Mean temperature of the months for 26 years:

January,	31 9	July,	75 7
February,	33	August,	73 4
March,	41 8	September,	63 7
April,	51 9	October,	51 5
May,	62 5	November,	43 8
June,	71 2	December,	31 5

The warmest year was 1828, 55¼ degrees.
The coldest " " 1836, 49 " "
Mean temperature of the year 1853, 54 84.
The temperature of the seasons, as deduced from 26 years' observations, is as follows:

Winter months,	33	Summer months,	73½
Spring	52	Autumn	54½

Amount of rain for each month of 1853:

Months,	Inches.
January,	1.845
February,	4.440
March,	2.462
April,	3.835
May,	5.172
June,	1.100
July,	6.296
August,	3.098
September,	4.463
October,	3.470
November,	2.320
December,	2.165
Total	40.667

The average amount of rain for 16 years, from 1838 to 1853, is 44.35 inches.
The greatest amount in 1841, 55¼ inches.
The least " 1818, 35 "
Amount of rain for each year, for 16 years, from 1838 to 1853:

Year.	Inches.	Year.	Inches.
1838,	45.29	1846,	44.38
1839,	43.73	1847,	45.09
1840,	47.40	1848,	35.00
1841,	55.50	1849,	42.00
1842,	38.53	1850,	54.54
1843,	46.91	1851,	35.50
1844,	40.17	1852,	45.75
1845,	40.00	1853,	40 66

Locomotive Statistics.

Since last year, a very decided improvement has been made in the manufacture and number of locomotives of this city. The mammoth works of Messrs. Richard Norris & Son, on Bush Hill, have been materially enlarged, and such arrangements introduced into the various departments, as to render them the most complete and extensive works for the manufacture of locomotives in the world. During the year 1852, the number of hands employed in this establishment was 568—448 men and 120 apprentices. At the commencement of 1853, it was the intention of Messrs. Norris & Son to add to the number of hands in their employ 52 persons, making 620, but so rapidly did the work accumulate on their hands, and the demand for locomotives increase, beyond their most sanguine anticipations, that they were required to employ more workmen, and the consequence has been that the number has been increased to 761—making the addition 193, instead of 52. From this it will be seen that the productions of the Philadelphia artisans and mechanics are becoming daily more popular, and the benefits arising therefrom better appreciated throughout the country. In these works alone during the past year, there have been consumed 1000 tons of pig iron, 1000 tons of bar iron, 200 tons of copper, and a large quantity of tin, spelter, rivets, &c. There were 102 locomotives built during the year, which were sent to the following destinations: For railroads in Pennsylvania, 31; in Indiana, 12; in New Jersey, 10; in Georgia, 10; in North Carolina, 9; in New York, 5; in Ohio, 5; in South Carolina, 4; in Virginia, 3; in Louisiana, 3; in Maryland, 2; in Alabama, 1; besides 1 sent to Japan by order of the United States Government; 4 for railroads in Chili, South America, and 2 for the Island of Cuba. In addition to the above in the same establishment, a large amount of extra work was performed, wheels made and detached parts of locomotives constructed. Of the number of hands employed, 629 are men and 132 apprentices. The amount paid for labor was very nearly $10,000 per week, or about $500,000 during the year.

The number of locomotives built at these works in 1852 was 78—increase 22. This year it is probable the production will average 12 per month.

At the manufactory of Mr. M. W. Baldwin, on Broad street, there were 60 locomotives built. The number built last year in this establishment was 56; increase 4, making a total of 162 constructed in Philadelphia in 1853.

Machinery Statistics.

During the past year, the following engines, &c., have been constructed at the Penn Iron Works, by Messrs. Reaney, Neafie & Co., in addition to a great amount of promiscuous machinery: Fifty-one steam engines for marine, river and stationary purposes; of these twenty-two varied in size, from 40 inch cylinders and 8 feet stroke, to 10½ inch cylinders and 2 feet stroke; 16 were from 22 inch cylinder and 22 inch stroke, to 13 inch cylinder and 5 feet stroke; 13 were for blast and pumping purposes, and were 10½ inch and 8 inch cylinders. They completed the engine built in Baltimore, for the steamer Virginia, running between Baltimore and Fredericksburg. Also built and completed an engine for the Washington and Alexandria Ferry Co., on board the steamer George Page. Also, 52 boilers for steamers and stationary engines, among which was one weighing 29 tons, for steamer Georgia, of Baltimore. Also, 6 Cupolas for Foundries; 15 large stills for manufacturing Rosin Oil; 9 large Crushing Mills, for Quartz Mines; 1 machine for making Barrels by steam power, for Messrs. Cooper & Co., of Southwark; and 2 more in progress for the South. The same firm have also built 2 Iron Boats, one for Mexico, and one for North Carolina.

Police Statistics.

From the record kept by Mr. A. Nickle, Turnkey at the City Police Office, we learn that during the past month 921 persons were arraigned before Mayor Gilpin upon various charges. The following is a comparative statement of the number of persons taken before the same magistrate in 1852 and 1853:

	1852.	1853.
January,	440	739
February,	432	695
March,	578	759
April,	532	515
May,	632	736
June,	581	589
July,	713	881
August,	710	618
September,	715	822
October,	756	745
November,	696	918
December,	780	921
	7515	8178

LOCAL AFFAIRS.

The Western Trade.—At no previous time, in the history of Philadelphia, was the prospect for a largely increased trade with the great West, so flattering as at present. The inducements offered to merchants to visit this market were never so promising; the market is supplied with a full and varied assortment of every description of goods required in any and every section of the country, while the number of firms and business houses has materially increased during the past year, and competition been brought to bear in every department of trade in much greater proportion than formerly. In addition to these business considerations, among many others important in this connection, the completion of the tunnel through the Allegheny mountains is, of all the rest, probably of the greatest moment. Through the accomplishment of this great work, the old Portage Railroad across the mountain is avoided, and the travel between the Delaware and Ohio rivers reduced from six to eight hours. The benefits to flow from the completion of the tunnel cannot be estimated. They will be immense—alike interesting and important to the entire business community.

The Commercial List gives the following description of the tunnel, furnished by Edmund Smith, Esq., one of the Company's engineers:

"The tunnel passes through the summit of the Allegheny Mountains, at a point known as Sugar Run Gap. It lies in the counties of Blair and Cambria—the summit being the dividing line. It is 3612 feet long, 2685 feet of which is arched, containing 7700 perches of cut stone and 6400 perches of brick masonry, and 927 feet is cut through the solid rock, where arching is unnecessary. Eight feet of the arch on each side is built of cut stone 22½ inches thick, resting on abutments of rock range work of the same thickness, and the crown consists of five courses of hard-burnt brick—the whole laid with hydraulic cement. At grade, the width of the tunnel in the clear is 21 feet—ten feet above the grade, 24 feet. The height above the grade is 23 feet. The greatest elevation above tide is at the west end of the tunnel, where the height is 2161 feet. The grades ascending the eastern slope commence at Altona, and in a distance of 12 miles, where the west end of the tunnel commences, the height overcome is 993 feet, or 82¾ feet to the mile.

"The excavation for the tunnel was commenced October 13, 1851, and steadily progressed until the 1st February, 1853, when the heading was finished. It was worked from both ends, and three shafts of the following depths—east shaft, 150 feet; middle, 195 feet, and west shaft, 184 feet. At the east and west shafts the material was hoisted by engines of about 35 horse power, and at the middle shaft a 60 horse power engine was employed, capable of hoisting materials and working a winch plunge lift pump 225 feet in length.

"The material cut through in sinking the shafts was black and greenish slate rock, several strata of fire-clay, one heavy strata of sand-stone, and three heavy strata of coal. Of the latter, the first strata of coal was 6 inches thick; the second, 6 feet, and the third, 1 foot 8 inches. [Accurate measurements of the different strata were taken, which may be useful in future exploration of the geology of the country.] The whole amount of material excavated was 84,760 cubic yards.

"The tunnel is 248 miles from Philadelphia, and 105 from Pittsburg. The contractors were Messrs. John Rutter & Son. The work was under the charge of Edward Miller and H. Haupt, Chief Engineers; Thomas Seabrook, P. A. Engineer, and Thos. Reilly, Assistant Engineer. It will compare with any similar work in the country, and considering the many obstacles against which the contractors and engineers had to contend, they accomplished their enterprize in as short a time probably as the work could have been done in, and certainly in a very skilful and permanent manner. At present but a single track is laid through the tunnel. It is graded for a double track, which, when laid, will complete the work at a cost of $450,000, or about $125 per foot."

The Pennsylvania Railroad Company is engaged in preparing the schedule of time for the Express passenger trains which commence running *through* the mountains next Monday. The time will be 14 hours—3½ hours to Harrisburg, over the Columbia and the Harrisburg and Lancaster Railroads, and 10½ hours from that point to Pittsburg. The policy of the Company is now to go to work with renewed energy, and as early as possible lay sufficient of the second track and sidings to afford facilities for the Express passenger train to make the distance between the two cities in ten hours, or even less time. This can be accomplished, with proper management, before the fall trade begins, and there is every reason to believe it will be done.

The President and Directors of the Company will accompany the first train through the mountains on the 6th proximo. A powerful engine, and a car of much beauty, is being specially fitted up for the occasion—the latter being supplied with the patent reclining car-seats, invented and manufactured by Mr. John T. Hamitt, of this city.

Census Statistics.—The following facts prepared by a correspondent, from the census returns, are interesting as a comparison of the population and the accommodations for its convenience and comfort presented by the respective cities of Philadelphia and New York; with more than one-fifth less of population in Philadelphia, we have a greater number of dwellings by two-sixths, to accommodate the inhabitants of this city than New York possesses. This is an important fact, both as it regards the comfort and health of the inhabitants and the economy of living—rent being one of the principal items in the expenses of a family.

The census of 1850, recently published by authority of Congress, shows the following statistics of our sister city New York, and our own city of Philadelphia:

	New York.	Phila.
Number of Dwellings,	37,677	61,278
Number of Families,	93,608	72,392
Avrg. Families to each Dwelling,	2.50	1.18
Population,	515,547	408,762
Births for one year,	14,307	11,017
Deaths for one year,	11,883	6,930

Philadelphia has 24,000 more dwellings than New York, and 21,000 fewer families. In New York the births were about 25 per cent. more than the deaths, and in Philadelphia nearly 60 per cent. more.

The increase of the free colored population for each of the 10 years from 1800 to 1840, was from 25 to 30 per cent. In the last ten years from 1840 to 1850, the increase was only 13 per cent.

Schuylkill Water-Works.—These works, belonging to the Districts of the Northern Liberties and Spring Garden, have been much complained of recently, by citizens of the latter district, who allege they are unable to procure a suitable supply of water. The attention of the Joint Watering Committee having charge of the works, was called to the matter some time since, and that body appointed a sub-committee, to inquire into the grievance and the condition of the works. The investigation of the committee concluded with a report, in which is set forth that the works are totally incapacitated to the demand now made upon them, and that gross manifest injustice has been and is being done to the citizens, whose wants and comforts imperatively calls for immediate action upon the part of the districts. From an examination of the Engineer's monthly statement, the committee state that the three engines now in service, perform 55 hours per day, or 1650 hours per month and that 288 hours per month are required for the ordinary repairs, cleansing the machinery and blowing off the boilers, making 1938 hours in each month of 30 days (Sundays included,) leaving but 222 hours in that time for any emergency that might arise in the breaking of machinery or any other unforseen occurrence.

The amount of water pumped into the reservoir during the past six years was as follows:—In 1848, 2,561,113 gallons; 1849, 2,741,946 gallons; 1850, 3,231,168 gallons; 1851, 3,885,076 gallons; 1852, 3,225,215 gallons; 1853, (ten months) 3,824,867 gallons. Up to the middle of 1851 the District of Kensington was supplied with water from these works, and since that time a portion of Penn District has been supplied, in connection with the Northern Liberties and Spring Garden, yet the increase on the part of the year is 593,047 gallons, and by the expiration of the year the increase will probably 1½ millions of gallons, and still the quantity is not sufficient to supply the demand.

The Committee gives the amount of the population of the two Districts in 1848 at $59,199 58, and in 1853 at $87,819 14; increase, $28,619 56. The additions recommended are one engine, at an estimated cost of $12,000; three boilers, $11,000; building, $5,000; foundation for engine, $2000; chimney, $3000; basin, $30,000; total, $61,000.

How to Calculate the Power of Parker's Water Wheel.

The following article presenting the *modus operandi* for calculating the power of the Parker Water Wheel, is from J. Sloan Esq., of Sloan's Mills, of Floydsburgh, Shelby Co., Ky., who since we referred to his correct and extended information on this subject, on page 336, Vol. 6, Scientific American, has had many letters sent to him for information. This, it is hoped, will give all the knowledge required by future inquirers.

"My manner of computing the power of the Parker wheel is as follows, for a wheel of 150 square inches area of issues, and 3 feet diameter, under 9 feet fall, viz., $9 \times 64 = 576$; $24 \times 150 = 3600 \div 144 = 25 \times 62 \cdot 5 = 1562 \cdot 5 \times 9 = 14062 \cdot 5$ actual power of the water in pounds, theoretically with the assumption; the discharge is through a fair common aperture in the atmosphere. Diameter of wheel in feet $\times 3 \cdot 1416 = 9 \cdot 4248$, then $24 \times 60 = 1440 \div 9 \cdot 4248 = 152 \cdot 89$ revolutions of the wheel per minute provided the velocity of the wheel is the same as the water. The result of repeated experiments I have made, proves the helical sluice of the Parker wheel, retards the water as 33 is to 30·75, which must be deducted; thus, $33 : 30 \cdot 75 : : 25 : 23 \cdot 295$ cubic feet per second the practical or real discharge of the helical sluice without the wheel. I also found the wheel retarded the water in the sluice as 30·75 is to 25·5; hence we have $30 \cdot 75 : 25 \cdot 5 : : 23 \cdot 295 : 19 \cdot 3145$ cubic feet, the real discharge through the wheel measured in the tale race, on the principle laid down by Du Bauts for measuring running water. I found it safe to allow the wheel's periphery to move 7 per cent. faster than the velocity of the water, a practice of 20 years' standing.

The Franklin Institute, in their report, 11th June, 1846, assert that a Parker wheel, under a fall of 10·10 feet, made 166 revolutions per minute, and the mechanical effect was 71 per cent., with 1110 cubic feet of water per minute; $10 \cdot 1 \times 64 = 646 \cdot 4$; $25 \cdot 424 \times 60 = 1525 \cdot 44$ the theoretical velocity of the water per minute. The diameter of wheel, $36 \cdot 5 \times 3 \cdot 1416 = 114 \cdot 668 \div 12 = 9 \cdot 55$ feet, the circumference of the wheel. Velocity of water $1525 \cdot 44 \div 9 \cdot 55 = 159 \cdot 73$ number of revolutions of the wheel per minute, provided the velocity of both were in unison. The wheel made $166 - 159 \cdot 73 = 6 \cdot 27$ revolutions of the wheel more than the velocity of the water theoretically. The area of inlet and issue of the wheel was 150 square inches $\div 1525 \cdot 44 = 229816 \div 144 = 1595 \cdot 944$ cubic feet per minute theoretically, 685·944 cubic feet per minute more than the actual quantity."