

Armagh Observatory.

About the Barometer
& Thermometer see
Armagh Star Cat.
p. XXVII.

To take the mean of the means for n months

$$M = \frac{m + m' + m'' + \dots + (mx + m'x' + \dots)}{30}$$

$$n + \frac{x' + x'' + \dots}{30}$$

where x is the excess above 30 days: form the numerators and divide by n , then lessen this result by its part, for the winter months by $\frac{1}{180}$

for summer by $\frac{1}{45}$, for the year by $\frac{1}{72}$ * (unless in leap year)

If the mean M for the year, and m for the winter months be known then that for the summer

$$\text{given } m' = 2M - m - \frac{M - m}{61}, \text{ or if in and } m' \text{ be}$$

$$M = \frac{m' + m}{2} + \frac{m' - m}{242} = 2 \times 11 \times 11$$

* In leap year, the numerator is to be lessened, for the winter months by $\frac{1}{90}$; the summer by $\frac{1}{45}$; for the year by $\frac{1}{60}$

The cistern of the Barometer is 211 feet above the Sea

from 41 to 52 Mean Bar = 29.683
At 50 the reduction of this to sea level 200 feet lower is made by multiplying it into Log 6,00337.

On & after A.D. 1846 when the Anemometer was erected the following
was the Order of Registering.

at 10 A.M. ^{1st} The Anemometer Cards were changed, clock wound, & force & direction of the
wind read off; ^{2nd} The rain gauges were examined. ^{3rd} The state of the
sky & visibility of the horizon clouds & observed. ^{4th} The Observer descended
to the circle-room & registered these observations. ^{5th} The External
Thermometer & the Hygrometer read off & registered. ^{6th} Max & Min
Therm^s recorded - ^{7th} Barometer & attached Thermometers.

The rain gauges
were on the
roof.

at 10 P.M. All in the same order with the exception of Rain-gauges & Max:
& Min. Therm^s, which at this time were not read off.

N.B. The Registering usually occupied from 10 to 15 minutes.

on 1st July 1850. the hours of Registry ^{were} changed to 9 AM & 9 PM

Globe Rain Gauge first mentioned Sept. 1839
From Feb. 1844 it is called 'Round'

Both gauges must have been on the roof
till Nov. 1853, when a square one was set up
on the edge of the grass opposite the hall door,
where it was used till 1885.

1833	Evening 10 ^h			Morning 10 ^h			Rain	Wgt.
Jan	E.T	A.T	Barom	E	A	Barom		
	External	Attached						
1		43	29.86	12	42	30.06		
2		41.7	30.21	-	40	30.35		
3		40	30.33		38	30.31		
4		38	30.25		38	30.13		
5		38.1	30.09		37.2	30.10		
6		38.3	30.20		38.8	30.36		
7		38.7	30.44		38.2	30.40		
8		39	30.35		39.1	30.21		
9		39.3	29.95		40.1	29.68		
10		41.2	29.60		41.2	29.56		
11		40.5	29.58		39.2	29.67		
12		38.9	29.78		37.9	29.68		
13		38	29.94		37.2	30.00		
14		39.1	29.99		39.2	29.96		
15		40.2	30.00		40	30.09		
16		39.4	30.10		38.7	30.08		
17		38.3	30.09		37	30.05		
18		37	30.07		36.8	30.11		
19		38	30.09		38.5	30.10		
20		38	30.01		37.5	30.01		
21		37	30.01		35.8	30.17		
22		36.3	30.14		35.5	30.24		
23		36	30.16		35.5	30.10		
24		35.5	29.93		36	29.82		
25		38	29.74		38	29.77		
26		37.5	29.78		37.8	29.78		
27		38.9	29.70		38.5	29.64		
28		39.5	29.36		39.3	29.13		
29		39.8	29.18		38	29.50		
30		39	29.51		37.5	29.24		
31		38	29.05		37	29.01		
Mean	- -	38.71	29.92	- -	38.10	29.92		

1833

Evening

Morning

February

E T

A T

Bar

E

A

Bar

1 9	38	28.74	39.5	28.40
2	39.5	28.29	39.9	28.92
3 0	39.7	29.20	43.3	29.24
4	42.8	29.25	42.5	29.40
5	42.5	29.55	43.5	29.32
6	45.4	29.01	45	29.20
7	46	28.98	45.5	28.97
8	43.5	29.14	42	29.27
9	41.5	29.13	42.4	28.89
10 0	43	28.48	43	28.63
11	42	28.76	41.5	29.05
12	43	29.00	43	28.77
13	43	28.85	42.5	28.86
14	41.8	28.85	39.8	28.99
15	40	29.33	39	29.39
16	41	29.39	42	29.11
17 0	43.8	29.09	42.1	29.30
18	41.9	29.54	40	29.55
19	40.9	29.06	38.9	29.10
20	39	29.66	38.3	29.83
21	41.1	29.83	40.7	29.80
22	41	29.79	39.7	29.64
23	39.7	29.40	39	29.08
24 0	40	29.16	39.1	29.18
25	40.5	29.07	40	28.92
26	41.2	28.88	40.8	28.94
27	41.8	29.02	39.7	28.71
28	40	28.55	39	28.79

Mean

41.56

29.12

41.84

29.12

1833

Evening

Morning

Month

E

A

Bar

E

A

Bar

1

--

39.5

29.21

~~39.2~~

39.2

29.32

2

43.7

29.19

~~44.1~~

44.1

29.22

3

46

29.29

44.9

29.51

4

45.8

29.70

45

29.80

5

44.4

30.02

42

30.15

6

43.8

30.11

42.9

30.02

7

42.1

30.00

41

30.09

8

40

30.25

38.8

30.22

9

40

30.14

40

30.08

10

40.2

30.05

40.1

30.01

11

41.1

30.00

40

29.88

12

41.9

29.61

41

29.25

13

41.9

29.20

49.5

29.08

14

39.5

29.29

38

29.31

15

39

29.39

38.9

29.41

16

41.3

29.49

40

29.52

17

41.1

29.63

40.3

29.74

18

41.1

29.89

41

30.00

19

42.3

30.08

41.6

30.02

20

42

29.96

40.4

29.88

21

42

29.87

39.6

29.81

22

41.6

29.84

40

29.84

23

42

29.80

39

29.80

24

42

29.89

39.8

29.86

25

40.8

29.86

39

28.80

26

40

29.80

39

29.83

27

41

29.80

40

29.65

28

40.3

29.60

40.1

29.50

29

41

29.49

41

29.50

30

40.5

29.57

41.9

29.48

31

44.4

29.23

43

28.89

Mean

41.78

29.72

40.65

29.67

Rain

Halo

29.69

1833	Evening			Morning					
April	E	A	Bar	E	A	Bar			
1		43.2	28.79		42.3	28.86			
2		44	28.99		46.7	29.10			
3		46.9	29.06		47	28.91			
4		47.2	29.10		lost note				
5		48.8	29.63						
6		46.2	29.05						
7		45.1	29.05						
8		45.8	29.64						
9		48.9	29.63		47.8	29.28			
10		46.2	29.05		45.2	29.00			
11		45.8	29.05		45.1	29.36			
12		45.8	29.64		45	29.45			
13		44.9	29.27		44	29.40			
14		44.8	29.41		44.3	29.20			
15		43.5	29.29		43	29.42			
16		44	29.51		43	29.42			
17		43.8	29.42		43	29.50			
18		45.1	29.54		44.8	29.50			
19		45	29.64		45	29.78			
20		47.7	29.88		46.8	29.89			
21	⊙	50	29.92		49.1	29.98			
22		52.9	29.96		51.1	29.90			
23		52.1	29.90		50.2	30.00			
24		49	30.11		49	30.10			
25		52.6	30.00		52.2	29.94			
26		53.3	29.75		53	29.55			
27		53	29.54		50.6	29.45			
28	⊙	49.4	29.40		47.8	29.35			
29		50.7	29.34		50	29.33			
30		50.5	29.33		48.9	29.09			
Mean		47.69	29.46		47.06	29.38			

Severe Gale

1833

Evening

May

E

A

Bar

E

A

Bar

1

49.6

28.95

50.1

28.77

2

52

29.04

51.2

29.18

3

53

29.35

53

29.69

4

54

29.80

53

30.08

5

56

30.14

55

30.26

6

58

30.21

56

30.19

7

59

30.10

58

29.84

8

62

29.72

58

29.70

9

55

29.67

54

29.77

10

54.2

29.83

53

29.89

11

56

29.82

54.2

29.70

12

54

29.69

53

29.83

13

53.2

29.79

54.2

29.82

14

56

29.74

56

29.61

15

56

29.52

54.2

29.53

16

56

29.61

54.2

29.52

17

54

29.90

53.2

30.02

18

55.2

30.02

55.2

29.98

19

57

29.83

56.2

29.78

20

56.2

29.91

55

29.97

21

58.2

29.98

56.2

30.02

22

62

30.05

60.2

30.15

23

64.2

30.15

63.2

30.09

24

65

29.95

62.2

29.92

25

62

29.98

60

30.12

26

57.2

30.02

58

30.20

27

61

30.05

58

30.04

28

60

30.01

59

29.98

29

61

29.92

59.5

29.93

30

60.3

29.97

60

29.94

31

61.2

29.82

61.1

29.70

Mean

57.44

29.82

56.37

29.85

1833	Evening			Morning					
	E	A	Bar	E	A	Bar			
1		63	29.59		61.9	29.44			
2		61	29.39		59.2	29.29			
3		57.2	29.38		57	29.41			
4		58.2	29.42		57.9	29.42			
5		58.2	29.44		57.2	29.42			
6		58.2	29.59		56.2	29.66			
7		58	29.67		57.2	29.86			
8		58.8	29.91		58.3	30.00			
9		60.8	30.02		60	29.96			
10		61.1	29.71		59.6	29.38			
11		59.0	29.89		56.2	29.48			
12		67	29.47		55.5	29.18			
13		54.2	29.21		53.2	29.39			
14		53.3	29.54		55.2	29.55			
15		55	29.40		56.2	29.13			
16	⊙	56.1	29.23		56	29.28			
17		56.5	29.60		56	29.73			
18		58	29.58		57	29.57			
19		59	29.63		58	29.72			
20		60	29.77		59	29.65			
21		58	29.61		57	29.61			
22		57	29.67		56	29.02			
23	⊙	56	29.31		55	29.05			
24		58	29.50		57	29.61			
25		58	29.65		57	29.65			
26		57	29.54		56	29.41			
27		58	29.36		58	29.34			
28		57	29.27		56	29.20			
29		56	29.39		56	29.40			
30	⊙	55	29.40		54	29.47			
Mean		57.89	29.53		56.96	29.50			

1833

Evening

Morning

July

E

A

Bar

E

A

Bar

1	55	29.58	54	29.61
2	55	29.71	53	29.71
3	58	29.74	57	29.72
4	60	29.76	59	29.75
5	59	29.64	59	29.48
6	62	29.43	60	29.42
7 ①	60	29.55	60	29.78
8	64	29.92	62	29.96
9	65	29.92	62	29.85
10	64	29.84	63	29.80
11	63	29.72	62	29.70
12	63	29.76	62	29.81
13	62	29.72	61	29.67
14 ①	60	29.69	60.9	29.87
15	63.3	29.94	63	29.99
16	64.9	30.01	64.3	30.00
17	65.1	29.95	63	29.82
18	62	29.71	61.1	29.57
19	60.9	29.38	61	29.40
20	60.2	29.50	59.9	29.58
21 ①	61.2	29.59	60.9	29.29
22	60.3	29.41	60	29.45
23	57.4	29.67	58.2	29.83
24	60	30.00	60.2	30.02
25	62	29.99	62.7	29.99
26	64	29.99	64.1	30.01
27	65	30.01	65	30.01
28	65.6	30.05	66	30.15
29	62	30.28	64	30.34
30	64.6	30.39	64.1	30.51
31	62.9	30.30	63.3	30.30
Mean	61.61	29.81	60.86	29.81

1833	Evening			Morning		
	Augur	E	A Bar	E	A	Bar
1		63	30.30	62.9	30.27	
2		62	30.22	62	30.22	
3		61.7	30.24	62	30.19	
4		63	30.08	62	29.99	
5		58.9	30.02	59.4	30.04	
6		61.9	30.00	60.2	29.95	
7		62.3	29.93	62	29.90	
8		61.3	29.90	61.3	29.87	
9		62	29.86	62.2	29.81	
10		62.8	29.80	61.9	29.86	
11	0	59.3	30.00	59	30.01	
12		59.8	29.88	59.9	29.62	
13		60.2	29.62	59	29.60	
14		58.6	29.69	57.2	29.60	
15		58.9	29.58	59	29.64	
16		59	29.79	58.1	29.72	
17		58.2	29.60	58.6	29.54	
18	0	60.1	29.57	59.6	29.61	
19		59.5	29.71	58.8	29.64	
20		59	29.65	60	29.36	
21		57.9	29.40	57	29.40	
22		58	29.39	58	29.49	
23		58.3	29.69	57.9	29.76	
24		57	29.88	57	29.99	
25	0	56.8	30.03	56.4	30.00	
26		60	29.94	59.4	29.84	
27		59	29.95	59	29.99	
28		60.8	29.84	60	29.70	
29		58.1	29.63	58.8	29.43	
30		55.9	29.14	54.9	29.32	
31		55	29.50	53.8	29.62	
Mean		59.65	29.80	59.27	29.77	

1833	Evening			Morning					
Septm	E	A	Bar	E	A	Bar			
1		53.3	29.80		52.1	29.71			
2		53.3	29.60		52.0	29.41			
3		54.6	29.80		52.9	30.10			
4		55.1	30.20		54.9	30.19			
5		58	30.20		57.3	30.20			
6		60.3	30.10		60.3	30.03			
7		62.1	29.95		60.7	29.91			
8		61	29.89		60.1	29.81			
9		61.9	29.79		60.9	29.69			
10		60.5	29.62		59	29.60			
11		56.6	29.70		56	29.82			
12		55.8	29.82		54.1	29.57			
13		57.3	29.39		56.9	29.35			
14		58	29.51		54.6	29.39			Blowing hard, diffused Aurora
15		55.4	29.29		55.3	29.30			
16		56	29.31		56.1	29.40			
17		56.5	29.53		55.4	29.55			
18		58.8	29.70		56.2	29.85			
19		56.9	29.93		56.2	29.89			
20		58.2	29.84		57.2	29.70			
21		57.8	29.67		56	29.69			
22		56.1	29.58		56.8	29.39			
23		57.3	29.18		58.1	28.79			
24		57.6	28.75		54.9	29.17			
25		54.6	29.30		53.2	29.46			
26		53.7	29.50		52	29.33			
27		53.8	29.27		53.4	29.30			
28		55.1	29.45		53.9	29.66			
29		54.5	29.79		54.5	29.81			
30		57	29.90		56.3	29.91			
Mean		56.44	29.64		55.94	29.63			

1833

Evening

Morning

October

E

A

Bar

E

A

Bar

1	53	56.2	29.95	56	55.1	29.95
2	57.3	56.2	29.89	56.0	54.4	29.85
3	46.5	52.8	29.87	52.8	52.5	29.92
4	57.8	52.5	29.98	56	52	29.98
5	45	53.8	29.98	51.3	50.5	29.99
6	46	52	29.94	57	52.8	29.92
7	49	52.8	29.87	52.8	52	29.83
8	39.5	50.5	29.96	48.3	50.3	30.05
9	42.2	49.4	30.01	52	50.2	29.85
10	52.1	52.8	29.65	53.8	53.9	29.69
11	50	52	29.61	50.3	53.5	29.63
12	38	51.3	29.83	47.3	48.9	29.60
13	52	52.8	29.15	52	52	28.97
14	41.2	50	28.80	42	48.7	28.79
15	39.3	48.8	28.91	51.9	49	29.16
16	45.9	48.8	29.52	48.1	49	29.70
17	39.2	47.2	29.60	52	48	29.40
18	40.6	48.1	29.27	46.1	47	29.09
19	36.5	46.9	29.15	44.5	46	29.30
20	52	48.1	29.10	52.6	50.2	29.00
21	47.3	50	28.99	50.3	50.1	29.10
22	44	49.7	29.25	48.2	49	29.31
23	45	49	29.37	55	49.1	28.95
24	50	51.2	29.08	55.5	51	29.01
25	55.5	52.9	28.90	55	52.1	29.02
26	54.1	53	28.90	54.8	51.3	29.49
27	52	52.3	29.60	52.2	52.2	29.54
28	52.3	53.2	29.50	52.5	52.8	29.50
29	52.5	53.1	29.62	58	53.2	29.81
30	50	53.8	29.84	50.4	52	29.69
31	55.6	53	29.49	51.1	52.2	29.58
Mean	48.11	51.75	29.79	52.12	51.09	29.80

1833	Evening			Morning		
November	E	A	Bar	E	A	Bar
1	45	51	29.80	53.8	50.3	29.39
2	46.5	50.5	29.36	44.8	48.8	29.61
3 ①	38.8	46.4	29.85	43.2	46.5	29.96
4	42.2	46.8	29.95	53.0	48	29.71
5	51.8	50	29.64	46.2	48.1	29.67
6	41.2	46.8	29.61	42,	45	29.43
7	37,	43.9	29.45	42,	43.1	29.74
8	39.6	44.1	29.76	43.2	43.6	29.76
9	48.1	45	29.67	52.2	47	29.55
10 ①	47	48.9	29.50	47.1	48	29.65
11	49.	48.2	29.69	55	49.6	29.75
12	49.	50	29.89	51.6	49	29.94
13	49.	50.5	29.93	48	49	29.91
14	37.7	47.9	29.87	43.1	46.2	29.81
15	41.9	46.1	29.69	42.2	45.5	29.54
16	42.	45.1	29.55	46.8	45.4	29.69
17 ①	48.9	46.8	29.86	53,	47.2	29.99
18	46.	48.7	29.98	47.9	47	29.95
19	45.9	47.7	29.86	50.9	47.9	29.79
20	41	47	29.63	45	45.5	29.56
21	48.8	47.2	29.30	52.9	48	28.94
22	37.4	45	28.99	40.4	43.2	29.21
23	39.8	43.5	29.10	38	42	29.09
24 ①	33.8	41.4	29.13	37.8	40.8	29.00
25	33.8	40	29.77	35	38.8	29.72
26	46.8	41.8	29.24	46.5	43	29.19
27	36.5	42.8	29.20	44.5	41	28.59
28	45.	42.5	28.21	44.9	40	28.91
29	40.	42	29.53	43.2	42	29.63
30	48.	44	29.62	49	44.3	29.62
Mean	43.23	46.05	29.58	45.77	45.59	29.52

1833	Evening			Morning		
December	E	A	Bar	E	A	Bar
1	40.8	40.8	29.69	39.5	41	29.69
2	43	42.5	29.52	47.5	43	29.53
3	45.2	44.3	29.40	53	46.8	28.93
4	37.5	45.5	29.00	37.9	42.2	28.89
5	34.5	42.7	28.88	40.9	41.1	29.17
6	34.5	41.2	29.24	40.2	41.7	29.13
7	37.2	41.9	29.60	37.9	40.3	29.67
8	50.2	43	29.10	43.9	43.1	29.25
9	35.8	42	29.43	38.2	41	29.43
10	35.5	40.9	29.10	38.4	40	29.42
11	35.5	39.9	29.59	34.8	39	29.50
12	37.7	39.9	29.80	42.7	40.1	29.89
13	44	41.3	29.85	47	42	29.80
14	47.9	43.8	29.61	45.6	44	29.67
15	48.3	44.2	29.33	48.8	46	29.09
16	41	44	28.72	43	43.2	29.08
17	38.7	42.8	29.08	40.1	41.9	29.27
18	45	41.8	29.22	52	45	29.00
19	47	46.3	28.60	45	45.2	28.69
20	39.2	44.3	29.07	38.2	42.4	29.39
21	37	42	29.48	43	41.5	28.90
22	37	41.5	29.09	37	40.7	29.06
23	41	40.3	29.06	47	42.1	28.90
24	41.2	42.9	29.07	39.1	41.6	29.59
25	35.8	41	29.77	45.6	42	29.40
26	39	42.2	29.32	40.2	41	29.27
27	33	40	29.40	40.1	39.7	29.50
28	49.7	42.5	29.29	46.9	43.4	29.38
29	46	44	29.33	44.9	43.9	29.30
30	42	43.1	29.46	43.5	43.9	28.77
31	37.7	42.5	29.41	38.1	41	29.67
Mean	40.37	42.40	29.30	42.63	42.25	29.31

Gale of wind

	Evening			Morning		
	E	A	Bar	E	A	Bar
1833	for each			month		
Jan	38.71	29.92		38.10	29.92	
Feb	41.56	29.12		41.84	29.12	
March	41.78	29.72		40.65	29.67	
April	47.69	29.46		47.06	29.38	
May	57.44	29.82		56.37	29.85	
June	57.89	29.53		56.96	29.50	
July	61.61	29.81		60.86	29.81	
Aug	59.65	29.80		59.27	29.77	
Sept	56.44	29.64		55.94	29.63	
Oct	51.75	29.79		51.09	29.80	
Nov	46.05	29.58		45.59	29.54	
Dec	42.40	29.30		42.25	29.31	
Summer	57.47	29.73		56.75	29.68	
Winter	42.03	29.52		42.58	29.49	
Year	50.25	29.62		49.66	29.59	

Mean of Marked Thermom.
Morning and evening
= 49.95

Mean of Barometer for
Do = 29.605
Correct +0.

Account of the rain gauge for the following 11 years. In the A.D. 1846 when the Anemometer was erected the following

	Jan'y	Feb'y	March	April	May	June	July	Aug ^t	Sept	Oct	Nov ^r	Dec ^r
1840	4.935	2.751	0.463	0.760	3.025	2.501	3.154	2.656	2.424	1.256	3.448	2.818
1841	2.004	2.265	3.649	1.699	1.549	2.597	2.353	2.896	2.314	4.001	3.024	3.503
1842	2.794	2.726	4.226	0.032	4.076	2.419	3.009	2.976	2.850	1.977	4.706	3.005
1843	2.245	1.269	1.936	2.929	3.944	3.344	4.160	3.841	1.223	3.995	3.188	2.243
1844	2.636	3.239	2.888	1.669	3.042	4.472	2.360	3.067	2.226	4.351	3.002	0.532
1845	4.985	1.326	1.622	3.156	1.391	5.566	3.628	1.877	2.829	4.841	4.755	5.256
1846	4.579	1.864	3.793	2.848	1.684	2.104	3.854	3.537	3.353	4.931	3.297	1.632
1847	3.027	1.974	1.461	3.147	2.482	1.912	1.083	1.096	2.665	3.778	3.775	5.856
1848	1.867	6.754	3.769	3.320	1.239	2.733	3.920	3.476	2.379	3.147	3.698	3.011
1849	6.302	2.507	1.483	2.091	3.004	0.870	3.977	2.891	3.584	4.387	2.726	3.256
1850	4.083	5.035	1.235	3.507	2.414	2.371	3.142	2.720	2.711	2.240	3.214	2.462
Mean	3.288	2.643	2.210	2.907	2.071	2.574	2.887	2.587	2.377	3.242	3.236	2.798
Mean	3.587	2.883	2.411	2.287	2.259	2.808	3.149	2.822	2.593	3.537	3.530	3.052

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