —being $.89$ below 1866, and $.85$ below the mean of the five years including the one under consideration. August was the only month of remarkable warmth; and February was decidedly above the average, but the remaining months were mostly more or less deficient in heat; and January, March, June, November, and

December extraordinarily so. The thermometer marked from 88° on the 10th of August, down to $-9^{\circ}.3$ below 0 on 30th and 31st January—a range of $97^{\circ}.3$. High winds were frequent throughout the whole year; and, though for lack of an anemometer, I am obliged to estimate the force by observation, each month would probably show an excess if measured. The notable gale of 3rd of August I have already fully mentioned under that month's record. Dividing the winds, as regards their direction, into two grand divisions of westwardly and eastwardly we find 232 of the former to 91 of the latter to be the most prevalent on so many days; or in other words, westward winds exceeded eastward winds in the proportion of rather over 2 1-2 to 1, or 155 per cent.

There were 87 days sleighing in the year. Hoar frost formed on 32 mornings.

The Aurora Borealis was visible on 32 nights. That of the night of 8th February was a beautiful sight. The flickering streams of light now horizontally waving, and now quickly darting upwards, shooting forth as it were coloured tongues of pinkish, greenish, and almost yellow hue; and on the 4th of May, besides a faint display of pale auroral light to the north, a bright band sprang glistening from almost west to the zenith, varying in breadth and distinctness during the evening. While I will not pause here to consider the different theories as to the cause of the phenomenon which we term Aurora Borealis; none of which, I presume, may be called conclusive; I may state that in looking through eleven years of almost complete observations, either here or in Windsor, I have found this luminous appearance to be followed in winter by falls of snow or rain within twenty-four hours, three times out of four. In spring and in autumn dry or wet weather follows in equal proportions. In summer, out of thirty observations twenty-one gave dry weather, frequently continuing some time, and nine gave wet—rather more than two to one in favour of the former. The probability is that we should refer this phenomenon to no one cause, but to a combination producing the conditions adapted to its appearance. This would form of itself an interesting subject of consideration.

11 times the temperature fell to 0 or below.

11 gales were noted.

A remarkable Lunar Halo on evening of 12th February, as observed in the record of that month.

But twice did thunder storms occur.

On 42 days there was fog.

On 183 days we had frost. The longest period that it was absent was from 11th June to 12th September; the earliest four viz: 12th, 15th and 24th September, and 1st October, read from ground thermometer. This harbour was open throughout the whole year. I notice that in the proceedings of the Institute, your late esteemed and worthy member Col. Myers, reviewing meteorologically the year 1866, says, while noting as remarkable the fact that the harbour froze over with a temperature of 7 below 0 on 7th February, but did not do so on 7th January at 15 below 0, that "it must be borne in mind that a combination of two conditions of the weather is required, viz.: a perfect calm with a certain low state of the temperature, without which the harbour does not freeze; and to this may perhaps be attributed the infrequency of what was witnessed last winter." Now, no doubt this is true, and partially accounts for the event; but we must also remember, that up to a certain point, before the sun has again attained any great height, the water itself is giving off its own heat, and later in the winter there is not the same resistance in it to be overcome, that there is at an earlier date when the effects of the heat of the past summer are comparatively recent; and therefore from this cause alone, *cæteris paribus*, a large body of water in motion would freeze at a higher temperature of the atmosphere in February than in December; i. e., it would then be more readily assimilated to that atmosphere in its own temperature. The same holds good with the land; and is indeed the chief reason why we do not, as a matter of course, experience our greatest heat when the sun's rays are most nearly vertical, in June; and the contrary in December; whereas we all know that our maximum of heat is most likely to occur full a month after the longest day, and our minimum as much after the day when the sun is lowest; so that the sun's rays and the earth's surface acting together upon the atmosphere,

join to produce the warmest period at a season when, by the orders of an all-wise Creator, doubtless it is the most useful; and as well to bring the greatest cold when its benefits also may be most suitably bestowed. A marked and most interesting instance of the effect of this reception and discharging of heat, both by land and water, may be observed in Cuba, and other tropical Islands. For months together the phenomena of sea and land breezes occur daily and nightly. Between about 8 and 10 a.m. may be noticed a dead calm; gradually (the water being less heated than the land) as the power of the sun's rays increases, a breeze, at first gentle, and by noon strong, blows in from seaward, and continues till late in the afternoon, falling towards sunset, and dying away completely by 6 or 7 in the evening; a short lull occurs, but soon puffs of wind off the shore are felt, and night has scarce fallen ere a steady land breeze is blowing, ceasing as the sun again rises, to the calm first mentioned, to be followed as before, till causes outside of these disturb the rotation; as happens more frequently from midsummer till the end of autumn. We know then that both land and water have a certain amount of heat to be overcome, and here we see the land more sensible to the changes of the atmosphere than the water, and the draft of air setting always from the cooler to the warmer; leading us on to a consideration of the laws which the currents of our atmosphere follow, but which I will not attempt to enter upon at this time.

ART. X. ON THE FISHES OF ST. MARGARET'S BAY. BY
REV. JOHN AMBROSE.

THE TURBOT.

THE mere announcement of the name of this fish will cause the English Apicius to prick up his ears. Long has it been cast in our teeth that our extensive list of food fishes is sadly incomplete, seeing that it includes neither the turbot nor sole. In vain do we endeavour to draw off attention from this want, by pointing to our luscious halibut, which could not have been con-