

upwards of nine hundred million of miles per annum." If this method of examining Sirius, which is the nearest of the fixed stars, should be carried into the examination of other and remoter ones, conclusions of great scientific value would be arrived at. Of course the motion to a great extent is apparent—not real—as the whole solar system is known to be moving towards the constellation Hercules and as the observations are made on the earth, the observatory as well as the observed star is in motion.

—*Alcohol-Meter.*—Alcohol dissolves chloroform, so that when a mixture of alcohol and water is shaken up with chloroform, the alcohol and chloroform unite, leaving the water separate.

On this fact Basile Rakowitsch, of the Imperial Russian Navy, has founded his invention.

The instrument he uses is a graduated glass tube into which a measured quantity of chloroform is poured, and to this is added a given quantity of the liquid to be tested; these are well mixed together and then left to subside; the chloroform takes up the alcohol and leaves the water, which being lighter than the chloroform will float on the top; and the quantity of water that has been mixed with the spirit will be at once seen.

—(*The Student and Intellectual Observer.*)

—The death is recorded of Dr. William Bird Herapath, of Bristol. Dr. Herapath was a son of the late Mr. William Herapath, so eminent as an analytical chymist, and like his father, had attained to a high degree of knowledge and skill in the same science. Dr. Herapath's name has also been associated with some useful discoveries in the microscope. Deceased, the cause of whose death was jaundice, leaves a widow and six children. On passing his M. B. examination, in 1844, at the London University, he took honours in no fewer than six branches of medical knowledge. He subsequently became an M. D. of the same institution, and his rapid and brilliant succession of chymical and toxicological discoveries was rewarded by the Fellowships of the Royal Societies of Edinburgh and London, and corresponding membership of most of our learned bodies. Among a mass of scientific communications to various periodicals, we may mention his paper on the "Optical and Chymical Characters, Sulphate of S da Quinine," on "the Iodo-Sulphate of the Cichona Alkaloids," "Discovery and Manufacture of Artificial Tourmalines," "Address on Chemistry in its Relation to Medicine and the Collateral Sciences," "On a New Method of Detecting Hydrogen, Arsenic, and Phosphorus when in company with Mixed Gases," &c. Although suffering from an exhausting and painful disease, his zeal for science remained until the last, and within a few days of his decease, he was engaged in laborious researches with spectrum analyses, more especially as to bloodstains and the chlorophyllia of plants. His early death, at 48 years of age, will be deeply regretted by a large circle of professional and other friends.

—*Atomic Weight*—Professor Frankland, in his address to the chemical section of the British Association, called attention to an interesting fact, which proves the almost entire unanimity of English chemical teachers in rejecting the old atomic weights. Out of 900 papers, worked in all parts of the United Kingdom, at a recent examination held under the supervision of the Science and Art Department, the old weights were used in but twenty cases. Unfortunately the same uniformity in notation and nomenclature has yet to be attained.

—*A New Cement.*—The following directions are given for making cement impermeable by air and steam, which is said to be superior to any in use for steam and gas pipes. Six parts of finely-powdered graphite, three parts of slaked lime, and eight parts of sulphate, are mixed with seven parts of boiled oil. The mass must be well kneaded until the mixture is perfect.

—At Neufchatel, in Switzerland, is an observatory, organized on an extensive scale and provided with the very finest instruments. Besides purely scientific results, it renders immense service to chronometer makers by enabling them to produce watches which are every day becoming more perfect. This is important to the branch of industry in question, which can only exist by constant improvement. Prizes are given to makers whose watches or chronometers approach as nearly as possible to perfection. To give an idea of the wonderful precision that has been obtained in this branch of industry, a marine chronometer lately tested gave the mean variation from day to day, in a two months' trial; sec 0.164. Common watches become more perfect every year. On 67 watches tested since 1866, the mean variation was only $\frac{1}{3}$ of a second in 24 hours.

In 1862 the mean variation was sec.	1.61
1863	1.28
1864	1.47
1865	0.88
1866	0.74

On more than three quarters of the chronometers observed in 1866, the mean variation was less than half a second. These practical results show the importance of such observatories as that of Neufchatel.—*Morgan's Trade Journal*

METEOROLOGICAL INTELLIGENCE.

From the Records of the Montreal Observatory,—lat. 45°31' North; Long. 4h 54m 11 sec West of Greenwich, and 182 feet above mean sea level For November, 1868. By Chas. Smallwood, M.D., LL.D., D.C.L.

DAYS	Barometer corrected at 32°			Temperature of the Air			Direction of Wind			Miles in 24 hours
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	
1	29.461	29.389	29.521	39.7	40.1	37.0	SW	SW	WSW	201.10a
2	.750	.847	.862	28.1	53.0	36.1	N	NE	NE	97.24b
3	.761	.717	.631	28.0	49.7	32.2	NE	N	NE	51.27
4	.611	.627	.649	33.2	51.1	36.7	SW	SW	WSW	66.10
5	.412	.407	.475	34.6	48.3	37.0	NE	NE	NE	79.11c
6	.749	.871	.984	33.7	38.1	31.9	W	WbyN	N	67.10
7	30.199	30.184	30.223	22.2	45.7	29.9	NW	NE	W	85.74
8	.051	29.900	29.851	31.8	33.4	32.1	NE	NE	NE	61.11d
9	29.762	.834	.925	33.4	36.3	34.4	NE	NE	NE	55.12e
10	.900	.801	.700	32.7	34.2	34.7	NE	NE	NE	91.10f
11	.698	.477	.551	34.7	38.4	33.7	NE	NE	NE	104.12g
12	.761	.992	30.011	30.0	39.7	29.2	NW	WbyN	W	69.12
13	.911	.909	29.901	32.1	37.7	32.0	WSW	WSW	WSW	61.54
14	30.000	30.111	30.149	28.9	40.3	32.4	W	W	W	58.29
15	.161	.194	.201	31.7	43.2	32.4	NE	NE	NE	61.10
16	.249	.222	.216	28.2	36.1	28.4	W	W	W	71.10
17	.045	29.994	29.817	18.1	31.7	5.0	NE	NE	NE	88.29
18	29.601	.624	.691	25.0	35.9	33.7	NE	NE	NE	106.10k
19	.500	.527	.546	33.1	35.7	34.4	NE	NE	NE	119.14i
20	.561	.554	.537	31.4	36.9	32.2	NE	NE	NE	66.40
21	.500	.467	.499	33.1	38.9	33.1	N	N	N	51.11j
22	.618	.647	.665	31.7	40.3	32.7	NbyW	W	W	66.10
23	.763	.754	.742	28.4	38.4	33.7	W	W	W	55.27
24	.661	.844	.899	32.0	39.8	32.9	W	W	W	64.10
25	.917	.823	.660	27.9	35.7	31.9	NW	W	W	71.11h
26	.347	.301	.350	33.2	34.7	34.2	W	WSW	WSW	57.21*
27	.782	.799	.800	31.9	33.7	31.4	W	W	W	68.10
28	.678	.512	.425	25.2	34.0	32.4	W	W	W	60.00
29	.362	.298	.225	28.1	32.4	30.2	W	WbyN	W	51.17†
30	.161	.217	.300	18.9	26.7	19.4	WbyN	WbyN	WbyN	67.29

RAIN IN INCHES.—a, 0.592; b, 0.217; c, 0.223; e, 0.278; f, 1.797; g, 0.621; k, Inapp.; * 0.645.

SNOW IN INCHES.—d, 4.01; f, 3.75; h, 12.22; i, j, Inapp; † 0.30. The highest reading of the Barometer was on the 16th, and indicated 30.249 inches; the lowest reading was on the 30th, and was 29.161, showing a monthly range of 1.088 inches.

The mean temperature of the month was 38.30 degrees, which is about half a degree lower than the *Isotherm* for the month of November for Montreal.

—Meteorological observations taken at Quebec, during the month of Nov. 1868. Latitude 46°48'30" N.; Longitude 71°12'15" W.; height above St. Lawrence, 230 feet; By Sergt. J. Thurling, A. H. C., Quebec.

Barometer, highest reading on the 16th.....	30.288 inches.
" lowest " 30th.....	29.152
" range of pressure.....	1.070
" mean for month reduced to 32°.....	29.743
Thermometer, highest reading on the 1st.....	48.6 degrees
" lowest " 28th.....	5.5
" range in month.....	43.1
Mean of highest.....	33.0
" lowest.....	23.2
" daily range.....	9.8
" of month.....	28.1
maximum in sun's rays, (black bulb.).....	43.8
minimum on grass.....	24.2
Hygrometer, mean of dry bulb.....	28.8
" wetbulb.....	26.4
" dew point.....	16.6
Elastic force of vapour.....	.092 inches.
Vapour in a cubic foot of air.....	1.0 grains.
" required to saturate, do.....	0.8 "
Mean degree of humidity (Sat. 100).....	58 "
Average weight of a cubic foot of air.....	565.9 "
(Cloud, mean amount of (0-10).....	7.9 "
(Ozone " " ".....	1.07 "
Wind, general direction.....	Easterly.
mean daily horizontal movement.....	134.3 miles.
Rain, number of days it fell.....	3
amount collected on the ground.....	2.19 inches.
" " 10 feet above.....	2.19
Snow, number of days it fell.....	17