

spermatozoids perish only with a cold below 10° or 12°. The influence of temperature on the vitality of the spermatozoids of fishes, and therefore on the fecundation of eggs, presents a reason for the instinct which urges some fishes to ascend streams, and at times to penetrate into rivulets where they have hardly water enough for their movements. M. de Quatrefages deduces some rules which are important to the art of pisciculture, bearing especially upon the preservation of the spawn. 1. The water should not be supplied with the spawn in advance; it is well to leave the spawn in place even till the moment of employing it, and the fecundation should follow soon, upon the death

of the male fish. 2. Since the fecundation should take place within a day or twelve hours after the death of the animal, the spawn should be then taken and kept separate. 3. To preserve the spawn, it should not be placed in the water, or in the open air, but better in a moist linen cloth, which is kept at a temperature equal to, or a little below that, which for each species gives the maximum duration to the movements of the spermatozoids. 4. If there are several fecundations to operate successively, it is necessary to detach for each, the quantity of spawn required, and leave the rest in some convenient place.—*Correspondence of Sidman's Journal.*

Monthly Meteorological Register, at the Provincial Magnetical Observatory, Toronto, Canada West.—August, 1853.
Latitude 43 deg 39.4 min North. Longitude, 79 deg. 21 min. West. Elevation above Lake Ontario: 103 feet.

Magnet. Day.	Barom. at tem. of 32 deg.				Temperature of the air.				Tension of Vapour.				Humidity of Air.				Wind.					Rain S'w in in.					
	6 A.M.	2 P.M.	10 P.M.	MEAN.	6 A.M.	2 P.M.	10 P.M.	M'S.	6 A.M.	2 P.M.	10 P.M.	M'S.	6 A.M.	2 P.M.	10 P.M.	M'S.	6 A.M.	2 P.M.	10 P.M.	M'S.	W	Dir.	Dir.	Dir.	Dir.	Dir.	Dir.
b	29.652	29.607	29.598	29.619	65.6	68.6	69.5	68.37	0.515	0.636	0.600	0.693	88	91	86	88	W	E NE	N E	1.27	0.280	--	--	--	--	--	
2	621	.617	.588	.605	61.2	75.4	61.7	67.43	.542	.589	.395	.421	93	69	74	80	N	SSE	Calm	3.15	--	--	--	--	--	--	
3	.551	.505	.417	.491	63.7	73.1	67.3	68.52	.505	.587	.460	.533	84	74	71	79	Calm	E NE	E NE	3.17	--	--	--	--	--	--	
4	.419	.417	.450	.424	66.2	79.2	65.0	71.40	.539	.559	.498	.531	86	58	82	72	N E	S W	N E N	1.37	--	--	--	--	--	--	
5	.507	.456	.474	.493	66.7	82.0	64.2	72.32	.477	.503	.485	.511	75	57	83	64	N E	S	Calm	1.07	--	--	--	--	--	--	
6	.566	.518	.576	.570	65.6	79.3	65.0	70.62	.377	.707	.539	.617	94	73	93	85	Calm	S E	E	2.78	--	--	--	--	--	--	
7	.629	.609			67.1	83.6			.530	.608			86	51			S	S E	E	3.77	0.150	--	--	--	--	--	
8	.669	.614	.629	.652	64.7	81.5	70.0	72.93	.562	.635	.535	.551	91	60	75	71	Calm	S E	N N E	2.87	--	--	--	--	--	--	
9	.641	.652	.662	.655	64.7	80.0	72.7	73.02	.486	.735	.662	.630	81	74	85	82	Calm	S E	S W	1.83	Inap	--	--	--	--	--	
10	.699	.657	.677	.674	66.5	88.4	71.6	76.95	.596	.610	.631	.630	91	50	84	73	Calm	S	Calm	1.60	--	--	--	--	--	--	
11	.716	.675	.627	.671	68.1	91.4	75.6	79.25	.519	.688	.685	.617	83	48	80	69	Calm	S	Calm	1.73	--	--	--	--	--	--	
12	.672	.557	.562	.593	71.7	87.9	77.4	79.83	.657	.622	.780	.737	87	67	85	77	Calm	S	N W	4.31	0.215	--	--	--	--	--	
13	.564	.490	.411	.486	73.6	90.8	72.0	78.53	.714	.874	.626	.741	94	63	82	79	Calm	S E	Calm	3.03	0.245	--	--	--	--	--	
14	.416	.410			74.0	83.0			.716	.752			88	69			Calm	N		1.63	--	--	--	--	--	--	
15	.649	.651	.632	.641	66.8	82.2	69.6	73.38	.492	.576	.510	.541	76	54	72	65	N E	E N	E N	4.48	--	--	--	--	--	--	
16	.651	.623	.678	.612	63.6	84.5	71.1	75.30	.445	.510	.691	.589	78	47	94	72	N N E	E S E	N N E	3.39	--	--	--	--	--	--	
17	.546	.415	.354	.424	66.6	85.1	67.1	73.77	.527	.656	.593	.601	83	55	92	76	N N E	S E	N E	3.83	0.460	--	--	--	--	--	
18	.302	.336	.511	.396	64.9	62.2	55.6	59.77	.536	.417	.294	.403	89	82	67	76	Calm	N W	N W	7.10	0.005	--	--	--	--	--	
19	.576	.573	.536	.582	49.6	67.9	53.8	57.32	.265	.201	.239	.245	76	31	63	56	N W	N W	Calm	5.57	--	--	--	--	--	--	
20	.626	.566	.525	.571	48.7	70.7	60.6	60.97	.236	.367	.352	.323	76	50	68	62	Calm	S W	N W	5.28	--	--	--	--	--	--	
21	.511	.491			47.6	75.7			.243	.511			75	60			N W	S W		4.93	--	--	--	--	--	--	
22	.675	.739	.799	.751	56.1	72.9	57.1	62.93	.351	.482	.354	.403	80	61	78	72	N	S E	N N E	4.98	--	--	--	--	--	--	
23	.832	.739	.593	.714	61.4	68.0	65.7	65.22	.404	.402	.562	.466	77	60	92	76	S E	E E	N E	6.36	1.020	--	--	--	--	--	
24	.354	.320	.526	.418	67.7	80.0	61.4	69.07	.619	.592	.365	.503	94	59	68	76	S E	W N W	N W	7.55	Inap	--	--	--	--	--	
25	.651	.739	.750	.732	48.4	65.7	52.0	55.65	.237	.401	.332	.32	70	66	87	73	N W	S E	N W	5.20	--	--	--	--	--	--	
26	.733	.632	.476	.607	48.5	70.7	70.3	65.92	.246	.505	.588	.479	73	69	80	74	N N E	E	S E	5.17	0.200	--	--	--	--	--	
27	.442	.534	.719	.588	64.4	62.2	55.6	60.50	.619	.322	.310	.389	94	51	71	73	W	W	W	9.59	--	--	--	--	--	--	
28	.557	.827			50.6	66.4			.291	.440			81	70			N W	S W		3.48	--	--	--	--	--	--	
29	.800	.725	.722	.743	49.4	71.6	60.0	61.25	.297	.395	.366	.378	85	53	71	69	Calm	S W	Calm	2.58	Inap	--	--	--	--	--	
30	.670	.568	.598	.569	57.5	70.5	70.4	65.80	.301	.433	.410	.423	85	60	60	68	Calm	S W	S	2.01	Inap	--	--	--	--	--	
31	.621	.633	.710	.661	64.3	70.8	61.8	65.42	.492	.533	.466	.488	84	69	87	81	N E	E S E	S E	3.33	--	--	--	--	--	--	
At 29	611	29 579	29 588	29 591	62.19	76 39	61.33	68 61	0 471	0 553	0 496	0 513	84	62	78	74	MP's 2 52	MP's 7 03	MP's 2 83	4 23	2 575	--	--	--	--	--	--

Sum of the Atmospheric Current, in miles, resolved into the four Cardinal directions.

North.	West.	South.	East.
972.76	746.25	1212.66	879.16

Mean direction of the wind S. E. by S.
Mean velocity of the wind - - 4.23 miles per hour.
Maximum velocity - - - - 18.5 miles per hour, from 4 to 5 p.m. on 18th
Most windy day - - - - 27th: Mean velocity, 9.50 miles per hour.
Least windy day - - - - 5th: Mean velocity, 1.07 ditto.
Raining 19.3 hours.

The column headed "Magnet" is an attempt to distinguish the character of each day, as regards the frequency or extent of the fluctuations of the Magnetic declination, indicated by the self-registering instruments at Toronto. The classification is, to some extent, arbitrary, and may require future modification, but has been found tolerably definite as far as applied. It is as follows:—

- (a) A marked absence of Magnetical disturbance.
- (b) Unimportant movements, not to be called disturbance.
- (c) Marked disturbance—whether shown by frequency or amount of deviation from the normal curve—but of no great importance.
- (d) A greater degree of disturbance—but not of long continuance.
- (e) Considerable disturbance—lasting more or less the whole day.
- (f) A Magnetical disturbance of the first class.

The day is reckoned from noon to noon. If two letters are placed, the first applies to the earlier, the latter to the later part of the trace. Although the Declination is particularly referred to, it rarely happens that the same terms are not applicable to the changes of the Horizontal Force also.

Highest Barometer - - 29.850, at 6 A.M., on 28th. } Monthly range:
Lowest Barometer - - 29.300, at 8 A.M., on 18th. } 0.550 inches.
Highest regist'd Temp. - 94.9, at - P.M., on 11th } Monthly range.
Lowest regist'd Temp. - 42.5, at - A.M., on 25th } 52.4
Mean Maximum Temperature - - - - 78.50 } Mean daily range:
Mean Minimum Thermometer - - - - 57.10 } 21.41
Greatest daily range - - - - 39.1 from P. M. 24th to A. M. of 25th.
Warmest day - - 12th - - - Mean Temperature - 79.83 } Difference
Coldest day - - 25th - - - Mean Temperature - 56.63 } 23.18

The "Means" are derived from six observations daily, viz., at 6 and 8 A. M., and 2, 4, 10 and 12, P. M.

Possible to see Aurora on 23 nights.
Aurora seen on 3 nights.

Comparative Table for August.

Year.	Temperature				Range. D'ys	Ram. Inches.	Snow. D'ys.	Wind Mean Velocity
	Mean.	Max. obs'r'd	Min. obs'r'd	Range.				
1840	64.6	80.1	47.4	32.7	12	2.905	0	--
1841	64.4	83.5	46.7	36.8	9	6.170	0	--
1842	65.7	80.7	45.3	35.4	6	2.500	0	--
1843	66.4	85.5	44.4	41.1	4	4.850	0	--
1844	64.3	82.5	44.3	38.2	17	imperfect	0	--
1845	67.9	82.5	41.4	38.1	9	1.725	0	--
1846	68.4	86.3	50.4	35.9	9	1.770	0	--
1847	65.1	83.1	44.9	38.2	10	2.140	0	--
1848	69.2	87.5	49.3	38.2	8	0.855	0	--
1849	66.3	79.5	51.4	28.1	10	4.970	0	--
1850	66.8	84.2	43.0	41.2	13	4.355	0	--
1851	63.6	79.8	43.6	36.2	10	1.360	0	--
1852	65.9	81.2	46.7	34.5	9	2.695	0	--
1853	68.6	91.6	47.6	44.0	11	2.575	0	--
Mean	66.23	83.43	46.39	37.04	9.8	2.990	0	--

The mean temperature of the month is 2.4 above the average of 14 years, and is with one exception (1818) the highest known; the maximum thermometer recorded 94.9 on the 11th, which is the highest that has ever occurred at the Observatory, but the warmest day on the whole was the day following this, which was 13.5 above the normal. From the 9th to the 17th inclusive, the differences above the normal were as follows: 6.5, 10.5, 12.8, 13.5, 12.3, —7, —2.9, 3, 7.8; these were succeeded by three cold days, the remainder of the month being of an average character.

The blanks in the Magnetic column arise from the failure of the Photographic traces from the use of improper paper, the stock of proper paper being exhausted and some delay having occurred in the arrival of a supply from England.