

but we do object to the calling our tulip tree a poplar, which Mr. Hilgard knows and admits that it is not; as we protest against the vulgarity of naming our magnificent Buttonwood tree after the commonplace European Sycamore. (Do not let it be implied that this error occurs in Mr. Hilgard's report.)

The report contains a great deal of information interesting partly to the scientific, partly to the practical man. The resources of the State, while they want the richness of some of the middle regions of our Union, are valuable and well worthy of the development which we hope will follow the present political convulsions. F.

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*Union Foundations a Study of American Nationality as a fact of Science.* By Capt. E. B. HUNT, Corps of Engineers, U. S. A. New York, Van Nostrand, 1863, 8 vo. pp. 61.

The gist of this pamphlet is an argument drawn from the physical geography and statistics of our country, that its separation into fragments is a moral if not physical impossibility, or that, in other words, the cost and inconveniences of a separation are indefinitely greater than those of any war for the maintenance of unity. The data of the argument are excellently stated and clearly developed, and if any one needs an argument on this point they could not wish a better than is here given. But it never has seemed to us that this was the true question. With the exception of a few fanatics on each side, we believe the whole people of the United States are convinced of the necessity and determined in favor of union. The true and only question is under whose authority? under what constitution? Mr. Jefferson Davis or Mr. President Lincoln? under the constitution of our forefathers or that known as the Montgomery? On this point our pamphlet expresses itself by implication only, but apparently on the loyal and logical side. Into this question (if there be any among honest and intelligent men) our *Journal* will not enter for fear of politics, and abstains the more readily as the matter appears to be practically settled. F.

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*First Outlines of a Dictionary of the Solubilities of Chemical Substances.* By Frank H. Stover. Part I. Cambridge, Sever & Francis, pp. 232 and appendix.

It is difficult to convey a sufficient opinion of the value of this unpretending writer. Practical and experimenting chemists will alone fully appreciate its value, and from its very nature it is scarcely possible to make extracts from it. The solubility of substances are so intimately connected with their other chemical properties that this work will be indispensable to every one concerned with chemistry.

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#### ERRATA.

"Burlington Tunnel." Vol. xlv., Dec. 1862, page 377, line 10, for "contract price the work was \$60,000," read "\$30,000."

"Strength of Cast Iron Timber Pillars." Vol. xlv. March, 1863, page 180, bottom line, for "supported by pillars 6 inches diam.," read "supported pillars 6 inches diam."

*A Comparison of some of the Meteorological Phenomena of FEB., 1863, with those of FEB., 1862, and of the same month for TWELVE years, at Philadelphia, Pa. Barometer 60 feet above mean tide in the Delaware River. Latitude 39° 57½' N.; Longitude 75° 10½' W. from Greenwich. By JAMES A. KIRKPATRICK, A. M.*

	February, 1863.	February, 1862.	February, 12 Years.
Thermometer—Highest—degree,	54·00°	52 00°	70·00'
“ “ date, . . .	10th.	13th.	23d, 1860.
“ Warmest day—Mean,	46·00	42·2	59·3
“ “ date, . . .	27th.	13t.	25th, 1857.
“ Lowest, degree, . . .	5·00	16·0	— 1·0
“ “ date, . . .	5th.	10th.	7, '55: 8, '61.
“ Coldest day—Mean,	11·17	22·8	5·7
“ “ date, . . .	4th.	10th.	7th, 1855.
“ Mean daily oscillation,	13·57	10·89	13·41
“ “ range,	7·54	5·55	7·30
“ Means at 7 A. M., . . .	30·46	28·36	29·25
“ “ 2 P. M., . . .	37·70	36·00	38 38
“ “ 9 P. M., . . .	34·04	31·64	33·43
“ “ for the Month,	34·07	32·00	33 69
Barometer—Highest—Inches, . . .	30 671 in.	30·322 in.	29·671 in.
“ “ date, . . .	4th.	16th.	4th, 1863.
“ Greatest mean daily press.,	30 537	30·253	30 595
“ “ date, . . .	4th.	16th.	12th, 1857.
“ Lowest—Inches, . . .	29 345	29·216	29·065
“ “ date, . . .	20th.	24th.	23d, 1853.
“ Least mean daily pressure,	29·501	29·454	29·227
“ “ date, . . .	20th.	24th.	16th, 1856.
“ Mean daily range, . . .	0·265	0·225	0·224
“ Means at 7 A. M., . . .	30·031	29·939	29·930
“ “ 2 P. M., . . .	29·977	29·891	29·882
“ “ 9 P. M., . . .	30 024	29·922	29·913
“ “ for the Month,	30·011	29·917	29 908
Force of Vapor—Greatest—Inches,	0·322 in.	0·267 in.	0·549 in.
“ “ date, . . .	6th.	24th.	16th, 1857.
“ “ Least—Inches,	·027	·060	·013
“ “ date, . . .	4th.	25th.	6th, 1855.
“ “ Means at 7 A. M., . . .	·142	·130	·140
“ “ “ 2 P. M., . . .	·149	·143	·162
“ “ “ 9 P. M., . . .	·146	·142	·159
“ “ “ for the month,	·146	·138	·154
Relative Humidity—Greatest per cent.,	100 per ct.	100 per ct.	100 per ct.
“ “ date, . . .	19th.	24th.	Often.
“ “ Least per cent,	29·0	44·0	25·0
“ “ date, . . .	16th.	28th.	21st, 1861.
“ “ Means at 7 A. M., . . .	77·3	80·4	79·4
“ “ “ 2 P. M., . . .	63 5	66·6	64·6
“ “ “ 9 P. M., . . .	70·9	77·9	76·3
“ “ “ for the month,	70·5	75·0	73·4
Clouds—Number of Clear days,* . . .	7	3	8·
“ “ Cloudy days, . . .	21	25	20·
“ Means of sky cov'd at 7 A. M.,	73·6 per ct.	76·1 per ct.	62·6 per ct
“ “ “ 2 P. M., . . .	62·9	73·2	60 8
“ “ “ 9 P. M., . . .	63·9	61·1	47·1
“ “ “ for the month,	66·8	70·1	56·9
Rain and melted Snow—Amount . . .	3 824 in.	4 277 in.	2 899 in.
No. of days on which Rain or Snow fell,	13·	15·	10·4
Prevailing Winds, . . .	N56°19'W·139	N45°0'W·208	N69°50'W·278

\* Less than one-third covered at the hours of observation.

A Comparison of the WINTER of 1862-3, with that of 1861-2, and of the same season for TWELVE years, at Philadelphia, Pa. Barometer 60 feet above mean tide in the Delaware River. Latitude 39° 57' N. Longitude 75° 10' W. from Greenwich.

	Winte 1862-63.	Winter, 1861-62.	Winte for 12 Years
Thermometer.—Highest degree, .	64·00°	64·00°	71·00°
“ “ date, .	Dec. 15th.	Dec. 10th.	Dec. 2, 1859.
“ “ Warmest day—Mean, .	58 33	54·20	62·80
“ “ “ date, .	Jan. 15th.	Dec. 9th.	Dec. 19, 1856.
“ “ Lowest degree, .	5 00	10·00	— 5·50
“ “ “ date, .	Feb. 5th.	Jan. 5th.	Jan. 23, 1857.
“ “ Coldest day—Mean, .	11·17	18·80	— 1·00
“ “ “ date, .	Feb. 4th.	Jan. 5th.	Fe. 7, '55; Fe. 8, '61.
“ “ Mean daily oscillation, .	13 07	11 89	12·52
“ “ “ range, .	6·53	5·42	6 74
“ “ Means at 7 A. M., .	32·22	30·08	29·68
“ “ “ 2 P. M., .	39·47	37 58	37·72
“ “ “ 9 P. M., .	35·13	33·16	33 14
“ “ “ for the quarter, .	35 61	33·60	33·51
Barometer.—Highest—Inches, .	30·671 in.	30·462 in	30·704 in.
“ “ “ date, .	Feb. 4th.	Dec. 13th.	Jan. 28, 1853.
“ “ Greatest mean daily press., .	30·553	30·413	30·611
“ “ “ date, .	Jan. 18th.	Dec. 12th.	Dec. 18, 1856.
“ “ Lowest, Inches, .	29·127	29·216	28·911
“ “ “ date, .	Jan. 16th.	Feb. 24th.	Jan. 23, 1853.
“ “ Least mean daily pressure, .	29·298	29·411	29·086
“ “ “ date, .	Jan. 16th.	Dec. 23d.	Jan. 23, 1853.
“ “ Mean daily range, .	0·243	0·233	0 218
“ “ Means at 7 A. M., .	29·963	29·973	29·953
“ “ “ 2 P. M., .	29·913	29·926	29 911
“ “ “ 9 P. M., .	29·955	29·955	29 938
“ “ “ for the quarter, .	29 944	29·951	29·934
Force of Vapor.—Greatest—Inches, .	0·462 in.	0·390 in.	0·551 in.
“ “ “ date, .	Jan. 16th.	Dec. 9th.	Dec. 2, 1859.
“ “ Least—Inches, .	·027	·051	·013
“ “ “ date, .	Jan. 4th.	Jan. 4th.	Feb. 6, 1855.
“ “ Means at 7 A. M., .	·154	·140	·139
“ “ “ 2 P. M., .	·162	·154	·162
“ “ “ 9 P. M., .	·160	·152	·154
“ “ “ for the quarter, .	·159	·149	·152
Relative Humidity.—Greatest per cent., .	100· per ct.	100· per ct.	100· per ct.
“ “ “ date, .	Ja. 21; Feb. 19.	Jan. 29; Feb. 24	Often.
“ “ Least per cent, .	29·0	23·0	23·0
“ “ “ date, .	Feb. 16th.	Dec. 15th.	Dec. 15, 1861.
“ “ Means at 7 A. M., .	77·9	80 0	79·0
“ “ “ 2 P. M., .	63·4	66·4	66·5
“ “ “ 9 P. M., .	73·5	77·3	76·3
“ “ “ for the quarter, .	71·6	74·6	73·9
Clouds—Number of Clear days,*	27 days.	21 days.	25·6 days.
“ “ “ Cloudy days, .	63 days.	69 days.	64·4 days.
“ “ Means of sky cov'd at 7 A. M., .	64 7 per ct.	70·3 per ct.	63·4 per ct.
“ “ “ 2 P. M., .	63·9	67·5	62 6
“ “ “ 9 P. M., .	55·7	56·1	47·5
“ “ “ for the quarter, .	61·4	64·6	57·8
Rain and melted Snow—Amount, .	10·077 in.	10·793 in.	9 778 in.
No. of days on which Rain or Snow fell, .	35·	35·	31·1
Prevailing winds, . . . . .	N68°38' W-199	N47°35' W-274	N62°31' W-296

\* Less than one-third covered at the hours of observation.