

BOARD OF COMMISSIONERS  
OF THE  
DEPARTMENT OF PUBLIC PARKS.

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1871.

ANDREW H. GREEN,	THOMAS C. FIELDS,
ROBERT J. DILLON,	
PETER B. SWEENEY,	Resigned, November, 1871.
HENRY HILTON,	" 22d " "
HENRY G. STEBBINS,	Appointed 22d " "
FREDERICK E. CHURCH,	" " " "

1872.

ANDREW H. GREEN,	ROBERT J. DILLON,
THOMAS C. FIELDS,	FREDERICK E. CHURCH,
HENRY G. STEBBINS,	. . Resigned, 28th May, 1872.
FRED. LAW OLMSTED,	. . Appointed, " " "

## ORGANIZATION.

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1871.

*President.*

PETER B. SWEENEY, . . . . To 22d November, 1871.  
HENRY G. STEBBINS, . . . . From " " "

*Vice-President.*

HENRY HILTON, . . . . To 22d November, 1871.  
(Vacancy.) . . . . From " " "

*Treasurer.*

HENRY HILTON, . . . . To 22d November, 1871.  
HENRY G. STEBBINS, . . . . From " " "

*Comptroller of Accounts.*

GEORGE M. VAN NORT.

1872.

*President and Treasurer.*

HENRY G. STEBBINS, . . . . To 28th May, 1872.  
FRED. LAW OLMSTED, . . . . From " " "

*Vice-President.*

ANDREW H. GREEN, . . . . From 15th May, 1872.

*Clerk to the Board.*

E. P. BARKER, . . . . From 30th January to 26th June.  
F. W. WHITTEMORE, . . . . From 26th June to 10th July.

*Secretary.*

F. W. WHITTEMORE, . . . . Office constituted 10th July, 1872.

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# REPORT.

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DEPARTMENT OF PUBLIC PARKS, }  
265 Broadway. }

To the Honorable A. OAKLEY HALL,

*Mayor of the City of New York :*

The Board of the Department of Public Parks respectfully presents the following report, covering, in accordance with your request, the period of one year, from May 1st, 1871, to May 1st, 1872, but also including accounts of certain of its operations previous to the first date, which have not been before reported on, and extending the accounts of others to June 15th, 1872, when the Department of Public Works assumed the same.

## I.—ORGANIZATION, PLANS AND FINANCES.

Soon after the period of the last Annual Report a public excitement in regard to the financial condition and prospects of the city began to prevail, the results of which, as it continued and swelled, caused constantly increasing embarrassment to the officers of the Department.

In November the President of the Department, Mr. Peter B. Sweeny, and the Treasurer, Mr. Henry Hilton, resigned those offices and also their positions as Commissioners of the Department. On the 23d of November Mr. Henry G. Stebbins, formerly President of the Central Park Commission, and Mr. Frederick E. Church were appointed Commissioners, and the same day Mr. Stebbins was elected President and Treasurer of the Department. A considerable reduction in the force of men employed was soon afterwards made, and a number of the works in progress were suspended. Radical changes in the executive organization were also effected.

In the expectation that the then newly elected Legislature of the State would enact a law under which the Department would be reorganized, the new Board was neither prepared to pursue all of the plans previously adopted, nor to enter upon undertakings the designs of which might soon come under the revision of other minds.

This expectation in regard to the action of the Legislature, though it has not been realized, was sustained to the end of the year.

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It has resulted, from the circumstances which have been thus referred to, that few important works, reported in progress at the end of last year, have been carried to completion, and that the larger part of the outlay of the

Department has been upon undertakings, the steady pursuit of which was of undoubted importance, and the plans of which were already established and in good part realized, such as the grading and superstructure of boulevards, avenues and streets, and reconstruction of walls and adjustment of slopes, made necessary by the revision of grades on the avenues and streets adjoining the Central Park. A statement of quantities of work done in the larger undertakings will be hereafter given.

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A detailed statement of the expenditure of the fiscal year ending January 1st, 1872, as divided among various classes of undertakings, and an abstract statement of expenditures from January 1st to May 1st, 1872, will be found appended.

In November, when the change of administration occurred, the liabilities of the Department amounted to upwards of \$1,620,000; the bills past due being \$448,853.38; and its bank account was overdrawn \$109,353.74.

The greater part of the funds since available to the Department have been applied to the liquidation of its previous indebtedness.

In November the accounts of the numerous works under charge of the Department were found to be much involved. This resulted in part from the fact that funds which had been raised and deposited with the Department applicable to one class of work, and which the law intended should be used for no other purpose, had been otherwise directed.



For example, \$300,000 had been obtained for the improvement of Avenue St. Nicholas by bonds which were to be met by assessments on property adjacent to Avenue St. Nicholas, but these funds, to the amount of \$96,399.46, had been applied, without authority of law, to other works of the Department.

It has not been possible during the period which has since elapsed to entirely rectify irregularities of this class: considerable progress has, however, been made toward that end.

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Certain plans and projects had in view by the Department in 1871 at present stand suspended, and one under which the work of construction had been begun without proceeding far, namely, that of transforming the North Meadow of the Central Park into a Zoological Garden, has been definitely abandoned.

The only other important change of plan decided upon by the new Board has been in relation to the buildings to be erected for the Metropolitan Museum of Art, and the American Museum of Natural History, respectively. After consultation with the Trustees of each of these institutions, it has been determined that the site for the first shall be fixed upon the locality proposed in the report of the Board of Commissioners of the Central Park in 1869, near Fifth avenue, between Seventy-ninth and Eighty-fourth streets, instead of on the ground formerly known as Manhattan square, which is set apart as the site of the Museum of Natural History.

Buildings of great extent and considerable elevation may be erected in each of these localities without breaking the principal landscapes, or interrupting any important line of communication upon the Park. A strong objection to them was recognized in each case to be their distance from the present centre of population of the city, but after prolonged and earnest discussion it was concluded to be impracticable to secure sites of sufficient extent to which this objection would apply in a much less serious degree, without too large a sacrifice of other and more permanent public interests.

## II.—THE SMALLER PARKS.

### UNION SQUARE.

The plans adopted last year for the smaller parks of the city were found generally so far advanced in construction that though in many respects very unsatisfactory to the new Board, no changes in them have been determined on. The pleasure ground of Union Square, though dismantled, had not, however, been so far reconstructed that a notable modification of its plan would necessarily involve a large waste of work already executed ; some changes in it have therefore been undertaken.

As an element in the plan of the city, Union square is chiefly interesting from the conjunction within it of several important thoroughfares. The number of times it is passed through by persons daily, is ordinarily about 200,000. Of these, 175,000 follow the streets and sidewalks, and of the

comparatively small number who walk through the pleasure ground, more than 96 per cent., in pleasant June weather, do so rapidly and by the most available course between the point at which they enter it and that at which they leave it. Under these circumstances, the removal of the fence and hedge which formerly shut in the ground may, perhaps, be justified, and it will be the endeavor of the Department, while greatly increasing the convenience of through passage, to also enhance the advantage which has been gained by this change, in presenting a refreshing gleam of simple greensward under an umbrageous grove to those who pass by on the outside. It is designed, in the autumn, to replant the ground with trees of the largest size that can be conveniently passed under the telegraph wires, and to allow long-lived and sturdy species to take the place of the ailantus and other succulent and fragile sorts with which all the smaller parks are at present too much encumbered.

(Certain other changes in Union square have been planned and are under consideration, but have not yet been adopted by the Board.)

### III.—THE CENTRAL PARK.

#### THE COST OF THE PARK.

Up to January, 1872, the Central Park had cost the city \$12,448,623.50 (\$5,028,844.10 for land, \$7,419,798.40 for construction).

## INDICATIONS OF THE VALUE OF THE PARK.

The outlay on the Park is chiefly an investment for future generations, the full realization of the ends in view having to wait the growth of its yet infant trees, and the extension of the city over ground now at waste. The value returnable for the outlay will correspond with the enhancement in value of life which results to those living in the city. Commercially speaking, such increased value of life began at an early day to be discounted in the market for real estate. It was and is the opinion of many that, as thus indicated, the prevailing estimate of it has been so excessive that, sooner or later, it would be surely followed by a ruinous revulsion. Although the gain in the happiness of life at present realized from the Park is yet small compared with what is to be looked for when its trees shall be of middle age and the city shall surround it, it is every year, as its foliage develops, and the building of the city advances northward, appreciably enlarging, and thus the element of mere speculation from year to year correspondingly lessens. The best indication of the progress of cool judgment, under these increasingly favorable conditions for its exercise, is consequently found in the comparative prices current of the real estate most affected by the Park. Up to the present time former estimates appear in this respect to be fairly sustained, and the financial condition of the city continues to be the better for all it has expended and is expending on the Park, as is indicated by the following statements of successive valuations of real estate in the three wards adjoining the Park,

since 1856, and of the amount of taxes raised in these wards :

WARD.	1856.	1857.	1858.	1859.	1860.	1861.
Twelfth .....	\$8,149,360	\$8,134,013	\$8,476,890	\$10,062,725	\$11,857,114	\$12,454,375
Nineteenth .....	8,041,183	8,558,624	10,971,775	12,621,894	16,830,472	16,986,152
Twenty-second ....	10,239,022	10,489,454	11,563,506	13,261,025	14,775,440	17,666,866
Totals.....	\$26,429,565	\$27,182,091	\$31,012,171	\$35,945,644	\$43,463,026	\$47,107,393

WARD.	1862.	1863.	1864.	1865.	1866.	1867.
Twelfth .....	\$13,100,385	\$14,134,825	\$15,493,575	\$18,134,805	\$18,381,650	\$24,940,737
Nineteenth.....	17,903,137	19,003,452	20,462,607	23,070,890	37,636,050	46,249,340
Twenty-second ....	18,041,857	18,281,222	18,756,276	19,824,265	24,052,715	30,915,240
Totals.....	\$49,045,379	\$51,419,499	\$54,712,458	\$61,029,960	\$80,070,415	\$102,105,317

WARD.	1868.	1869.	1870.	1871.		
Twelfth .....	\$28,143,005	\$42,648,865	\$48,869,700	\$50,362,925		
Nineteenth.....	53,608,040	59,912,633	71,319,420	77,771,930		
Twenty-second ....	36,175,185	47,663,245	53,146,920	57,666,340		
Totals.....	\$117,926,230	\$150,224,743	\$173,336,040	\$185,801,195		

Assessed value in 1871.....	\$185,801,195.00
“ “ 1856.....	26,429,565.00
Showing an increased valuation of.....	\$159,371,630.00

The rate of tax for the year 1871 is  $2.17\frac{7}{10}$ , yielding on the increased valuation above stated, an increased tax of \$3,469,-520.38.

The total expenditure for construction, from May 1st, 1857, to January 1st, 1872, is.....	\$7,419,798.40
The cost of land of the Park, to the city, is.....	5,028,844.10
Total cost of the Park to the city.....	<u>\$12,448,623.50</u>
Total increased tax in three wards.....	\$3,469,520.38
The annual interest on the cost of the land and improvement of the Park up to this time, at six per cent.....	\$746,917.41
Deduct one per cent. on \$399,300 of stock, issued at five per cent. 3,993.00	<u>742,924.41</u>
Excess of increased tax, in three wards, over interest on cost of land and improvements.....	<u>\$2,726,595.97</u>

#### VALUE OF THE PARK AS INDICATED BY USE.

Another form of statistics of some significance, with reference to the value already accruing to the city for its outlay on the Park, is that of the number of visitors. Of late years, much the larger part of the whole number of these must have been visitors many times before. Their continued resort to it, therefore, argues an experience of value, to appreciate the weight of which the ordinary cost of a visit, in time, trouble, and money outlay, must be considered.

That large part of the people of the city to whom, from the closer quarters in which, whether at work or at rest, they are most of the time confined, the Park would seem to promise the greatest advantage, cannot ordinarily leave their daily tasks, at the earliest, till after four o'clock, nor their homes—which, in the majority of cases, are yet south of Twenty-fifth street—before five. A visit to the Park, then, involves two trips by street cars, which, with

the walk to and from them, will occupy more than an hour. The street cars on all the lines approaching the Park are, at five o'clock, overcrowded, and most members of a family entering one below Twenty-fifth street, will be unable to get a seat for some time. Under these circumstances, the pleasure of a short visit to the Park, especially in the latter part of a hot summer's day, does not often compensate for the fatigue and discomfort which it involves. Accordingly it appears that, as yet, a majority of those who *frequent* the Park are people in comfortable circumstances, and largely of families, the heads of which have either retired from business or are able to leave their business early in the day. Except on Sunday, and Saturday afternoons and general holidays, the number of residents of the city who come to the Park in carriages is larger than of those who come by street cars and on foot. The value which the mass of the community find in it is, therefore, yet to be seen mainly in its use on other than working days.

The usual tabular statements in regard to the number of visitors entering the Park during the year are given in the appendix G, together with some new forms of comparative tables. These tables are based on returns made by the several gate-keepers of the number of carriages, ridden horses and visitors on foot entering the Park under their observation. Each of these returns represents either an actual count or the sum of a series of estimates, assumed to be set down at short intervals, by the gate-keeper during his nine-hours' period of duty, and each,

during the last year, has footed up about 600 on an average. The keepers likely to be most at fault in this duty are generally assigned to those gates at which the fewest visitors enter. As there have constantly been some gaps in the wall as well as some gateways at which no keepers were stationed, a few visitors have entered daily without passing under their notice. The returns represent the number of carriages entering, and in making up the tables of the number of visitors, it has been the rule to allow three persons as the rate for each vehicle. A recent very careful count proved that the actual rate on two days was 31 to 10. On some days, not a few carriages going beyond the Park are counted a second time on returning. When the throng is greatest and the keepers are much occupied with more important duties, they often lose their count, and under these circumstances are apt to somewhat overestimate. It is the duty of their officers to scrutinize the returns when handed in, and as far as practicable secure their correctness. Duplicate counts have been sometimes made and other means taken to test their accuracy. After weighing all probable occasions, both of excess and deficiency, in the returns, it does not appear likely that the tables are in any important degree deceptive.

#### THE NUMBER OF VISITS TO THE PARK.

The number of visits to the Central Park in 1871 was over ten millions, and probably a little short of eleven millions—the average number daily being about thirty



thousand, which is 23 per cent. larger than on any former year.

Throwing out extraordinary occasions (Sundays, holidays, concert days, &c.), the average number of visits made daily on foot was about 9,000, and of visits in carriages and on horseback, 14,000. The whole number of visits under ordinary circumstances, on other days than Sundays, holidays, and concert days, being, on an average, about 23,000.

About seven-tenths of all entered at the four southern gateways.

The number of women and girls is estimated to have been, in fair weather, forty per cent. of all; of children of both sexes, in summer, when the schools were closed, about forty per cent.

#### THE USE OF THE PARK ON SUNDAYS AND CONCERT DAYS.

Most of those who visit the Park on Sunday are cautious about getting wet, probably because they wear their better attire on that day, and the slightest threat of rain in the sky prevents a large attendance. The Sunday returns, therefore, vary greatly—running, during 1871, from 1,100, on an inclement day in winter, to 109,000, on a charming day in September.

The largest number of men, of women and of children, of rich and of poor, to be found on the Park, during the week, at any season will, if the weather is not unfavorable, commonly be about an hour before sunset, or in winter

somewhat earlier, on Sunday. If the weather is fine throughout the day, there are four times as many visitors on foot, and nearly twice as many in carriages, as on ordinary week days (not including concert days). In the finest summer weather, however, while the number in carriages remains rather less than double, the number on foot is from seven to eight times as large as usual.

The average number of foot visitors on ordinary days throughout the year is about 40 per cent. of all; the number on Sundays is about 60 per cent., being less than forty per cent. on inclement Sundays, while on the fine Sundays, exclusively, the number of foot visitors runs up to from 60 to 80 per cent. of all.

The average number of foot visitors on concert days in 1871 was 30,000; of all others 25,000. The average number of foot visitors on eight concert days, when the weather was especially inviting, was 42,000; and on the three finest 49,000. The average number of foot visitors on concert days was about fifty-four per cent. of the whole number.

It is somewhat remarkable that the number of Sunday visitors should be relatively so large. A great many shops, stores, offices and works are now usually closed at an early hour on Saturday; more public conveyances are plying on that day than on Sundays, and the band has for years played regularly on the Park, late in the day, on every fine summer Saturday afternoon, while music has never been allowed upon it on Sunday. The fact is, doubtless,

to be partly accounted for by the circumstance that all of Sunday is a general holiday from work, but chiefly, it may be presumed, by the custom among the working population of drawing their pay and buying their supplies for the week, and also among the men of having their social meetings chiefly on Saturday afternoon and evening. This custom makes the Saturday business of the majority of tradesmen the best of the week, and prevents them, with their shopmen, from going on that day to the Park, to which many consequently resort, usually with their families or female friends, on Sunday afternoon. The number of police arrests on Sundays in 1871 was in the proportion of  $2\frac{36}{100}$  to 100,000 visitors, being 55 per cent. less than the rate for the other days of the year.

#### THE FUTURE OF THE CENTRAL PARK.

It is obvious from the great difference in the relative numbers of people who visit the Park respectively in carriages and on foot on ordinary days, and on Sundays and holidays, that to the great body of citizens it is yet too difficult of access to be of use except on special occasions; a large majority of the visits of ordinary short daily recreation being made at present by the comparatively small number of those who can afford to use pleasure carriages or saddle-horses, or of those from whose houses a walk to it is easy and agreeable. The number of the latter, however, is increasing, and, unless the progress of building should be seriously checked, will soon increase greatly.

But little vacant space remains south of the Park, and any notable further enlargement of population will be accommodated by building on its flanks. As the Park takes up one-third of the breadth of this part of the island for a distance of two and a half miles, the centre of population will be brought rapidly nearer to it, and hundreds will find a walk to it rewarded where one does so now.

The Boulevard and other spacious driving ways now preparing near and beyond the Park, being far better adapted for display and for the recognition of acquaintances than the Park roads, will, when finished, have the effect of reducing the number of carriages relatively to that of persons on foot visiting the Park.

What is chiefly to be apprehended in the future of the Park is, first, the inconsiderate introduction of elements unfavorable to its rural and natural character, and consequently to its advantages for offsetting the special wear of the town, and, second, the impatience of visitors with regulations, and laxity of discipline in enforcing them, which are essential to the development and maintenance of this character, and of good order and harmony in its use. Observations on the first point will be found in the Appendix B, and on the second, under the following heading.

#### THE CONDUCT OF VISITORS.

It is obvious that a disposition to conduct unfavorable to order, neatness and decorum, has been more commonly indulged of late on the Central Park than formerly: the

pilfering of plants, flowers and other small matters has been also a growing evil, and a great increase in the number of arrests is recorded.

The proportion of arrests to the whole number of visitors was, in

1863,	as	$1\frac{99}{100}$	to	100,000.
1864,	"	$2\frac{22}{100}$	"	"
1865,	"	$1\frac{49}{100}$	"	"
1866,	"	$1\frac{33}{100}$	"	"
1867,	"	$1\frac{75}{100}$	"	"
1868,	"	$1\frac{49}{100}$	"	"
1869,	"	$1\frac{6}{100}$	"	"
1870,	"	$2\frac{30}{100}$	"	"
1871,	"	$4\frac{57}{100}$	"	"

It is not believed that offences, though more common, have increased in the ratio thus indicated, but that the police force has also been more ready to make use of occasions justifying arrests. Originally the keepers of the Park were not allowed to carry clubs, and were persuaded that their duty lay chiefly in the guidance and prompting of visitors against falling into offences. Gradually the force has assumed the character of an ordinary street police; its members have lost pride and interest, and consequently use less skill and tact, in their special park-duties, and, perhaps unavoidably, appeals are made more and more to fear of punishment as a means of maintaining order.

The 489 arrests made during the year were for the following causes :

Fast driving and riding, . . . . .	29
Breaking shrubs, &c., . . . . .	55
Thieving, . . . . .	11
Disorderly conduct, . . . . .	136
Insanity, . . . . .	5
Intoxication, . . . . .	198
Vagrancy, . . . . .	19
Picking pockets, . . . . .	6
Indecent exposure of person, . . . . .	8
Assault and battery, . . . . .	22

The following statement indicates the disposition made of those arrested :

Let go at station, . . . . .	114
Fined by Magistrate \$10 each, . . . . .	26
Fined by Magistrate \$10 each and held to bail to keep peace, . . . . .	17
Committed for ten days, . . . . .	69
Committed for trial, . . . . .	22
Committed to Blackwell's Island, . . . . .	51
Committed for examination, . . . . .	92
Discharged, . . . . .	98
	<hr/> 489

The cost of the police force of the Central Park, for a series of years, has been as follows:

1858, . . . . .	\$10,841 60
1859, . . . . .	24,404 55

1860,	.	.	.	.	.	\$32,829 90
1861,	.	.	.	.	.	30,940 17
1862,	.	.	.	.	.	45,840 78
1863,	.	.	.	.	.	46,890 99
1864,	.	.	.	.	.	55,578 64
1865,	.	.	.	.	.	64,010 73
1866,	.	.	.	.	.	70,711 96
1867,	.	.	.	.	.	75,700 61
1868,	.	.	.	.	.	73,981 48
1869,	.	.	.	.	.	71,985 85
1870,	.	.	.	.	.	82,163 35
1871,	.	.	.	.	.	109,854 99
1871 (including service of small parks),	.	.	.	.	.	148,013 93

## THE MORSE STATUE.

On the 10th June a statue in bronze, modeled by Byron M. Pickett, of Samuel Finley Breese Morse, was publicly displayed on the Central Park, in the presence of a large audience, including many persons who came from distant parts of the country to have part in the occasion.

Professor Morse was able to be present, but survived the honor but a few months, having died on the 2d April, 1872. The statue is a testimonial more especially of the respect and gratitude of the craft of which he was the founder, and its cost was wholly defrayed by contributions of those employed in the electric telegraph offices of the United States and British North American provinces.

## IV.—THE DISASTER TO TREES.

Visitors to the Central Park during the month of April will have observed that the leafing of deciduous trees and shrubs was much later, and the process much slower, than usual; some at the end of the month being still untinged with green, while on others only here and there was a bud breaking. On closer examination, it might be seen that nearly every individual of certain species of both deciduous and evergreen trees was absolutely dead; that most of some other species were shriveling in all their branches, the trunk only remaining sappy; while in many more there was no life above the root. Certain shrubs which had been wrapped in straw through the winter, had been killed with the rest. An enumeration of the losses of the Park, showing the species and genus of each of the killed, is appended. The total number is 7,853.

Trees throughout a large extent of country, from the Atlantic to beyond the Mississippi, and from Virginia to Canada, are reported to have been similarly affected. Whatever the causes, they appear to have operated rather less severely upon the Central Park than in most planted grounds. In nurseries in the central part of this State, on Long Island, in Pennsylvania and elsewhere, closely grown young trees in tracts of acres in extent are found to be every one dead.

Species which have heretofore been considered perfectly hardy, have been seriously affected, while some few which have been regarded as tender, and which, while young, are



usually protected during the winter, have, even when left wholly exposed, escaped uninjured. Thus the Hemlock Spruce (*Abies Canadensis*), the American Arbor Vitæ (*Thuja Occidentalis*), the American Red Bud (*Cercis Canadensis*), trees which grow naturally in large numbers in Canada, have suffered greatly, and this not only where they have been transplanted, but where they have grown wild from seed. Trees introduced from far northern forests of other parts of the world, as Alaska, Siberia and Norway, have also fared badly. On the other hand, numerous species originating in California, Japan and Western Asia, the south of Europe and the north of Africa, as the Sequoia (*gigantea*), the Menzies Spruce, the Cryptomeria (*japonica*), the Retinospora (*ericoides* and *pisifera*), the Cedar of Lebanon, the Oriental Spruce, the Eleagnus (*hortensis*) the African Cedar, all trees of special and valuable landscape qualities, have seldom suffered materially.

Numerous species which are naturally more common in districts much to the southward, as in the Carolinas, than here, have been less affected than many of the North, yet this cannot be said to be a general rule.

Trees, the roots of which lie mostly near the surface, appear to have suffered more than those considered to be their natural associates, the roots of which run deeper.

Trees, when standing where the soil was likely to be particularly dry on the surface and the frost must have penetrated to a great depth, appear to have suffered more

than others of the same species when standing where, for any reason, the surface was likely to have been moister.

Trees, upon the vital force of which a special demand had at any previous period of their history been made, as for the healing of wounds, have often died or come very late and partially into leaf, while others more sound, of the same species, standing near them, appear, though late in leafing, not to have suffered at all in health, and having once begun to grow, are luxuriant in every twig.

Trees, varying markedly from the type of their genus, as the Golden Yew (*Taxus baccata aurea*), and which are usually considered to be of feebler constitution, have sometimes suffered less than those of the normal character.

A much larger proportion of evergreen coniferous trees have been seriously injured than of deciduous trees.

Trees on the south-east side of others, deciduous or evergreen, have suffered less than those of the same species near by, which were fully exposed to the north-west.

The autumnal growth of many of the trees injured had been unusually prolonged, and their young shoots were not well ripened when winter set in.

A satisfactory inquiry as to the causes of the disaster can only be made after much more exact information shall have been received from various parts of the country affected, but as the Central Park Meteorological Observatory offers unusual advantages for the study of conditions of weather, a brief review of the record in respect to a

class of facts, which may be imagined to have a bearing upon the question, will here be given.

The mean temperature of the air during the months of January, February and March, 1872, was 29.71 degrees; the average for the same months of the last 33 years has been 32.96. The early winter was, as a whole, however, rather milder than usual, nor on any occasion was an extremely low temperature reached.

The snow-fall of January, February and March, 1872, was 9.87 inches. Generally, meteorological records do not discriminate between the amount of snow-fall and the total amount of water falling in all forms, but there is reason to believe that the average snow-fall at New York is not less than 50 inches.

Springs had been unusually low, and the surface of the ground, after being soaked, dried out more rapidly than usual, during all of the autumn and winter.

Owing to this fact, and to the absence or thinness of the usual snowy covering, notwithstanding the comparative mildness of the temperature of the air, frost penetrated to an unusual depth.

It is thought that corresponding conditions of moderate mean temperature, light snow-fall and rapidly drying surface, may have extended over most of the region in which trees have especially suffered. In the interior, to the north of New York, and in elevated districts to the southward, however, snow, though lighter than usual, often covered the ground during most of the winter.

The record of the month of March, taken by itself, is extraordinary, the mean temperature being registered at  $7\frac{3}{4}$  degrees below the average for the month for 33 years. In that period, as low a mean temperature for March has been recorded only in the year 1843.

The most important circumstance in the meteorological history of the month, however, is one which Mr. Draper, the Director, describes as follows:

“ On the 15th of March, there was a strong and bitter wind from the northwest, with sleet; the thermometer fell from 51 degrees to 17.2 degrees; every branch was covered with icicles, and the temperature not rising at 2 P.M. higher than 27 degrees, they did not melt for more than a day.

“ Some very interesting facts connected with this fall of temperature may be gathered by collating the records of our Observatory with the daily maps published by the War Department at Washington.

“ On the 13th of March, a wind coming from the north-west, appeared in all the regions between the Rocky Mountains and the Mississippi River. It lowered the temperature of the places over which it was passing by more than twenty degrees. It had a front of at least a thousand miles, and probably much more; its rate of movement was about 500 miles per day. On the 14th, it crossed the space between the Mississippi and the Alleghanies, and the 15th it passed over the line of the Alleghanies, and went out to sea. It therefore,

“ in the course of three days, moved over about 1,500 miles, “ and as soon as it had passed, the temperature in those “ regions successively rose to its average.”

The ground was still frozen to an unusual depth at the time of this occurrence, and probably but few plants had begun at all to awaken from their winter's sleep; nevertheless, the surface of unshaded and drained ground, especially where it had been recently cultivated and was consequently in a friable and specially porous condition, had been already somewhat dried and warmed. It is possible, then, that in many trees the sap had already begun to rise when the intensity of the cold became so great as to overcome the natural heat of the living tree, freeze the sap, and by the expansion of freezing break the tissues. That certain northern trees should have suffered so much more than others,—even than others of more southern origin,—may be accounted for on the supposition that they are better adapted to gain their nutriment near the surface and require a less degree of heat to excite them to activity, that their woody structure is less elastic, and also that possibly the first flow of sap in them is of a more watery and less saccharine, saline or gummy consistency, therefore subject to freezing at a higher temperature.

Assuming that the great and rapid reduction of temperature, aggravated by the fierceness of the wind, which in all probability swept the whole region in which the calamity has been experienced, between the 13th and the 15th of March, to be the more direct cause of it, it is

interesting to consider, that had the change been a few degrees greater and the wind a few miles an hour more rapid, it would not, improbably, have resulted in the complete extinction of certain species of trees indigenous to and heretofore regarded as among the most hardy in regions millions of square miles in extent. Of others only a few individuals of eccentric habits, as of deeper rooting or more compact fastigiate branching, would probably remain, and a decided tendency would thus have been fixed to the perpetuation of their species mainly in types previously rare.

## V.—THE SCIENTIFIC INSTITUTIONS OF THE CENTRAL PARK.

### THE METEOROLOGICAL OBSERVATORY.

A valuable report from the Director of the Meteorological Observatory of the Central Park will be found appended, containing tables and charts showing the temperature and pressure of the air, the direction, force, and velocity of the wind, and the amount of rain-fall from the beginning to the close of the year 1871. In addition to this record, the Director presents the results of scientific enquiry in regard to two questions of popular interest :

FIRST—As to the influence of the clearing of land on the increase or diminution of the rain-fall, and

SECOND—As to the change, if any, in the climate of New York or that of the Atlantic States.

His conclusions in regard to these points are based not only on the observations made under his own immediate direction, but on an examination of registers kept in Boston, Philadelphia, Charleston, and elsewhere, during a long series of years.

The result is, that, taking the average for periods of several years, the rain-fall, and the mean temperature of the winter months, do not appear to have appreciably changed within a century.

It may still be questioned, however, whether as a result of the removal of forests, the distribution of rain is not somewhat more irregular, and the liability greater to raging floods and severe droughts alternately. With the course and method of observation now taken it is probable that this question also may in a few years be determined.

Most of the instruments of the Observatory have been so arranged as to be open to public inspection, and it is satisfactory to learn from the Director that nearly every day several hundred visitors to the Park find intelligent recreation in watching their indications and studying their construction. As in former years, the records of the Park Observatory have been received in the courts of law as conclusive upon various questions in dispute.

#### THE MUSEUM OF NATURAL HISTORY.

During every week-day of the past year the collection of the American Musuem of Natural History on the

Park has been open to the public, and the Trustees report that the attendance on many days may be estimated at 10,000. By joint action of the Park Department and the Trustees of the Museum, Monday and Tuesday in each week is reserved for special students and for teachers and pupils of public schools; the object of this arrangement being to furnish opportunities for the explanation of specimens to classes, and thus to make the Museum an important part of the educational system of the city.

The old building in which the collection is exhibited was not originally intended to be used for any such purpose, and the arrangements will necessarily be of a somewhat temporary character until the proposed new building is erected. The collections are constantly increasing in value, partly by purchase and partly by presents from those interested in the success of the institution.

The remaining part of the Verreaux collection purchased in Paris, which was delayed by the Franco-Prussian war and subsequent seizure of the French Capital, has been received, and safely deposited with the other Museum property in the Park.

A valuable collection of Corals has been purchased of Captain Medary, U. S. A. The rarest specimen in the large collection of birds belonging to the Museum, the Great Auk, now extinct, has been presented during the past year by Robert L. Stuart, Esq. The collection of over 20,000 specimens of Lepidoptera, presented by the late



Coleman T. Robinson, Esq., is being carefully re-arranged. A complete skeleton of the Irish Fossil Deer, found in the peat bogs near Limerick, has been presented by Professor Bickmore, and gifts of specimens from forty other persons, in different parts of the country, have been received.

A department is now forming of Economic Geology, to include specimens of stones suitable for building and ornamental purposes, and another of Economic Botany, to contain specimens of the various native and imported woods adapted for use in this country.

The new subscriptions received by the Trustees amount to \$22,000, and the institution appears to be steadily gaining ground on all sides. Its present condition reflects most honorably upon the judicious management of the Trustees, and fully justifies the liberality of its subscribers, and the aid given and promised it by the State and City.

#### THE MENAGERIE.

Since the Central Park was first opened, various animals have from time to time been presented to those having it in charge, and pending the undertaking of permanent arrangements, a series of neat and substantial, though temporary, structures for their accommodation, has been established. Most of these adjoin the old arsenal building, in which the valuable collections of the Museum of Natural History are also temporarily deposited.

Although these lodgings are much less convenient than is desirable, both with respect to the healthful keeping of the animals and the study of them by visitors, they are as yet the best of the class on the continent, and while the generally fine condition of the animals testifies to the watchful and discreet management of the Director, whose report is appended, it justifies confidence in the success in this climate of an establishment which shall compare favorably in the character of its provisions with those which are found in the larger cities of Europe.

Although at present the number of species exhibited is small, and the method of exhibition, except of the grazing animals in summer, is generally little better than that of the familiar cages on wheels, the interest taken in the collection is great and increasing, and it is obviously not without value in adding to the attractions of the city to strangers.

The reasonable confidence which exists that animals entrusted to the care of the Department will be kindly and judiciously treated, not only encourages frequent gifts and loans to the city, from private owners of valuable specimens, but induces the proprietors of traveling shows and others to allow parts of their stock to be exhibited gratuitously to the public for considerable periods. A temporary residence upon the Park has in these cases often resulted in a much improved condition of the visitors.

During a part of the last year there were twelve lions on exhibition, including the Asiatic and African species,

male and female, old and young. Two of them only were previously in the possession of the Department, eight were loaned for exhibition, and three cubs were born on the Park.

The Department has received specimens of many of the more valuable foreign tropical animals, and the most desirable additions to its collection would now be from species found chiefly on our own continent. Of the various American deer, only two—the common Virginia deer and the American elk—are represented in the Park. Contributions of the black-tailed deer, the mule deer, the Mexican deer, the reindeer, the moose, the caribou, and the prong-horned antelope, would be much valued. Specimens of almost any of the smaller animals of the Far West, as the squirrels, gophers, and rabbits or hares, would be desirable acquisitions. Thirteen species of foxes are enumerated as peculiar to the continent, of which but two—the common red and grey fox of the East—have as yet reached the Park. The Department usually pays the transportation expenses of animals given to it, and it is found that when sent by express, with proper directions as to the supply of air, water and food, they come by rail and boat from the more distant parts of the country with safety.

## VI.—HARLEM RIVER AND WESTCHESTER.

Considerable progress has been made during the year in the matter of examining the bridges across the Harlem

river, and making soundings, borings and plans for new structures.

The bridge at McComb's Dam, having been found to be in an unsafe condition, has been rebuilt, and the bridge at Third avenue repaired and put in working condition.

A preliminary plan for a tunnel under the Harlem river, at the head of Seventh avenue, has been prepared, and several plans have also been received from bridge constructors, in pursuance of invitations from the Department, for iron draw-bridges.

Approximate estimates have been made of the cost of building the suggested tunnel and draw-bridges.

The sounding of the Harlem river and Spuyten Duyvil Creek has been nearly completed from McComb's Dam Bridge to the Hudson river, defining the boundary line between New York and Westchester County, and establishing connections between the surveys and improvements on the New York side and those in Westchester County.

Plans have been adopted and filed for the laying out of about 3,000 linear feet of streets in the immediate vicinity of High Bridge.

The surveys in Westchester County, under the control of the Department, are approaching completion.

## VII.—CONCRETE PAVEMENTS.

This Department has laid, chiefly in the year 1871, a

large extent of concrete pavement. Various patent compositions and processes have been employed for this purpose, all of which were expected to be improvements upon the ordinary stone and gravel roads and walks previously used. On inspection, at the close of the last winter, the condition of but a very small part of all these pavements was found to be satisfactory. The surface of the walks which had been laid more than one year was disintegrated in whole or in frequent patches, and it was evident that an extensive reconstruction, or large repair, was immediately necessary.

A number of gentlemen connected with the public works of Philadelphia, Washington and Brooklyn were invited by the Department to make an examination and study of the subject, and a report of certain conclusions reached by them has been made public. It was ascertained that over one hundred patents for bituminous concretes, especially designed for the surface of walks and roads, had been issued from the U. S. Patent Office, the specifications of most of which provide for an admixture of substances, the only effect of which would be detrimental to the purpose in view. The reason of the failure of others is found either in the fact that the bituminous substance used contains different and unknown proportions of accidental impurities—some positively harmful, and some simply useless—or in the fact that greater judgment and skill is in some parts exercised by the workmen engaged in the manipulation of the combination than in others. The

practicability of obtaining here a concrete pavement similar in character to those which have been found for years past so satisfactory in Paris is not doubted, but as yet no method by which an equally valuable result can be accomplished, except at a cost which would forbid its general application, has been completely established. A great deal of enterprise is now directed to the determination of such a method, and in several cases with results which at least are promising. It is believed that, as experience reveals the causes of imperfection, these will be gradually overcome. The Department will proceed with caution in the further trial of this class of pavements. Thus far it must be admitted that no satisfactory roads or walks for pleasure-grounds have been found less expensive in original construction or in maintenance than those originally laid from twelve to fourteen years ago on the Central Park, and which were composed solely of broken stone and gravel.

#### VIII.—WORKING FORCES AND WAGES.

Statements will be found appended (Appendix J) of the average working force per day employed on the works of the Department during the year, of the number of days' work for which payments have been made, and the rate of pay, together with a comparative statement of of the rates of wages paid by the Department for all classes of workmen since 1857.

From the last of these statements it will be seen that

the lowest wages paid on the works of the Department were in the winter of 1861-62, and that in the succeeding period of ten years wages have been advanced as follows:

Laborers, from 9 to 25 cents an hour, or 178 per cent.

Carts, from  $17\frac{1}{2}$  to 45 cents an hour, or 157 per cent.

Carpenters, from 16 to 50 cents an hour, or 212 per cent.

Masons and Stone-cutters, from  $16\frac{1}{2}$  to 56 cents an hour, or 239 per cent.

Adopted by Board, August 21st, 1872.

FRED. LAW OLMSTED,

*President and Treasurer.*

F. W. WHITTEMORE,

*Secretary.*

APPENDIX A.

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FINANCIAL STATEMENTS.



# FINANCIAL STATEMENTS.

## I.

### STATEMENT

*Showing the Receipts and Expenditures of the Department for the year 1871.*

#### SUMMARY.

Cash balance, December 31st, 1870.....	\$82,028 18
The total receipts for the year ending December 31st, 1871, were.....	4,384,293 85
By balance due Tenth National Bank, overdraft, December 31st, 1871.....	71,717 44

Total.....	<u>\$4,538,039 47</u>
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The total expenditures for the year ending December 31st, 1871, were.....	<u>\$4,538,039 47</u>
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#### RECEIPTS AND DISBURSEMENTS.

##### CENTRAL PARK CONSTRUCTION ACCOUNT.

Balance, December 31st, 1870.....	\$51,521 04
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The total receipts for the year ending December 31st, 1871, were as follows:

From the issue of stock by the City of New York.....	\$950,000 00
“ interest on deposits to April 1.....	475 41

By balance, December 31st, 1871.....	950,475 41
	94,141 85

	<u>\$1,096,138 30</u>
--	-----------------------

The total expenditures for the year ending December 31st, 1871, were as follows:

Salaries of officers, clerks, engineers, architects, draughtsmen, &c....	\$20,714 63
Labor—paid foremen, laborers, mechanics, carts, teams, &c.....	356,452 29
Materials of construction, tools, contract-work on buildings, walls, &c.,	210,917 16
Stationery, printing and drawing materials.....	2,100 77
Incidental expenses.....	5,953 45
	<u>\$1,096,138 30</u>

The total receipts on this account, from May 1st, 1857, to December 31st, 1871, were as follows :

From the issue of stock by the city of New York.....	\$7,277,297 48
“ other sources.....	48,359 07
By balance, December 31st, 1871.....	94,141 85
	<u>\$7,419,798 40</u>

The total expenditures from May 1st, 1857, to December 31st, 1871, were.....

\$7,419,798 40

CENTRAL PARK MAINTENANCE ACCOUNT FOR THE YEAR 1870.

To balance, December 31st, 1870..... \$8,982 16

The expenditures on this account, in addition to those in the report of last year, were as follows :

Pay-roll of park-keepers for the month of December, 1870..... 6,291 82

By balance carried to maintenance, 1871..... \$15,273 98

CENTRAL PARK MAINTENANCE ACCOUNT FOR THE YEAR 1871.

To balance brought from maintenance, 1870, December 31, 1870..... \$15,273 98

The expenditures on this account from January 1 to December 31, 1871, were as follows :

	LABOR.	MATERIALS.	TOTALS.
Roads—Cleaning.....	\$34,118 88	\$2,712 11	\$36,830 99
Roads—Repairing.....	7,310 77	23,169 20	30,479 97
Bridle roads—Cleaning.....	3,929 47	286 80	4,216 27
Bridle roads—Repairing.....	512 43	25 20	537 63
Walks—Cleaning.....	18,337 80	561 37	18,899 17
Walks—Repairing.....	2,223 95	2,653 67	4,877 62
Plantations.....	51,548 49	13,775 48	65,323 97
Turf.....	29,303 07	906 91	30,209 98
Water.....	1,941 37	.....	1,941 37
Ice.....	14,975 42	5,204 17	20,179 59
Irrigation.....	5,442 07	1,664 93	7,107 00
Transverse roads.....	2,083 76	118 79	2,202 55
Masonry and bridges.....	10,458 78	2,452 56	12,911 34
Tools.....	10,660 85	2,353 48	13,014 33
Surface drainage.....	1,621 58	.....	1,621 58
Buildings.....	36,108 16	6,984 64	43,092 80
Manure.....	3,493 48	.....	3,493 48
Park and gate-keepers' wages, uniforms, &c.....	104,035 27	978 95	105,014 22
Special park-keepers' wages.....	4,840 77	.....	4,840 77
Music.....	1,650 00	.....	1,650 00
Stationery, printing and advertising.....	4,036 46	.....	4,036 46
Seats, signs, &c.....	2,141 60	3,402 52	5,544 12
Miscellaneous.....	16,029 80	4,216 02	20,245 82
Trees and plants.....	4,639 96	.....	4,639 96
Proportion of salaries.....	15,000 00	.....	15,000 00

457,910 99

\$473,184 97

Received from the City of New York, for maintenance of the Park, for the year 1871.....	\$186,000 00	
“ from sale of trees and plants to city parks.....	9,217 25	
“ from license to sell refreshments.....	6,906 80	
“ from license to run-boats for the year 1870.....	1,000 00	
“ from license to hire skates and chairs.....	250 00	
“ from license to sell photographs.....	56 40	
“ from sale of grass.....	3,871 00	
Received from pound receipts.....	339 05	
“ from sale of old materials, barrels, &c....	1,636 28	
“ from Morse Testimonial Committee, for labor furnished....	40 59	
“ from Scott Monument Association, for labor furnished....	118 83	
“ from rent of room at 31 Nassau street.....	100 00	
“ for gas used at Mt. St. Vincent.....	137 10	
“ for removing broken vehicles.....	117 00	
By balance, December 31st, 1871.....	263,394 67	
		<u>\$473,184 97</u>

## MUSEUM AND OBSERVATORY, MAINTENANCE OF.

(Chapter 595, Laws of 1869.)

By balance, December 31st, 1870.....		\$9,133 96
The receipts on this account, from January 1st to December 31st, 1871, were as follows :		
From sale of sheep, &c.....	\$1,326 09	
“ sale of sheep-skins.....	7 00	
“ sale of animals.....	969 20	
		<u>2,302 29</u>
By balance, December 31st, 1871.....		43,869 74
		<u>\$55,305 99</u>

The expenditures on this account, from January 1st to December 31st, were as follows :

Museum.....	\$11,358 85	
Gallery of Art.....	4,844 15	
Meteorological Department.....	5,214 37	
Care and keep of animals.....	30,149 72	
Purchase of animals, birds, &c.....	3,593 30	
Stationery and printing.....	145 60	
		<u>\$55,305 99</u>

## CITY PARKS AND PLACES, MAINTENANCE OF.

The expenditures on this account, from January 1st to December 31st, 1871, were as follows :

Labor—Amount paid laborers, sweepers, gardeners, carts, teams, &c.....	\$46,452 53	
Tools and materials.....	1,683 61	
Trees and plants.....	205 48	
Carried forward.....		<u>\$48,341 62</u>

Brought forward.....	\$48,341 62
Park-keepers' wages and uniforms.....	40,803 11
Music.....	6,894 00
Salaries of superintendent, clerk, &c.....	5,603 30
Stationery, printing and advertising.....	1,046 77
Miscellaneous.....	2,565 00
Proportion of salaries.....	5,000 00
	<u>\$110,253 80</u>

Received from sale of old material, &c.....	\$3,977 26
By balance, December 31st, 1871.....	106,276 54
	<u>\$110,253 80</u>

## ROADS AND AVENUES, MAINTENANCE OF.

The expenditures on this account, for the year ending December 31st, 1871, were as follows :

Pay of foremen, laborers, carts, &c.....	<u>\$24,766 06</u>
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## MUSEUM AND OBSERVATORY, CONSTRUCTION OF.

(Chapter 595, Laws of 1869.)

To balance, December 31st, 1870.....	\$47,001 32
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The expenditures on this account, from January 1st to December 31st, 1871, were as follows :

Buildings for Zoological collection.....	\$59,036 41
Palæozoic Museum.....	2,654 82
Museum buildings.....	45,310 51
Animal cages.....	8,733 06
Gallery of Art.....	1,159 65
Meteorological Department.....	575 00
	<u>117,469 45</u>
	<u>\$164,470 77</u>

Received from the issue of Museum and Observatory Stock by the City of New York during the year ending December 31st, 1871.....	\$150,000 00
By balance, December 31st, 1871.....	14,470 77
	<u>\$164,470 77</u>

## PARKS AND PLACES, IMPROVEMENT OF.

Received from the issue of Stock by the City of New York, from January 1st to December 31st, 1871.....	\$1,000,000 00
Received from sale of wood.....	2 00
Carried forward.....	<u>\$1,000,002 00</u>

Brought forward.....	\$1,000,002 00
To balance, December 31st, 1870.....	\$52,752 25
The expenditures on this account, from January 1st to December 31st, 1871, were as follows:	

*City Hall Park.*

Pay of laborers, mechanics, carts, teams, &c.....	\$11,765 80
Materials of construction and tools.....	11,976 67
Surveys, engineers, &c.....	1,402 87
Paving walks, &c.....	7,190 42
Paving streets surrounding park.....	16,946 62
Stone for fountain.....	4,500 00
Lamps.....	768 50
Trees and plants.....	246 40
Advertising.....	89 40
	<hr/> 54,886 68

*The Battery.*

Pay of laborers, mechanics, carts, &c.....	\$80,551 71
Material of construction and tools.....	30,046 67
Sea-wall and boat-basins.....	29,605 00
Paving walks, &c.....	52,087 32
Paving streets surrounding park.....	35,516 82
Surveys, engineers, draughtsmen, &c.....	3,927 24
Ladies' cottage and keeper's house.....	2,292 50
Trees and plants.....	4,366 33
Advertising sale of material, &c.....	83 60
	<hr/> 238,477 19

*Tompkins Square.*

Pay of laborers, carts, teams, &c.....	\$16,319 49
Materials of construction and tools.....	13,623 68
Surveys, engineers, &c.....	546 16
Paving walks, &c.....	13,802 65
Keeper's house.....	1,217 50
Lamp-posts and lamps.....	1,937 25
Trees and plants.....	1,154 00
	<hr/> 48,600 73

*Mount Morris Park.*

Pay of laborers, teams, carts, &c.....	\$35,521 96
Materials of construction and tools.....	7,550 74
Paving walks, &c.....	12,142 87
Trees and plants.....	1,573 23
Surveys, engineers, &c.....	383 84
	<hr/> 57,172 64

Carried forward.....	\$451,889 49	\$1,000,002 00
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Brought forward..... \$451,889 49 \$1,000,002 00

*Washington Square.*

Pay of laborers, teams, carts, &c.....	\$78,355 08	
Materials of construction and tools.....	30,843 09	
Paving roadway.....	28,600 00	
Paving walks.....	32,526 97	
Lamps and lamp-posts.....	6,002 25	
Surveys, engineers, &c.....	3,031 50	
Trees and plants.....	1,668 10	
	<hr/>	181,026 99

*Canal Street Ground.*

Pay of laborers, carts, &c.....	\$148 72	
Materials and tools.....	710 28	
Surveys.....	100 00	
Trees and plants.....	57 00	
Railing.....	883 13	
	<hr/>	1,899 13

*Park Avenue Grounds.*

Pay of laborers, carts, teams, &c.....	\$5,831 64	
Materials of construction and tools.....	2,346 98	
Railings.....	765 03	
Trees and plants.....	1,051 45	
Lamps.....	24 00	
Surveys, &c.....	21 11	
	<hr/>	10,040 21

*Union Square.*

Pay of laborers, teams, mechanics, &c.....	\$24,817 27	
Materials of construction and tools.....	7,047 16	
Paving walks.....	3,728 78	
Surveys, engineers, &c.....	1,368 54	
Lamp-posts.....	1,450 00	
Trees and plants.....	192 00	
	<hr/>	38,603 75

*Reservoir Park.*

Pay of laborers, carts, teams, &c.....	\$60,655 45	
Materials of construction and tools.....	3,344 62	
Curb-stone.....	5,936 40	
Paving walks.....	15,554 00	
Lamp-posts and posts.....	2,267 00	
Surveys, engineers, &c.....	2,541 50	
Trees and plants.....	270 00	
	<hr/>	90,568 97

Carried forward.....\$774,028 54 \$1,000,002 00

Brought forward.....\$774,028 54 \$1,000,002 00

*Madison Square.*

Pay of laborers, carts, teams, &c.....	\$53,021 66	
Materials of construction and tools.....	15,427 11	
Paving roadway.....	6,000 00	
Lamps.....	3,250 00	
Trees and plants.....	350 45	
Surveys, engineers, &c.....	3,041 88	
	<hr/>	81,091 10

*Stuyvesant Parks.*

Pay of laborers, carts, &c.....	\$802 91	
Tools and materials.....	805 77	
Surveys, &c.....	325 00	
	<hr/>	1,933 68

*Sixth Avenue Grounds.*

Pay of laborers, carts, &c.....	\$453 92	
Materials and tools.....	699 73	
Plants.....	49 00	
	<hr/>	1,202 65

*Duane Street Ground.*

Pay of laborers, &c.....	\$407 86	
Materials and tools.....	138 37	
Surveys.....	100 00	
Railings.....	655 00	
Plants.....	53 00	
	<hr/>	1,354 23

*Beach Street Ground.*

Pay of laborers, &c.....	\$135 40	
Materials, &c.....	36 56	
Surveys.....	100 00	
Plants.....	21 00	
	<hr/>	292 96

*Bowling Green.*

Pay of laborers, carts, &c.....	\$128 79	
Materials.....	10 00	
Plants.....	10 00	
Surveys.....	12 50	
	<hr/>	161 29

Carried forward.....\$860,064 45 \$1,000,002 00

Brought forward.....\$860,064 45 \$1,000,002 00

*Five Points Place.*

Surveys.....100 00

*Cooper Institute Park.*

Pay of laborers, carts, &c.....	\$782 31	
Materials and tools.....	513 84	
Trees and plants.....	184 00	
	<hr/>	1,480 15

*Abingdon Place.*

Pay of laborers, &c.....	\$62 65	
Surveys.....	100 00	
	<hr/>	162 65

*Christopher Street Place.*

Pay of laborers.....9 06

*Jackson Square.*

Pay of Mechanics, laborers, carts, &c.....	\$6,933 59	
Materials and tools.....	151 86	
Curb-stone.....	1,031 11	
Lamp-posts.....	150 00	
Surveys, engineers, &c.....	215 11	
	<hr/>	8,481 67

*Grand Street Place.*

Pay of laborers, carts, mechanics, &c.....	\$2,861 08	
Materials and tools.....	593 65	
Curb-stone.....	816 24	
Lamp-posts.....	125 00	
Plants.....	10 50	
Surveys, engineers, &c.....	370 92	
	<hr/>	4,777 39

*High Bridge Park.*

Pay of laborers, carts, &c.....	\$580 06	
Surveys, engineers, &c.....	1,644 92	
	<hr/>	2,224 98

Carried forward.....\$877,300 35 \$1,000,002 00



Brought forward..... \$877,300 35 \$1,000,002 00

*Morningside Park.*

Pay of laborers, &c.....	\$84 04	
Materials.....	50 98	
Surveys, engineers, &c.....	3,438 95	
		3,573 97

*Riverside Park.*

Surveys, engineers, &c.....	\$3,947 38	
Materials.....	32 67	
		3,980 05

*Circle, 59th Street and 8th Avenue.*

Transferred to this account.....	8,913 55
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*Public Place, 59th Street and 5th Avenue.*

Transferred to this account.....	18,684 49
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*Miscellaneous.*

Proportion of salaries.....	\$15,000 00	
Incidental expenses.....	6,000 00	
Stationery and printing.....	2,000 00	
		23,000 00
		935,452 41

Balance, December 31st, 1871.....	\$64,549 59
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CIRCLE, 59TH STREET AND 8TH AVENUE.

*(Chapter 757 of the Laws of 1866.)*

By balance, December 31st, 1870.....	\$4,245 58
Received by transfer from Parks and Places Fund.....	8,913 55
	\$13,159 13

The expenditures on this account, from January 1 to December 31st, 1871, were as follows:

Pay of laborers, carts, teams, &c.....	\$1,587 30	
Materials of construction.....	6,169 59	
Altering railroad tracks.....	4,402 49	
Lamps and lamp-posts.....	999 75	
		\$13,159 13

PUBLIC PLACE, 59TH STREET AND 5TH AVENUE.

*(Chap. 697 of the Laws of 1867.)*

By balance, December 31st, 1870.....	\$3,529 27
Received by transfer from Parks and Places Fund.....	18,684 49
	\$22,213 76

The expenditures, from January 1 to December 31st, 1871, were as follows:

Pay of laborers, teams, carts, &c.....	\$12,010 45	
Materials of construction and tools.....	2,603 31	
Stone for fountain.....	6,500 00	
Lamps and lamp-posts.....	1,100 00	
		<u>\$22,213 76</u>

ABOVE 155TH STREET AND PUBLIC DRIVE.

(Chap. 565 of the Laws of 1865.)

By balance, December 31st, 1870.....		\$5,854 39
The expenditures on this account, from January 1st to December 31st, 1871, were as follows:		
Surveys, engineers, draughtsmen, &c.....	\$3,060 60	
Materials, &c.....	56 50	
		<u>3,117 10</u>
Balance, December 31st, 1871.....		<u>\$2,737 29</u>

WEST SIDE IMPROVEMENT.

(Chap. 550 of the Laws of 1866, and Chap. 697 Laws of 1867.)

By balance, December 31st, 1870.....		\$2,777 34
The expenditures, from January 1st to December 31st, 1871, were as follows:		
Surveys, engineers, &c.....		813 66
Balance, December 31st, 1871.....		<u>\$1,963 68</u>

EAST SIDE IMPROVEMENT.

(Chap. 626 of the Laws of 1870.)

To balance, December 31st, 1871.....		<u>\$4,097 29</u>
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NINTH AVENUE.

(Chap. 288, Laws of 1868.)

By balance, December 31st, 1870.....		<u>\$10,000 00</u>
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No payments have been made on this account during 1871.

BROADWAY WIDENING, FROM 34TH TO 59TH STREET.

(Chap. 880, Laws of 1866.)

By balance, December 31st, 1871.....		<u>\$1,218 00</u>
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ADAPTING WEST LINE OF PARK TO NEW GRADE OF 8TH AVENUE.

Chap. 632, Laws of 1866.

By balance, December 31st, 1871.....		<u>\$2,165 47</u>
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## HARLEM RIVER AND SPUYTEN DUYVIL IMPROVEMENT.

*Chap. 826 of the Laws of 1869, and Chap. 797 of the Laws of 1870.*

By balance, December 31st, 1870.....		\$8,452 18
The receipts during the year ending December 31st, 1871, were as follows:		
From issue of stock by the City of New York.....	\$30,000 00	
“ sale of old lumber, Macomb’s Dam Bridge.....	291 66	
“ sale of old lumber, Harlem Bridge.....	13 90	
“ sale of old lumber, Fordham Bridge.....	7 00	
		30,312 56
By balance, December 31st, 1871.....		10,216 81
		<u>\$48,981 55</u>

The expenditures on this account, from January 1st to December 31st, 1871, were as follows:

Surveys, soundings, &c.....	\$13,560 82	
Materials of construction.....	684 32	
Drilling and hoisting engines, &c.....	1,177 75	
Stationery and advertising.....	248 93	
Incidental expenses.....	430 19	
		\$16,102 01

*Macomb’s Dam Bridge, Repairs of.*

Pay of mechanics, laborers, &c.....	\$14,929 73	
Materials of construction and tools.....	12,352 97	
Pay of bridge-keeper and inspector.....	2,125 63	
Incidental expenses.....	144 94	
		29,553 27

*Harlem Bridge, Repairs of.*

Materials of construction.....	\$752 79	
Pay of laborers and mechanics.....	49 10	
Pay of bridge-keepers.....	1,383 00	
Incidental expenses.....	31 52	
		2,216 41

*Fordham Bridge, Repairs of.*

Lumber and materials.....	\$367 13	
Pay of mechanics, &c.....	356 94	
		724 07

*King’s Bridge, Repairs of.*

Lumber and materials.....		378 65
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*Canal Bridge, Repairs of.*

Lumber.....	7 14	
		<u>\$48,981 55</u>

## BOULEVARD, FROM 59TH STREET TO 155TH STREET.

(Chap. 565 of the Laws of 1865.)

By balance, December 31st, 1870..... \$28,075 15

The receipts on this account, from January 1st to December 31st,  
were as follows:

From the City of New York.....	\$725,000 00	
Sale of logs.....	34 00	
Sale of old roller-wheels, &c.....	50 97	
		<u>725,084 97</u>
		\$753,160 12

The expenditures on this account, from January 1st to December 31st, 1871, were as follows:

Pay of foremen, laborers, rockmen, teams, &c.....	\$399,681 50	
Materials of construction and tools.....	133,845 35	
Stone-breaker gangs.....	37,946 43	
Curb, flagging, &c.....	83,207 24	
Surveys, engineers, &c.....	6,756 53	
Lamps and lamp-posts.....	3,291 75	
Stationery and printing.....	2,000 00	
Proportion of salaries.....	15,000 00	
Incidental expenses.....	5,545 22	
		<u>687,274 02</u>
Balance, December 31st, 1871.....		<u>\$65,886 10</u>

## SEVENTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

(Chap. 275 of the Laws of 1864.)

Received from the City of New York, from January 1st to December 31st, 1871..	\$325,000 00
By balance, December 31st, 1871.....	<u>42 47</u>
	<u>\$325,042 47</u>

The expenditures on this account, during 1871, were as follows:

To balance, December 31st, 1870.....	\$5,211 05	
Regulating and grading—		
J. H. Sullivan, contractor..	\$63,299 50	
Thomas Crimmins “ ..	39,374 74	
Surveys, engineers, &c.....	787 32	
Materials of construction...	2,488 76	
		<u>105,950 32</u>
Superstructure—		
J. H. Sullivan, contractor.....	\$107,395 00	
Curb and flagging.....	49,253 48	
Pay of laborers, teams, carts, &c....	29,779 15	
Materials of construction, &c.....	8,556 64	
Surveys, engineers, &c.....	2,296 83	
Proportion of salaries.....	12,000 00	
Stationery and printing.....	600 00	
Incidental expenses.....	4,000 00	
		<u>213,881 10</u>
		<u>\$325,042 47</u>

## SIXTH AVENUE, FROM CENTRAL PARK TO HARLEM RIVER.

*(Chap. 564 of the Laws of 1865.)*

Balance, December 31st, 1870.....		\$80,655 83
Received from the City of New York :		
from January 1st to December 31st, 1871.....	\$250,000 00	
from sale of old cottage.....	35 00	
from sale of old curb-stone.....	33 22	
		<u>250,068 22</u>
		\$330,724 05

The expenditures, from January 1st to December 31st, 1871, were as follows :

Regulating and grading—		
Thomas Crimmins, contractor.....	\$3,500 00	
Superstructure—		
J. H. Sullivan, contractor.....	\$113,890 60	
Curb and flagging.....	24,465 00	
Materials of construction and tools.....	87,406 61	
Pay of laborers, carts, teams, etc.....	41,300 52	
Surveys, engineers, etc.....	3,553 93	
Salaries of officers and clerks.....	10,000 00	
Stationery and printing.....	500 00	
Incidental expenses.....	3,000 00	
Lamps.....	594 50	
		<u>284,711 16</u>
		288,211 16
Balance, December 31, 1871.....		<u>\$42,512 89</u>

## AVENUE ST. NICHOLAS, FROM CENTRAL PARK TO ONE HUNDRED AND FIFTY-FIFTH STREET.

*(Chapter 367 of the Laws of 1866.)*

Received from the City of New York, from January 1st to December 31st, 1871,	\$300,000 00
To balance, December 31, 1870.....	\$6,399 31
The expenditures, from January 1st to December 31st, 1871, were as follows :	

Regulating and grading—		
J. P. Cummings, Jr., contractor.....	\$89,355 30	
Pay of laborers, carts, teams, etc.....	44,407 69	
Materials of construction and tools.....	32,275 28	
Surveys, engineers, &c.....	3,523 00	
Salaries of officers, clerks, &c.....	8,000 00	
Stationery and printing.....	400 00	
Incidental expenses.....	3,041 00	
		<u>181,002 27</u>
Superstructure—		
Pay of laborers, teams, carts, &c.....	\$5,081 29	
Materials, curb, flagging, &c.....	10,321 65	
Surveys, engineers, &c.....	796 02	
		<u>16,198 96</u>
		203,600 54
Balance, December 31st, 1871.....		<u>\$96,399 46</u>

## GRADING 8TH AVENUE, FROM 77TH STREET TO 81ST STREET.

*(Chap. 858 of the Laws of 1858.)*

Received from the City of New York, from January 1st to December 31st, 1871..	\$210,000 00
To balance, December 31st, 1870.....	\$1,384 76
The expenditures, from January 1st to December 31st, 1871, were as follows :	
Pay of laborers, teams, carts, &c.....	83,579 01
Materials of construction and tools.....	2,897 71
Surveys.....	32 21
	<u>87,893 69</u>
Balance, December 31st, 1871.....	<u>\$122,106 31</u>

## TENTH AVENUE, FROM 155TH STREET TO HARLEM RIVER.

Received from the City of New York, during the year ending December 31st, 1871.....	\$100,000 00
The expenditures on this account, from January 1st to December 31st, 1871, were as follows :	
Pay of laborers, carts, teams, &c.....	\$30,670 10
Materials of construction and tools.....	898 97
Surveys, engineers, &c.....	2,685 34
Stationery and printing.....	100 00
Incidental expenses.....	200 00
	<u>34,554 41</u>
Balance, December 31st, 1871.....	<u>\$65,445 59</u>

## MANHATTAN STREET, FROM AVENUE ST. NICHOLAS TO HUDSON RIVER.

Received from the City of New York, during the year ending December 31st, 1871.....	\$100,000 00
The expenditures, from January 1st to December 31st, 1871, were as follows :	
J. H. Sullivan, contractor.....	\$26,000 00
Pay of laborers, carts, teams, &c.....	12,023 07
Materials of construction and tools.....	885 51
Stationery and printing.....	50 00
Salaries of officers, clerks, &c.....	2,000 00
Surveys, engineers, &c.....	1,045 59
	<u>42,004 17</u>
Balance, December 31st, 1871.....	<u>\$57,995 83</u>

## ONE HUNDRED AND FORTY-FIFTH STREET, FROM 6TH TO 7TH AVENUES.

*(Chap. 564 of the Laws of 1865.)*

Balance, December 31st, 1870.....	\$41 77
By balance, December 31st, 1871.....	27,653 24
	<u>\$27,695 01</u>

The expenditures, from January 1st to December 31st, 1871, were as follows :

J. H. Sullivan, contractor.....	\$16,346 60	
Materials of construction.....	7,204 18	
Pay of laborers, carts, teams, &c.....	2,761 09	
Stationery and incidental expenses.....	300 00	
Surveys, engineers, &c.....	1,083 14	
		<u>\$27,695 01</u>

MORNINGSIDE AVENUE.

The expenditures on this account, to December 31st, 1871, were as follows :

Surveys, engineers, draughtsmen, &c.....	<u>\$1,571 39</u>
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AVENUE AT BASE OF MORNINGSIDE PARK.

The expenditures, from January 1st to December 31st, 1871, were as follows :

Surveys, engineers, &c.....	<u>\$214 08</u>
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WESTCHESTER COUNTY, TOWN OF WEST FARMS.

(*Chap. 826 of the Laws of 1869, and Chap. 767 of the Laws of 1870.*)

Balance, December 31st, 1870.....	\$134 74	
Received from the Treasurer of Westchester County, during the year ending December 31st, 1871.....	17,085 59	
By balance, December 31st, 1871.....	9,801 77	
		<u>\$27,022 10</u>

The expenditures on this account, from January 1st to December 31st, 1871, were as follows :

Surveys, maps, and draughting.....	\$26,540 38	
Stationery and drawing materials.....	200 00	
Incidentals.....	281 72	
		<u>\$27,022 10</u>

WESTCHESTER COUNTY, TOWN OF YONKERS.

(*Chap. 826 of the Laws of 1869, and Chap. 767, Laws of 1870.*)

Balance, December 31st, 1870.....	\$51 60	
Received from the Treasurer of Westchester County, from January 1st to Decem- ber 31st, 1871.....	18,558 70	
By balance, December 31st, 1871.....	4,180 97	
		<u>\$22,791 27</u>

The expenditures, from January 1st to December 31st, 1871, are as follows :

Surveys, maps and draughting.....	\$22,386 59	
Stationery and drawing materials.....	154 68	
Incidental expenses.....	250 00	
		<u>\$22,791 27</u>

## RECAPITULATION.

Balance, December 31st, 1871 : Parks and Places, construction of.....	\$64,549 59
Island above 155th Street.....	2,737 29
West Side improvement.....	1,963 68
Ninth Avenue.....	10,000 00
Broadway widening.....	1,218 00
Adapting west line of Park.....	2,165 47
Boulevard.....	65,886 10
Sixth Avenue.....	42,512 89
Avenue St. Nicholas.....	96,399 46
Grading 8th Avenue.....	122,106 31
Tenth Avenue.....	65,445 59
Manhattan Street.....	57,995 83
Overdraft, Tenth National Bank, December 31st, 1871.....	71,717 44
	<hr/>
	\$604,697 65

Less amounts transferred to the credit of the following accounts :

Central Park construction.....	\$94,141 85
Central Park, maintenance of.....	263,394 67
Museum and Observatory, maintenance of.....	43,869 74
Roads and Avenues, maintenance of.....	24,766 06
Parks and Places, maintenance of.....	106,276 54
Museum and Observatory, construction of.....	14,470 77
East Side improvement.....	4,097 29
Harlem River and Spuyten Duyvil Creek.....	10,216 81
Seventh Avenue.....	42 47
145th Street.....	27,653 24
Morningside Avenue.....	1,571 39
Avenue at base of Morningside Park.....	214 08
Town of West Farms.....	9,801 77
Town of Yonkers.....	4,180 97
	<hr/>
	\$604,697 65

Dated New York, December 31st, 1871.



## II.

## STATEMENT

*Showing the Receipts and Expenditures of the Department from  
1st January to 1st May, 1872.*

## SUMMARY.

The total receipts, from January 1st to May 1st, 1872, were.....	\$971,616 61
To balance due Tenth National Bank, December 31st, 1871.....	\$71,717 44
The total expenditures, from January 1st to May 1st, 1872, were..	897,436 25
	<u>969,153 69</u>
Cash balance, May 1st, 1872.....	<u>\$2,462 92</u>

## RECEIPTS AND DISBURSEMENTS.

## CENTRAL PARK CONSTRUCTION ACCOUNT.

To balance, December 31st, 1871.....	\$94,141 85
The expenditures on this account, to May 1st, 1872, were.....	245,656 04
	<u>\$339,797 89</u>
Received from the City of New York, from issue of stock.....	\$250,000 00
By balance, May 1st, 1872.....	89,797 89
	<u>\$339,797 89</u>

## CENTRAL PARK MAINTENANCE, 1871.

To balance, December 31st, 1871.....	<u>\$263,394 67</u>
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## MAINTENANCE OF MUSEUM AND OBSERVATORY, 1871.

To balance, December 31st, 1871.....	<u>\$43,869 74</u>
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## MAINTENANCE OF PARKS AND PLACES, 1871.

To balance, December 31st, 1871.....	<u>\$106,276 54</u>
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## MAINTENANCE OF ROADS AND AVENUES, 1871.

To balance, December 31st, 1871.....	<u>\$24,766 06</u>
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## MAINTENANCE FOR THE YEAR 1872.

Received from the City of New York, for maintenance of Central Park, parks and places, &c., to May 1st, 1872.....	\$150,000 00
For gas used at Mt. St. Vincent buildings.....	3,348 25
	<u>\$153,348 25</u>

The expenditures have been as follows :

Central Park, maintenance.....	\$78,051 64	
Parks and places, maintenance.....	20,099 74	
Museum and Observatory, maintenance.....	15,152 54	
Roads and avenues, maintenance.....	8,526 54	
Bridges between New York and Westchester.....	817 11	
	<u>122,647 57</u>	
Balance, May 1st, 1872.....		<u>\$30,700 68</u>

## IMPROVEMENT OF PARKS AND PLACES.

By balance, December 31st, 1871.....	\$64,549 59
Received from the City of New York, from issue of stock.....	200,000 00
	<u>\$264,549 59</u>
The expenditures on this account have been.....	77,633 26
	<u>\$186,916 33</u>
Balance, May 1st, 1872.....	

## CONSTRUCTION OF MUSEUM AND OBSERVATORY.

To balance, December 31st, 1871.....	\$14,470 77
The expenditures on this account have been.....	250 00
	<u>\$14,720 77</u>
To balance, May 1st, 1872.....	

## ISLAND ABOVE 155TH STREET AND PUBLIC DRIVE.

Balance, December 31st, 1871.....	\$2,737 29
The expenditures on this account have been.....	1,680 00
	<u>\$1,057 29</u>
Balance, May 1st, 1872.....	

## WEST SIDE IMPROVEMENT.

Balance, May 1st, 1872.....	<u>\$1,963 68</u>
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## EAST SIDE IMPROVEMENT.

To balance, May 1st, 1872.....	<u>\$4,097 29</u>
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## NINTH AVENUE.

Balance, May 1st, 1872.....	<u>\$10,000 00</u>
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## BROADWAY WIDENING.

Balance, May 1st, 1872.....	\$1,218 00
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## ADAPTING WEST LINE OF PARK.

Balance, May 1st, 1872.....	\$2,165 47
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## HARLEM RIVER AND SPUYTEN DUYVIL IMPROVEMENT.

To balance, December 31st, 1871.....	\$10,216 81
The expenditures on this account have been.....	3,937 10

	<u>\$14,153 91</u>
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Receipts from sale of materials.....	\$10 00
By balance, May 1st, 1872.....	14,143 91

	<u>\$14,153 91</u>
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## BOULEVARD.

Balance, December 31st, 1871.....	\$65,886 10
Received from the City of New York.....	100,000 00

	<u>\$165,886 10</u>
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The expenditures on this account have been.....	102,025 61
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Balance, May 1st, 1872.....	<u>\$63,860 49</u>
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## SEVENTH AVENUE.

Received from the City of New York.....	\$150,000 00
“ from sale of roller-wheels.....	54 36

	<u>\$150,054 36</u>
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The expenditures on this account have been.....	82,455 28
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Balance, May 1st, 1872.....	<u>\$67,599 08</u>
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## SIXTH AVENUE.

Balance, December 31st, 1871.....	\$42,512 89
The expenditures on this account have been.....	4,226 36

Balance, May 1st, 1872.....	<u>\$38,286 53</u>
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## AVENUE ST. NICHOLAS.

Balance, December 31st, 1871.....	\$96,399 46
Received from the City of New York.....	60,000 00

	<u>\$156,399 46</u>
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The expenditures on this account have been.....	38,147 05
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Balance, May 1, 1872.....	<u>\$118,252 41</u>
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## GRADING 8TH AVENUE, FROM 77TH TO 81ST STREET.

Balance, December 31st, 1871.....	\$122,106 31
The expenditures on this account have been.....	13,855 38
Balance, May 1st, 1872.....	<u>\$108,250 93</u>

## TENTH AVENUE.

Balance, December 31st, 1871.....	\$65,445 59
Received from sale of old wood.....	4 00
By balance.....	71,944 21
	<u>\$137,393 00</u>
The expenditures on this account have been.....	<u>\$137,393 80</u>

## MANHATTAN STREET.

By balance, December 31st, 1871.....	\$57,995 83
Received from the City of New York.....	50,000 00
	<u>\$107,995 83</u>
The expenditures on this account have been.....	50,677 16
Balance, May 1st, 1871.....	<u>\$57,318 67</u>

## ONE HUNDRED AND FORTY-FIFTH STREET, FROM 6TH TO 7TH AVENUES.

Balance, December 31st, 1871.....	\$27,653 24
The expenditures on this account have been.....	323 00
To balance, May 1st, 1872.....	<u>\$27,976 24</u>

## WESTCHESTER COUNTY, TOWN OF WEST FARMS.

Balance, December 31st, 1871.....	\$9,801 77
The expenditures on this account have been.....	6,511 80
To balance, May 1st, 1872.....	<u>\$16,313 57</u>

## WESTCHESTER COUNTY, TOWN OF YONKERS.

Balance, December 31st, 1871.....	\$4,180 97
The expenditures on this account have been.....	8,472 48
	<u>\$12,653 45</u>
Received from (Treasurer) County of Westchester.....	\$8,200 00
By balance, May 1st, 1872.....	4,453 45
	<u>\$12,653 45</u>

## MORNINGSIDE AVENUE.

To balance, December 31st, 1871.....	\$1,571 39
The expenditures on this account have been.....	85 27
To balance, May 1st, 1872.....	<u>\$1,656 66</u>

## AVENUE AT BASE OF MORNINGSIDE PARK.

To balance, December 31st, 1871.....	<u>\$214 08</u>
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## ONE HUNDRED AND FIFTY-FIFTH STREET.

The expenditures on this account have been.....	<u>\$1,501 56</u>
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## RECAPITULATION.

Balance, May 1st, 1872—Maintenance, 1872.....	\$30,700 68
Parks and Places, improvement.....	186,916 33
Island above 155th street.....	1,057 29
West Side improvement.....	1,963 68
Ninth avenue.....	10,000 00
Broadway widening.....	1,218 00
West line of Park.....	2,165 47
Boulevard.....	63,860 49
Seventh avenue.....	67,599 08
Sixth avenue.....	38,286 53
Avenue St. Nicholas.....	118,252 41
Grading Eighth avenue.....	108,250 93
Manhattan street.....	57,318 67
	<u>\$687,589 56</u>

## Less amounts transferred to the credit of the following accounts:

Central Park, construction.....	\$89,797 89
Central Park, maintenance, 1871.....	263,394 67
Museum and Observatory, maintenance, 1871.....	43,869 74
Parks and Places, maintenance, 1871.....	106,276 54
Roads and avenues, maintenance, 1871.....	24,766 06
Museum and Observatory, construction of.....	14,720 77
Harlem River and Spuyten Duyvil, improvement.....	14,143 91
Tenth avenue.....	71,944 21
One Hundred and Forty-fifth street.....	27,976 24
Town of West Farms.....	16,313 57
Town of Yonkers.....	4,453 45
Morningside avenue.....	1,656 66
Avenue at base of Morningside Park.....	214 08
One Hundred and Fifty-fifth street.....	1,501 56
East Side improvement.....	4,097 29
	<u>685,126 64</u>
Cash balance, May 1, 1872.....	<u>\$2,462 92</u>

Dated New York, May 1st, 1872.

## III.

## STATEMENT

*Of the Cost of Maintenance of Central Park for the first Six Months of the year 1871, in comparison with that for the corresponding months in the year 1872.*

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	1871.	1872.
Pay-rolls.....	\$142,777 07	\$75,678 23
Tools and materials.....	30,568 60	22,763 32
Park and gate-keepers.....	51,844 47	45,802 94
Incidental expenses.....	2,638 80	2,898 60
Museum and Observatory.....	30,827 67	23,553 87
	<hr/>	<hr/>
	\$258,656 61	\$170,696 96

## IV.

## STATEMENT

*Submitted to the Comptroller, showing the Expenditures of the Department from its organization in April, 1870 to 22d November, 1871, and the amount of funds raised on one account and used on another during that period.*

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CITY OF NEW YORK,  
DEPARTMENT OF PUBLIC PARKS, }  
265 Broadway,

*December 21st, 1871.*

HON. ANDREW H. GREEN,

*Comptroller City of New York:*

SIR,

Agreeably to the request contained in your letter of the 6th inst., and in your communication addressed to this Department September 28th, I herewith submit a statement showing the expenses of the Department from January 1st, 1871, and generally replying to your enquiries in the order in which they are presented, as follows:

"I. A statement, showing the expenditures of your Department from the date of its organization under the charter, April 20th, 1870, to January 1st, 1871.

"II. A statement, showing the expenditures from January 1st, 1871, to November 22d, 1871.

"III. A statement of the outstanding liabilities of your Department to November 22d, 1871.

"IV. It appears that funds advanced by this Department to your Department on one account, have been applied to expenditures on other accounts; therefore, information as to the mode in which these funds have been used is quite necessary."

## RECAPITULATION.

## I. Expenditures from April 20th, 1870, to January 1st, 1871:

Maintenance.....	\$365,805 12	
Construction .....	906,439 48	
Boulevards.....	944,376 63	
	<hr/>	\$2,216,621 23

## II. Expenditures from January 1st, 1871, to November 22d, 1871:

Maintenance.....	\$607,735 61	
Construction.....	1,998,792 36	
Boulevards.....	1,393,584 71	
	<hr/>	\$4,000,112 68

Total expenditures, April 20th, 1870, to November 22d, 1871..... \$6,216,733 91

III. Outstanding Liabilities, November 22d, 1871..... 1,789,529 70

IV. Amount of Funds raised on one account and used on another..... 827,456 32

For particulars of this last item, reference is made to sub-division IV of annexed detailed statement.

Very respectfully,

HENRY G. STEBBINS,

*Prest. D. P. P.*

## I.—STATEMENT showing the Expenditures from April 20th, 1870, to January 1st, 1871.

## MAINTENANCE (FROM TAXATION).

Central Park, 1870.....	\$270,754 60
Museum and Observatory.....	21,012 91
Parks and Places.....	74,037 61

## CONSTRUCTION AND PERMANENT IMPROVEMENTS.

Parks and Places, from taxation.....	20,962 39
Mount Morris Square “.....	15,000 00
Circle, 59th Street and 8th Avenue, from taxation.....	5,667 92
Public Square, 59th Street and 5th Ave., “.....	8,816 00
Island above 155th Street, “.....	4,543 13
Harlem River and S. D. Improvement “.....	919 62
Adapting West Line of Park “.....	22,834 53
East Side Improvement, “.....	4,097 29
Grading 8th Ave., 77th to 81st Street, “.....	1,384 76
Central Park, funded Bonds.....	416,641 44
Museum and Observatory, funded Bonds.....	47,001 32
Parks and Places, funded Bonds.....	358,571 08
Carried forward.....	<hr/> \$1,272,244 60



Brought forward..... \$1,272,244 60

IMPROVEMENT OF BOULEVARD AND AVENUES.

Boulevard, Assessment Bonds.....	491,487 08
Seventh Avenue, “.....	127,232 55
Sixth Avenue, “.....	244,977 25
Avenue St. Nicholas, “.....	76,788 98
145th St., 6th to 7th Ave., “.....	3,890 77
Total.....	<u>\$2,216,621 23</u>

II.—STATEMENT showing the expenditures from January 1st to November 22d, 1871.

MAINTENANCE (FROM TAXATION).

Central Park.....	\$432,117 70
Museum and Observatory.....	53,845 04
Parks and Places.....	98,229 01
Roads and Avenues.....	23,543 86

CONSTRUCTION AND PERMANENT IMPROVEMENTS.

Central Park, Funded Stock.....	1,054,663 29
Parks and Places, “.....	772,681 83
Museum and Observatory, “.....	116,352 20
Macomb's Dam Bridge, “.....	22,865 89
Harlem Bridge, “.....	2,178 00
Fordham Bridge, “.....	68 44
Harlem River and S. D. Improvement, taxation.....	10,101 19
West Side Improvements, “.....	813 66
Island above 155th Street, &c., “.....	2,677 77
Grading 8th Ave., 77th to 81st Street, “.....	8,615 24
Circle, 59th St. to 8th Avenue, “.....	4,245 58
Public Square, 59th St. and 5th Avenue, “.....	3,529 27

IMPROVEMENT OF BOULEVARD AND AVENUES.

Boulevard, Assessment Bonds.....	612,496 62
Sixth Avenue, “.....	269,805 28
Seventh Avenue, “.....	203,673 68
Avenue St. Nicholas, “.....	163,768 37
Grading 8th Ave., 77th to 81st St., “.....	70,065 37
145th Street, 6th to 7th Avenue, “.....	24,120 57
Tenth Avenue, “.....	10,340 14
Manhattan Street, “.....	37,472 96
Morningside Avenue, “.....	1,628 74
Avenue at base Morningside Park, “.....	212 98
Total.....	<u>\$4,000,112 68</u>

## RECAPITULATION.

Expenditures from April 20th, 1870, to January 1st, 1871.....	\$2,216,621 23
Do. from January 1st to November 22d, 1871.....	4,000,112 68
Total.....	<u>\$6,216,733 91</u>

Amount expended on accounts on which funds are raised by taxation.....	\$1,087,749 08
“ expended on accounts on which funds are raised by funded stock.....	2,791,023 49
“ expended on accounts on which funds are raised by assessment bonds ..	2,337,961 34
Total.....	<u>\$6,216,733 91</u>

III.—LIABILITIES, *November 22d, 1871, including*

## CONTRACT WORK ON ROADS AND AVENUES.

Filling 8th Avenue, St. Nicholas Avenue, Manhattan Square, &c.....	\$45,000 00
Broken Stone Boulevard, Avenue St. Nicholas, &c.....	40,000 00
Tools, materials, and sundries.....	29,000 00
Cottages, Central Park, Washington and Mount Morris Squares.....	15,800 00
Railing, &c., Lincoln Monument.....	6,700 00
Granite for Conservatory.....	4,000 00
Paving Madison Square.....	50,000 00
“ Transverse Road, Central Park.....	30,000 00
Fountain Basin, Central Park.....	10,350 00
“ “ City Hall.....	12,000 00
“ “ 59th Street and 5th Avenue.....	6,970 00
Unpaid bills in Office.....	448,853 38
Park keeper's P. R.....	6,500 00
Engineers' and Clerks' P. R.....	10,000 00
Sweepers' P. R.....	2,000 00
Comptroller's and Architect's P. R.....	1,900 00
Laborers' P. R.....	75,000 00
Deficiencies on various accounts.....	827,456 32
Grading 7th Avenue (Contract).....	43,000 00
“ Manhattan Street “.....	100,000 00
“ Ave. St. Nicholas “.....	25,000 00
	<u>\$1,789,529 70</u>

IV.—STATEMENT of *Dr. and Cr. balances*; showing the uses to which funds raised on  
Assessment Bonds were applied.

CR. BALANCES.

Boulevard.....	\$156,342 26
Avenue St. Nicholas.....	104,264 22
Seventh Avenue.....	99,635 27
Sixth Avenue.....	52,328 27
Manhattan Street.....	62,032 87
Grading 8th Avenue, 77th to 81st Street.....	135,736 00
Tenth Avenue.....	89,216 54
Ninth Avenue.....	10,000 00
North end of Island.....	3,100 00
Broadway widening.....	1,218 00
West Side Improvement.....	1,963 68
Adapting west line of Park to 8th Avenue grade.....	2,165 47
	<hr/>
	\$718,002 58
Overdraft, Tenth National Bank.....	109,453 74
	<hr/>
	\$827,456 32

DR. BALANCES.

Central Park construction.....	\$358,308 38
Parks and Places, construction and maintenance.....	151,670 35
Central Park, maintenance.....	213,816 12
Museum and Observatory, Construction of.....	12,377 06
“ “ maintenance of.....	36,841 00
145th Street, 6th to 7th Avenue.....	25,046 00
Town of West Farms.....	3,069 07
Town of Yonkers.....	1,155 97
Macomb's Dam Bridge.....	20,837 79
Harlem Bridge.....	1,826 36
Harlem River and S. D. Improvements.....	727 00
Morningside Avenue.....	1,521 24
Avenue at base of Morningside Park.....	259 98
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	\$827,456 32

Dated New York, December 15th, 1871.

# APPENDIX B.

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## A REVIEW OF RECENT CHANGES,

AND CHANGES WHICH HAVE BEEN PROJECTED, IN THE PLANS  
OF THE CENTRAL PARK :

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BY THE

LANDSCAPE ARCHITECTS.

## LETTER I.

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### A CONSIDERATION OF MOTIVES, REQUIREMENTS AND RESTRICTIONS APPLICABLE TO THE GENERAL SCHEME OF THE PARK.

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To the Honorable H. G. STEBBINS,

*President of the Department of Public Parks:*

SIR:—In 1870, the preparation of the Central Park had been fourteen years in progress under the Commission of which you were then President.

A few objects had been accepted as practicable to be associated with the main scheme, suitable provisions for which remained to be established, but the primary construction of the Park in its essential elements, except at the outskirts where joint action with other departments of the city had been required, was complete, and the public enjoyed such use of it as can be had of any park the plantations of which are but just planted, their finer details incomplete, and all parts yet raw and blotchy.

Nearly six million dollars had been expended to bring the undertaking to this point, when the Commission was superseded by the Department under the charter of 1870.

Eighteen months later, another change having occurred restoring you to the head of the administration, it is found that while, in the mean time, little or nothing has been done on the unimproved outskirt ground, numerous alleged defects have been discerned in the plans formerly pursued, remedies for these devised, and to some slight extent carried out, and that the Park stands charged with an additional expenditure of two and a quarter millions of dollars.

At the time the old plans were reviewed and their revision resolved upon, we retained the position which we had held from the beginning of the work, as the professional advisers of the Board in respect to matters of design.

Referring to these facts, you have been kind enough to suggest that an explanation is due from us of the changes which have been thought necessary, more especially as the Annual Report of the Department, while presenting sub-reports from eight junior officers, contains nothing, as you observe, from us and refers in no way to our service.

Thanking you for the opportunity, we shall, as briefly as possible, relieve ourselves from responsibility in respect to the change of plans, and afterwards discuss the occasion and character of this change.

Soon after our re-appointment, in May, 1870, we made a concise written report on the purposes and design of the various structures in progress on the Park, and took several occasions to show our wish to explain these more fully to the new Commissioners. When subsequently we were casually informed of newly conceived projects, we sought opportunity to point out the relations which they would have, and which were liable to be overlooked, to parts of the design already executed, but no reply was made to our requests for appointments for this purpose. As late as November we had not been officially advised of any dissatisfaction with the plans, nor had we been asked to explain those elements of our design which appear from the Report to have been regarded as inscrutable.

On the 25th of November, having then learned, though not officially, that radical changes had been determined on, we addressed a letter to the President of the Department, of which a copy is appended.

The receipt of this was formally acknowledged, but no action taken on the request conveyed, and on the 1st of December, the Department having openly disregarded the terms of its engagement with us, our duties to it were concluded.

The Annual Report of the Department (of the sub-reports attached to which we had no knowledge until you recently placed the printed copy in our hands) embodies a studied inculcation of previous administrations of the Park, the more emphatic charge being that of gross inconsiderateness of the reasonable requirements of the public in the designs of different parts of the work; the specifications of this charge being incorporated in the explanation of various local changes undertaken by the late administration.

The imputations thus made upon the plan of the Park are of a class with criticisms which have been constant since the inception of the work; criticisms heretofore more commonly expressed, however, in the form of suggestions and inquiries, and thus with an acknowledgment of incomplete study. As the ground, officially stated, of changes by which not only much previous work is sentenced to be undone, but in which a further expenditure of some millions of dollars is involved, they now demand examination.

By a similar method of criticism, changes equally costly may be demanded and apologized for under every successive administration of the Park.

Its characteristic defect being that it takes no account of the larger number of motives which have influenced the design of the features assumed to be under review, a reply in detail, in which all such overlooked considerations should be set forth, would require a volume much larger than the Report itself. Before attempting a comprehensive reduction of this duty by the development of a

general theory of design applicable to the Park, it may be desired, however, that we should fully exhibit this alleged defect.

An example, which will enable us to do so within moderate limits, is offered in a small group of associated objects, in which the motives of design, requiring consideration, are unusually local and limited. First presenting these, we shall then quote the criticism of the Report, and lastly refer to the changes, in this case slight, which have been made with a view of improvement.

Children will come to the Park in large numbers while yet too young to have the tastes and habits with regard to which its arrangements are generally designed, and localities in which they can be more particularly cared for are thus desirable. Ball-grounds have been prepared, in and about which boys have special privileges and special guardianship. Girls and boys, too small to use these, like to flock together also, and it is both better for them and more convenient for their elders that they should be encouraged and facilitated in doing so.

This was one of the considerations to which we have referred; another was suggested by the frightful increase of mortality among very young children which annually occurs in this city about midsummer; the number of deaths of infants, notwithstanding so many are taken out of town, often being double as many in a day about the middle of July as in any day of several previous months. The causes act in part directly upon the children, but largely, also indirectly, by inducing nervous irritation with nursing mothers.

A visit to the country offers the surest means of escaping the danger, and, in incipient stages, the best means of cure of the special disorders in which the danger lies. To most mothers, however, this is impracticable, and the best that can be done is to spend an occasional day or part of a day on the Park. It has been for some years a growing practice with physicians to advise this course.

The whole Park is, of course, open as much to mothers with children as to any other class; but on a hot day a mother carrying a sick child, and perhaps leading other children, if she follows the throng, is liable to become more heated and feverish through fatigue, anxiety and various slight embarrassments, than if she remained quietly within a close, dark chamber. If she comes with a party of friends, she will be glad to find some quiet nook in which, while others wander, she can be left with her baby. The class of considerations thus suggested had influenced the treatment of several localities, but had been controlling in a larger way than elsewhere at the point in question.



There were here two masses of rock around both of which the main drive passed as a loop. On the borders and in the clefts of these rocks, the ground being impracticable for cultivation, loose thickets of sassafras, dogwoods, sumachs, bitter-sweet, and their common rock-edge associates, had sprung up, so that just here, in the midst of the general bleakness, barrenness and filth of this quarter of the Park site, there was a pretty bit of natural scenery, having a somewhat wild and secluded character. It was designed to follow up the natural suggestions of this class, and by thickening and extending the original sylvan defences, secure a more decided effect of rural retirement.

The advantages for this purpose supplied one ground for the selection of the spot, the proximity of the play-grounds for larger children, another; and that of one of the sunken roads of the Park another; but the main reason for it was the fact that *it was the precise point in the Park which could be reached with the fewest steps* on an average, by visitors coming from the denser parts of the city by seven different lines of railway, and after the Park should be entered, wholly along walks by which the crossing of any carriage road would be avoided. From the Eighth Avenue and the "Belt" lines, access to it could be had by the Park carriages in five minutes; it was ten minutes' walk from the Sixth and Seventh Avenue and Broadway lines, and was approached by six walks, each fourteen feet wide, laid out from as many entrances to the Park, with no more indirectness than was necessary to avoid with easy curves considerable rocky elevations.

The most noticeable feature of the special local arrangements consisted of a series of seats and tables shaded by trellised vines, so placed as to cover with verdure the larger part of a broad, flat, uninteresting mass of rock, which otherwise would have been a bleak and sterile blot in the view at a point almost of introduction to the more luxuriant landscape in the design of the lower park. A few arrangements for amusing and taking care of children were placed within easy reach, and also a building which had been designated the Dairy, because it was intended to make sure that with a few other simple refreshments for children, perfectly fresh pure milk should be sold in it at a moderate charge. Its lower story, containing a store-room, ice-room and other offices, not interesting to the public, and accordingly completely concealed from its view, opened upon the sunken road by which its supplies could be received and its waste removed in carts without annoyance to visitors. The upper part, consisting of a sales-room, with a counter for refreshments and the loan or sale of playthings, and a broad gallery, was constructed for coolness and was open to the South breeze which it was found, even when calm elsewhere, would be drawn towards it from the South Pond. A bay of this water, with a bold dark shore opposite, rising to an eminence crowned with firs, was looked down upon, over a narrow glade of turf which, between the rocks and coppices, formed the foreground of a little local landscape promising some day to be quite

interesting. Upon the bit of green-sward in front, it had been intended that a cow or two, a ewe with lambs, and a few broods of chickens, should be kept for the amusement of children, and a small stable had been built for them hard by, which also served to mask a dressing-room and water-closet.

It was considered that the same conditions which promised advantages for mothers, especially at midsummer, would be also grateful to convalescents, invalids, and aged persons who should desire to be as much as possible with comfort out of doors, especially in the early spring and late autumn; the Dairy being sheltered on the north, northwest and northeast, by elevations planted with evergreens, and giving upon a warm, dry southern slope, and a walk connecting with it, a quarter of a mile in length, having similar advantages of shelter and geniality.

Although more particularly designed for the benefit of the classes indicated, no attempt to exclude other visitors would have been practicable, nor was any intended. It was simply not desired, by making any of the group of structures unnecessarily prominent, to seem to recommend passers by, who would be likely to enjoy other points of the Park more, to turn off their course and tarry here. A special invitation for people to leave their carriages to obtain meals at the Dairy, was, perhaps, more especially designed *to be avoided*, as the parts of the roadway nearest it were among the most unsuitable on the Park for the stoppage and collection of carriages; and two minutes' drive beyond, a place had been specially prepared where a number might stand together without interrupting the regular movement upon the drive, and visitors in them could be served, if they chose, without alighting. It was thought, however, that people coming to the Park in carriages would frequently find it convenient to leave nurses and children for a short time, as they passed near the Dairy, and there were three convenient routes of access to it from the drive—the distance by the most direct, being less than a hundred paces, by none a hundred and twenty. It had been intended that all the local arrangements should be ready for use before midsummer, and when the new administration took charge in May, the Dairy was well advanced.

Although no inquiry was made of us in regard to this structure, and we did not suspect that any other view of it was taken than that which has been above explained, we twice referred, in written communications to the Department, to the fact that it had been designed as an attachment to the "Children's District," (the various other constructed features of which were once fully enumerated and their relations to it indicated), at the same time urging its immediate completion. The result is shown in the following paragraph of the

Annual Report, no other reference to any of the whole group of arrangements being found in the volume :

"The remaining structure in progress was the Dairy House adjacent to the transverse road at Sixty-fifth street, in a very inappropriate location. It is hidden from direct view; *is difficult of access*; and no direct path leads to it from the main drive; so that the criticism is often popularly made that a Dairy building, intended for general use of persons frequenting the Park, has been placed, as much as possible, out of sight and reach. Of course, it was necessary to complete it according to the original plans, because it had progressed too far for alteration. It has been finished in accordance with the plans of those who conceived it. It may not, however, be uninteresting to know that this considerable building has cost about fifty thousand dollars—nearly all of it expended before this department took office."

In accordance with the theory of design thus indicated, the Dairy has been used as a common eating-house, no stipulations having been made with the tenant other than apply to the general restaurant at Mount St. Vincent; the stable has been turned into a paint-shop; the coppices thinned and trimmed up, and, with the rocks, put partially out of sight, and wholly out of countenance by rows of prim garden-shrubs. By making gaps in the established plantations, straightening two slight curves of the walks, and planting a granite stepping-stone, twenty feet long, on the edge of the drive, it has been opened to view, and the distance to it therefrom shortened six paces.

These changes, as we have said, are comparatively slight. Looking at the building as the authors of the Report had chosen to do, simply as a roadside inn, standing detached from the road, but in their eyes more detached from all else on the Park, if changes were to be made, it is only to be wished that they could have been more efficacious. But slight, or rather feeble, as they are, interpreted by the significant brevity of their explanation, if the building had been leveled, and all the ground around had been plowed and salted, a willing ignorance of the real elements of value in all the work of the neigh-

borhood, and a blind disdain of the study which had been given to the harmonious and equitable adjustment of its several motives could not have been more distinctly manifested.

It will appear probable that those who had taken the responsibility of administering the public trust of this property regarded the building as an item by itself; that they neither knew nor cared for its relations with any other elements of the Park; that they chose, however feebly, to force it into a relation with the drive, for which, by their own declaration, it was not adapted; that the tendency of their policy was to lessen, if not wholly cancel, its value with reference to its characteristic original purposes; and that, when their Report was prepared, they saw no reason to suppose that the public did not, with one voice, consent to and applaud such a method of dealing with their trust.

The construction of the Park has been watched by a large number of intelligent citizens, and more closely than any other public work of the city; it has unquestionably excited more general interest, and been more popular, than any other, and yet it is true that but little weight is commonly given to many important motives of its design, either in commendations which are heard of it, or in propositions for its amendment.

It is not difficult to partly see how, with the necessarily superficial consideration given to it by most intelligent observers, this happens.

The various works which, since 1857, have been in progress on the site of the Park, may be considered under two classes: one comprehending changes in the surface of the ground and the production of landscape effects, the other limited to the formation of various structures in stone, brick, concrete and metal. Value receivable for the first will only be due in important amount after years of careful culture, and, for the present, few city-bred men can be expected to

fully understand wherein the value is to consist. Structures in masonry, on the other hand, often reveal their full design the moment the builders' scaffolds are removed, and the quality of those on the Park has been at all times directly comparable with that of much other work with which the citizens of New York are familiar. The roads on the Park, as fast as opened section after section, were found to be superior to any other roads generally known, and being the only public pleasure roads of the city, they have been greatly frequented and obtained much favorable consideration. It has thus been brought about that encomium and criticism of the Park has alike been mainly directed to works of the second class, and most commonly from points of view in which each of them has been seen in a detached form.

The brick, stone, and iron parts of the Park have thus assumed an importance in comparison with its landscape elements somewhat analogous to that of the solid walls of a public building in comparison with its plaster, paint, frescoes, hangings, and furniture. To most persons they yet, including roads and walks, appear the essential elements of the Park. Take them out, and the Park would seem to be without plan. But leaving them in, from the practice of considering the several structures each by itself, the analogy of a public building would commonly be felt to be defective chiefly in that the plan of the Park is presumed to be much less coherent than that of any building.

It thus occurs that propositions respecting the Park have been constantly made, the like of which are never heard in regard to any public building.

The new Court House has been a great deal discussed during the last few years, but, in all that has been written, a demand has probably not been made that certain of its rooms should be fitted up with billiard tables or suitably for religious services or public demonstrations in anatomy ; the lack of a convenient carriage way to the roof

or to the lunch-counter has not been complained of, nor has it been proposed to remedy the present cramped, inconvenient and unattractive arrangements for refreshments by devoting the more spacious of the court rooms to this purpose.

The fact that such changes of the plan would, in some limited view, be improvements, does not hide the larger fact that the acceptance of but a few propositions of the same character would soon completely ruin the building for the purposes which it has been built expressly to serve, and in reference to which, whatever value it may have is presumed to lie.

But propositions quite as fantastic are not unfrequently made with earnestness in regard to the Park. It has, for example, been seriously proposed that it should be used as a place of burial for the more distinguished dead of the city; that all religious sects should be invited to build places of worship upon it, and often that some central feature should be introduced corresponding in obvious importance to the dwelling in private grounds; that this should be a grand people's cathedral in which all sects might unite in a common litany; that it should be an exhibition and advertisement of the goods for sale in the city; that it should be many other things as diverse in character as the worship of God and of Mammon.

It has been urged that the plan of the Park should be so contrived that an illustration would be presented on a large though miniature scale of the geography of the continent; an illustration of the geological structure of the earth; a living cabinet of botany; a living museum of zoology.

Provided the principal constructions in roads, bridges, arches and buildings are not required to be destroyed, no structure which in itself promises to be in any way valuable to the public, would seem to be thought, by many intelligent citizens, out of place anywhere on the site of the Park. Thus the location of great buildings in

positions where they would utterly destroy the scale of the growing landscape, where they would, indeed, obliterate the most important park features, is frequently urged.

The right has been often claimed to use any part of the Park for any purpose which is lawful to be pursued in the streets of the city; to go any where upon it, either on foot or in any vehicle.

A street railway through the midst of the Park has been called for; steamboats, and even a full rigged ship have been proposed to be placed in its waters.

New roads have been called for, crossing and practically destroying, for their original purpose, the most important features of the design. It has been proposed to widen every principal walk not laid directly along side of a drive, and throw it open to carriages.

A demand has more than once been made for a change in important features of the plan, for no other reason than that particular business speculations would be thereby rendered more promising.

The use of various parts of the ground, assumed to be at present unoccupied, has been asked for horse-races, for steeple-chases, for experiments with sundry new machines, for various kinds of advertising, for the sale of various wares, for popular meetings, for itinerant preaching, for distributing controversial tracts.

Room on which to erect tents, and make enclosures within the Park for circuses, concerts, trials of strength and skill, and all manner of popular exhibitions, has been frequently applied for with confidence.

As the city grows larger, projects for the public benefit multiply, land becomes more valuable, and the Park more and more really central, applications for the use of ground upon it for various more or less plausible purposes, are likely to become increasingly frequent and increasingly urgent, and there will thus be a strong tendency to

its conversion into a great, perpetual metropolitan Fair Ground, in the plan and administration of which no general purpose need be recognized, other than to offer, for the recreation of those who may visit it, a desultory collocation of miscellaneous entertainments, tangled together by a series of crooked roads and walks, and richly decorated with flowers and trees, fountains and statuary.

The only solid ground of resistance to dangers of this class will be found to rest in the conviction that the Park throughout is a single work of art, and as such, subject to the primary law of every work of art, namely, that it shall be framed upon a single, noble motive, to which the design of all its parts, in some more or less subtle way, shall be confluent and helpful.

To find such a general motive of design for the Central Park, it will be necessary to go back to the beginning and ask, for what worthy purpose could the city be required to take out and keep excluded from the field of ordinary urban improvements, a body of land in what was looked forward to as its very centre, so large as that assigned for the Park? For what such object of great prospective importance would a smaller body of land not have been adequate?

To these questions a sufficient answer can, we believe, be found in the expectation that the whole of the island of New York would, but for such a reservation, before many years be occupied by buildings and paved streets; that millions upon millions of men were to live their lives upon this island, millions more to go out from it, or its immediate densely populated suburbs, only occasionally and at long intervals, and that all its inhabitants would assuredly suffer, in greater or less degree, according to their occupations and the degree of their confinement to it, from influences engendered by these conditions.

The narrow reservations previously made offered no relief



from them, because they would soon be dominated by surrounding buildings, and because the noise, bustle, confinement and noxious qualities of the air of the streets would extend over them without important mitigation.

Provisions for the improvement of the ground, however, pointed to something more than mere exemption from urban conditions, namely, to the formation of an opposite class of conditions; conditions remedial of the influences of urban conditions.

Two classes of improvements were to be planned for this purpose: one directed to secure pure and wholesome air, to act through the lungs; the other to secure an antithesis of objects of vision to those of the streets and houses which should act remedially, by impressions on the mind and suggestions to the imagination.

The latter only require our present attention, and the first question with reference to them is: What class of objects are best adapted to the purpose?

Experience would lead most men to answer that they are chiefly such as give the characteristic charm to gardens, pleasure grounds, and rural landscapes. But some consideration may be required to determine by what mode of selection from among these, and by what general principle of arrangement, the highest practicable degree of the desired effect is to be attained.

It sometimes occurs that certain species of trees grow naturally, under conditions favoring such a result, in forms of extraordinary symmetry, their heads each having the outline of a haycock set upon a straight, perpendicular post. Occasionally several such trees may be found in nature growing together. Any number of objects of that character would have but limited value, if any, for the purpose of the Park, because it is a character more nearly compatible in a tree than any other with the convenience of men when

living compactly in streets and houses. Trees of that form might be, and, in fact, sometimes are, grown along the streets of the city between rows of houses.

A series of rose bushes, grown in pots, trained to single stems, sustained by stakes, would have even less value. Trim beds of flowers, such as might be set on a drawing-room table, or in the fore-court of a city dwelling, still less.

A cluster of hornbeams and hemlocks, the trunks of some twisting over a crannied rock, the face of the rock brightened by lichens, and half veiled by tresses of vines growing over it from the rear, and its base lost in a tangle of ground pine, mosses and ferns, would be of considerable value, partly because of the greater difficulty of reconciling the presence of such an assemblage of natural objects with the requirements of convenience in the streets, but mainly because the intricate disposition of lights and shadows seen in the back parts of it would create a degree of obscurity not absolutely impenetrable, but sufficient to affect the imagination with a sense of mystery.

A broad stretch of slightly undulating meadow without defined edge, its turf lost in a haze of the shadows of scattered trees under the branches of which the eye would range, would be of even higher value, and if beyond this meadow occurred a depression of the surface, and the heads of other trees were seen again at an uncertain distance, the conditions would be most of all valuable for the purpose in view, first, because there would be positive assurance of a certain considerable extent of space free of all ordinary urban conditions, and, in the soft, smooth, tranquil surface of turf, of immunity from the bustling, violent and wearing influences which act upon the surface of the streets, and secondly, because the imagination, looking into the soft commingling lights and shadows and fading tints of color of the

back ground would have encouragement to extend these purely rural conditions indefinitely.

Considering that large classes of rural objects and many types of natural scenery are not practicable to be introduced on the site of the Park—mountain, ocean, desert and prairie scenery for example—it will be found that the most valuable form that could have been prescribed is that which we have last indicated, and which may be distinguished from all others as pastoral. But the site of the Park having had a very heterogeneous surface, which was largely formed of solid rock, it was not desirable that the attempt should be made to reduce it all to the simplicity of pastoral scenery. What would the central motive of design require of the rest? Clearly that it should be given such a character as, while affording contrast and variety of scene, would, as much as possible, be confluent to the same end, namely, the constant suggestion to the imagination of an unlimited range of rural conditions.

The pleasing uncertainty and delicate, mysterious tone which *chiaro-oscuro* lends to the distance of an open pastoral landscape certainly cannot be paralleled in rugged ground, where the scope of vision is limited; but a similar influence on the mind, less only in degree, is experienced as we pass near the edge of a long stretch of natural woods, the outer trees disposed in irregular clusters, the lower branches sweeping the turf or bending over rocks, and under-wood mingling at intervals with their foliage. Under such circumstances, although the eye nowhere penetrates far, an agreeable suggestion is conveyed to the imagination of freedom, and of interest beyond the objects which at any moment meet the eye. While, therefore, elements of scenery of this class (which may, for the present purpose, be distinguished as picturesque sylvan scenery) would both acquire and impart value from their contrast with the simpler elements of open pastoral landscapes, their effect, by

tending to withdraw the mind to an indefinite distance from all objects associated with the streets and walls of the city, would be of the same character.

The question of localizing or adjusting these two classes of landscape elements to the various elements of the natural topography of the Park next occurs, the study of which must begin with the consideration that the Park is to be surrounded by an artificial wall, twice as high as the Great Wall of China, composed of urban buildings. Wherever this should appear across a meadow-view, the imagination would be checked abruptly at short range. Natural objects were thus required to be interposed, which, while excluding the buildings as much as possible from view, would leave an uncertainty as to the occupation of the space beyond, and establish a horizon line, composed, as much as possible, of verdure.

No one, looking into a closely-grown wood, can be certain that at a short distance back there are not glades or streams, or that a more open disposition of trees does not prevail.

A range of high woods, then, or of trees so disposed as to produce an effect, when seen from a short distance looking outwardly from the central parts of the Park, of a natural wood-side, must be regarded as more nearly indispensable to the purpose in view—that of relieving the visitor from the city—than any other available feature.

The site of the Park being naturally very broken and largely composed of masses of rock, the extent to which the meadow-like surfaces of pastoral scenery could be introduced in the plan was limited.

It was, then, first of all, required that such parts of the site as were available and necessary to the purpose should be assigned to the occupation of elements which would compose a wood-side, screening incongruous objects without the Park as much as possible from the view of observers within it.

Secondly, of the remaining ground, it was required to assign as much as was available to the occupation of elements which would compose tranquil, open, pastoral scenes.

Thirdly, it was required to assign all of the yet remaining ground to elements which would tend to form passages of scenery contrasting in depth of obscurity and picturesque character of detail with the softness and simplicity of the open landscapes.

There are other elements yet to be considered; but those thus classified and assigned to various quarters of the site alone contribute directly to the general characteristic purpose of the Park, and are, therefore, to be distinguished as its essential elements.

This should be clearly recognized. As neither glass, nor china, nor knives and forks, nor even table and chairs are the essential elements of a dinner, so neither bridges, towers, shelters, seats, refectories, statues, cages for birds and animals, nor even drives and walks are the essential elements of the Park. But as what is well designed to nourish the body and enliven the spirits through the stomach makes a dinner a dinner, so what is well designed to recreate the mind from urban oppressions through the eye, makes the Park the Park. All other elements of it are simply accessories of these essentials.

Accessory elements, by which walking, driving, riding, resting, eating and drinking are facilitated, were also to be required in the design of the Park, in so far as they would be instruments necessary to be used to obtain the benefit of its essential elements.

But if people were to be allowed to straggle at will anywhere upon the ground, and if provision were to be made for their doing so comfortably and with cleanliness, all the ground would need to be specially prepared for the purpose; there would be no turf and no trees upon it, and it would afford no relief from the city. It will thus be seen that these accessory elements of the Park are admissible

only where and so far as the advantages they offer in making its essential elements available compensate for any curtailment their introduction may involve in these essential elements. They are desirable to be seen, so far as they aid the essential elements in inviting the observer to rest or move forward in one way or another, as shall most conduce to his recreation. They are undesirable to be seen, so far as they tend to weaken, divide, blot or make patch-work of the essential or natural landscape elements.

The first consideration, then, in a truly critical study of the size, form, and place in the Park of any required construction for the accommodation of visitors was, originally, and always should be, that the degree of display which may be allowed in it should correspond, as nearly as other considerations will permit, with the importance of the need it is designed to meet; this being measured, not only by its average value to each user, but with regard also to the number of those who will have occasion to use it.

The second consideration is, that whatever serves to display an artificial construction required for the convenience of visitors is *undesirable*:

1st. In the degree in which the border-screen is required to be broken.

2d. In the degree in which the scope of meadow-surface is required to be broken.

3d. In the degree in which picturesque passages are required to be disconcerted.

And the location of such constructions as are necessary to convenience should, as far as possible, be regulated by this scale.

But a class of possible accessories requires consideration which are not strictly necessary to make the essential elements of the Park

available, yet which may be adapted to indirectly increase the public value of those elements. For example, a great space of ground is not necessary to the performance or the enjoyment of music, but the effect of good music on the Park is to aid the mind in freeing itself from the irritating effect of urban conditions, and by increasing the pleasure of a visit to the Park, it will tend to enlarge the number of visitors to it, and prolong the average period in which the special means of recreation afforded by its essential elements are active. The simple question, then, in regard to the admissibility of musical entertainments on the Park is: will the necessary means of providing such entertainments, as the fixed orchestra, the seats or standing places of the audience, lessen the value of the essential elements of the Park?

Similar considerations will apply to various entertainments which are partially scientific and educational and partially amusing—a cage of monkeys or parrots, for example. But it being understood that to accommodate adequately the numbers of visitors to be expected on the Park, the necessary accessory elements alone must occupy the eye more than is desirable, it may appear that no considerable structures for such purposes can be justifiable.

There are, however, certain localities which may be regarded as exceptional in this respect. They occur from the fact that the Legislature found it convenient to define the legal bounds of this body of the city property by the pre-existing street lines, which do not precisely coincide with the desirable limits of the Park as a work of art, which must nevertheless be all included within them; there are, therefore, along the boundary, several small spaces of ground, buildings within which, if properly designed, will not affect the park landscapes, and which, regarding the Park as a work of art, and with reference to the purpose of affording recreation by scenery from urban conditions, may be considered as extraneous. Questions of

height, size and style of building being involved, these exceptional outer districts cannot be here more accurately defined. The extent of such debatable ground is, however, quite limited, and the question of the legitimate occupation and disposition of all parts of the Park site proper need not be complicated in the present discussion by the slight opening thus admitted for exceptions.

We submit that such requirements and restrictions as have been thus developed, commend themselves to common sense as well adapted to secure the desired end of the undertaking of the Central Park.

That the original plans were formed in accordance with them, and that they were respected by the original Commission, has been, as we know, sincerely and intelligently doubted.

We propose, in another letter, to consider the more common grounds of such intelligent doubt before examining the course of alleged improvement which has been more recently adopted.

We are, Mr. President,

Very respectfully yours,

OLMSTED & VAUX,

*Landscape Architects,*

NEW YORK, January, 1872.



## LETTER II.

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### EXAMINATION OF THE DESIGN OF THE PARK AND OF RECENT CHANGES THEREIN.

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To the Honorable H. G. STEBBINS,  
*President of the Department of Public Parks:*

SIR: In the present letter we shall hope to establish the conviction that the restrictions and requirements set forth in our last had been faithfully regarded in all classes of work under the original Commission, and shall afterwards indicate the course with respect to them which has since been taken.

A complete review of all the work being neither practicable nor necessary, we shall address ourselves to points in regard to which intelligent doubt has appeared, and, with reference to the recent works, to such as are most significant of the spirit and intention of alleged improvements.

The preliminary study of the original plan, it will be remembered, was first presented in competition with thirty-three others. One of its distinctions was, that it presented larger unbroken surfaces of turf and of water than any other; it was designated the "Greensward" plan. In actual construction the extent of open pastoral surface had been made even larger than was suggested in the preliminary study. It will not be denied that, wherever it had been practicable to complete the work up to the boundary before the Commission was

superseded, the required screening woods had been planted, while one of the criticisms upon the Park has been that, in much of the remaining ground, a wild negligence and seclusion has been suffered to prevail which was not in good taste.

Assuming, then, that, with more or less skill the prescribed requirements had been regarded in the design, as far at least as the primary blocking out of natural features is concerned, the question remains, and is one upon which a substantial difference of judgment undoubtedly exists, as to how far, in the subsequent introduction of accessories, or convenient furniture for use, the advantages so gained have been unnecessarily sacrificed?

The architectural features of the Park are numerous and costly, more numerous and costly, it is sometimes said, than those of any other modern pleasure-ground. From this fact, with the influences, explained in our first letter, fixing public attention very strongly upon the architectural works during the period of construction, it has happened that an impression has been very generally adopted, even with qualified judges, that the interest of the Park has been designed to be found largely, if not chiefly, in this class of its works.

The existence of such an impression is placed in very strong light by a not uncommon criticism that these works are so situated as nowhere to be seen to advantage; that they are not individually imposing structures, and that they are never so associated as to produce grand combined effects, such as might have been obtained had a series of boldly projected and well-designed objects of no greater costliness been arranged symmetrically in one noble composition, supported by corresponding plantations, as in the works of the old architectural school of gardening.

Perhaps the existence of the same impression is shown, however, even more strongly, when the Park is spoken of in terms of approval, which could not be applied to natural scenery, as "a magnif-

icent garden," for instance. It has naturally followed, also, from the same impression, and as a retort to misapplied compliments, that regret has been often expressed that the Commissioners had not had the good taste to prefer a plan purely in the natural style.

To persons who have not given special study to this subject, the frequent reference thus made to schools is liable to withdraw attention from the only point of any real importance that these comments prove to be in question, by making it appear necessary to understand the whole art of gardening before it can be intelligently answered. That this is not the case, we shall attempt to make clear by considering upon what purity of style, in a work of the class in question, depends. This may be seen by examining the conditions, and consequent human wants, in which each of the two schools referred to originated.

The architectural style of gardening was in vogue long before the period of Christian civilization; its finest examples probably had been formed in regions of grand landscape features, but of arid climate and with a general aspect of stern, wild and savage nature. The primary motive of design under this school, is, accordingly, to produce a splendid urbanity.

The natural school originated in the last century, and was based on the experience that in northern countries of perennial turf and of gentle topography, modern civilized men, however they may admire the magnificence of the ancient pleasure-grounds, find more refreshment and more lasting pleasure in certain not at all extraordinary types of natural landscape. An extreme statement of such experience is found by Mr. Robinson, in an account by Sidney Smith of a visit to "a very grand place," with which at first he had been enchanted. He says:—"It seemed something so much better than nature that I really began to wish the earth had been laid out according to the latest principles of improvement. . . . In three days' time I

“ was tired to death ; a thistle, a nettle, a heap of dead bushes—any—  
 “ thing that wore the appearance of accident and want of intention—  
 “ was quite a relief. I used to escape from the made grounds, and  
 “ walk upon an adjacent goose-common, where the cart-ruts, gravel-  
 “ pits, bumps, irregularities, coarse, ungentleman-like grass, and all the  
 “ varieties produced by neglect, were a thousand times more grati-  
 “ fying than the monotony of beauties the result of design, and  
 “ crowded into narrow confines.”

The landscape or natural school proceeds upon an analysis of such experiences to design the means of a similar gratification, as far as may be practicable in any given situation, artificially, and to reconcile the means of doing so with the cleanliness, convenience and comfort of those for whom the ground is prepared.

The two schools do not stand in opposition to each other, any more than the shoe-maker and the hatter. The question, if there must be a question of schools, is not, which do you like best? which is most to your taste? or which is the latest fashion? but which, in this or that particular case, promises to provide most toward the fullness of life? and this is wholly a question of special circumstances and conditions.

But as there is no doubt that an attempt to combine motives of such opposite character is sure to produce a feeble result, it is a perfectly reasonable demand that, in a work like that of the Central Park, it shall not be uncertain which has been adopted. Whether the number of architectural and avowedly artificial constructions on the Central Park establishes such an uncertainty, depends on the special motive of each of these constructions, as will be evident from the following considerations:

In all much frequented pleasure-grounds, constructions of various kinds are necessary to the convenience and comfort of those to be benefited ; their number and extent being proportioned to the man-

ner in which they are to be used, and to the number of expected users. If well adapted to their purpose, strongly and truly built, the artificial character of many of these must be more or less displayed. It is not, then, by the absence nor by the concealment of construction that the natural school is tested,

On the other hand, the principal elements of scenery in architectural gardens, even of such extreme types as that of Versailles, is found in verdure. It is not, then, by the absence nor the concealment of productions of nature that the architectural school is known. What remains as the essential distinction between the two would seem to be, simply, that in architectural gardening, natural features are employed adjunctively to designs, the essential pleasure-giving elements of which are artificial, while in natural gardening artificial elements are employed adjunctively to designs, the essential pleasure-giving character of which is natural.

It being admitted that the main purpose of the Central Park, as defined in our previous letter, exacts the predominance of natural elements; if this simple requirement in respect to its necessary artificial constructions is kept in view, no further consideration of what, under other circumstances, has been the practice of one school or the other, need enter into a critical review of its design. Neither need the special science of the gardener be brought in question. As Mr. Palgrave, in the preface to his *Essays on Art*, says of judgment upon what are more commonly and conventionally spoken of as works of art: it "is a matter which simply resembles other branches of human knowledge: a certain natural faculty or bias must always be presupposed; with this, as in case of mathematics or of language, taste is obtained by study and observation; and, as in those sciences, leads to a practical power of decision. Some few strictly technical qualities remain, on which the artist alone is a judge. But this exception does not invalidate the criticism of spectators,

“ \* \* \* \* \* the technical qualities are only means to a public end, and the question which remains always is, how far do they tend to the object of all the fine arts—high and enduring pleasure.”

To a fair understanding of the architectural elements of the design of the Central Park, it is first of all necessary that some effort should be made to realize what extent of accommodation will be required in this particular ground when it shall be in the centre of a city of perhaps two millions of people, surrounded by water and by densely populated suburbs for some distance beyond the water.

Obviously, not only in extent, but in solidity of construction, the means of accommodation which must at times be actually occupied in various ways by visitors will need to be somewhat different from those commonly associated with natural rural scenery. Somewhat different, also, from those required in most foreign public pleasure-grounds—the people of London, Paris, Vienna and Berlin, for example, having each nearly as many thousands of acres to scatter over in pursuit of their recreation as those of New York have hundreds.

By far the most extensive and important of the constructed accommodations of the Central Park are those for convenience of locomotion. How to obtain simply the required amount of room for this purpose, without making this class of its constructions everywhere disagreeably conspicuous, harshly disruptive of all relations of composition between natural landscape elements on their opposite borders, and without the absolute destruction of many valuable topographical features, was the most difficult problem of the design. If any one has doubts of this, it will only be necessary to drive through the Park, pausing at frequent intervals to consider what would be the difference of effect were the groups of foliage, even in their present partial development, thrown back twenty feet

on each side, and were the rocks blasted out or the slopes of the surface broken, which will be seen within that distance.

In dealing with this problem, the following considerations had weight. In any roadway much frequented by pleasure-vehicles, and little used otherwise, half a dozen heavily laden carts often cause more divergence from direct movement, and thus more impede such use of it as is chiefly desired, than as many hundred carriages driven at nearly equal moderate speed. A woman attempting to lead a child across the road when it is all crowded with rapidly moving vehicles, will often cause three or four horses to be pulled up to avoid her, and this will oblige others in the rear of them to be turned out of their course; or, if they are near the curb, also to be pulled up to avoid a collision. Consequently, under these conditions, the distance between the curbs will be frequently found, no matter how great it is, inconveniently narrow for those who wish to drive at a steady trot, and a given number of pleasure-carriages will move with greater regularity and be better accommodated in a wheel-way forty feet wide, from which ordinary slow traffic and people on foot are excluded, than in one eighty feet wide to which these sources of obstruction and disturbance are admitted. Again, in crowded thoroughfares, continuous straight-forward movement on the walks is chiefly impeded by people—especially women, children and infirm—who stand fearful and hesitating at the crossings, and whom, under these circumstances, others sometimes find it difficult not to press upon.

These and other observations of similar import, both in our own streets and in European parks, led to the planning of a system of independent ways: 1st, for carriages: 2d, for horsemen wishing to gallop; 3d, for footmen; and 4th, for common street traffic requiring to cross the Park. By this means it was made possible, even for the most timid and nervous, to go on foot to any district of

the Park designed to be visited, without crossing a line of wheels on the same level, and consequently, without occasion for anxiety or hesitation.

Incidentally, the system provided, in its arched ways, substantial shelters scattered through the Park, which would be rarely seen above the general plane of the landscape, and which would be made as inconspicuous as possible, but to be readily found when required in sudden showers.

Without taking the present occasion to argue the point, we may simply refer to another incidental advantage of the system which, so far as we have observed, has not been publicly recognized, but which, we are confident, may be justly claimed to exist, in the fact that to the visitor, carried by occasional defiles from one field of landscape to another, in which a wholly different series of details is presented, the extent of the Park is practically much greater than it would otherwise be.

The system was elaborated with great care in detail to accomplish the necessary introduction of its numerous arches and variations of surface, in such a manner as that the ravines and ridges should not appear to have been constructed to order; natural depressions of surface were generally made available for approaches to the subways, but sometimes the construction of picturesque defiles through rock, and even tunneling was resorted to in order to avoid disturbance of important landscape features. In most cases rocky banks were worked up boldly against the masonry of the arches, so that as little as possible of it should be exposed; these banks were planted in such a manner as to obscure it still more. The arches were often so made that a thicket of bushes could be substituted for an obviously artificial parapet. The necessary railing of others was used as a trellis, so that it disappeared under a drapery of twining foliage.



In the majority of cases where, two years ago, the design had not yet been at all realized, we believe that visitors, in passing over the arches, often did so without being aware of it, and in passing under them did so with an experience of gratification. In the single instance where a choice is offered between crossing the drive by the same number of steps upon the surface, or by an arched way, the latter is generally chosen by habitués of the Park.

More than nine-tenths of the so-called architectural objects of the Park have been built as necessary elements of this special system, which had been designed to supply the maximum of accommodation with the minimum of disturbance of its natural scenery, and especially of the more important features of its natural scenery. (In looking across the two principal meadows, in no direction is an archway to be seen. There is one on the edge of a third and smaller meadow, but it is so retired and shaded as in summer to be undiscernible.)

It may here be mentioned that there had been, under the old Commission, but two permanent buildings erected upon or in the edge of the open grounds, and both of these were flanked by groves of trees; one, was a cottage containing dressing-rooms for ball-players; the other, a small, tent-like structure, the mineral spring pavilion. As yet, the appearance of even such small structures, seen often against the sky and in sunlight, is glaring compared with what it will be when the planted trees shall curtain round and overhang them.

Taking all the architectural features of the Park together, we believe that when the natural elements of the design have been fairly developed, those which had been established under the original Commission will be found to very moderately affect its landscape character, and that rarely will more than one of them be distinguishable from any particular point of view.

It is not to be assumed that in such cases it will always be seen undesirably. It is, to say the least, doubtful if the most effective anti-climax to the lofty buildings and paved levels of the city is to be found in a scene absolutely devoid of evident human handiwork. No authority on landscape design has contended for this. Mr. Ruskin has shown the value of a bridge or a chalet introduced in a representation of even the grandest scenes of nature. Uvedale Price, who, in his zeal for the picturesque, argues that even rudeness resulting from storms, decay and the depredations of beasts should be reproduced by the gardener, cuts trees away to bring a mill, a village spire, or a cottage into his park compositions. Shenstone says, "a rural scene is never complete without the addition of some kind of building."

To determine whether any structure on the Park is undesirable, it should be considered, first, what part of the necessary accommodation of the public on the Park is met by it, how this much of accommodation could be otherwise or elsewhere provided, and in what degree and whence the structure will be conspicuous after it shall have been toned by weather, and the plantations about and beyond it shall have taken a mature character.

Under the peculiar plan adopted in laying out the roads and walks of the Central Park, no one, we believe, who will candidly study it, can doubt that there is a much smaller parting and displacement of the essential natural elements of the Park and a much smaller display of artificial elements than there would needs be, had it been undertaken to provide an equal amount of public accommodation without the architectural constructions of the archways.

Even, however, if a doubt can be maintained on this point, it can be no more than a doubt. Fifteen years ago, the grounds of doubt were very clearly before the administration of the Park, and they were cautiously and deliberately weighed; every argument against

the expedient which has since been raised being fully presented and considered before it was adopted. Having been adopted, there is no part of the drive, no part of the ride, and but little of the walk system which is not studiously adjusted to the arches, and planned, in respect to course, breadth, curves and grades, with a constant purpose to avoid leading people on foot to wish to occupy ground on which others have a right to drive horses. That a certain advantage was promised by the arrangement, there has never been a doubt; that a certain advantage is experienced from it, there can be no present doubt. To justify setting aside this advantage, be it considered large or small, after all that has been expended to secure it, there should be clear evidence that some greater advantage is to be gained which cannot be secured without its sacrifice.

The serious and intelligent questionings of the plan of the Park to which we have thus replied, are nowhere recognized in the Annual Report of the Department, but in its undertakings of improvement a disposition to give up the advantages of the archway system has, as we shall show, been quite unnecessarily manifested, while the appliances originally used to avoid undue prominence in its necessary architectural elements have been neglected and in some cases dismantled. In the structures originating with the late administration, indeed, the reverse purpose is evinced; each, no matter how humble its purpose, being made as conspicuous, both by location and design of elevation, as its purpose will allow, and no consideration being paid to the manner in which the natural features will be affected by it, either in scale, color or composition.

The Annual Report, however, contains a series of strictures upon some points of the Commission's policy, of minor consequence, but for a fair understanding of which some explanation seems desirable. It should be remembered that a good deal of forecast had been

necessary in regard to the housekeeping work of a place in which the wants of some hundred thousand people would require purveyance, often for several days in succession, and, in which, especially the wear, tear, and litter of that number of visitors would need to be cared for by means and methods which would not be unseemly, would not obstruct their movements and would not interfere with their pleasure. To this end a considerable amount of handy fixtures of the class of dust-bins, tool, store, and other closet-rooms would need to be provided. As an illustration, turf must be kept close or it will run out; the cheapest and best way of keeping it close on the pastoral surface of the Park is to graze it with sheep, and for the sheep thus required, shelter is sometimes necessary. Until the Commission was superseded, old buildings, temporarily left upon the Park for the purpose, and slight temporary structures had been used for these offices. One of permanent character only had been begun, the general barn and stable, which had been so designed and placed that, although its roof, as now completed, is much larger than any other built upon the Park, not one visitor of a thousand has probably ever seen it. It is, at the same time, centrally located, and has direct communication with the streets, clear of the Park drives and walks. The same will be true of the range of workshops which has been begun under the late administration, in a situation and upon a plan previously prepared. Other buildings of this class had been designed to be similarly dealt with. We shall show later that a different policy has been initiated since, in respect to them.

In the original design of the Park, there had been no provision for zoological buildings or yards. Gifts of living animals having been afterwards made to the city, temporary quarters were provided for them in one of the old buildings, formerly occupied as a State Arsenal, and which was used likewise for various administra-

tive purposes. Temporary enclosures were also made for pasturage in two places on the borders of the Park. As the collection gradually increased, mainly from gifts to the city, it became evident that better provision for it would be necessary.

By taking advantage of the circumstances referred to at the close of the preceding letter, and carefully adjusting the required buildings, yards, paddocks, roads and walks to the plan of the Park, a considerable collection of the hardier birds, beasts and reptiles might be provided for without serious encroachment upon its important features; but if a general exposition of the zoology of the world were to be undertaken, including moderately liberal provision for giraffes, elephants, camels and other large tropical graminivorous animals, which, besides airy shelters and strongly enclosed open grounds for a satisfactory exhibition of their characteristic movements and habits in summer, with ample approaches and accommodations for crowds of lookers-on, need also roomy and artificially warmed winter apartments, it was seen that, with all possible skill in the arrangement of these appliances, the Park must be grievously injured with respect to its essential purposes. It was also seen that it would be a measure of economy to bring all required buildings for tropical animals near together for convenience of heating.

The suggestion was, therefore, made and adopted that a piece of unimproved land belonging to the city, lying near the Park, should be placed in the hands of the Commission—such parts of it as were needed, to be occupied by the tropical section of a popular zoological exhibition.

The impression is very emphatically conveyed in the Annual Report, that the ground given to the Commission in accordance with this suggestion, is wet, cold, and impossible to be drained, and that this consideration, which makes it utterly unsuitable for the purpose, had wholly escaped our attention. As the late administra-

tion itself proposed to erect buildings for men and women upon the same site, it is hardly necessary to refer to this argument further than to state that surveys had been made and two distinct plans of drainage, with estimates, prepared, either of which was perfectly feasible. There was no formidable difficulty in making it dryer, more sheltered and warmer than any ground upon the Park.

Besides living animals, the Park had been made a receptacle for a variety of gifts to the city: some of them illustrations of art, others of history, others of science.

The policy of your Commission had been to cautiously foster the formation of collections mainly by the voluntary associated action of citizens, in which, through its negotiations, the public should be secured certain rights, rather than establish museums to be solely managed by the civic authorities.

A question had arisen as to whether any suitable buildings or building sites could be offered for this purpose; and this leading to the inquiry where on the Park *a large range of buildings could be placed at the least disadvantage to its essential elements*, a plat of ground east of the old reservoir had been indicated. The reason for this selection was that a large range of buildings at this point would be seen from no other point of the Park, the locality being bounded on two sides by the reservoir walls, on a third by a rocky ridge, and on the fourth by exterior buildings, while the whole of the territory thus enclosed was too small for the formation of spacious pastoral grounds, and was less well adapted and less required than any other equal space for contrasting picturesque effects.

Public interest had been rapidly increasing, and public agitations rapidly growing and tending to comprehensive and liberal combination in respect to these associated and incidental purposes of the

Commission's work; and although the time was not thought to have arrived for a definite and final study of plans, it was seen that some extensive public or semi-public buildings, in connection with the Park and on city property, would soon be called for, in the basements and courts of which it was not unlikely that some of the necessary accessories of the Park would be incidentally provided. Under these circumstances, the policy of the Commission being a waiting one, temporary accommodations continued to be patched up and used for many purposes, more and longer than was consistent with its own convenience or perfect efficiency of management for the time being.

The old arsenal, for example, was found a useful make-shift during the period of construction, but was regarded as a conspicuously ugly and ill-placed building. A part of the permanent buildings to which its contents would be transferred, had already been begun; projects for others were forming. Pending the question of its evacuation and demolition, expense had been as much as possible avoided in fitting it for its temporary duties, and, so far as its exterior was concerned, outlay had been chiefly directed to subduing its color, making it less conspicuous by reducing its height, and training over it the vines which the late administration has torn down and uprooted. The same temporizing policy led to the maintenance of various humble arrangements which are dealt with in the Annual Report, as if they were permanent, prominent and characteristic elements of the Park.

Most of the structures really permanent in character, which were built by your Commission, are unquestionably well built, and, like all firm and well-built permanent works, they were honestly costly. A doubt is admitted whether, in respect to arrangements of temporary convenience, a somewhat more liberal policy would not have been more economical. On the other hand, while there can be no

question of the great improvements made in this respect under the late administration, there may be a question whether their costliness is fully justified. But this is a matter of minor consequence, and we now turn to the main question of the alleged improvements of the permanent elements of the Park.

During fourteen years the whole work of the Central Park centered, as has been shown, upon three branches of a single purpose: first, the putting out of view of exterior buildings by a suitable disposition of tall growing trees; second, the formation of a series of broad, simple meadow surfaces, with, when practicable, such a disposition of umbrageous trees, without underwood, as would render their limits undefined; third, the development of a series of landscape passages *strongly contrasting* with those of the pastoral and high wood districts in complexity of grouping, and the frequent density, obscurity, and wild intricacy of low growing foliage, especially on broken and rock-strewn surfaces. The permanent accessory elements of roads, walks, arches, and other structures had been located and designed in strict sequence and subordination to these purposes; as little as possible to conflict with them, as much as possible to support them.

The question now before us is, how have these purposes been served during the last year and a half; how far has the value which had been gained previously been increased, and in what degree, with reference to these purposes, has the design of the Park been improved by the changes made?

First: as to the screening woods?

The Department has done nothing to advance, and but little practically to thwart this branch of the design, but it has published the declaration (page 20 of the Annual Report) that it is an illegal undertaking; that an unobstructed view across the Park from any



house that may be built around it is one of the rights of the owners of the adjoining land that cannot be interfered with for the public benefit. In that case, unquestionably, much of the work which has been done upon the Park, under the late administration itself, as well as previously, has been worse than wasted, for much earth and rock has been heaped up, as well as trees planted, which must have this illegal effect, and it would seem to be necessary for compliance with the requirement, to reduce its surface everywhere to the level of the adjoining streets.

Second ; as to open landscapes ?

The Department has begun the erection of a large series of buildings, which is intended to be followed by the construction of a series of small yards, of walks between them, and of lines of trees following these walks, upon the largest meadow of the Park. The first of the houses may be seen, exteriorly nearly complete, about 400 yards south of Mount St. Vincent. The meadow is intended to entirely disappear, and in defending its course (pages 23 and 280, Annual Report) the late administration has not considered the landscape value of this opening worth mentioning. The argument of the defence is based, as we have shown, upon a fallacy.

In the site of the lower Park there were originally two spaces besides those excavated for water, where, by the reduction and covering with soil of a few comparatively small ledges of rock, it was possible to obtain some expanse of landscape. One was at a lower elevation than the other, and they were separated by a rocky ridge and rapid slope. Along this slope it was thought necessary, for reasons of exterior convenience, that one of the roads for common business purposes crossing the park should be carried, This was graded eight feet below the natural surface, and a ledge to the north of it having been blasted out for the purpose, an opening

about 200 feet in width was thus secured, by which the range of the eye from both sides was greatly extended, looking from the south, considerably more than half a mile. Walks leading from the main walks were laid out near the edge of the sunken road, from which however the masonry of its walls was concealed. A row of English elms "breaking joints," with a row of silver maples, pruned as street trees, to long naked trunks, has been planted by the late administration, following the lines of these walks. The effect, if they should be allowed to grow as intended, will be to completely close this opening, previously secured at so much expense.

Third: as to the more picturesque elements?

It must be admitted that the plantations of the Park, and particularly the more picturesque plantations, at the period of the change of administration, did stand, as claimed in the Annual Report, in need of extensive revision. The construction of the Park had proceeded by districts, one after another being taken up in succession. From the time in which drainage and grading work began, until the roads and walks of any district were finished, was generally a period of from two to three years. It was necessary to finish roads and walks before the ground adjoining them could be surfaced and planted, As soon, however, as roads and walks were finished, the public eagerly thronged upon them. The desire was strong with the Commission that when this occurred the impression produced by the appearance of the adjoining ground should not be so disagreeable as it was likely to be if left in the extremely rough and cumbered condition which the border of a road under construction must have. It often happened that the first opportunity of clearing them occurred very late in the planting season; in the spring, so late that only coniferous trees could be planted safely.

The Commission had declined to adopt the policy urged upon it

at an early day to establish a large and varied nursery of its own. It began with the trial of some not very successful experiments to obtain its trees, like brick, stone and cement, by contracts to the lowest bidder. It had been found impossible, through ordinary channels to obtain many desired trees and plants, and especially to obtain anything like the number of many that was required. Of some that were then costly, there was a certain doubt, since wholly removed, that they would endure the climate of the Park, at least until its surface should become less bleak.

These and many other considerations (some of which are indicated in the printed document of the Commission, No. 4, of 1859, pages 5 and 6), led to a habit of occasionally giving a temporary finish to the ground, and often to the planting of unsuitable trees, especially strong conifers, which would serve to give it a fresh, green appearance, and at once cover its nakedness, with the intention of subsequently removing them to the outer parts of the Park,

Owing to successive changes of policy of other departments of the city, the finishing of the outer parts of the Park was delayed, and for this and other reasons the necessary measures for securing an adequate supply of many desired plants had not yet been taken when the Commission was removed. It sometimes happened, therefore, that only the central or interior members of the principal masses and groups of planting had yet been planted, while cheap lots of the commonest nursery stock had been dropped in along the borders of the drives and walks in front of them.

With similar motives, indigenous trees and shrubs had been suffered to remain untouched in some localities, where, when full grown, they would destroy important landscape compositions, and these had already partly overgrown and obscured some points of interest.

The intended revision, by the removal of temporary material

and the introduction of finer detail, the cutting away of low growth in some cases, the establishment of low growth in others, had, it cannot be denied, been in many parts postponed longer than was desirable.

A vigorous remedy for this neglect has, during the last year been in progress. The result is frequently, that in parts of the Park in which intricacy of low growth and picturesque obscurity had been required by the design, the natural underwood has been grubbed up, the original admirably rugged surface made as smooth and meadow-like as ledge-rock would allow, and the trees, to a height of from ten to fifteen feet, trimmed to bare poles.

The object of these operations is stated in the Annual Report to have been that of securing "a circulation of air," "opening beautiful views of lawn and scenery," and clearing the Park of "cat-briars and tangled weeds." The undergrowth removed was, in fact, largely of indigenous azaleas, clethra, cephalanthus, and the commonly associated interesting wood shrubs, with plenty of asters, gentians, golden rod and the like. No shrubbery or low growth seems to have been valued unless it could be seen within a clean-edged dug border.

The extent to which this kind of improvement has been carried, is partly indicated by the fact that the quail, both Eastern and California, with which the Park was well stocked, and which were breeding in it freely before the destruction of the covers, have now almost wholly disappeared.

The bolder rocky parts of the Park had been in some cases, especially in the more recent work, left with a smooth surface of turf or of clean, bare ground between and about the base of the rocks, and with smooth, turf-covered flanking slopes, conditions scarcely ever seen in nature, incongruous and uninteresting. The intention had been to give a temporary finish to these parts that would save a destructive wash of the surface; and afterwards,

at a convenient time, to add peat and wood earth, and bring to them a large number of low plants from the mountains, ferns, mosses and creepers. Nothing like this has been done, but the late administration has, in some of these cases, undertaken an improvement by the introduction of a variety of beds in arabesque patterns, planted with flower-garden annuals.

On the borders of the open ground, where the indigenous trees required thinning, an additional number have in some cases been planted, and in others an improvement has been attempted by lopping off lower limbs in the manner before described, so as to lessen their umbrageousness and produce the character of street trees.

A large number of structures have been projected, some planned, and the plans of others, half built, recast, but to show how little respect has been paid to the requirements originally recognized in this class of the accessories of the Park, it will be sufficient to refer to two buildings for the humblest purposes, which have been projected, planned and completely constructed since the removal of the original Commission.

No one can visit the Park without having his attention called to a structure placed on a slight elevation, where, in the original design, the principal meadow view from the north part of the Mall was designed to become dim under large trees, which were also to hide the buildings on the Eighth avenue, which lies sixty paces beyond. It consists of a central building, two stories in height, with low wings, extending diagonally on each side toward the Green, and terminating in two handsome pavilions of greater elevation. It has throughout a high pitched, slate roof, decorated with turrets and gilded iron work; the walls are of pressed brick, with trimmings of cut blue stone and polished granite, and its general aspect suggests a large English parochial school. Its cost has been

\$70,000. It is officially designated a "sheepfold," and its ostensible purpose is to provide a shelter, *at night* and in severe winter weather for the sheep used to keep down the grass on the adjoining Green. The pavilions at its ends, however, are designed for the use of visitors, and it has been intended that portraits of sheep and specimens of wool should be hung upon their walls. It is expected, as stated in the Annual Report, to be "a great attraction to all classes." It can, nevertheless, only be reached by footmen, after crossing the Bridle Road *on the surface* at a point where, owing to its grades and curves, a rider would not see persons crossing before him until too close upon them to pull up a galloping horse. So little was this objection to the site and arrangement valued, that when the attention of the Department was called to it officially, it obtained no attention. A flower-garden was designed to be formed in front of the sheep-shed, between which and the door to its public rooms the Bridle Road passed.

A "cottage" may be seen a little to the north of this edifice. It is situated between two branches of the Bridle Road, which must be crossed on the surface by every one visiting it.

Situations for both these buildings, free from this objection, in which they would have been more convenient for their purposes, and much less obtrusive, might have been found within a stone's throw of their present positions.

On the drive east of the old reservoir, one of the archways of the walk system has been lengthened: in rebuilding its end, the original arrangement, by which a screen of shrubbery was carried across the arch, entirely concealing the artificial work, has been changed, a broad platform of blue stone, with a substantial iron railing, substituted, and the face of cut stone work over the arch has been doubled in depth.

The Central Park, on account of the narrowness of its site and the way in which it is broken by the reservoirs and numerous rocky ledges, and because of the constructions indispensable to the convenient and harmonious use of it, in divers methods and under various circumstances, of the vast body of people of all classes, which will need to be accommodated when the centre of population, now four miles away, shall be in the midst of it, could not be given a landscape character of as much simplicity, tranquility and unsophisticated naturalness as, for its primary purpose, was desirable. If the work done upon it during the first fourteen years was designed, without undignified tricks of disguise, or mere affectations of rusticity, to get as far as practicable the better of these difficulties, and secure as much as possible of this desirable character as we have given reasons for claiming, all that has been done and projected since has been directed by the reverse motive and necessarily to the waste of what had before been gained.

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In judging what should now be done with the Park, there are a variety of minor considerations which seem to require more attention than, in public discussions, they always receive.

The Central Park is not by any means to be the only place of resort in the city for pleasure-driving and walking. To say nothing of the smaller grounds now in use, at least twenty miles of shaded "boulevards" are already laid out upon the island, besides four notable pleasure grounds, which remain to be prepared. From two of these grounds, and from a number of points in the boulevard system, views much more grand than any on the Central Park will be permanently commanded,

and each of the pleasure grounds will be likely in some respects to excel the Central Park in beauty.

The boulevards, five miles of one of which, 150 feet wide, is nearly complete in its constructive features, will offer much better opportunities for a display of equipage and for general public promenade than can be presented in the Central Park.

No part of any of the lands now owned by the city on the island is suitable to be formed into a parade ground, which the present Governor has declared to be a necessity of the city, the demand and agitation for which has already been heated and is sure to occur again and with increasing force.

Four broad avenues of communication, running parallel with the principal drives of the Park, are now under construction, and will in a few years be open to public use. These will withdraw an important element of the travel that now passes through the Park.

As population increases and lodges nearer the Park, those who will resort to it for a short stroll on foot or for lounging and resting—who will require walks, seats and shelter—will increase in number much more rapidly than those who come to it in carriages and on horseback. It may in time even be superseded as the fashionable promenade, but, unless greatly mutilated and mismanaged, in no other grounds can there be offered any comparable degree of simple rural effects or of advantages, in that respect, of relief from the city. This special quality of value, then, in the Central Park, should be carefully guarded against a disposition to extend the wheel-ways, or crowd the limited open spaces with artificial objects of interest which would soon have greater value elsewhere.



The value of the Park to the city will be greatly affected by the degree in which good nature and a liking for good order and decorum prevail among those who resort to it. Nothing is so unfavorable to an increase of its value in this respect as temporary, make-shift, incomplete or imperfectly finished arrangements by which the convenience and comfort of visitors is affected and their esthetic impressions are confused. The best means of education in good order is good order.

The walks, especially the concrete walks and gutters, borders of the walks, wooden foot bridges and wood work generally, are now in bad order, and partly from neglect of timely repair, much of their original material will require to be replaced. The present condition of the various works of all classes, executed from eight to fifteen years ago, demonstrates the superior economy of the more substantial and, in the first cost, more expensive structures, and also of a judiciously liberal policy in maintenance.

The existing arrangements for supplying refreshments in the Park are temporary and incomplete: the buildings in which they are served are none of them adapted to be used precisely as they are at present.

The Central Park was designed in all its parts to be closed at night-fall, and to be environed by a walk thirty feet wide and six miles long, to be brilliantly lighted for a night promenade. The time must soon come when, if the Park proper is left open at night, it will be impossible by any practicable force of police to prevent the occurrence of frequent crimes and gross outrages upon it. The advantages for clandestine purposes offered in its numerous coverts of rock and foliage, will tend not only to bring the Park itself into disrepute, but to form a bad neighborhood about it. The attempt, recently projected, to light it

with gas, while the cost in original outlay and continuous expense would be very great, could not possibly make it a safe or decent place of resort at night. The difficulty of closing and clearing it will increase the longer it is left open after dark. It can hardly be closed, however, at least to carriages, until the adjoining avenues are made ready for use.

The due return for what has already been expended in the Park undertaking, remains not only in abeyance, but, as recent experience has shown, in special peril, so long as the completion of its deferred works is delayed.

Of these there are three classes: First, those dependent on works outside the Park proper. Until, for example, the grading of Eighth avenue is complete, a body of trees within the Park, of the first importance in its landscape design, must remain unplanted, although they will need thirty years' growth to fully realize their purpose, and the trees with which they are to combine, and with which great inequality is undesirable, have already been planted ten years.

Second, those which are yet but vaguely projected, and the location and extent of which, so far as they are to come on the Park at all, is undetermined, as the proposed museums of science, of art, and of living animals.

Third, the refinement and filling out with delicate detail of the present but roughly sketched-in landscape design, especially by suitable horticultural treatment. This, which would not be very costly work, may and should be at once diligently prosecuted.

The increased value of life in this city which has been thought to be promised in the Park, and the expectations of trade,

population and wealth to be held and attracted to it, returns more to the city treasury, through its effect on the value of real estate, than the cost of acquiring the Park, as it now stands, has taken from it.

It is quite possible that a large additional outlay may be made on the Park with the eventual result of abating and disappointing the expectations which have been formed of it.

On the other hand, not only may the highest estimates hitherto entertained of its value be realized, but by well directed outlay, they may, profitably, be very much enlarged.

We are, Mr. President,

Very respectfully yours,

OLMSTED & VAUX,

*Landscape Architects.*

NEW YORK, February, 1872.

The following is the letter referred to on page 68:

No 110 BROADWAY,  
NEW YORK, November 25th, 1870.

To the Honorable PETER B. SWEENEY,

*President, Department of Public Parks:*

SIR:—We first learn by the public prints to-day that the Department has had under discussion, and has resolved upon a proposition to transform the open ground of the north division of the Central Park into a Zoological Garden.

When we accepted the office of Chief Landscape Architects Advisory to your Department, the terms of the resolution secured to us an opportunity to report on the effect on the general design of the Park of all propositions involving the introduction of new structures upon it.

As the location now proposed for the Zoological Garden buildings would seem to involve a neutralization of features which have hitherto been deemed important elements of the executed design of the Park, we should be glad of an opportunity to carefully examine the scheme and to submit a report thereon before the termination of our present relations with the Department.

Respectfully,

OLMSTED, VAUX & CO.,

*Landscape Architects.*

## REFERENCE TO CENTRAL PARK MAP.

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| <ol style="list-style-type: none"> <li>1. Bust of Humboldt.</li> <li>2. Site for Conservatory.</li> <li>3. Museum, Menagerie and Park Offices.</li> <li>4. Reservoir Keeper's House.</li> <li>5. Nursery.</li> <li>6. Stable.</li> <li>7. Ball-Players' House.</li> <li>8. Block-House, War of 1812.</li> <li>9. Site for the 7th Regiment Monument.</li> <li>10. Statue of Commerce.</li> <li>11. Carrousel.</li> <li>12. Morse Statue.</li> <li>13. Shakespeare Monument.</li> <li>14. Dairy.</li> <li>15. Children's Cottage.</li> <li>16. Music Pavilion.</li> <li>17. Pergola.</li> <li>18. Carriage Concourse.</li> <li>19. Casino.</li> <li>20. Mt St. Vincent, House of Refreshment.</li> <li>21. The Terrace.</li> <li>22. The Esplanade.</li> </ol> | <ol style="list-style-type: none"> <li>23. Bronze Statue of Tigress.</li> <li>24. The Plaza.</li> <li>25. The Spa.</li> <li>26. Site of Art Museum.</li> <li>27. The Circle.</li> <li>28. The Bow Bridge.</li> <li>29. Women's Cottage.</li> <li>30. Balcony Bridge.</li> <li>31. Road Step.</li> <li>32. Bust of Schiller.</li> <li>33. Men's Cottage.</li> <li>34. Old Redoubt.</li> <li>35. The Tunnel.</li> <li>36. The Belvidere.</li> <li>37. Children's Summer-House and Play-<br/>Ground.</li> <li>38. Work-Shops.</li> <li>39. Site for Museum of Natural History.               <ol style="list-style-type: none"> <li>a. Arbor.</li> <li>b. Archway.</li> <li>1. Boat-Landing.</li> <li>s. Summer-House.</li> </ol> </li> </ol> |
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MAP

APPENDIX C.

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REPORT

OF THE

SUPERINTENDENT OF PUBLIC PARKS

ON THE

CONDITION OF THE CENTRAL PARK

IN NOVEMBER, 1871

REPORT  
OF THE  
SUPERINTENDENT OF PUBLIC PARKS  
ON THE  
CONDITION OF THE CENTRAL PARK

JN NOVEMBER, 1871.

---

Hon. HENRY G. STEBBINS,

*President, Department Public Parks:*

SIR:—Pursuant to your directions, I herewith submit a report in reference to the condition of the roads, walks, &c., on the Central Park, on my resuming the position of Superintendent, November, 1871. The roads are in a condition far inferior to that in which I left them in May, 1870, and it will require a heavy outlay, in labor and material, to bring them up to their former state. Notwithstanding the large sums expended upon the walks for gravel, concrete and asphalt, I find them in very poor order. Those in the Ramble and the Fifth avenue sidewalks, especially, are disintegrated and honeycombed. The bituminous pavement put down on the north end of the Mall and the walks in the vicinity, having been thrown up by the frost and badly cracked, presents a very rough and uneven appearance.

In respect to other parts of the park, I observe that the lawns and meadows have been very much cut up by careless carting on them, and the turf is much injured. The original natural growth of vines and underbrush has been grubbed out in many large spaces, and its removal has caused the quail and other birds, which formerly enjoyed its shelter, to leave in large numbers. Several years ago, creeping vines, such as Ivy, Virginia Creeper, Wisteria, &c., were planted about the old Arsenal for the purpose of covering the unsightly building and giving it a picturesque appearance. This object had been attained, the vines having nearly reached the top. They have been taken down and destroyed, leaving the structure and all its defects exposed to view.

The interior of the old Arsenal has been handsomely fitted up for the accommodation of the American Museum of Natural History, Offices of Administration, Police, &c. This building, with several others, which have been erected in its immediate vicinity for the accommodation of the living animals belonging to the Department, are heated by steam.

The Sheep-fold, an extensive and costly structure, was designed and erected without proper regard to light and ventilation—two indispensable requisites—the absence of which totally unfits it, in my judgment, for its ostensible purpose. It is also extremely damp.

The Stables, which were commenced before I left, have been completed, and the floors, as well as the yard, have been paved with wood pavement, the blocks of which are saturated with coal-tar. The effluvia arising from this appears to be injurious to the horses, many of them having been attacked with inflammation of the throat and lungs.



The buildings at Mt. St. Vincent have been much improved by repairs and painting, and offices have been fitted up for the Landscape Gardeners, Engineers, Police, &c., which are heated by steam, by an apparatus placed in the lower story. Fire-proof vaults have been built for the safe keeping of the archives, maps, plans and valuable papers belonging to the Department.

Yours respectfully,

COLUMBUS RYAN,

February 26, 1872.

*Superintendent of Public Parks.*

APPENDIX D.

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ANNUAL REPORT

OF THE

DIRECTOR OF THE METEOROLOGICAL OBSERVATORY,

CENTRAL PARK, NEW YORK.

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Latitude,  $40^{\circ} 45' 58''$  N.

Longitude,  $73^{\circ} 57' 58''$  W.

Height above the Sea, 97 feet.

## THE REPORT OF THE DIRECTOR OF THE METEOROLOGICAL OBSERVATORY.

*To the Board of Commissioners of the Department of Public Parks :*

GENTLEMEN:—During the past year (1871) the daily work of this Observatory has been uninterruptedly kept up, and complete registers have been obtained of the temperature and pressure of the air, of the direction, force and velocity of the wind, of the total amount of every rain, the temporary variations of every shower, and the depth of every snow; not a day, even including Sundays and holidays, has been lost. The registers containing all this large amount of information have been properly arranged and filed.

It was fortunate that I had provided pencil machines, running side by side with the photographic ones for recording the movements of the thermometer and barometer. Had it not been for this, the statement just made could not have been presented. At the time of the accident at the Metropolitan Gas-Works, the supply of light for the photographic instruments was cut off for three days, and their registers are of course wanting. But the pencil machines operated perfectly, and thus an unbroken record was secured.

It should be here stated, that all the instruments described by me in my previous reports have continued to work in the most perfect and satisfactory manner. In this respect, they leave nothing to be desired.

Among the records thus obtained and preserved, there is one set to which I desire to call attention. It is those yielded by the rain-gauge, and suggests the following inquiry:

*Does the clearing of land increase or diminish the fall of rain?*

Much solicitude is publicly felt as regards the supposed diminished quantity of water which fell last year, a point of the highest concern. There is a general impression that this alleged deficiency was to such an amount as to endanger a due supply to the city for the current year. And not only this, it has also been asserted, that for several years past, there has been a steadily occurring diminution in the rainfall. Whilst the quantity of water has thus been becoming less and less, the demand has been becoming greater. Not only has the population of the city increased, but also that of the suburban districts, which derive their supplies from the same water-gathering grounds that we do.

I therefore supposed, since our registering rain-gauge furnishes very reliable measures, that it would be useful to examine this subject critically. But since we have had these gauges in operation only about three years, and as the investigation proved to be full of interest, I was led to draw upon other additional sources of information, selecting such as seemed to be of the most trustworthy kind. By the aid of these, the examination has been extended as far back as 1836, and with the following results:

1st. As respects the indications given by our own instruments, which may be thoroughly relied on for the years 1869, 1870, 1871.

For the first of these years, 1869, the total rain-fall was 46.82 inches, distributed as follows:

During the 1st quarter.....	15.06 inches.
“ 2d “ .....	10.24 “
“ 3d “ .....	7.72 “
“ 4th “ .....	13.80 “
Total.....	<u>46.82</u> “

For 1870, the total rain-fall was 42.32 inches, distributed as follows:

During the 1st quarter.....	12.86 inches.
“ 2d “ .....	10.29 “
“ 3d “ .....	9.39 “
“ 4th “ .....	9.78 “
Total.....	<u>42.32</u> “

For 1871, the total rain-fall was 52.06 inches, distributed as follows:

During the 1st quarter.....	10.33 inches.
“ 2d “ .....	14.12 “
“ 3d “ .....	14.21 “
“ 4th “ .....	13.40 “
Total.....	<u>52.06</u> “

So far as these years are concerned, there does not appear any evidence of a decrease. On the contrary, in the last, there is a very considerable excess over either of the others.

Extending our examination to preceding years, as far back as the beginning of 1836, and grouping those years into three

periods, each of ten, and one of six years, the statement comes to this:

1st	Period from 1835 to 1846.....	39.5 inches.
2d	“ 1845 “ 1856.....	47.0 “
3d	“ 1855 “ 1866.....	52.0 “
4th	“ 1865 “ 1872.....	52.0 “
This would make the annual rain-fall throughout these 36 years.....		<u>47.62 inches.</u>
That of the last three years is.....		<u>47.06 inches.</u>

These numbers being substantially the same, it may be concluded, that though there are large variations from year to year, as shown in the synoptic table on page 162, these, on the whole, will neutralize one another, when very long periods of time are considered.

In the foregoing tables the numbers from 1836 to 1854, inclusive, are derived from the observations made by the Military Officers at Fort Columbus, New York Harbor; those for the next twelve years are from the records of Prof. Morris, in New York City; and the remainder are from the registers of this observatory. On page 162 will be found a chart of all those years, which will present to the reader a general result at one view. It is of course assumed that the rain-fall at Fort Columbus, that in New York City, and that in the Central Park are the same, an assumption which is, I suppose, under the circumstances, admissible.

The amount of rain-fall not only influences in a predominant manner the growth of plants, and, therefore, agricultural pursuits, determining the profitable cultivation of many different crops, but it also exerts an influence on several manufacturing operations. If, therefore, the above statement be correct, no apprehension need be entertained of a permanent disturbance

in these particulars. Although in the last thirty-six years great changes have been made in all those portions of the United States intervening between the Mississippi and the Atlantic Ocean, large surfaces having been cleared of the primeval forests, and brought under cultivation, their physical character and aspect having therefore been essentially altered, no corresponding diminution can nevertheless be traced in the mean amount of water that has fallen. On the contrary, as seen in table I, and in the synoptic chart, there has been an actual increase. It appears, therefore, that the wide-spread public impression, that the clearing of land diminishes the volume of rain is not founded on fact, and in truth this is no more than might have been expected from a correct consideration of the meteorological circumstances under which rain is produced.

It is the belief of European Meteorologists that the mean rain-fall on the western portion of that continent varies little, if at all, when periods of many years are considered. In England there are rain-fall records reaching back to 1677. Since 1725 these records are unbroken; at present there are more than 1,500 rain-gauge stations in that country. The Scotch observations extend to 1731, the Irish to 1791.

A discussion of the observations made at the Royal Observatory at Greenwich, in 1859, led to the conclusion that the annual fall of rain, as compared with that previous to 1815, was becoming smaller; but more extended observations, taken from gauges at stations widely separated, led to the opposite conclusion, viz., that there was a perfect compensation, the decrease at one place being compensated by the increase at another.

This conclusion was strikingly illustrated by the Continental

observatories. The rain-fall at Paris was found not to have altered in 130 years, and though the observations of fifty years at Marseilles gave a decrease, those for fifty-four years at Milan gave an increase.

Even in the same locality this principle of compensation may be noticed. Thus the rain-fall in England, in the ten years from 1850 to 1859, was found by Mr. Symons to be five per cent. less than during the previous forty years, but during the following six years it was five per cent. above the mean of the preceding ten.

It may, however, be supposed that conclusions which apply to the old-settled countries of Europe, in which but few important topographical changes, through agricultural or other operations, have taken place for many years, will scarcely apply to America, wherein the clearing of land and agricultural surface-changes have been occurring on a very extensive scale. The foregoing conclusions, however, show us how insignificant is the meteorological result which these variations produce.

#### OF THE AVAILABLE SUPPLY OF WATER.

The actual supply of water does not depend on rain-fall alone. It is diminished by evaporation, and also by percolation. When the condition of the atmosphere is such that, either by reason of the heat, the prevalence of dry winds, and other causes, the water that has fallen is exposed to rapid vaporization, the available supply necessarily becomes less.

As regards percolation, much depends on the rate at which the rain falls, and the contemporaneous condition of the surface of the ground. The supply may come so rapidly that there



is not time for it to soak into the earth. In this manner, the quantity that properly belongs to a whole month may fall in the course of a few hours, and, rushing over the surface, may be lost. Again, if the surface be frozen, it may be impossible for the water to percolate into the ground, and though it may descend in a more moderate manner, it may in this, as in the preceding case, be lost. Obviously, there are many causes of the kind which might be referred to; these, however, are sufficient to indicate the principle involved.

We have shown that agricultural conditions do not perceptibly affect the rain-fall; they do, however, very powerfully influence what may be designated as the rain-waste. Thus a growing plant vaporizes from its leaves an immense amount of water, which its roots have abstracted from the ground. A sunflower will thus remove twenty ounces of water in a single day. There is, in this respect, a waste which varies in the different months, being greatest in those during which general vegetation is most rapid, and less in those—the winter months—when it is torpid. For these and other such reasons, the monthly distribution of rain influences the actual supply.

It is interesting to remark, that the rain-fall of New York greatly exceeds that of London. Here it is 47.62 inches, in London it is but 25 inches, and the mean for all England is estimated at 31.25 inches.

But these considerations of the amount of rain fall are only a portion of a far more general and most important problem, viz. :

*Is the climate of New York changing, or, more generally, is that of the Atlantic States undergoing modification ?*

In this case, as in the preceding, there is a popular belief that clearing of land, drainage and other agricultural operations, tend to produce such a result. Land that has been ploughed and exposes a dark surface to the sun absorbs more heat, that is, becomes hotter than land covered with forest growth. It does not seem unreasonable, then, to suppose that where thousands of square miles of surface have been submitted to such operations, the corresponding effect should be traceable, at least in the temperature of certain seasons of the year.

Moreover there are some interesting facts which are matters of public observation and constant remark: thus, as every one knows, in the city of New York itself, there are no longer the deep snows which characterized the winter season years ago. The large sleighs often drawn by very many horses, used in those times as the public conveyances, have altogether disappeared from the streets. It would seem therefore, that the winters have become milder. In like manner, though in support of this conclusion we have less palpable evidence, there is a very general opinion that the intolerable and long continued heats, which formerly made the summer months almost unbearable, have greatly moderated, and that though the thermometer may occasionally rise as high as it formerly did, the continuance of the hot weather is shorter.

This popular opinion of change of climate through agricultural operations is far from being restricted to America or Western Europe; there is a belief that a great amelioration has taken place in all the Baltic countries, since the time of the Roman domination.

In many instances these popular impressions are contra-

dicted by well ascertained facts. Thus, as respects the Baltic, there are records of the time of the breaking of the ice in some of the great rivers, such as the Dwina and Neva, for several centuries. These show that during the last 300 years the variation amounts but to a fraction of a single day.

Such fragments as have been preserved of the observations of the first discoverers of North America—the Icelandic voyagers—have been supposed to prove a change in the climate of New England during the last eight hundred years, it being affirmed that the vine formerly flourished in regions where it cannot now exist. One of the first papers communicated to the American Philosophical Society in Philadelphia was by Dr. Williamson, offering proof that during the previous forty or fifty years a very great climatic change had taken place—he attributed it to cultivation. Soon afterwards, Dr. Williams, of Harvard University, offered evidence that the climate of Boston had changed ten or twelve degrees in about one hundred and sixty years. A close examination of the evidence by more recent authorities has, however, shaken these conclusions. Thus, as regards the Icelandic voyagers, it is shown that the description they give of the forest growths of New England is the same that might be given now. Humboldt, in his “Views of Nature,” comes to the conclusion that there has not been any change in the climate of the United States since its first colonial settlement, and in this Noah Webster, Forry and other American writers agree.

It is evident, however, that in a rapidly growing city there are several local causes which may be assigned as giving origin to an increase of temperature. The quantity of fuel burnt increases with increased population and with the num-

ber of houses, and this must exert a perceptible effect in ameliorating the rigor of winter. Moreover, on sunshiny days the reflection and radiation of the sun's warmth from the vertical sides of the houses must tend in no inconsiderable degree to raise the temperature locally and aid in producing a thaw. The facts observed in a city are hence not a complete guide in the discussion of general climatic changes.

If our climate be gradually changing, if the heat of summer is becoming less excessive, and the cold of winter more moderate, there are impending over us modifications in our social habits, and in many of our business occupations. Not only is the settlement of this question interesting in a meteorological or scientific point of view, the sanitary, engineering, manufacturing, mercantile and agricultural consequences are also of the utmost importance.

Impressed with these considerations, I was therefore led to extend my researches from the rainfall question to this more general problem, and with the intention of not being misled by local observations made in the city itself, which, as we have just remarked, are not altogether to be trusted, I have resorted to data of a more general topographical kind, such, for instance, as the times of closing and opening of the Hudson river. Also with a view of extending the conclusions, whatever they might prove to be, to the Atlantic coast generally, I have used such published records of the meteorology of Philadelphia, Boston and Charleston, as I could find access to; these reach from 1738, with certain breaks, up to the present time.

The data connected with the Hudson river have been derived from the annual reports of the Regents of the University; those of temperature for the locality of New York itself,

from the observations taken at Fort Columbus, and by Professor Morris for the Smithsonian Institution. The remainder are from the records of this Observatory. In the case of other Atlantic cities, the data are chiefly derived from the reports of the United States army officers to the Secretary of War.

## I.

TABLE showing the number of days that the Hudson River has been closed by ice.

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.		5TH PERIOD.	
Years.	Days Closed.	Years.	Days Closed.	Years.	Days Closed.	Years.	Days Closed.	Years.	Days Closed.
1817-18	108.	1827-28	75.	1837-38	94.	1847-48	89.	1857-58	82.
1818-19	110.	1828-29	100.	1838-3	116.	1848-49	82.	1858-59	85.
1819-20	102.	1829-30	63.	1839-40	65.	1849-50	73.	1859-60	85.
1820-21	123.	1830-31	82.	1840-41	109.	1850-51	69.	1860-61	80.
1821-22	92.	1831-32	111.	1841-42	47.	1851-52	105.	1861-62	100.
1822-23	90.	1832-33	80.	1842-43	136.	1852-53	91.	1862-63	109.
1823-24	78.	1833-34	73.	1843-44	95.	1853-54	85.	1863-64	82.
1824-25	60.	1834-35	100	1844-45	74.	1854-55	108.	1864-65	94.
1825-26	75.	1835-36	125.	1845-46	100.	1855-56	111.	1865-66	90.
1826-27	86.	1836-	111.	1846-47	112.	1856-57	93.	1866-67	103.
Mean of 10 years.	92 days.		92 days.		94 days.		90 days.		91 Days.

It appears from this, that from 1816 to the present time, we have an unbroken register. Taking 1817 as our starting point, we have, to 1867, five periods of ten years each. The

number of days during which the river was closed in each of these five periods, is:—

For the first.....	92 days.
“ “ second.....	92 “
“ “ third.....	94 “
“ “ fourth.....	90 “
“ “ fifth.....	91 “

The third period gives a greater number of days than any of the others; the general mean is 91 days.

The conclusion at which we arrive from the evidence thus furnished by the Hudson river is, that during 50 years, that is to say, the whole period of trustworthy records, there has been no important change in the number of days that the river has remained frozen. In this respect, the conclusion is the same as that which we have seen in the case of the Baltic rivers, for a period of 300 years.

The evidence thus furnished from the closure of a river by ice, differs from that of thermometric observations. The latter give merely the intensity of heat at the special moment, and in the special locality at which the observation is made. The former represents the quantity of heat over a long line, including many localities. It is, therefore, the better form, and furnishes more trustworthy results.

Turning now to the records of the City of New York, as obtained from the sources above specified, we find they are continuous from 1821 to the present time. It would extend this report unduly, were we to enter on an examination of each of these years respectively. Making a selection, then, let us compare the following groups of five years: first, from

1821 to 1827; second, from 1831 to 1837; third, from 1841 to 1847; fourth, from 1866 to 1872. It will be understood that the months selected are January, February and March.

## II.

TABLE showing the mean temperature in New York for the first three months of the year—  
January, February, March.

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1822	32.71	1832	33.25	1842	38.81	1867	30.94
1823	30.96	1833	33.95	1843	30.81	1868	29.46
1824	34.78	1834	35.04	1844	31.43	1869	34.77
1825	36.36	1835	30.72	1845	36.36	1870	34.27
1826	32.62	1836	27.18	1846	32.69	1871	34.22
Mean for 5 years.	33.48		32.02		34.02		32.73

The mean for January, February and March for 33 years is 32.90 degrees.

The mean for the above selection is 33.06 degrees.

The evidence thus derived from thermometric observations corroborates that derived from the freezing of the river, and undeniably leads to the conclusion that, if there has been any change in the winter climate of New York, it cannot be demonstrated by the extant thermometrical records of the last fifty years. This, therefore, adds weight to Humboldt's conclusion, that there has been no sensible change in the Atlantic States since the time of their first settlement.

Let us next see what is the evidence afforded by an examination of the Philadelphia records. As in the preceding case, a discussion of all these would be too lengthy. They go as far back as 1748, but present, however, a broken series. Selecting from this, here and there, periods of five years, we may thus group them: first, from 1766 to 1772; second, from 1797 to 1803; third, from 1821 to 1827; fourth, from 1831 to 1837; fifth, from 1851 to 1857.

## III.

TABLE showing the mean temperature of Philadelphia, for the first three months of the year—  
*January, February, March.*

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.		5TH PERIOD.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1767	35.06	1798	36.20	1822	33.40	1832	37.66	1852	34.10
1768	37.83	1799	35.13	1823	32.53	1833	37.33	1853	37.83
1769	35.66	1800	33.96	1824	35.36	1834	38.50	1854	36.56
1770	35.50	1801	36.70	1825	37.93	1835	33.33	1855	34.00
1771	35.33	1802	39.20	1826	36.33	1836	27.96	1856	27.66
Mean for 5 years.	35.87		36.23		35.11		34.95		34.03

The mean for January, February and March, for fifty-six years, is 35.56 degrees.

The mean for the above selection is 35.23 degrees.

From this it would seem that the mean temperature of the first three months of the year, at Philadelphia, is 2.66 degrees above that of New York, and that the same conclusion arrived



at in the preceding instances re-appears in this, viz., that there has been no change in the winter climate.

The Boston records reach back to 1780. Taking the same periods as in the preceding instances, as far as these records will permit, they are: first, 1797 to 1803; second, 1821 to 1827; third, 1831 to 1837; fourth, 1850 to 1856. .

It is to be remarked, that these observations are not all from the same station.

## IV.

TABLE showing the temperature of Boston for the three first months of the year—  
*January, February, March.*

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.	
Years.	Temperature.	Years.	Temperature.	Years.	Temperature.	Years.	Temperature.
1798....	29.83	1822	29.26	1832	31.00	1851	30.53
1799....	27.33	1823	27.63	1833	29.86	1852	27.03
1800....	29.80	1824	31.60	1834	32.16	1853	30.26
1801....	31.36	1825	33.16	1835	28.50	1854	26.46
1802....	32.86	1826	31.26	1836	26.52	1855	26.96
Mean for 5 years.	30.23		30.58		29.61		28.25

The mean for January, February and March, for eighty-six years, is 29.63 degrees.

The mean for the above selection is 29.66 degrees.

The mean temperature for the first three months of the year at Boston is 3.27 degrees lower than that of New York. These records give no substantial reason for supposing that,

during the period of time to which they refer, there has been any sensible change in the winter climate of that locality.

In like manner making a selection from the Charleston records; first, from 1749 to 1755; second, from 1754 to 1760; third, from 1822 to 1829; fourth, from 1830 to 1836; fifth, from 1849 to 1855.

The Charleston records date from 1738. Treating them, as far as they will permit, as in the preceding cases, we have the following table:

## V.

TABLE showing the mean temperature of Charleston for the three first months of the year—January, February, March.

1ST PERIOD.		2D PERIOD.		3D PERIOD.		4TH PERIOD.		5TH PERIOD.	
Years.	Temper- ature.	Years.	Temper- ature.	Years.	Temper- ature.	Years.	Temper- ature.	Years.	Temper- ature.
1750.....	51.00	1755	51.66	1823	49.56	1831	51.26	1850	53.93
1751.....	54.33	1756	59.00	1824	54.06	1832	54.66	1851	56.26
1752.....	55.33	1757	53.33	1825	54.83	1833	55.20	1852	52.13
1753.....	57.00	1758	52.00	1827	55.73	1834	55.10	1853	52.20
1754.....	59.33	1759	48.66	1828	63.40	1835	46.20	1854	52.20
Mean for 5 years.	55.39		52.93		55.51		52.48		53.34

In this series again, unfortunately, the observations are from different stations. They exhibit greater divergence than any of the preceding cases; but notwithstanding that, so far from invalidating, they strongly confirm the conclusion arrived at in those cases. Thus the mean of the first series is substantially the same as that of the third, being 55.39 and 55.51

respectively, though there is between them an interval of seventy-three years. The mean of the second is substantially the same as that of the fourth, being 52.93 degrees, and 52.48 degrees respectively, their interval being seventy six years; and it may be especially remarked, that the mean of the fifth series is very near the mean of all the other four, theirs being 54.07 and its 53.34 degrees.

Thus again we reach the same conclusion in the case of the City of Charleston as in the case of New York, Philadelphia and Boston, that the winter climate has not undergone any change.

The general conclusion which this examination seems to warrant, both as regards rainfall and winter climate, is this, that there has been no change in the lapse of many years—none can be substantiated as having occurred within a century. This proves that surface changes through agriculture, drainage, &c., give rise to no appreciable meteorological effect, and that the public opinion which asserts such an influence, is altogether erroneous.

Only recently have precise and correct views been entertained of the progress of atmospheric changes. It is now known that cloudy weather, or rains, or fluctuations of the barometer and of the thermometer, are not of restricted or local origin, but that they have a progress in a determinate direction, often of thousands of miles. This fact is at the basis of the duties in which the Storm Signal Corps is so ably engaged. In many parts of the United States there are prairie or treeless regions, several hundreds of square miles in extent, yet these are not rainless because they are treeless, clouds drop water upon them to the same amount that they

do on the neighboring wooded regions. Considerations such as these may satisfy us that the surface modifications which the Atlantic States have undergone since their first settlement have produced no meteorological effect, and that the rainfall and winter probably remain the same as they were many centuries ago.

I have restricted myself, in the foregoing climatic examinations, to the winter season, and have said nothing as regards the summer. Had I done otherwise, it would have extended this report to an inconvenient length. Perhaps, however, what has here been substantiated as to the permanency in the cold of the winter, will be held as affording strong presumptive evidence of a like permanency in the heats of summer, and that in these respects there is a mean degree which is maintained through indefinitely long periods of time.

While such is our final conclusion, we must bear in mind that these mean or average results exhibit only one phase of the problem. They do not show the fact that there are brief cycles of heat and cold, of moisture and dryness, following each other, under the operation of some unknown law—a law perhaps not of a meteorological, but of an astronomical origin.

We should remember, however, the imperfections and probable errors of the old tables. In those times due care was not taken in the construction and verification of the thermometers. Making every allowance for this, we may perhaps admit, that the conclusion at which we have arrived cannot be very far from the truth.

It may be proper for me here to remark, that besides

such meteorological tables as have been referred to, there exist many other very valuable ones in this city. Some of them reach back for many years, their observations having been made by very competent persons. It is deeply to be regretted that this fund of information should be lost, as in the course of time it certainly will. The owners of these records would doubtless give them to this Observatory if properly solicited so to do. And this leads me to urge upon the Board of Commissioners the necessity of providing a fire-proof place of deposit, not only for these, but for our own, which are now accumulating very fast, and which are becoming more and more valuable.

I may here add, in conclusion, that most of the instruments in this Observatory have been so arranged as to be open to public inspection. Thousands of people visiting the Park have examined them; indeed it may be said that there is scarcely a day in which several hundreds do not find intelligent amusement in watching their indications and studying their construction. As in former years, the records have been resorted to in the courts of law for the settlement of various legal cases and other similar purposes,

Annexed, as in former reports, are annual and monthly tables for the year 1871.

The chart, page 42, is a synoptic chart of, 1st, the annual rainfall in New York City from 1835 to 1872; 2d, the annual temperature of the same place from 1821 to 1872; 3d, the closure of the Hudson from 1819 to 1870. The numbers on the top and bottom lines show the years; the numbers on

the side lines give the inches for rain, Fahrenheit degrees for temperature, and days for the closure of the river.

The twelve following charts are respectively for the months of the year, showing at a glance the mean daily temperature, pressure and velocity of the wind.

All which is respectfully submitted,

DANIEL DRAPER,  
*Director of Meteorological Observatory.*

## VI.

TABLE showing the Heights of the Barometer, monthly, for the Year 1871, reduced to Freezing Point, Fahrenheit.

MONTHS. 1871.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE.
					HEIGHT.	DATE.	HEIGHT.	DATE.	
January.....	30.135	30.091	30.126	30.117	30.610	9 A.M., 19th.	29.430	1 A.M., 22d.	1.180
February.....	29.998	29.938	29.977	29.969	30.504	9 A.M., 22d.	29.264	2 P.M., 18th.	1.240
March.....	29.928	29.880	29.924	29.910	30.286	9 A.M., 20th.	29.326	7 A.M., 27th.	.960
April.....	29.850	29.769	29.795	29.797	30.414	9 A.M., 24th.	29.418	12 P.M., 11th.	.996
May.....	29.958	29.859	29.877	29.879	30.350	9 A.M., 25th.	29.470	3 A.M., 7th.	.880
June.....	29.864	29.821	29.848	29.846	30.200	9 A.M., 10th.	29.516	12 M., 12th.	.684
July.....	29.870	29.843	29.849	29.854	30.234	9 A.M., 1st.	29.630	5 A.M., 17th.	.604
August.....	29.914	29.884	29.900	29.902	30.372	9 A.M., 23d.	29.582	4 P.M., 30th.	.790
September.....	30.097	29.996	30.021	30.021	30.428	9 A.M., 12th.	29.680	2 P.M., 26th.	.748
October.....	30.036	29.986	30.018	30.012	30.500	9 A.M., 13th.	29.690	6 A.M., 28th.	.810
November.....	29.918	29.871	29.915	29.901	30.390	9 A.M., 19th.	29.332	5 A.M., 15th.	1.058
December.....	29.997	29.951	29.987	29.978	30.486	9 A.M., 22d.	29.392	3 P.M., 4th.	1.094

Year mean at 7 A.M..... 29.963  
 " 2 P.M..... 29.907  
 " 9 P.M..... 29.936

Mean for the year..... 29.935

Maximum for the year..... 30.610 at 9 A.M., Jan. 19th.

Minimum for the year..... 29.264 at 2 P.M., Feb. 18th.

Difference or range..... 1.346

## VII.

TABLE showing the state of the Thermometer, monthly, for the Year 1871.

MONTHS. 1871.	MEAN AT 7 A. M.	MEAN AT 2 P. M.	MEAN AT 9 P. M.	MONTH MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OR RANGE
					DEGREES.	DATE.	DEGREES.	DATE.	
January.....	25.00	31.01	29.00	28.30	51.0	3.30 P.M., 12th.	0.0	6.30 A.M., 23d.	51.0
February.....	26.42	32.73	31.15	30.20	53.2	11.45 A.M., 25th	0.0	6.00 A.M., 6th.	53.2
March.....	38.84	48.05	44.45	44.16	65.7	3.45 P.M., 16th	30.5	4.30 A.M., 29th.	35.2
April.....	46.15	57.66	52.35	52.02	84.7	3.15 P.M., 8th.	31.7	6.30 A.M., 6th.	53.0
May.....	54.91	66.57	60.16	60.40	92.0	5.00 P.M., 30th.	40.5	4.30 A.M., 14th.	51.5
June.....	63.58	74.12	67.03	68.21	90.0	5.15 P.M., 4th.	53.5	3.45 A.M., 30th.	36.5
July.....	67.86	77.20	72.01	72.32	90.5	5.00 P.M., 13th.	55.0	5.30 A.M., 23d.	35.5
August.....	69.13	78.95	73.26	73.64	89.5	4.30 A.M., 27th.	56.2	4.30 A.M., 20th.	33.3
September.....	55.42	66.04	61.04	60.82	83.0	4.15 P.M., 6th.	39.7	6.15 A.M., 21st.	43.3
October.....	50.35	60.78	55.76	55.60	76.5	3.15 P.M., 15th.	30.7	6.15 A.M., 21st.	45.8
November.....	35.61	43.28	37.61	38.82	66.7	2.50 P.M., 1st.	14.7	7.40 A.M., 30th.	52.0
December.....	26.43	31.13	29.70	29.15	55.0	10 P.M., 23d.	-2.0	8.00 A.M., 21st.	57.0

Year mean at 7 A.M..... 46.64

" 2 P.M..... 55.62

" 9 P.M..... 51.12

Mean for the year..... 51.12

Maximum for the year..... 92.0 at 5 P.M., May 30th.

Minimum for the year..... -2.0 at 8 A.M., Dec. 21st.

Difference or range..... 94.0



## VIII.

TABLE showing the State of the Wet-Bulb Thermometer, monthly, for the Year 1871.

MONTHS. 1871.	MEAN AT 7 A.M.	MEAN AT 2 P.M.	MEAN AT 9 P.M.	MONTH. MEAN.	MAXIMUM.		MINIMUM.		DIFFERENCE OF RANGE.
					DEGREES.	DATE.	DEGREES.	DATE.	
January .....	24.28	29.08	27.66	27.00	48.7	7.00 A.M., 16th.	0.0	6.30 A.M., 23d.	48.7
February .....	25.65	31.30	29.45	28.80	49.0	12.00 M., 18th.	0.0	6.15 A.M., 6th.	49.0
March .....	36.01	42.04	39.91	39.10	60.0	6.45 P.M., 3d.	26.0	5.45 A.M., 26th.	34.0
April .....	41.11	50.23	46.17	45.83	76.0	4.15 P.M., 8th.	28.2	4.45 A.M., 6th.	47.8
May .....	49.60	56.65	53.55	52.93	76.0	3.45 P.M., 30th.	35.2	4.30 A.M., 14th.	40.8
June .....	59.47	63.88	62.08	61.81	77.5	4.00 P.M., 3d.	48.2	6.00 A.M., 14th.	29.3
July .....	64.27	68.33	66.72	66.44	77.5	5.15 P.M., 9th.	51.5	4.45 A.M., 23d.	26.0
August .....	66.01	70.28	68.74	68.34	79.0	5.00 P.M., 16th.	52.5	4.45 A.M., 20th.	26.5
September .....	51.93	57.34	55.51	54.92	71.0	5.00 P.M., 6th.	37.0	5.30 A.M., 30th.	34.0
October .....	47.73	53.00	51.47	50.73	68.0	1.15 P.M., 11th.	30.0	6.15 A.M., 21st.	38.0
November .....	33.51	38.77	34.79	35.69	62.5	2.30 P.M., 1st.	14.5	8.00 A.M., 30th.	48.0
December .....	25.99	29.98	29.07	28.34	54.2	10.00 P.M., 23d.	-2.0	8.00 A.M., 21st.	56.2

Year mean at 7 A.M. .... 43.79

" 2 P.M. .... 49.24

" 9 P.M. .... 47.09

Mean for the year. .... 46.70

Maximum for the year. .... 79.0 at 5 P.M., August 16th.

Minimum for the year. .... -2.0 below at 8 A.M., Dec. 21st.

Difference or range. .... 81.0

## IX.

TABLE showing the Duration and Depth of Rain and Snow, monthly, during the Year 1871.

## RAIN.

MONTHS.—1871.	No. OF DAYS ON WHICH RAIN DESCENDED.	DURATION.			DEPTH IN INCHES.	TOTAL DEPTH IN INCHES.	DEPTH OF WATER PRO- DUCED IN INCHES.	REMARKS.
		Days.	Hours.	Minutes.				
January .....	5	1	3	30	.77	.77	.....	
February .....	6	1	8	45	1.84	2.61	.....	
March .....	17	6	12	30	5.42	8.03	.....	
April .....	10	2	15	00	2.97	11.00	.....	
May .....	8	2	20	15	4.04	15.04	.....	
June .....	10	3	14	45	7.05	22.09	.....	
July .....	19	2	13	30	5.57	27.66	.....	
August .....	12	2	22	15	6.30	33.96	.....	
September .....	5	1	2	00	2.34	36.30	.....	
October .....	9	3	20	55	7.50	43.80	.....	
November .....	9	4	2	10	3.65	47.45	.....	
December .....	11	3	11	25	1.97	49.42	.....	
Total .....	121	36	3	00	49.42	2.64	.....	Snow water. Total depth of rain and melted snow.
						52.06	.....	

## SNOW.

January .....	7	2	15	30	15.87	15.87	1.30	
February .....	3	1	10	15	12.12	27.99	.83	
March .....	1	0	7	30	.12	28.11	.12	
April .....	1	0	2	30	2.00	30.11	.06	
November .....	1	0	8	00	.25	30.36	.01	
December .....	4	0	10	37	3.86	34.22	.27	
Total .....	17	5	6	22	34.22	.....	2.64	

## X.

TABLE Showing the Velocity of the Wind and Prevailing Winds, during the year 1871.

MONTHS—1871.	MILES.	DAILY MEAN.	HOURLY MEAN.	PREVAILING WIND.
January.....	6,140	198.0	8.23	North-northeast.
February.....	5,256	180.5	7.80	Northwest.
March.....	5,994	208.0	8.11	North-northwest.
April.....	6,023	200.7	8.34	Northwest.
May.....	5,733	184.9	7.68	Southeast.
June.....	4,223	140.7	5.86	Southeast.
July.....	3,935	126.9	5.28	Southeast.
August.....	3,828	123.4	5.14	Southeast.
September.....	3,944	131.4	5.45	Northwest.
October.....	5,215	168.0	7.00	Southwest.
November.....	6,782	226.0	9.41	Northwest.
December.....	6,498	209.6	8.71	West.

The total distance traveled by the wind during the year was 63,571 miles.

The prevailing wind was northwest.

# XI.

TABLE showing the Points from which the Wind came during the Year 1871.

POINTS.	JANUARY.			FEB.			MARCH.			APRIL.			MAY.			JUNE.			JULY.			AUGUST.			SEPT.			OCTOBER.			NOV.			DEC.			TOTAL.
	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.	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.	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.	7 A.M.	2 P.M.	9 P.M.	7 A.M.	2 P.M.	9 P.M.				
N.....	4	0	3	1	1	1	1	1	0	2	0	1	2	2	1	0	0	1	0	0	0	0	0	1	3	1	0	1	0	0	2	3	1	1	1	35	
NNE.....	6	8	6	3	3	4	3	2	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	4	2	4	0	0	0	1	0	0	2	0	0	53
NE.....	1	2	2	2	4	1	3	2	4	2	1	1	0	1	1	2	1	1	2	2	1	1	0	0	1	0	0	2	1	0	0	0	0	2	2	1	46
ENE.....	0	0	1	1	0	0	3	1	2	4	3	2	2	1	1	0	0	0	2	2	0	1	2	1	1	0	0	1	2	2	1	1	0	0	2	3	42
E.....	0	0	0	0	0	0	0	1	1	0	3	3	0	0	0	2	1	1	2	0	1	1	3	2	1	2	1	0	0	0	1	1	2	3	0	0	32
ESE.....	0	0	0	0	0	2	0	4	2	2	3	1	1	3	4	0	2	2	1	2	5	2	1	3	0	2	2	0	1	1	1	1	1	0	0	1	50
SE.....	0	1	0	0	1	0	2	2	1	0	2	1	3	7	5	1	9	9	2	7	9	1	10	8	0	2	2	2	2	3	2	2	0	0	2	1	99
SSE.....	0	0	1	1	0	0	1	0	1	0	1	2	0	2	2	0	1	2	2	0	1	2	1	3	0	0	0	0	1	1	0	0	0	1	0	0	26
S.....	1	0	1	1	0	2	2	1	1	0	0	2	0	0	2	1	1	1	1	1	1	1	3	1	0	2	4	0	0	4	1	1	0	0	1	2	39
SSW.....	1	1	0	0	0	0	1	2	0	0	1	1	2	1	1	2	2	0	2	2	4	1	2	2	4	1	1	4	4	1	0	0	0	2	2	47	
SW.....	1	3	0	0	1	1	1	1	0	5	2	4	1	1	1	2	1	6	4	2	3	4	3	2	2	1	5	6	3	0	2	3	5	3	4	84	
WSW.....	2	4	4	2	3	4	2	1	0	6	1	5	1	0	0	5	0	1	3	2	3	3	1	3	2	2	4	4	4	3	2	1	1	2	6	8	95
W.....	5	0	5	5	5	1	0	3	1	3	4	0	5	5	3	4	5	1	6	5	2	5	2	1	5	2	1	6	2	3	6	1	6	12	7	2	129
WNW.....	3	4	6	2	4	5	3	7	7	3	2	1	5	5	2	0	4	0	3	2	2	5	2	3	2	3	5	3	6	6	7	4	3	3	3	128	
NW.....	4	4	2	5	5	5	7	3	6	4	4	5	5	1	6	8	2	7	1	2	2	1	1	1	5	4	2	3	3	1	5	10	9	0	1	2	136
NNW.....	3	4	0	5	1	2	3	1	2	4	1	3	1	0	1	4	0	1	0	0	0	0	0	0	3	1	4	2	1	0	3	1	1	0	1	1	54

REMARK.—The prevailing wind for the year 1871 was north-west.

## XI.

TABLE showing the Comparison of Years.

	1868.	1869.	1870.	1871.
BAROMETER :				
Highest—_inches.....	30.753	30.625	30.572	30.670
“ “ date.....	Feb. 24—7 A. M.	Dec. 9—11 A. M.	Oct. 24—9 A. M.	Jan. 19—9 A. M.
Greatest mean monthly pressure.....	30.165	30.068	30.035	30.117
“ “ “ “ date...	February.	December.	September.	January.
Lowest—_inches.....	29.075	28.932	28.983	29.264
“ “ date.....	Dec. 7—9 P. M.	Feb. 4—7 A. M.	Jan. 2—4 P. M.	Feb. 18—2 P. M.
Least mean monthly pressure.....	29.958	29.723	29.812	29.797
“ “ “ “ date.....	December.	May.	February.	April.
Mean for the year.....	30.054	29.909	29.903	29.935
THERMOMETER :				
Highest—degrees.....	95.5	94.7	94.0	92.0
“ “ date.....	July 4—2.30 P. M.	Aug. 21—2 P. M.	June 28—4 P. M.	May 30—5 P. M.
Mean of the warmest month.....	76.0	72.8	76.0	73.6
“ “ “ “ “ date.....	July.	July.	July.	August.
Lowest—degree.....	1.4	4.0	9.5	—2
“ “ date.....	Feb. 23—4.35 A. M.	Mar. 1—4 A. M.	Feb. 22—4 A. M.	Dec. 21—8 A. M.
Mean for the year.....	48.9	51.4	53.5	51.1
RAIN :				
Amount—_inches.....	50.42	40.50	39.45	49.42
SNOW :				
Amount (as water)—_inches.....	8.05	6.23	2.87	2.64

# JANUARY, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	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.	Velocity in miles for 24 hours.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.									
1	29.964	30	30.002	38.7	30.074	32.5	30	29.5	38.7	36.7	32.5	30.7	WNW	WNW	W	261	3.5	4	8	8				
2	29.891	35.7	29.758	39.5	29.838	42	35.7	32.7	39.5	35.5	42	33.5	SSW	WSW	WNW	202	14.7	9	8	8				
3	30.116	25.7	30.044	31	30.048	31	25.7	24.5	31	30.5	31	31	NW	WNW	W	303	4	0	0	0				
4	30.190	19.5	30.230	24	30.264	29	19.5	19.5	24	22.5	29	28	S	SW	S	184	1	0	0	1				
5	30.040	40	29.890	46	29.790	47.5	40	35	46	36	47.5	41	WNW	WSW	NW	164	1.7	9	9	8				
6	29.755	43.7	29.732	44.5	29.844	34.7	43.7	42	44.5	43	34.7	31.2	NW	NW	N	144	1.5	10	8	0	9.30 A.M.	2 P.M.	11	
7	30.024	25	30.080	26	30.132	19.7	25	24.7	26	25.5	19.7	19.5	N	NNE	NNE	249	4.2	0	0	0				
8	30.054	14.5	29.930	17.7	29.996	20	14.5	14.2	17.7	17	20	20	NNW	NNW	N	181	2	9	10	8	9.30 A.M.	4 P.M.	01	
9	30.110	11.7	30.142	18.2	30.230	12.5	11.7	11.7	18.2	18	12.5	12.5	NNW	NNW	N	332	4	2	0	0				
10	30.256	2.7	30.158	21	30.140	21	2.7	2.7	21	21	21	21	NNW	NW	W	188	5	0	8	10				
11	30.124	24.7	30.118	31	30.156	33.7	24.7	24	31	30	33.7	32.2	WSW	SW	WSW	151	2	10	10	9				
12	30.254	32.5	30.350	47	30.408	41	32.5	31	47	40	41	37.5	W	WSW	WNW	119	5	7	2	10				
13	30.476	34.5	30.500	45.5	30.490	37.5	34.5	33	45.5	41	37.5	36	N	NNE	NNE	59	0	10	10	8				
14	30.450	34	30.408	44	30.386	41.2	34	33.2	44	42	41.2	39	NNE	NNE	NE	13	0	10	7	10				
15	30.254	39.5	30.104	39.5	29.984	41.7	39.5	38	39.5	38	41.7	40.5	NE	NE	NE	110	1	7	10	10	9.30 P.M.	12 P.M.	09	
16	29.784	30.5	29.778	47	29.872	44	50.5	48.5	47	43	44	43.7	SW	NW	WNW	201	3	8	7	0	oh. om. A.M.	4 A.M.	39	
17	29.980	26	30.056	37.2	30.150	31.5	26	25	37.2	35.2	31.5	29.7	WNW	NW	WNW	336	4	0	7	0				
18	30.270	30	30.316	32.5	30.442	29	30	30	32.5	32	29	29	N	NNE	N	125	2.2	8	7	10				
19	30.556	19.5	30.576	30.5	30.566	25.7	19.5	19.5	30.5	30.5	25.7	25.7	N	NE	ENE	232	3	9	9	0				
20	30.450	29	30.340	35.5	30.268	34	24	24	35.5	32	34	31.5	NNE	SW	WSW	128	2	8	4	8				
21	29.950	31.7	29.766	43	29.952	45	31.7	31	43	36.5	45	40	W	NW	SSE	170	2	10	8	9	{ 2.30 A.M. 6.30 P.M.	7 A.M. 10.15 P.M.	04 17	25 12
22	29.652	28	29.806	18	30.052	13	28	27.2	18	18	13	13	NW	WNW	NW	362	12	6	3	0				
23	30.170	1.5	30.100	1.7	30.044	3	1.5	1.5	1.7	1.7	3	3	NNW	NNE	NNE	341	3.5	9	10	10	2 P.M.	12 P.M.	07	
24	30.072	10.5	30.090	15	30.200	19.5	10.5	10.5	15	15	19.5	19.5	NNE	NNW	W	284	7	10	7	5	oh. om. A.M.	9 A.M.	13	3.00
25	30.310	17	30.460	22	30.482	13.5	17	17	22	22	13.5	13.5	W	NNW	NNE	147	2.5	6	4	4				
26	30.454	1.5	30.212	8.5	30.036	11.7	1.5	1.5	8.5	8.5	11.7	11.7	NNE	NNE	NNE	203	3.5	10	10	10	5.45 A.M.	12 P.M.	72	
27	29.892	17.5	29.910	29	30.086	28	17.5	17.5	29	29	28	28	NW	WNW	WNW	289	2.2	7	3	5	oh. om. A.M.	2 A.M.	02	
28	30.174	23	30.120	23	30.082	19.2	23	23	23	22.5	19.2	19.2	NNE	NNE	NNE	166	1.5	8	9	10	5 P.M.	12 P.M.	08	
29	29.956	21.2	29.986	28.5	30.102	30	21.2	21.2	28.5	28.5	30	30	NNE	NNE	W	219	2	10	10	7	oh. om. A.M.	9 A.M.	07	
30	30.190	32.7	30.180	41.5	30.138	32	32.7	32.7	41.5	36	32	32	WSW	SE	WSW	123	5	8	10	10				
31	30.106	27	29.908	35	29.746	35	27	27	35	34.5	35	34.5	W	SSW	WNW	154	7	9	10	10	2 P.M.	12 P.M.	17	

# FEBRUARY, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.					
	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.		Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.												
1	29.828	39.2	29.950	43.5	30.028	33.7	39.2	38.5	43.5	39	33.7	33.5	WSW	NW	WNW	116	5	9	10	0			3 P.M.	4.15 P.M.	02		
2	30.034	27	29.830	34.2	29.754	37.7	27	27	34.2	32.5	37.7	36	WNW	WSW	W	47	8.2	9	7	0							
3	29.838	24	29.652	34.7	29.588	37.2	24	23.5	34.7	34	37	36.5	WNW	WNW	WNW	313	8.2	9	4	0							
4	29.612	30	29.732	30.5	29.910	14.2	30	35.5	30.5	30.5	14.2	14.2	W	NW	NNW	314	7	5	2	0							
5	30.018	2.7	30.034	7.0	30.014	6.5	2.7	2.7	7.0	7.0	6.5	6.5	WNW	NW	NW	385	4	0	0	0							
6	30.025	0.5	29.996	14.7	30.100	11.2	0.5	0.5	14.7	14.7	11.2	11.2	NNW	NW	NW	235	4	0	3	0							
7	30.193	11.5	30.240	27.5	30.226	25.2	11.5	11.5	27.5	27.5	25.2	25.2	NNW	NNE	NE	176	1.7	0	3	10							
8	30.102	23.2	29.988	32	29.938	31.7	23.2	23.2	32	31.5	31.7	31.2	NE	NE	N	151	1.5	10	10	10			5.45 A.M.	4 P.M.	11	12	
9	29.855	33	29.762	36	29.874	35.5	33	31.7	36	34.2	35.5	34	W	WSW	WSW	133	3.5	10	10	0							
10	30.063	27	30.100	31.7	30.264	27	27	27	31.7	31.5	27	26.7	W	WNW	WNW	272	5	0	2	3							
11	30.370	20	30.372	27.2	30.356	28.2	20	20	27.2	27.2	28.2	28.2	W	NW	NW	181	1	0	3	10							
12	30.214	21.7	29.694	22.7	29.672	21.5	21.7	21.7	22.7	22.7	21.5	21.5	ENE	NE	NNW	216	4.5	10	10	10			3 A.M.	5 P.M.	40	5.00	
13	29.938	22.7	30.064	28.2	30.128	23	22.7	22.7	28.2	28.2	23	23	NW	NNW	NNE	211	2	8	2	10							
14	29.934	22.7	29.810	23.5	29.938	19	22.7	22.7	23.5	23.5	19	19	NNE	NNE	NW	169	2	10	10	3			7 A.M.	5 P.M.	37	7.00	
15	30.156	24	30.174	33	30.088	35.7	24	24	33	33	35.7	35.7	NW	W	WSW	144	5	0	5	0							
16	29.818	29	29.726	42.5	29.926	35.5	29	29	42.5	35.2	35.5	32.5	S	W	NW	93	8.5	7	3	0							
17	30.108	30	30.140	42	30.056	37.7	30	28	42	36	37.7	33.2	WNW	NE	S	258	2	4	8	10							
18	29.482	10.5	29.264	48.5	29.516	39	40.5	39.5	48.5	47.5	39	34	SSE	SW	WNW	240	7.2	10	10	0			1.30 A.M.	1.30 P.M.	95		
19	29.840	26	29.848	32.5	29.906	36	26	25	32.5	31.5	36	34.5	NW	W	WSW	292	2.5	7	6	9							
20	30.006	37	30.014	47.5	30.012	44.5	37	32	47.5	34.5	44.5	38.5	WNW	W	S	94	2	9	3	10			9 P.M.	12 P.M.	06		
21	29.968	30	30.042	28.5	30.210	22	30	27	28.5	28.5	22	22	NNE	N	NNE	103	3	10	8	0			oh. om. A.M.	5 A.M.	16		
22	30.372	10.5	30.448	22	30.508	30.5	10.5	10.5	22	22	30.5	30.5	N	NNE	NNE	183	1.5	0	3	7							
23	30.491	16	30.480	38.2	30.382	39	16	16	38.2	37.2	39	35.5	NNE	SE	ESE	21	2	5	3	10							
24	30.254	38.5	30.050	41	29.888	43.2	38.5	36.2	41	38.5	43.2	41	NE	W	ESE	29	5	10	10	10							
25	29.842	42.2	29.822	52	29.788	47.7	42.2	42	52	43.7	47.7	40	WSW	WSW	WSW	160	1.7	10	8	7							
26	29.786	37	29.690	35	29.738	34.5	37	33	35	33.5	34.5	33.5	NW	NE	NNE	120	1.2	10	10	10			5.30 A.M.	12 P.M.	52		
27	29.340	40.5	29.494	42.5	29.716	36	40.5	38.5	42.5	37.7	36	32.5	W	WNW	WNW	168	6.2	9	8	3			oh. om. A.M.	5 P.M.	15		
28	30.038	27.5	30.126	34	30.140	39.5	27.5	27.5	34	33.7	39.5	34.5	NW	WNW	SW	372	8.2	3	5	10							

# MARCH, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	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.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.									
1	29.880	40	29.790	54.7	30.010	50.5	40	36	54.7	44	50.5	39.7	SW	WSW	WNW	232	5.5	4	4	4				
2	30.166	42.7	30.118	50.7	29.968	41.2	42.7	37.7	50.7	45.2	41.2	38.5	NW	SE	ESE	144	1.5	4	5					
3	29.814	46	29.614	60	29.752	52	46	44	60	55.7	52	46.5	SE	SSW	NW	114	8.5	10	10		9.45 A.M.	7.30 P.M.	.14	
4	29.814	37	29.808	40.5	29.812	34.7	37	33	40.5	35.5	34.7	32	NNE	NE	NNW	227	5.5	8	10		3 P.M.	10.30 P.M.	.12	
5	30.094	32	30.098	48.5	30.066	47.7	32	27.5	48.5	39	47.7	42	NW	WNW	SSE	158	1.5	0	0	5				
6	29.856	39.5	29.750	45.2	30.008	43	39.5	37.7	45.2	41.7	43	37.7	S	WNW	NW	133	9	10	9	0	8 A.M.	3.30 P.M.	.17	
7	30.184	37.5	30.190	46.5	30.192	44.5	37.5	34	46.5	38	44.5	38.2	NW	NW	SSW	229	3.5	0	0	0				
8	30.180	31.5	30.160	44.5	30.122	41.5	31.5	30.5	44.5	41	41.5	41	S	ESE	ESE	66	.7	0	9	10	5 P.M.	12 P.M.	.02	
9	30.050	43.7	30.034	53.7	30.048	49.5	43.7	43	53.7	50.7	49.5	48.2	ENE	ESE	SE	112	5.2	10	3	8	oh. om. A.M.	4 A.M.	.02	
10	29.962	48.7	30.064	60	30.244	58.5	48.7	47	60	48	58.5	50	SSE	W	SSW	208	4.5	10	5	8	6.45 A.M.	10 A.M.	.15	
11	30.262	39.7	30.100	48	30.042	45	39.7	39	48	47.5	45	44	ENE	ENE	ENE	93	.2	9	7	6	6.30 P.M.	12 P.M.	.14	
12	29.808	49.5	29.574	52	29.714	47.7	49.5	49	52	49.7	41.7	38	SE	SE	WNW	157	18.5	10	10	10	oh. om. A.M.	4.30 P.M.	.44	
13	29.854	35.7	29.886	49.5	29.900	49	35.7	32.2	49.5	39.5	49	40.2	NW	WNW	W	260	4.5	0	8	9				
14	30.012	36	30.100	46	30.138	50.5	36	31.2	46	37.5	50.5	42.5	NW	WNW	WNW	178	6	5	4	10	11.15 P.M.	12 P.M.	.02	
15	30.138	36.2	30.092	40	30.092	38.2	36.2	34.2	40	38.5	38.2	37.5	ENE	E	NE	106	1.5	10	9	10	oh. om. A.M.	12 P.M.	.55	
16	30.140	37.7	30.100	38	30.052	37.7	37.7	37.5	38	37.7	37.7	37.7	NE	NE	NE	247	6.5	10	10	10	10 A.M.	12 P.M.	.02	
17	29.926	38	29.856	47	29.850	50.2	38	37.7	47	46.7	50.2	49	NNE	N	WNW	243	1.5	10	10	10	oh. om. A.M.	12 P.M.	.31	
18	29.972	43.5	30.002	43.5	30.050	46.7	43.5	41	43.5	41	46.7	44	N	NNE	SW	155	3	10	7	6	oh. om. A.M.	12 M.	.33	
19	30.108	40	30.150	60.5	30.216	48.5	40	43.2	60.5	49.2	48.5	44	WSW	NNW	NE	42	2.7	6	3	0				
20	30.262	35.5	30.236	46.7	30.044	37.2	35.5	33.2	46.7	40.5	37.2	35.5	NE	ESE	ENE	218	7.2	0	4	10	8.45 P.M.	12 P.M.	.36	
21	29.596	41.5	29.526	49	29.616	42.5	41.5	41	49	44.7	42.5	36.2	NNW	WNW	WNW	240	12	10	9	7	oh. om. A.M.	10.30 A.M.	1.97	
22	29.660	39	29.722	50.5	29.780	52.5	39	34.5	50.5	40	52.5	44	WNW	W	WNW	254	12.2	5	4	0				
23	29.704	36.7	29.600	53.7	29.656	48.2	36.7	33.7	53.7	47	48.2	40.2	NNE	ESE	NW	149	13	6	9	0				
24	29.862	34	29.912	45	30.034	40	34	30	45	35.5	40	33.2	WNW	WNW	NW	363	14	0	5	3				
25	30.084	33.2	30.040	46.2	30.094	41.2	33.2	28.7	46.2	32.5	41.2	32.2	WNW	WNW	NW	348	18.2	0	0	4				
26	30.082	37	29.998	49	29.836	36	37	26.7	49	40.5	36	33.7	NNW	S	E	202	3	9	10	10	5.30 P.M.	12 P.M.	.26	
27	29.326	36.5	29.450	41.5	29.614	41.5	36.5	35.2	41.5	37.7	41.5	35.2	NE	NW	WNW	288	15	10	7	3	oh. om. A.M.	9.30 A.M.	.41	
28	29.746	32	29.864	36.2	30.032	34.7	32	28.2	36.2	33	34.7	33	NW	NW	NW	343	18	4	5	0				
29	30.184	34.7	30.182	47	30.160	46.5	34.7	32	47	41.5	46.5	43	NW	W	S	153	2.5	0	0	4				
30	30.070	41.5	29.950	45	29.826	41	41.5	39.5	45	43.2	41	41	WSW	SW	NE	152	1	9	10	8	9 A.M.	7.30 P.M.	.11	
31	29.826	40.7	29.914	51	29.990	46.2	40.7	38.5	51	41.5	46.2	39.5	NNW	NNE	NNW	180	8.5	0	3	9				



APRIL, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETERS (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.					
	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.		Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.												
1	29.980	38	29.818	40	29.636	35	38	35	40	36.7	35	33.5	ENE	E	ENE	204	6.7	10	10	10				9.15 A.M.	12 P.M.	.55	2.00
2	29.456	33.5	29.588	43.7	29.698	43.7	33.5	32.2	43.7	38.2	43.7	39.7	N	NW	NW	377	13.5	10	5	0	oh. om. A.M.	2.30 A.M.	.06				
3	29.708	39	29.670	49.5	29.614	43.5	39	38.5	49.5	47.5	43.5	42	WSW	SE	ESE	124	5	8	5	3							
4	29.618	42.7	29.752	55.5	29.672	50	42.7	42	55.5	41.7	50	43.7	NW.	NW	WSW	230	7.2	9	8	2	oh. 15M.A.M.	6.30 A.M.	.55				
5	29.730	44	29.850	47.5	29.960	42	44	35	47.5	39	42	34.5	NW	NNW	NW	370	16	5	2	6							
6	30.000	32.7	29.990	54	29.984	50	32.7	30	54	47	50	45.2	NNW	SW	SSE	213	2	3	5	4							
7	29.946	44.5	29.950	54.5	29.916	45.5	44.5	40.5	54.5	48	45.5	43	WSW	SSE	SSW	219	4	8	4	5							
8	29.920	46	29.926	83.5	29.950	70	46	45.5	83.5	74.5	70	63.2	WSW	W	WSW	179	4	3	6	2							
9	29.960	63.5	29.932	82.5	29.932	70	63.5	54	82.5	72.5	70	61.5	WSW	W	WSW	159	3.5	0	2	5							
10	29.974	60	29.900	78	29.832	70.5	60	52.5	78	66	70.5	61.5	WNW	SW	SSE	151	3.5	0	0	0							
11	29.660	49.5	29.562	47.7	29.488	47.5	49.5	44	47.7	44.5	47.5	43	ENE	ENE	E	179	7.5	3	5	10	8.30 P.M.	11.30 P.M.	.35				
12	29.630	48.2	29.670	54.5	29.740	53.5	48.2	40.7	54.5	45	53.5	44.2	WNW	W	WSW	292	8.7	8	0	3							
13	29.738	49.5	29.616	64	29.706	54	49.5	40	64	53	54	44	WSW	SW	NW	258	19.5	7	8	0	2.30 P.M.	4.15 P.M.	.01				
14	29.700	42.7	29.650	56	29.596	52	42.7	35	56	48	52	41.7	NW	ESE	E	133	2	3	6	3							
15	29.694	47	29.728	58	29.808	49	47	39	58	46	49	41	NE	SE	NW	103	2.7	8	4	7	7.30 P.M.	8 P.M.	.01				
16	29.896	41	29.872	55	29.946	45	41	37	55	44.7	45	39	NNW	NW	NNW	162	6	4	2	3							
17	29.974	37.2	29.950	52.5	30.032	46.2	37.2	32	52.5	45	46.2	39.5	NNW	WNW	NNW	230	6.2	3	4	0							
18	30.092	41.5	30.066	60	30.090	56	41.5	35.5	60	50	56	48.7	NNW	W	S	129	2.2	0	3	9							
19	30.072	49.7	30.038	52.5	29.908	49	49.7	44.5	52.5	47.5	49	45.7	ESE	E	ENE	165	3.2	9	8	10	5.45 P.M.	6.30 P.M.	.01				
20	29.774	45.7	29.638	52.5	29.666	57	45.7	44.5	52.5	50.5	57	53.5	ENE	ENE	NW	252	2.7	10	9	7	11 A.M.	1.30 P.M.	.14				
21	29.748	55	29.668	66	29.740	55	55	49.7	66	60	55	49	ENE	ENE	N	81	26.2	4	4	8	3.45 P.M.	4.45 P.M.	.06				
22	29.778	52.7	29.784	57.7	29.856	49.2	52.7	48	57.7	50.5	49.2	42	W	WSW	WSW	116	3.2	8	9	4							
23	30.050	43.2	30.182	52	30.282	48.7	43.2	35.7	52	44	48.7	41.2	W	NW	WNW	329	13	4	2	0							
24	30.392	43	30.346	58.2	30.294	57	43	35.5	58.2	48	57	46	W	WNW	NW	308	7.2	3	3	2							
25	30.174	51.5	30.000	64	29.952	56	51.5	43.5	64	58	56	52	NW	SW	E	138	2.2	7	9	3							
26	30.075	52	30.080	65.7	30.144	59.2	52	47	65.7	57.2	59.2	52.2	N	E	S	74	1.7	2	3	7							
27	30.218	48.5	30.172	46.7	30.078	43.5	48.5	42	46.7	42	43.5	40.5	NE	ESE	NE	203	7.7	10	10	10	7.30 A.M.	12 P.M.	1.02				
28	29.842	42	29.758	47.7	29.752	50	42	41.5	47.7	46	50	48.2	NE	NE	NNW	404	11.5	10	10	9	oh. om. A.M.	4 P.M.	.27				
29	29.736	47.5	29.698	63	29.748	57.5	47.5	46	63	58.7	57.5	52.5	WNW	ESE	SW	91	4	7	4	4							
30	29.742	53.2	29.652	67.5	29.734	59.2	53.2	47	67.5	59	59.2	53.5	WSW	SW	SE	150	1.7	4	5	6							

MAY, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETERS (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.			
	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.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches	
	Observed Height.	Ther- moneter.	Observed Height.	Ther- moneter.	Observed Height.	Ther- moneter.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.										
1	29.820	52	29.852	62.2	29.876	60.7	52	46.5	62.2	55	60.7	55.5	N	SSW	SE	98	1	7	8						
2	29.932	55.5	30.020	66	30.054	61	55.5	49.5	66	58.5	61	53.2	WNW	SSE	S	66	1.2	3	8						
3	30.038	56.5	30.066	58	29.990	50	56.5	49.5	58	52.5	50	46.5	SE	ESE	NE	139	8.5	9	9	9 P.M.	12 P.M.	.15			
4	29.954	46.2	29.900	46	29.882	45.5	46.2	44	46	45	45.5	44.2	ENE	ENE	ENE	477	21	10	10	oh. om. A.M.	12 P.M.	.90			
5	29.748	44	29.690	47.5	29.728	47.5	44	43	47.5	46	47.5	46.5	ENE	NNE	N	549	17.5	10	10	oh. om. A.M.	2.30 P.M.	1.33			
6	29.632	45	29.592	52	29.548	52.7	45	44.5	52	49.5	52.7	49.5	NNE	NE	SE	174	2.7	9	10	4.30 P.M.	12 P.M.	.58			
7	29.526	49	29.602	56	29.714	48	49	44.2	56	51.5	48	43.2	W	WNW	W	235	17.7	7	4	oh. om. A.M.	5 A.M.	.29			
8	29.750	45.5	29.800	54.5	29.936	49.5	45.5	39.7	54.5	45.5	49.5	42	W	W	NW	317	9.5	5	8						
9	29.982	46.2	29.970	52.5	29.972	48.5	46.2	38.7	52.5	45	48.5	42	NW	WNW	NW	153	1	5	4						
10	29.920	45	29.876	61	29.990	51	45	38.5	61	52.5	51	43	NW	WNW	NNW	104	7	5	7						
11	30.074	50	30.050	61.7	30.008	57.2	50	41	61.7	42.5	57.2	49.7	NNW	SSE	S	162	2.5	0	4						
12	29.954	50.5	29.940	68	29.854	61	50.5	45	68	60	61	54	SW	SE	SE	216	2.7	3	6						
13	29.722	53.5	29.722	71	29.852	53	53.5	46.5	71	62	53	47.5	WNW	WNW	NW	129	16	2	3						
14	29.914	45	29.834	58.5	29.922	54.5	45	39	58.5	50	54.5	47	WNW	W	NW	314	7.7	0	2						
15	29.938	50	29.880	66	29.908	65.5	50	41	66	51	65.5	54	W	SW	W	179	2.2	0	0						
16	29.934	56.5	29.860	67	29.788	60	56.5	48	67	59.5	60	53.5	NW	SE	WNW	120	4	0	0	9.15 P.M.	11.30 P.M.	.15			
17	29.776	51.5	29.820	68	29.928	57	61.5	55	68	60	57	50.2	NW	W	NW	203	6.5	9	4						
18	30.120	49	30.146	60.5	30.146	63	49	42	60.5	51.5	63	54.2	N	N	SSW	214	5	0	0						
19	30.194	54.5	30.176	75	30.156	66.2	54.5	51.2	75	58.5	66.2	54.2	NW	ESE	SSE	54	1.5	0	0						
20	30.154	60	30.130	74	30.090	63	60	55.2	74	62	63	58.7	SSW	SE	SE	118	2.5	0	0						
21	30.042	57.2	30.010	72.5	29.968	62.5	57.2	54.7	72.5	61.5	62.5	56	W	SE	ESE	108	2.5	0	2						
22	29.882	61.5	29.820	74.5	29.796	63.5	61.5	57.5	74.5	58	63.5	55.7	SE	SE	NW	94	1	0	5						
23	29.886	58.5	29.932	69	30.044	61	58.5	50	69	53	61	52.2	WNW	WNW	WNW	187	8	0	4						
24	30.192	51	30.248	69	30.278	63.5	51	41.5	69	54	63.5	52	W	W	ESE	181	1.5	3	4						
25	30.330	55	30.270	74.5	30.148	69	55	49.5	74.5	63	69	62	WSW	SE	SSE	93	5.7	2	2						
26	30.088	59	30.050	84.5	30.057	73.5	60	66.7	84.5	69	73.5	67.7	SW	W	W	204	8.7	7	7	3 P.M.	4 P.M.	very slight			
27	30.072	58	30.114	83	30.160	69.2	68	62	83	66.2	69.2	62	WNW	NW	ESE	156	4	4	5						
28	30.202	61.5	30.188	73.5	30.136	65	61.5	55.5	73.5	63	60.7	60.7	ESE	ESE	ESE	203	1.5	5	0						
29	30.144	62	30.130	80.2	30.074	72.2	62	59.5	80.2	69	72.2	66	SE	SE	SE	103	1.5	6	2						
30	30.078	71.2	30.050	88.7	30.028	82	71.2	69.5	88.7	74.7	82	69.7	SW	SSW	SW	170	3.5	3	7						
31	29.988	72	29.970	72	30.002	69	72	69.5	72	68	69	67.7	SW	N	NNE	213	5.2	9	10	6.30 A.M.	5.30 P.M.	.64			

JUNE, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.					
	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.		Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.												
1	30.098	62	30.126	70.7	30.138	64.5	62	60.5	70.7	68.2	64.5	60	E	ESE	S	128	1	9	7	2	5.45 P.M.	7.30 P.M.	.31				
2	30.132	62	30.150	76.7	30.112	67.5	62	60	76.7	69	67.5	64.7	WSW	SSE	SE	87	1	4	0	2							
3	30.060	69.5	30.036	85	30.012	75.2	69.5	60	85	64.7	75.2	70	WSW	SW	NE	137	2	3	3	5							
4	29.960	74.7	29.902	82.5	29.882	67	74.7	70	82.5	73	67	65.5	W	WNW	NW	84	14	3	3	7							
5	29.912	72	29.958	84	30.022	66	72	66	84	66.7	66	60	NW	E	NW	96	3.5	3	3	3	6 P.M.	12 P.M.	1.87				
6	30.022	60.2	30.020	73	29.998	66.7	60.2	59.2	73	66	66.7	64	E	SE	SE	155	3.2	3	3	4							
7	29.824	69.5	29.774	80	29.800	73	69.5	67	80	72	73	70.5	S	SE	SE	153	9.5	3	3	10							
8	29.868	70.5	29.896	77.5	29.948	73.7	70.5	65.5	77.5	62.5	73.7	64.7	W	W	SSW	123	2.5	9	5	2							
9	30.034	60.4	30.062	72.5	30.126	62	66.2	60	72.5	60	62	57	NW	NW	NW	174	8.5	4	2	0	{ 3 P.M. 5.30 A.M. 4 P.M.	5 P.M. 11.30 A.M. 4.10 P.M.	.06 .52 .10				
10	30.164	58	30.152	72.2	30.018	67	58	52	72.2	60.5	67	63	NW	SE	SSE	118	3.2	0	0	0							
11	29.876	70	29.784	75	29.726	70	70	68	75	69.5	70	67.2	NE	SSW	SSW	142	6.2	6	8	3							
12	29.566	62.2	29.570	64.5	29.666	64.2	62.2	60.5	64.5	59.5	64.2	59.7	NNW	WNW	SW	130	3.5	10	5	3							
13	29.712	62.5	29.620	75.7	29.718	72	62.5	56.5	75.7	60.5	72	61	SSW	SW	NW	202	9.5	7	3	4	{ 5 A.M. 3.10 P.M.	8.20 A.M. 4 P.M.	.35 .10				
14	29.904	57	29.912	72	29.942	67.5	57	49	72	56.7	67.5	60	W	W	SE	254	3	2	5	7							
15	29.960	60.5	29.926	72.7	29.970	63	60.5	57.2	72.7	63.5	63	59	NNW	SE	WSW	87	2.2	10	8	7							
16	29.998	58.2	30.020	68.7	30.066	62.7	58.2	52.5	68.7	55.2	62.7	52	NW	W	NW	122	3.5	6	4	3							
17	30.136	58	30.150	71	30.090	61.5	58	51.5	71	59	61.5	58	NW	SE	ESE	127	2	5	4	10	{ oh. om. AM. 5.10 P.M.	12 M. 7 P.M.	.04 2.23 .06				
18	29.930	62	29.720	68.5	29.750	63	62	61	68.5	65.5	63	61	SE	SE	NW	250	12.2	10	10	10							
19	29.838	61.5	29.884	70	29.918	67.5	61.5	57	70	61.5	67.5	62	NNW	NW	SE	154	4.2	8	5	4							
20	29.928	68.5	29.890	86	29.876	64	68.5	65.5	86	72	64	62.7	WSW	SSW	NNW	79	13	3	3	10	6.50 P.M.	10.30 P.M.	.28				
21	29.990	59.5	30.038	72	30.106	66.5	59.5	55.2	72	61	66.5	60	NNW	W	NW	170	3.5	2	7	6							
22	30.160	60	30.100	68.5	30.024	68	60	55.5	68.5	61.2	68	64	NW	SE	SE	120	1.5	8	5	7							
23	29.960	64	29.950	77.7	29.952	74.7	64	62	77.7	65.7	74.7	66.2	W	W	W	121	2.2	6	9	10							
24	29.922	63.5	29.834	61	29.884	58.5	63.5	58.5	61	59	58.5	57.7	NE	NE	N	171	7.7	9	9	10	{ 7 A.M. 8.30 P.M.	1.30 P.M. 11.10 P.M.	.52 .36				
25	30.062	60.7	30.164	76	30.160	65.7	60.7	57.5	76	63	65.7	61	NNE	ESE	SSE	179	3	3	2	3							
26	30.118	61	30.068	76	30.032	70	61	59.7	76	67.5	70	64.2	WSW	S	SE	114	1.5	5	2	4							
27	29.970	67	29.910	78.5	29.822	68	67	64.5	78.5	67	68	64	SW	SE	SE	90	3.5	3	6	4							
28	29.732	65	29.700	75	29.694	69	65	62.5	75	70.5	69	67.2	WSW	SSW	ESE	138	2.5	9	8	8	{ 9.30 A.M. 7 P.M.	12.30 P.M. 7.30 P.M.	.06 .19				
29	29.742	64.2	29.864	71	29.950	64.5	64.2	59	71	59	64.5	56.5	NW	WNW	NW	147	6	7	3	0							
30	30.068	57.5	30.108	67.7	30.156	68.2	57.5	51	67.7	55	68.2	59.7	NW	WNW	SE	171	2	0	0	0							

JULY, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.					
	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.		Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.												
1	30.190	61	30.430	69.2	30.232	65	61	56.7	69.2	60	65	58.7	ENE	SE	SSE	76	2.5	4	0	8	{	2 A.M. 4.30 A.M. 6.30 P.M. 7.30 P.M.	.53 .02				
2	30.196	66.5	30.148	75	30.082	71.7	66.5	63	75	69	71.7	68.2	S	SSW	SE	164	2.5	10	0	9							
3	30.066	69.5	30.050	74	30.024	71.2	69.5	67	74	70.5	71.2	69.5	SE	SE	SE	86	1	10	10	10							
4	29.994	65.2	29.950	78.7	29.884	71	65.2	65	78.7	70.5	71	68.7	NE	SE	SE	107	3.5	9	5	9	{	5.10 P.M. 6 P.M. 11.30 P.M. 12 P.M.	.01 .04 .11				
5	29.948	69.7	30.010	80.2	30.040	77.7	69.7	69	80.2	68	77.7	71.7	WSW	W	SE	140	1.5	3	5	3							
6	30.060	73	30.010	83.2	29.876	72.2	73	69	83.2	71.2	72.2	70.5	SW	SE	SE	74	7.7	8	7	10							
7	29.816	72.7	29.828	85.0	29.920	76	72.7	69	85.0	71	76	65.2	SW	WSW	NW	206	8.5	2	3	2	{	oh. om. A.M. 1.15 A.M.	.27 .01 .21				
8	30.024	66	30.066	81	30.042	76.2	66	60.2	81	67	76.2	67.7	W	W	WSW	178	2.5	0	0	0							
9	30.000	73.5	29.912	82	29.886	80	73.5	66.5	82	72	80	75.2	SW	SW	NW	113	6	0	4	10							
10	29.868	74	29.892	84.5	29.904	78.7	74	70.7	84.5	74	78.7	71	W	NW	WNW	175	2.5	3	4	6	{	9.15 P.M. 12 P.M. oh. om. A.M. 1.30 A.M. 2.30 P.M. 12 P.M.	.02 .21 .03				
11	29.834	75	29.870	85	29.814	73.5	75	67.7	85	70.5	73.5	71.5	ESE	SE	SE	80	3.5	7	10	10							
12	29.846	74.5	29.936	81.5	30.016	82.5	74.5	71.5	81.5	72.5	82.5	74	W	WSW	SW	98	1	8	3	2							
13	30.078	75.2	30.100	87	30.056	80	75.2	68.7	87	74.5	80	72.5	NW	SE	ESE	94	2	4	3	2	{	2.40 P.M. 3.30 P.M. 4.40 P.M. 7.20 P.M. 11 P.M. 12 P.M.	.02 1.50 .18				
14	29.932	71	29.960	80.5	29.900	77.2	71	69.5	80.5	72.5	77.2	72	E	ESE	ESE	73	7	10	5	3							
15	29.836	72	29.802	86.2	29.812	74.5	72	69.5	86.2	76.7	74.5	70	WSW	SW	WSW	75	8.2	2	7	3							
16	29.772	71.5	29.756	84.7	29.720	63	71.5	64	84.7	73.2	68	65	SW	SW	ESE	100	23	8	5	10	{	6.30 A.M. 1 P.M. 1.45 A.M. 5.20 A.M. 9 P.M. 9.45 P.M.	.10 .26 .06				
17	29.652	69	29.716	77.5	29.814	68	69	64	77.5	69	68	63.2	SW	W	WNW	172	6.7	6	5	0							
18	29.854	62	29.872	78	29.800	74	62	59	78	71.5	74	68.2	W	SSW	S	138	2.5	0	3	2							
19	29.750	71	29.686	66	29.706	67.5	71	68.7	66	65.0	67.5	63.5	SSE	NE	ESE	195	2.7	10	10	10	{	oh. om. A.M. 4.30 A.M. 10.40 P.M. 12 P.M. 12 M. 7.30 P.M.	.59 .59 .19				
20	29.730	60	29.850	72.5	29.962	67.5	60	56	72.5	63.5	67.5	61	WNW	NW	W	198	2.5	7	5	3							
21	29.994	62.7	29.966	71.2	29.970	68.2	62.7	57	71.2	58.2	68.2	59	WNW	SW	SW	94	4.5	7	5	10							
22	29.960	58	29.996	70	30.056	63.7	58	55.2	70	58	63.7	55.2	NW	W	W	142	2.7	4	5	0	{	oh. om. A.M. 4.30 A.M. 10.40 P.M. 12 P.M. 12 M. 7.30 P.M.	.59 .59 .19				
23	30.150	58	30.174	72.5	30.194	70	58	53	72.5	59.7	70	61	WNW	W	SSW	124	1.7	0	3	2							
24	30.186	63	30.206	74.5	30.204	70.2	63	59	74.5	62	70.2	62	W	ENE	ESE	120	1.5	7	8	7							
25	30.182	63.5	30.128	66.5	30.008	60	63.5	59.5	66.5	60.5	60	58.5	NE	ENE	NE	160	8.7	10	10	10	{	5 A.M. 8.30 A.M.	.04				
26	29.900	65.5	29.912	69	29.994	72	65.5	63.5	69	66.5	72	67.5	SE	WSW	SSW	318	10	10	9	7							
27	30.018	68.2	30.020	77.5	29.972	76.5	68.2	66	77.5	69	76.5	70.5	SW	S	SE	133	2.7	8	4	10							
28	30.024	70	30.050	77.2	30.078	70.5	70	66	77.2	70	70.5	66.2	SSE	SE	SE	84	2.5	9	8	9	{	5.50 A.M. 8.30 A.M.	.19				
29	30.098	67	30.106	70	30.082	69.5	67	66	70	67	69.5	68	ENE	NE	E	113	1.7	10	9	10							
30	30.064	69	30.044	79	30.024	69	69	67	79	70.5	69	66.2	E	ESE	SE	44	2	10	9	10							
31	29.942	66.5	29.946	74.2	29.948	70.5	66.5	65.5	74.2	69	70.5	67	WSW	WNW	WSW	61	.5	10	9	7							

# AUGUST, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.			
	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.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.	
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.										
1	29.986	67	30.020	79.5	30.044	69.5	67	65.5	79.5	71.2	69.5	66.7	W	SE	WSW	55	3	3	6	0					
2	30.090	67	30.100	82.7	30.114	74.5	67	66.2	82.7	74	74.5	72.7	SW	SE	SE	50	1.5	3	2	3					
3	30.108	70.7	30.080	84.7	30.034	79	70.7	70	84.7	73	79	73.7	SW	S	S	82	2.5	0	5	4					
4	29.950	73	29.886	81.7	29.826	75.5	73	71.5	81.7	75.5	75.5	73	SSW	SE	SE	160	3.5	9	10	10	5.30 P.M.	7.20 P.M.	07		
5	29.702	75	29.750	83.5	29.824	80	75	71.7	83.5	72.5	80	72.7	WSW	W	WNW	154	10.5	9	2	2	oh. 40m. A.M.	1.40 A.M.	37		
6	29.950	69	30.024	84.2	30.078	80	69	59	84.2	69	80	68	W	S	SW	1.7	0	0	3	0					
7	30.102	72	30.118	85.7	30.080	75	72	65.7	85.7	70	75	71	SSW	SSE	SE	143	1.5	4	3	0					
8	29.934	75.2	29.846	81	29.834	80	75.2	72.7	81	76.5	80	76.2	SW	SW	SSW	127	3.5	10	5	8	2.30 A.M.	9.30 A.M.	45		
9	29.998	74	29.930	78	29.982	73	74	69	78	68.5	73	64.5	W	WNW	W	226	3.5	0	4	2					
10	30.030	64.7	30.032	79.7	30.014	75	64.7	59.5	79.7	65	75	65.7	WNW	SW	WSW	104	1.5	3	0	0					
11	29.992	66	29.998	82	29.980	70.2	66	64.5	82	73.5	76.2	71.7	W	WSW	SE	56	1.7	0	0	0					
12	29.990	69.2	30.024	87.5	30.040	75	69.2	66	87.5	77.5	75	72.2	WSW	SE	ENE	134	2.5	6	5	3					
13	30.100	68	30.098	76	30.108	70.5	68	63	76	67.5	70.5	67.7	W	E	ESE	123	2.5	6	7	9					
14	30.124	70	30.124	76.2	30.120	74	70	67	76.2	70	74	69	ENE	SE	SE	70	1.5	9	9	10					
15	30.094	74.2	30.086	82	30.046	77.7	74.2	71.5	82	75.5	77.7	73.2	SSE	SE	SSE	93	2	9	4	8					
16	29.992	74.2	29.924	82.5	29.892	75.5	74.2	71.5	82.5	76.5	75.5	70	S	SW	WSW	148	9	3	2	10	1.30 A.M.	4 A.M.	16		
17	29.932	73	29.986	73	29.932	72	73	65	73	68	72	69	WNW	WNW	WNW	165	1.7	4	9	6	6.10 P.M.	11.15 P.M.	70		
18	30.016	64.7	29.976	79.5	29.918	75.2	64.7	61	79.5	68.5	75.2	68.2	WNW	SE	SSE	60	2.5	3	7	0					
19	29.960	63	30.000	72.7	30.050	65.2	63	59.2	72.7	59.5	65.2	57	WNW	NW	WNW	123	2	0	0	0					
20	30.100	60.5	30.054	74.2	30.000	65	60.5	57	74.2	61	65	59.2	WNW	SE	SE	69	1.5	0	0	4					
21	29.972	64	30.024	76	30.120	68	64	61.5	76	68.5	68	64	E	SE	E	84	0.5	7	8	9					
22	30.254	63	30.322	71.5	30.354	63.7	63	60	71.5	60.5	63.7	60.7	NE	E	E	214	0.5	7	4	2					
23	30.350	60.7	30.322	68	30.266	71.5	60.7	58.7	68	66.2	71.5	69.5	ENE	E	ESE	147	1.2	5	10	10	12 M.	6.30 P.M.	46		
24	30.188	72	30.142	80.5	30.135	78.5	72	70.2	80.5	72.7	78.5	73.7	SSW	SW	SW	100	2.7	10	4	7	3.45 A.M.	4.45 A.M.	19		
25	30.096	69.2	30.100	73.5	30.100	70.2	69.2	67	73.5	70.2	70.2	69	WSW	ENE	ESE	157	2.5	10	10	10	1 A.M.	4.30 A.M.	26		
26	30.092	70	30.100	80.5	30.080	77.5	70	69	80.5	74	77.5	75	SE	ESE	SSE	52	1.2	10	4	10	10.15 A.M.	12 P.M.	82		
27	30.034	76	29.926	87.5	29.882	76.5	76	74	87.5	75.5	76.5	72.2	SSW	SSW	SSW	206	6.5	9	8	10	oh. om. A.M.	9.15 A.M.	1.00		
28	30.014	70.2	30.046	76.5	30.068	72.5	70.2	67.5	76.5	70.5	72.5	70.2	NW	ENE	SE	159	1	7	5	7	6.30 P.M.	12 P.M.	31		
29	29.986	71.2	29.936	81	29.884	73.5	71.2	70.15	81	76	73.5	72.2	ESE	SE	SE	130	10.5	8	3	7	oh. om. A.M.	1.30 A.M.	16		
30	29.764	72.7	29.644	72.7	29.740	68	72.7	72.5	72.7	71	68	65	SSE	S	SW	214	7	8	10	8	2.40 A.M.	5 A.M.	11		
31	29.916	63.7	29.990	73.5	30.076	63.5	63.7	59	73.5	61	63.5	58.5	W	W	NW	125	3	2	7	0	9.15 A.M.	6.45 P.M.	54		

# SEPTEMBER, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETERS (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.					
	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.		Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Observed Height.	Ther- mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.												
1	30.220	59.7	30.224	70	30.200	66	59.7	57	70	60	66	59	NW	ESE	NNE	139	4.5	2	5	0							
2	30.210	59.7	30.234	73.7	30.218	69.5	59.7	55.7	73.7	61	69.5	61	NW	NW	WSW	132	2	0	0	0							
3	30.242	63	30.194	78	30.218	72.5	63	60	78	64	72.5	67.7	W	NW	NW	55	.5	0	2	0							
4	30.204	64.5	30.192	76	30.158	69	64.5	61	76	68	69	64.5	NW	SE	ESE	50	.7	3	4	3							
5	30.134	64.2	30.100	77.2	30.074	71.7	64.2	62.2	77.2	65.2	71.7	65.5	W	SW	S	45	.5	2	4	5							
6	30.032	66.2	29.988	81	29.944	74	66.2	62.2	81	68	74	69.2	SW	S	S	115	3.2	0	0	0							
7	29.886	67	29.948	72.2	30.112	63	67	64.5	72.2	61.7	63	54.5	W	N	N	166	4.5	2	4	0							
8	30.304	55	30.350	63.5	30.392	60	55	47	63.5	51	60	52.7	NNE	E	ESE	227	7.2	0	0	0							
9	30.396	54.5	30.376	69.2	30.314	63	54.5	49.2	69.2	58.5	63	58	ENE	SE	SE	103	1.2	7	4	2							
10	30.220	59	30.172	71	30.188	67	59	56	71	62.5	67	61.7	NE	N	NNW	50	3.2	0	4	7							
11	30.304	57.2	30.332	66.5	30.336	63	57.2	53.7	66.5	58	63	54.7	N	N	NNE	161	5.5	7	6	9							
12	30.400	60	30.414	69.2	30.372	65.2	60	55	69.2	57.5	65.2	56.5	NNE	S	S	23	1	8	7	10							
13	30.264	64.2	30.152	64	30.144	63	64.2	60.2	64	61	63	60.5	SSW	W	WSW	116	1.5	10	9	2	6.45 A.M.	12 M.	.20				
14	30.292	54	30.320	61	30.330	53.7	54	49.7	61	50.2	53.7	46.2	NNE	NNE	NNE	135	2.7	3	0	9							
15	30.318	55	30.202	56.7	29.998	59.7	55	50	56.7	55	59.7	58.5	E	ESE	E	174	3	9	10	10	7.40 A.M.	12 P.M.	1.02				
16	29.882	55	29.900	66	29.976	63.2	55	53.2	66	61	63.2	59.2	NNW	W	WNW	187	2.5	9	3	8	4.30 A.M.	5 A.M.	.02				
17	29.988	57	29.986	70.5	30.090	60	57	54	70.5	62	60	54	WNW	WSW	WNW	106	6	9	3	4							
18	30.214	47.7	30.176	59	30.124	57.2	47.7	47	59	49	57.2	52	WNW	WNW	WSW	168	1.5	2	0	0							
19	29.994	54.7	29.892	65.2	29.882	64.5	54.7	51.7	65.2	59.7	64.5	61.2	SSW	SSW	S	80	1.5	9	9	10							
20	29.898	57.7	29.938	55.5	30.060	47.5	57.7	54.7	55.5	50	47.5	44	NW	NW	NNW	164	3.7	9	9	3	oh. 45m. P.M.	1.15 P.M.	.03				
21	30.294	40.5	30.240	54	30.294	50.7	40.5	38	54	44	50.7	41.5	NNW	NNE	NNE	229	14	4	2	0							
22	30.358	42	30.280	57.7	30.202	53.7	42	39	57.7	47.7	53.7	48.2	NNE	E	SE	130	1	2	7	3							
23	30.070	49	29.896	67	29.870	64.5	49	47	67	58	64.5	59	WSW	SSW	SSW	109	4	0	2	3							
24	29.838	58	29.820	76	29.856	68	58	56	76	63.7	68	62.7	SW	SSW	SW	207	3.2	0	4	2							
25	29.962	55	29.972	66	29.942	62.5	55	49	66	58.5	62.5	58	W	NNW	NNW	159	1	0	3	0							
26	29.796	57	29.680	59.7	29.758	54.2	57	54.5	59.7	56.7	54.2	50.5	NNW	WSW	WNW	70	5	9	10	0	4.15 A.M.	5 A.M.	.01				
27	29.760	47.7	29.744	62.5	29.750	54	47.7	44.2	62.5	56.7	54	49.5	WNW	SW	W	111	2.2	0	7	0	11.40 A.M.	2.20 P.M.	1.06				
28	29.784	47.2	29.824	59.2	29.966	54	47.2	42.7	59.2	51.7	54	49.5	WSW	WSW	WSW	149	3.7	3	7	2							
29	30.062	48	30.110	55.2	30.216	45	48	44.5	55.2	47.5	45	41	WNW	WNW	NW	197	6.7	7	7	0							
30	30.278	43	30.270	58.7	30.292	52	42	39	58.7	52.5	52	47	NW	NW	NNW	187	4	3	4	0							

OCTOBER, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.										
	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.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.								
	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Observed Height.	Ther-mometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.																	
1	30.316	47.0	30.268	60	30.226	57.5	47	42	60	52.7	57.5	51.2	NNW	NW	S	59	1	0	4	3	oh. 30 m. P.M.	8 P.M.	06									
2	30.124	52	30.024	73.5	29.978	61.5	52	47.7	73.5	58	61.5	57	WSW	SW	SE	69	7	0	7	4												
3	29.852	51.5	29.780	59	29.808	58	51.5	51	59	55.2	58	56	WNW	WSW	SW	44	1.5	10	10	10												
4	29.780	55	29.804	68.2	29.964	60.5	55	52	68.2	55.2	60.5	53.5	SSW	W	W	177	4.5	0	7	4												
5	30.054	51	30.060	68.7	30.024	65.5	51	50	68.7	61	65.5	61.2	W	SE	S	58	1	7	9	10	2.30 A.M.	12 P.M.	2.70									
6	29.806	63.5	29.756	69.2	29.784	66	63.5	62.5	69.2	66	66	64	SE	WSW	SE	111	2.5	10	7	10												
7	29.826	51	29.932	60.5	30.058	53	51	48	60.5	51.5	53	46.2	NW	N	WNW	151	11.2	4	0	0					oh. om. A.M.	1 A.M.	02					
8	30.272	44	30.330	63.5	30.376	59.5	44	38.5	63.5	50	59.5	52	W	SSW	SSW	138	1.5	0	0	0												
9	30.356	51	30.320	70	30.242	60.5	51	49.5	70	58.5	60.5	57.5	SW	SW	SSW	168	4.5	2	0	0	oh. om. A.M.	8.10 A.M.	86									
10	30.188	60.5	30.110	70	30.052	65	60.5	60	70	64.5	65	63.2	WSW	SE	SE	153	6.2	9	7	10									3.40 P.M.	7.30 P.M.	1.58	21
11	30.020	64	29.960	69	29.870	60.2	64	63.5	69	67	60.2	59.7	SE	ESE	WNW	114	1.7	9	9	10					oh. om. A.M.	4 A.M.						
12	29.758	50.5	29.858	53.5	30.182	49.7	50.5	50	53.5	47.2	49.7	43.7	NW	WNW	WNW	225	18	10	9	0												
13	30.396	45.5	30.498	59.5	30.498	57	45.5	42.2	59.5	50	57	50.7	W	NNW	SSE	186	1	0	2	0	oh. om. A.M.											
14	30.410	51.5	30.310	62.5	30.252	59.2	51.5	49.5	62.5	53.5	59.2	54	SW	SSW	SSW	107	2.5	8	6	2									oh. om. A.M.			
15	30.092	58	29.984	74	30.020	69	58	50.5	74	64.2	69	60	SW	SW	W	224	9.7	8	7	3					oh. om. A.M.							
16	30.124	53	30.066	54	30.086	52	53	44.7	54	47	52	49	WNW	W	WSW	206	2.2	8	9	2												
17	30.050	48.5	30.000	62	29.960	54	48.5	45.5	62	51.5	54	52.5	WNW	SW	WNW	68	1	0	4	3	oh. om. A.M.											
18	29.948	48.2	29.968	52.5	30.104	44.2	48.2	40.5	52.5	45	44.2	37.2	NW	WNW	W	118	16	4	8	7									oh. om. A.M.			
19	30.154	39	29.968	52.7	29.802	52.7	39	34	52.7	43.2	52.7	45.2	W	SW	SW	257	8	9	5	0					oh. om. A.M.							
20	29.988	40.2	30.174	47	30.334	37.7	40.2	40.2	47	39	37.7	35.5	WNW	NW	NW	431	16.5	0	0	0												
21	30.456	32	30.368	53.2	30.300	52	32	31	53.2	45	52	47	NNW	SSE	SSW	154	2.5	0	0	0	oh. om. A.M.											
22	30.200	48	30.114	68.5	30.070	61.5	48	40.2	68.5	57.5	61.5	55.7	WSW	SSW	SW	206	4.3	0	0	0									oh. om. A.M.			
23	30.002	55.5	29.980	75.5	29.996	67.5	55.5	51.5	75.5	61.2	67.5	59.7	SW	WSW	WSW	209	3.2	0	2	3					oh. om. A.M.							
24	30.044	60	30.094	50.7	30.212	52.5	60	57	50.7	54.7	52.5	50	WNW	NE	ENE	165	7.2	10	10	10												
25	30.312	51	30.318	52	30.304	51.7	51	47	52	49.5	51.7	50.2	NE	ENE	ENE	296	7.2	10	9	10	oh. om. A.M.											
26	30.220	51	30.142	56	30.076	58	51	50.7	56	56	58	58	NE	ENE	ESE	274	2.7	10	10	10									oh. om. A.M.			
27	29.708	58	29.730	62	29.780	53.5	58	58	62	60	53.5	52.2	ENE	WSW	WSW	118	3.2	10	10	0					oh. om. A.M.							
28	29.708	52	29.756	51.5	29.918	40	52	49	51.5	43	40	36	W	WNW	WNW	130	7.7	0	7	0												
29	30.042	40	30.110	49.5	30.220	41.5	40	36	49.5	41	41.5	36	WSW	NW	WNW	236	7.2	8	3	0	oh. om. A.M.											
30	30.320	35.5	30.328	50	30.290	51	35.5	34.7	50	42	51	46	W	SW	SW	102	1.7	2	0	6									oh. om. A.M.			
31	30.228	47	30.166	60	30.054	56.7	47	45	60	53	56.7	53.7	SW	SSW	S	261	1.7	7	8	10					oh. om. A.M.							

# NOVEMBER, 1871.

DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.					CLOUDS.			RAIN AND SNOW.			
	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.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.									
1	29.802	59.7	29.600	64.2	29.780	44.7	59.7	57	64.2	62.2	44.7	39.5	SSW	SW	NW	157	15.5	10	5	0	5.40 A.M.	11.30 A.M.	.47	
2	29.942	38	29.936	51.7	30.012	50	38	34.5	51.7	42.2	50	44	WNW	NW	W	279	3.7	0	3	5				
3	30.068	41	30.110	51.2	30.144	43.5	41	38.2	51.2	43.5	43.5	39.2	W	NW	NNW	125	4.5	2	0	4				
4	30.090	35	30.000	43	29.916	40	35	31.2	43	30.2	40	36	NNE	E	E	113	1.2	8	7	0				
5	29.914	30	29.884	53	29.964	37	30	32	53	44	37	31.7	NNW	NW	NW	90	7.2	9	3	0				
6	29.990	28.5	30.000	40.5	30.032	31.7	28.5	28.5	40.5	35	31.7	30.5	NW	WNW	WNW	311	6.2	0	0	4				
7	29.908	33.5	29.908	44	29.934	37.5	33.5	30	44	35.5	37.5	32.2	WNW	WNW	WNW	306	12	0	0	0				
8	29.716	35.2	29.650	49.5	29.770	42	35.2	31	49.5	40.5	42	35.5	WSW	WNW	W	225	9	9	7	4				
9	29.842	34.7	29.900	45.5	29.932	42.2	34.7	32.2	45.5	38	42.2	37.7	WSW	NW	SW	178	2	2	0	5				
10	29.710	40	29.500	45.7	29.530	39.5	40	38	45.7	44.5	39.5	38	ESE	ENE	WNW	118	6	10	10	10				
11	29.840	40.2	30.034	42	30.220	39.5	40.2	35.5	42	35.5	39.5	31	WNW	WNW	WNW	358	17.5	9	4	3				
12	30.340	31	30.338	42	30.348	33.5	31	25	42	30	33.5	26	WNW	NW	NW	432	10.7	3	5	7				
13	30.362	30.5	30.284	41.5	30.186	38.2	30.5	30	41.5	38.2	37		NNW	NW	NW	182	5.5	8	5	9				
14	30.022	39	29.780	47	29.500	51.7	39	36.5	47	45.2	51.7	50	ENE	ESE	ESE	112	23	10	10	10				
15	29.348	32.5	29.350	48	29.454	39.2	32.5	50.7	48	43	39.2	35.7	SE	WSW	W	387	15	10	10	10	oh. om. A.M.	2.30 A.M.	1.13 .02 { Slight snow	
16	29.538	32.2	29.590	34	29.752	34	32.2	31.7	34	33	34	32.5	WNW	WNW	NW	362	10	10	10	9				
17	29.928	35.5	30.034	46	30.180	36.2	35.5	33.5	46	40	36.2	35	NW	NNW	NW	357	7.2	8	2	0				
18	30.278	34	30.312	42.7	30.348	34	34	32	42.7	39	34	33	NNW	N	N	174	5	0	0	0				
19	30.370	33	30.340	38	30.312	38	33	32	38	35.7	38	37.5	NW	WNW	E	110	1.2	10	8	10				
20	30.230	42	30.090	50	29.998	53	42	41.7	50	49.5	53	52	S	SE	SW	79	1.5	10	10	8				
21	29.934	44	29.866	48	29.722	41	44	43	48	43	41	37.2	W	SW	NW	110	1.5	4	7	10				
22	29.548	34	29.550	40.7	29.626	35	34	34	40.7	35.5	35	32	W	W	WSW	186	4	9	8	2				
23	29.930	30	30.050	35	30.156	32	30	28	35	33.7	32	32	W	NW	N	230	5.5	2	0	0				
24	30.084	34.5	29.814	48	29.770	48.7	34.5	32	48	45.2	48.7	47.7	E	SE	NW	196	11	2	10	10				
25	30.010	40.5	30.166	44	30.240	35	40.5	36.7	44	37.7	35	33.2	WNW	NW	W	315	16	2	0	0				
26	30.158	37.5	29.954	47	29.798	49.5	37.5	36.2	47	44.2	49.5	47	SE	S	SW	90	1.2	10	9	10				
27	29.622	49	29.690	47.5	29.858	28	49	47.2	47.5	44	28	27	W	N	NW	165	18.2	9	8	0		1 A.M.	2.40 A.M.	.22
28	29.930	16.5	29.942	23.5	29.860	20.5	16.5	16.2	23.5	23.5	20.5	20.5	NW	N	N	296	7	0	0	5				
29	29.710	16	29.732	24.2	29.876	16.7	16	16	24.2	24.2	16.7	16.7	NW	NW	N	214	15.2	9	3	0	oh. om. A.M.	8 A.M.	.01	.25
30	29.880	15	29.930	21.2	29.978	16.5	15	15	21.2	21.2	16.5	16.5	W	WNW	W	525	22	0	3	0				

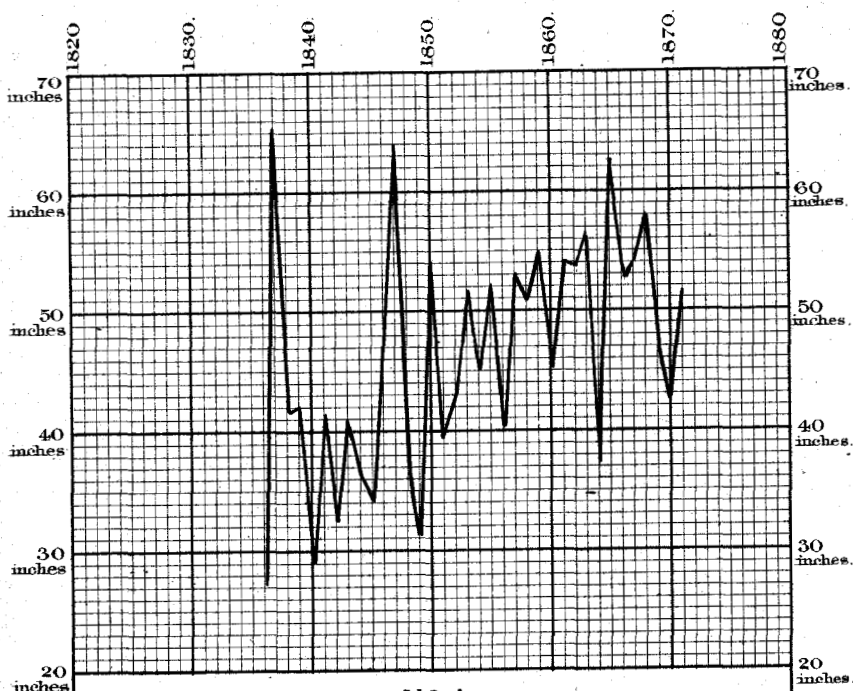


# DECEMBER, 1871.

11

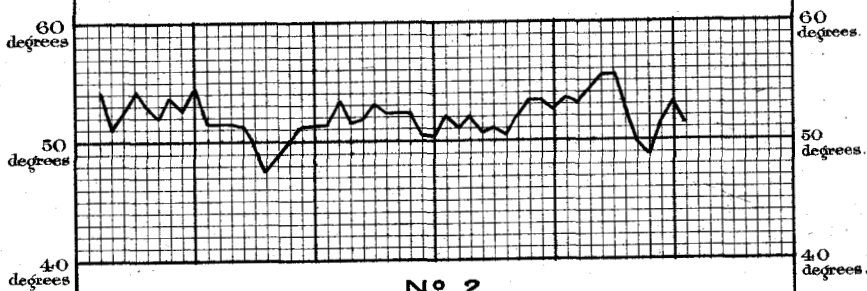
DATE.	BAROMETER (Thermometer attached).						THERMOMETER (Shade in open air).						WIND.						CLOUDS.			RAIN AND SNOW.			
	7 A.M.		2 P.M.		9 P.M.		7 A.M.		2 P.M.		9 P.M.		7 A.M.	2 P.M.	9 P.M.	Velocity in miles for 24 hours ending at 2 P.M.	Maximum force during the 24 hours in lbs. per square ft.	7 A.M.	2 P.M.	9 P.M.	Time of Beginning.	Time of Ending.	Amt. of Water. Inches.	Depth of Snow. Inches.	
	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Observed Height.	Thermometer.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Direction.	Direction.	Direction.										
1	29.982	17	29.968	27.7	29.986	26	17	17	27.7	27.7	26	26	W	WNW	WSW	390	10	0	8	9	{	1.30 P.M. oh. om. A.M. 8.30 P.M.	12 P.M. 7 A.M. 9.20 P.M.	.14 .03 .01	melted.
2	30.092	27	30.156	32	30.170	31	27	27	32	31	31	31	WNW	W	SW	259	5.5	2	0	0					
3	30.150	28.5	30.082	37.5	29.930	34.7	28.5	28.5	37.5	35	34.7	34.7	SW	SE	ENE	118	2	8	10	9					
4	29.590	39	29.410	42.5	29.434	33.5	39	38.7	42.5	40.7	33.5	32.2	NE	SW	WSW	115	15.4	9	4	10					
5	29.674	15	29.756	18	29.890	14.7	15	15	18	18	14.7	14.7	W	W	WSW	436	23	9	3	0	{	4.30 A.M.	5.45 A.M.	.01	.37
6	29.974	15	29.950	22.5	29.820	23	15	15	22.5	22.5	23	23	WSW	WSW	SSW	336	10.2	0	3	10					
7	29.620	31	29.684	35.5	29.680	38	31	31	35.5	34	38	35	SW	WSW	S	306	6	9	9	10					
8	29.726	37	29.684	42.5	29.908	30.5	37	33.2	42.5	34	30.5	30.2	SW	WSW	WSW	170	20.5	7	8	0					
9	30.012	26.5	30.064	30.5	30.196	23.5	26.5	26.2	30.5	30.5	23.5	23.5	W	W	WNW	326	10.2	2	5	0	{	11.30 A.M.	6 P.M.	.34	melted.
10	30.112	22.5	29.928	35	29.828	32.5	22.5	22.5	35	34.5	32.5	32.5	SW	WSW	SW	279	7.7	2	8	5					
11	29.882	32.2	29.780	40.2	29.760	38	32.2	31.7	40.2	33.7	38	33.2	W	SSW	SW	247	2	9	7	0					
12	29.832	35.2	29.984	36.2	30.046	34	35.2	32	36.2	30	34	31.5	W	NW	NW	183	9.2	4	8	8					
13	29.910	30	29.684	34.5	29.752	32	30	30	34.5	34	32	31.7	E	ENE	NNW	170	2.2	9	10	2	{	11.30 A.M.	6 P.M.	.34	melted.
14	29.886	26	29.900	27	30.036	23.7	26	25	27	27	23.7	23.7	W	W	W	229	11.5	0	5	0					
15	30.050	20.5	29.972	23.7	29.912	20.5	20.5	20.5	23.7	23.7	20.5	20.5	W	N	N	122	1.2	10	9	0					
16	30.028	19.5	30.050	29	30.070	32.2	19.5	19.5	29	29	32.2	32	N	SW	SSW	71	2.2	0	7	5					
17	30.086	34.5	30.060	34.7	30.148	33	34.5	34.2	34.7	34	33	32.5	SSE	WSW	WSW	162	2	10	8	10	{	5.30 A.M. 9.30 A.M. oh. 40 m. P.M.	6.40 A.M. 12 M. 6.50 P.M.	.01 .10 .08	3.00
18	30.085	31.5	29.848	39.2	30.000	36	31.5	31	39.2	39	36	35.2	E	SW	WNW	92	14.5	9	10	9					
19	29.996	26.5	29.774	30.5	29.548	26.5	26.5	26.5	30.5	30.5	26.5	26.5	W	SSW	SW	268	2	10	10	10					
20	29.454	18.2	29.420	17	29.670	11.5	18.2	18.2	17	17	11.5	11.5	W	W	W	194	21	10	5	3					
21	30.050	-2	30.190	5.5	30.388	6.5	-2	-2	5.5	5.5	6.5	6.5	W	W	WSW	382	11.7	0	2	0	{	10 A.M. oh. om. A.M.	12 P.M. 12 P.M.	.09 .71	sleet.
22	30.458	10	30.424	16	30.408	19.5	10	10	16	16	19.5	19.5	W	WNW	ENE	93	2.5	10	10	10					
23	30.240	26	30.078	32.5	29.914	54	26	26	32.5	32.5	54	52.5	NNE	ENE	S	160	10	10	10	10					
24	30.114	45	30.222	48.5	30.180	46	45	42	48.5	42	46	44	WNW	SE	SE	243	6.7	5	5	9					
25	30.000	33	29.892	49	29.950	41	33	33	49	45	41	40	E	S	WSW	34	2.2	10	3	9	{	10.50 A.M. 8.40 P.M. oh. om. A.M.	11.30 A.M. 12 P.M. 7 A.M.	.01 .13 .04	
26	30.040	36	30.016	37.5	29.958	36.5	36	35	37.5	36	36.5	35.5	WNW	NNW	ENE	106	1.2	10	9	10					
27	29.644	36.5	29.754	36.5	29.060	24.7	36.5	36.5	36.5	32	24.7	24.2	WSW	W	NW	165	15.7	5	8	10					
28	30.338	14	30.392	19	30.386	19	14	14	19	19	19	19	W	WNW	WSW	331	10.2	3	5	10					
29	30.212	26	30.050	28.5	30.116	29	26	26	28.5	28.5	29	29	SW	WSW	WNW	143	2	10	10	10	{	11.30 A.M. 3.30 P.M. oh. om. A.M. 11 P.M.	2.30 P.M. 12 P.M. 9.15 A.M. 12 P.M.	.17 .22 .13 .01	.37
30	30.254	28	30.312	30.5	30.322	33	28	28	30.5	30.5	33	33	NNE	NE	NE	146	6	10	9	10					
31	30.210	34.5	30.116	36	30.026	37	34.5	34.5	36	35.7	37	37	NE	NE	ESE	222	2.5	10	10	10					

# SYNOPTIC CHART.



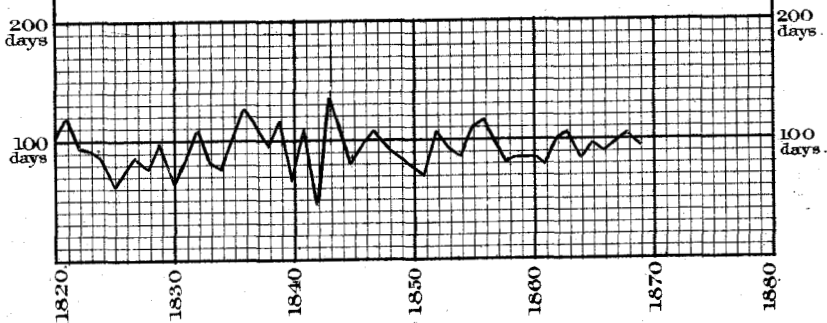
Nº 1.

*Annual Fall of Rain in New York from 1835 to 1872.*



Nº 2.

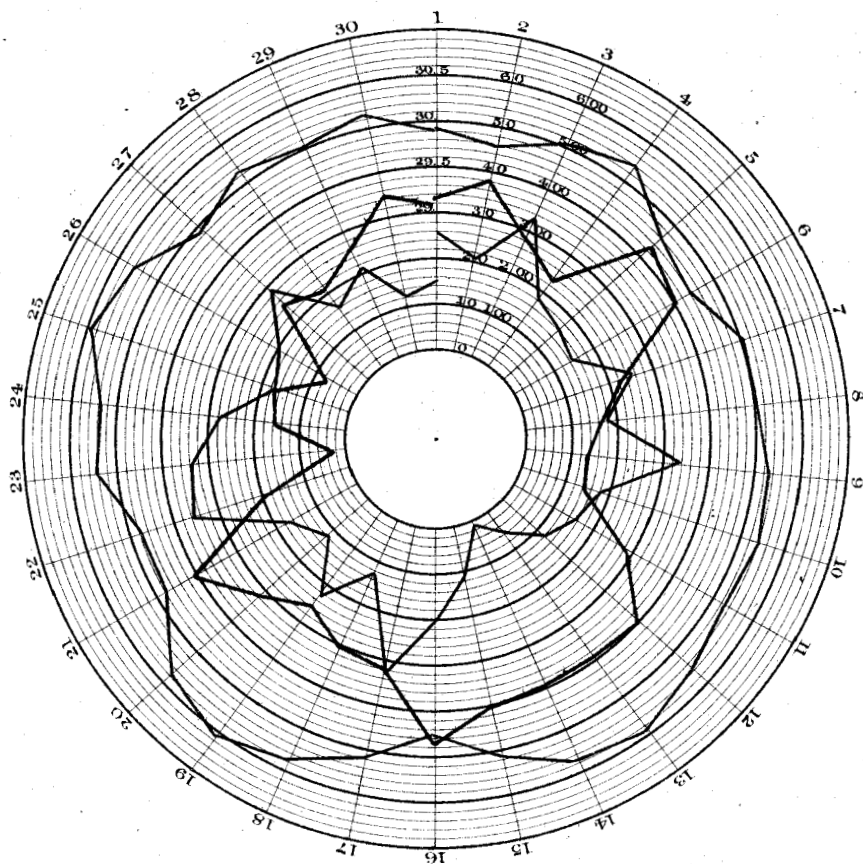
*Mean Annual Temperature of New York from 1821 to 1872.*



Nº 3.

*Number of days the Hudson River was closed by ice since 1819.*

# SYNOPTIC CHART OF JANUARY 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

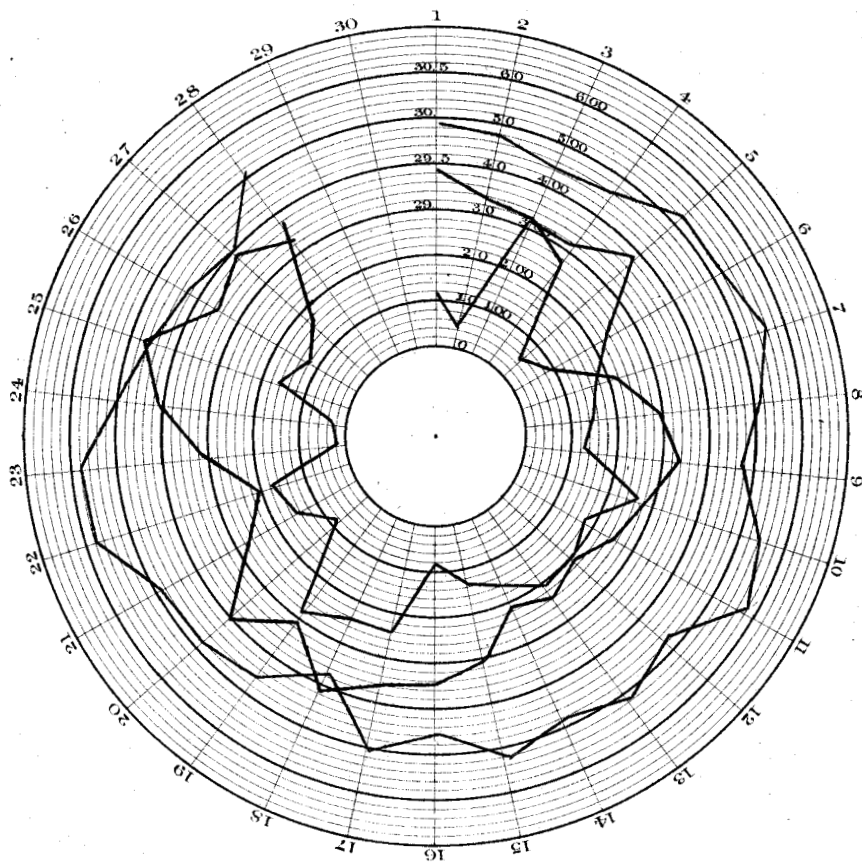
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF FEBRUARY 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

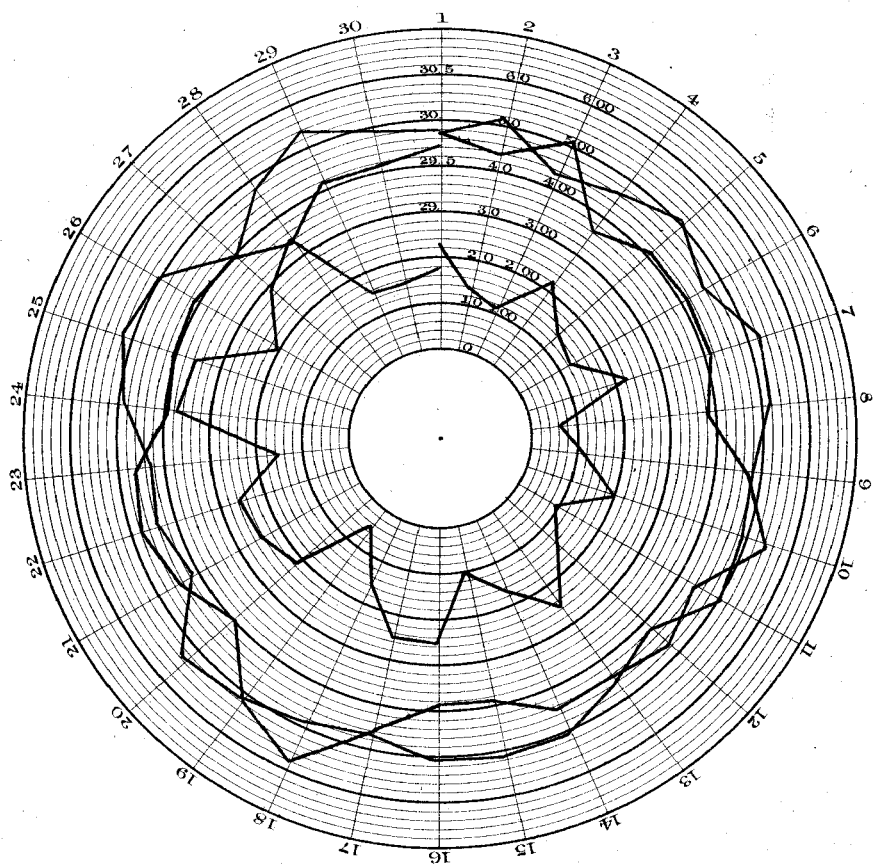
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF MARCH 1871..



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

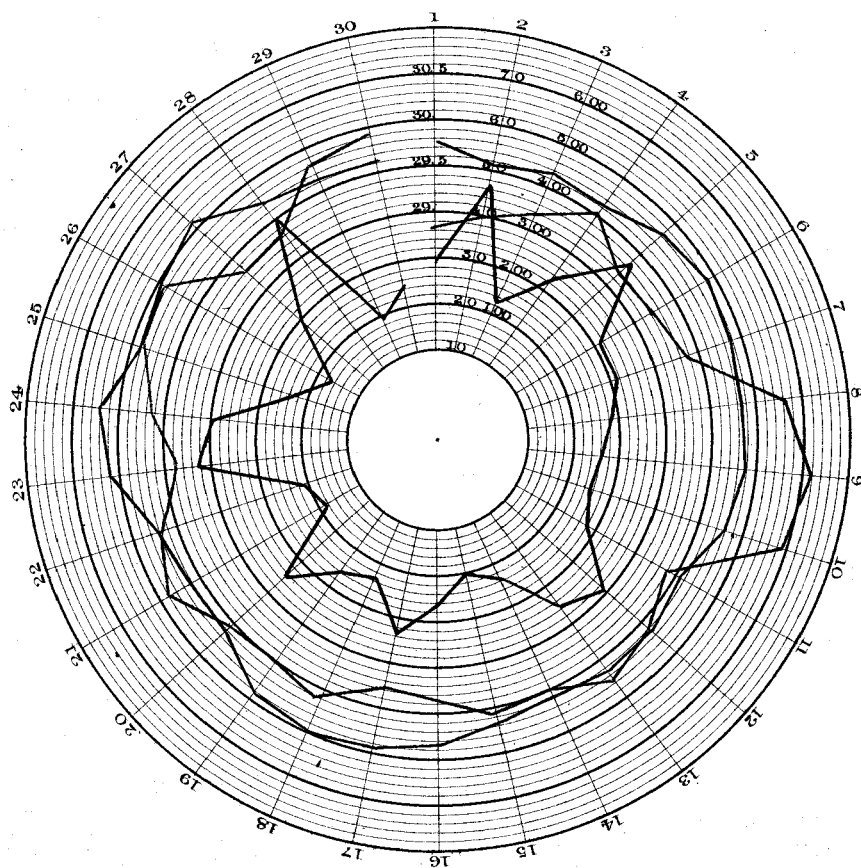
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF APRIL 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

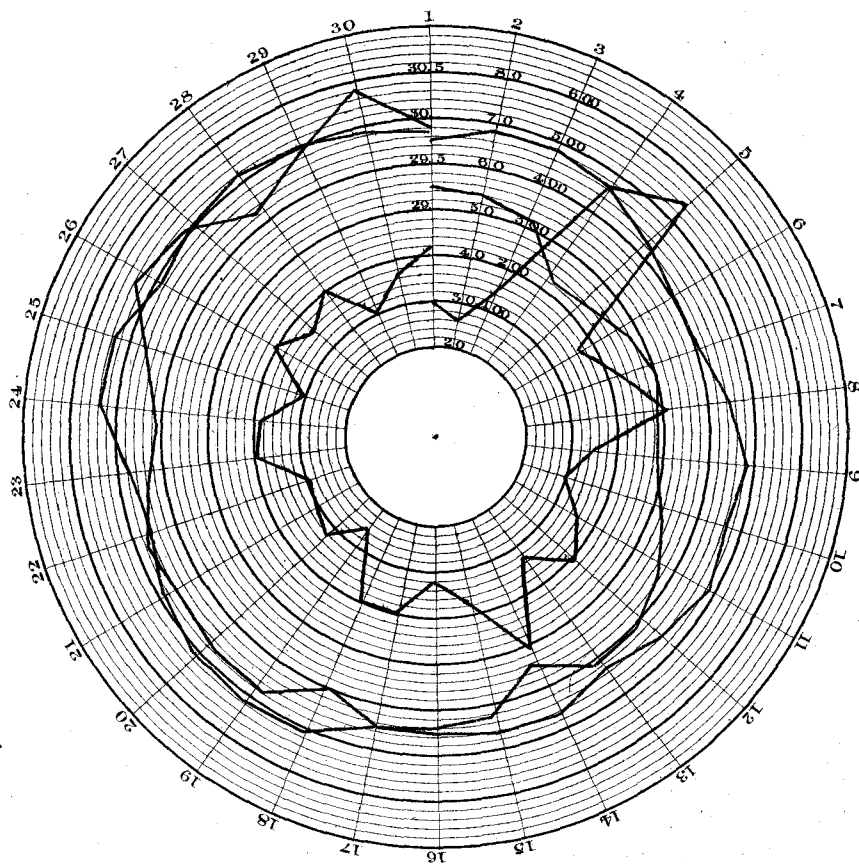
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF MAY 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

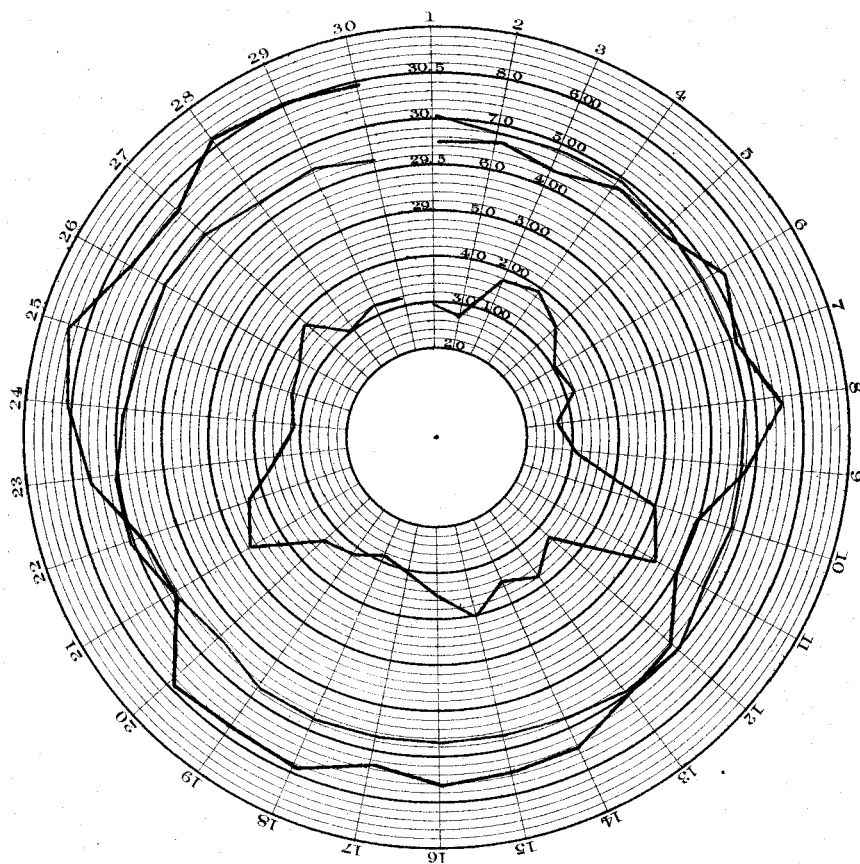
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF JUNE 1871.



Figures on the circumference are days of month.

" " " first day line are Barometer in inches.

" " " second " " " Thermometer in degrees.

" " " third " " " Wind in miles.

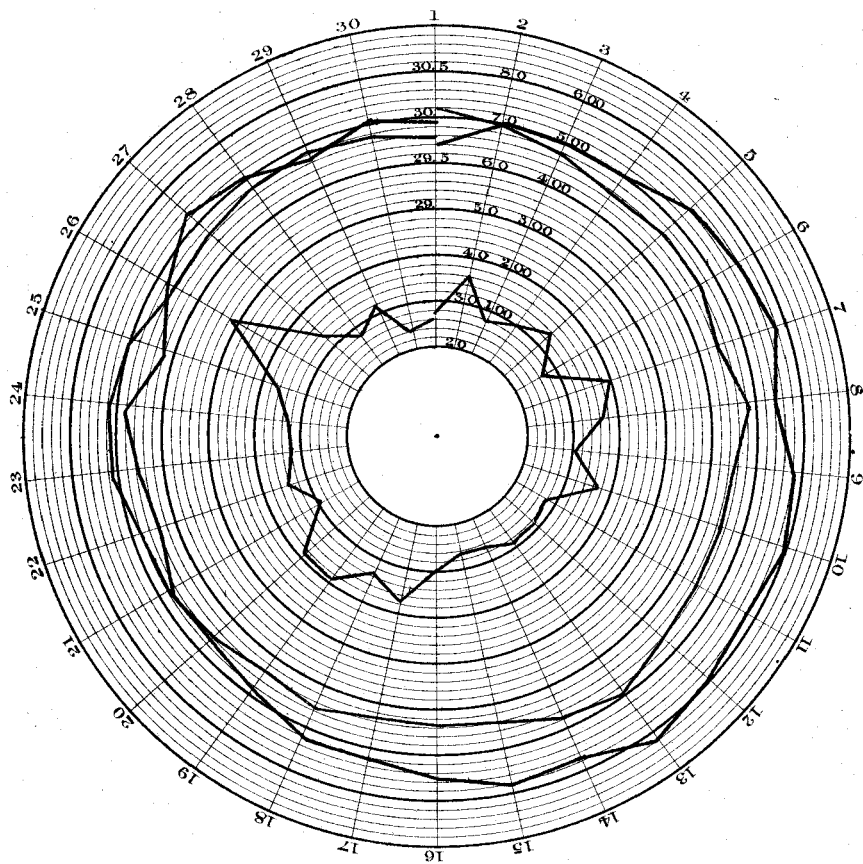
The Blue line is for the Barometer.

" Red " " " " Thermometer.

" Green " " " " Wind.



# SYNOPTIC CHART OF JULY 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

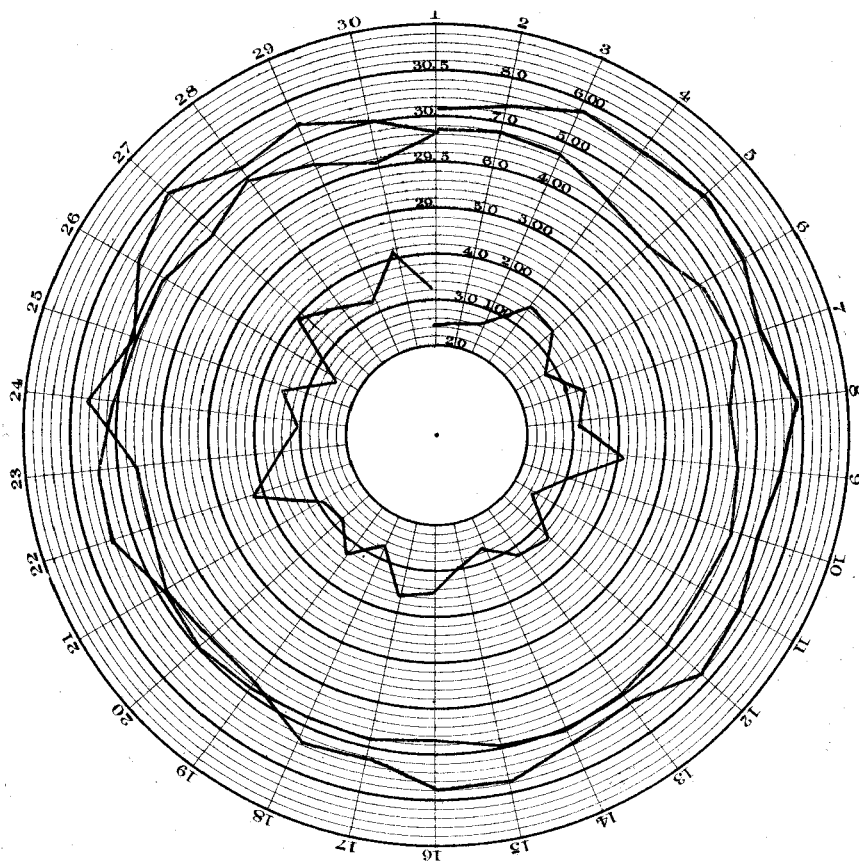
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF AUGUST. 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees*

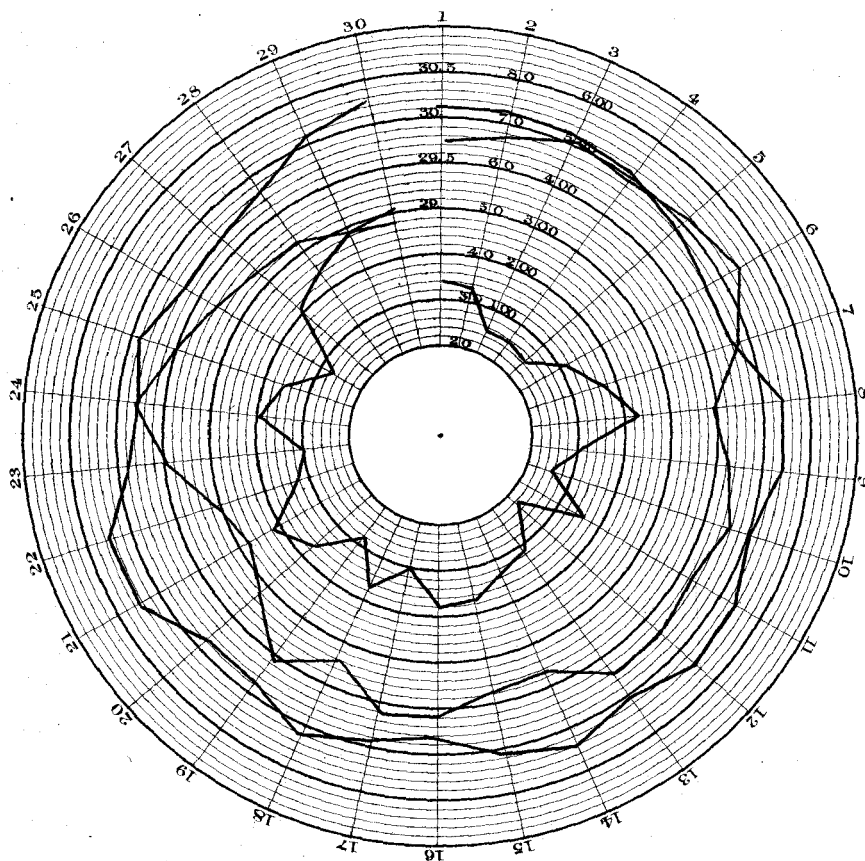
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF SEPTEMBER 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

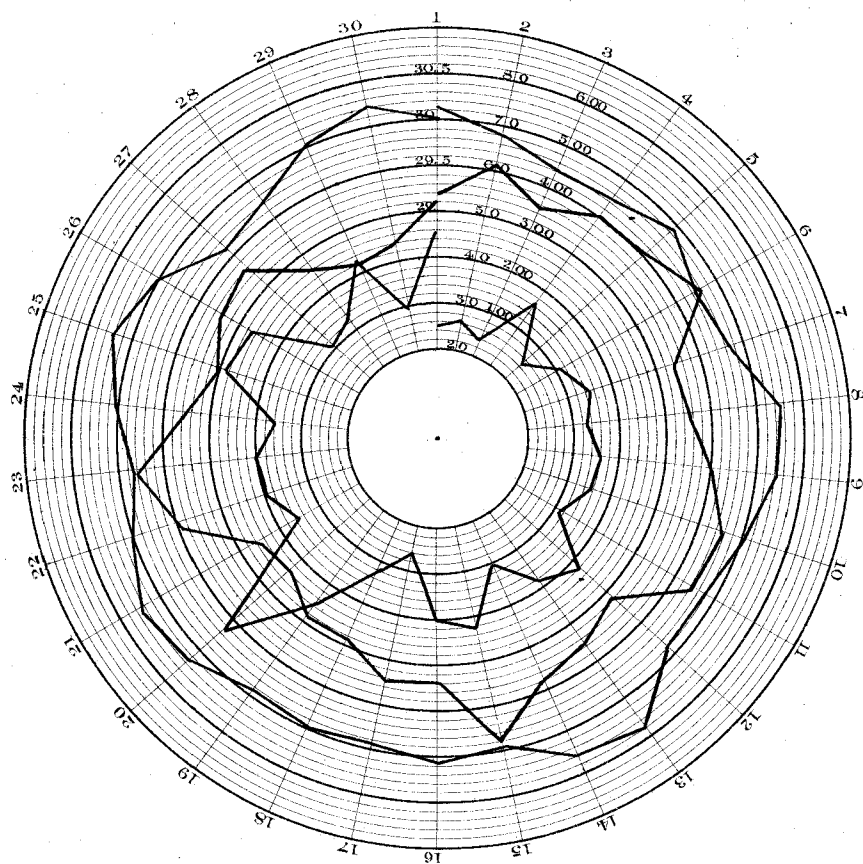
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF OCTOBER 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

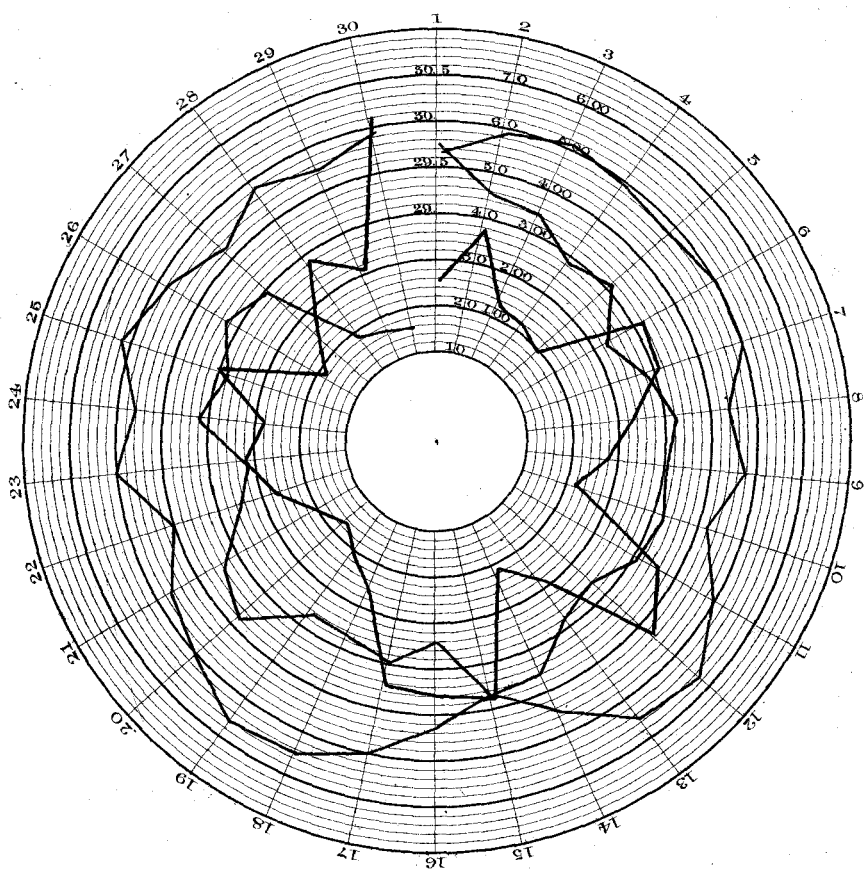
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF NOVEMBER 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

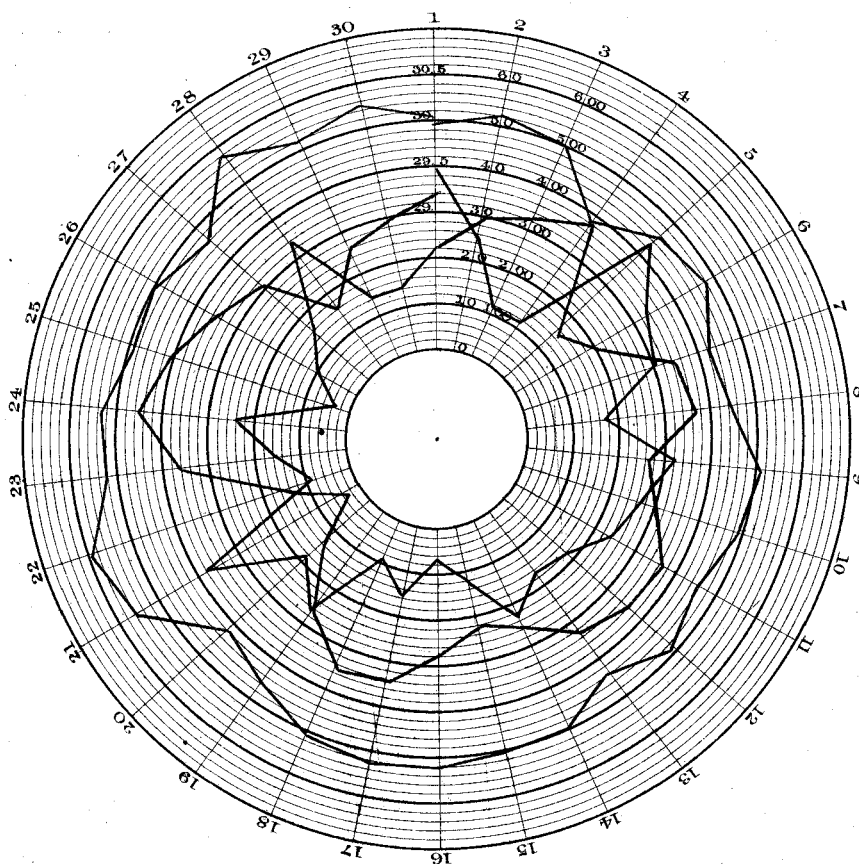
*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

# SYNOPTIC CHART OF DECEMBER 1871.



*Figures on the circumference are days of month.*

*" " " first day line are Barometer in inches.*

*" " " second " " " Thermometer in degrees.*

*" " " third " " " Wind in miles.*

*The Blue line is for the Barometer.*

*" Red " " " " Thermometer.*

*" Green " " " " Wind.*

APPENDIX E.

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REPORT

OF THE

DIRECTOR OF THE MENAGERIE.

# REPORT

OF THE

## DIRECTOR OF THE MENAGERIE.

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FRED. LAW OLMSTED, Esq.,

*President Department Public Parks:*

SIR—I respectfully submit the appended list of animals exhibited on the Central Park from April 1, 1871, to April 1, 1872; also the names of species that have been exhibited for the first time, and the number bred in the menagerie.

The number of animals of all classes which have been exhibited during the year—not including the common domestic varieties—is 601, showing an increase of 226 over the preceding year.

A corresponding increase has also occurred in the permanent collection of the Department, as will appear from the following table:

	APRIL 1ST.	
	1871.	1872.
Quadrupeds.....	89	103
Birds.....	143	208
Reptiles.....	14	11
	246	322



Notwithstanding an unusual trying season, there have been among the valuable animals of the permanent collection no loss, with the exception of one Emu, which had its leg fractured by being caught in the wire railing.

Of those placed on exhibition, a Lion and Elephant have died, both from diseases contracted previously to their arrival; also two Ostriches, one from pneumonia, the other from bodily injuries resulting from the hardships of a long sea voyage.

There have been many interesting additions to the collection, as the following list will show:

Received as gifts:

1. A Grivet Monkey, presented to the Hon. William H. Seward by the Viceroy of Egypt.

2. A Japanese Deer, *Cervus sika*, presented by Captain F. R. Baby.

3. Two European Sea Eagles, *Haliæetus albicilla*, and one European Crane, *Grus cinerea*, presented by Consul Heyse of Swinemundi, Prussia.

Obtained by purchase:

1. A pair of young African Lions, *Felis leo*, two years old.

2. A pair of young African Leopards, *Felis leopardus*, the female afterwards sold to the Peruvian Government to be placed in its zoological garden.

3. A Cheetah, *Gueparda guttata*, believed to be the only specimen in this country,

4. A spotted Hyena, *Hyena crocuta*.
5. A Saddle-billed Stork, *Xenorhynchus senegalensis*, from West Africa.
6. A pair of Emus, *Dromæus novæ-hollandi*, from New South Wales.
7. A pair of spur-winged Geese, *Plectropterus gambensis*, from Africa.

There will be found appended a list of animals placed on exhibition, together with the names of owners, and the period of exhibition.

It will be observed, that in this respect, the public is especially indebted to Mr. P. T. Barnum, Messrs. Smith & Nathans, Messrs. Charles Reiche & Bro., and Mr. Louis Ruhe.

I wish to express my obligations to A. Liautard, M.D., Professor of Comparative Anatomy and Operative Surgery of the New York College of Veterinary Surgeons, who has on frequent occasions kindly assisted me with his valuable professional advice.

Very respectfully,

WILLIAM A. CONKLIN,

*Director.*

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### **Mammalia.**

Order : QUADRUMANA.

Family : *Simiadae*.

Genus : *Presbytes*.

*P. cristata* Raff., Chingkau Monkey. *Hab.* Java. *a.* Deposited for exhibition, 1872.

*P. maura*, Schreb., Moor Monkey. *Hab.* Java. *a.* Deposited for exhibition September 26, 1870.

Genus : *Cercopithecus*.

*C. callitrichus*, Is. Geoff., Green Monkey. *Hab.* West Africa. *a.* Received in exchange. *b, c.* Purchased September 19, 1871.

*C. lalandii*, Is. Geoff., Vervet Monkey. *Hab.* South Africa. *a.* Presented by Mrs. F. A. Coe, April 25, 1871.

*C. griseo-viridis*, Desm., Grivet Monkey. *Hab.* East Africa. *a.* Presented by Mr. Patrick Lannon, May 16, 1871. *b, c.* Purchased July 6, 1871. *d, e.* Purchased September 19, 1871. *f.* Deposited for exhibition November 4, 1871. *g.* Presented by Miss Fanny Elkins, January 25, 1872.

*C. cephus*, Erxl., Moustache Monkey. *Hab.* West Africa. *a.* Purchased September 19, 1871.

*C. ruber*, Kuhl, Patas Monkey. *Hab.* West Africa. *a.* Deposited for exhibition September 21, 1871.

Genus ; *Cercocebus*.

*C. æthiops*, Kuhl., White-collared Mangabey. *Hab.* West Africa. *a.* Deposited for exhibition October 16, 1871.

Genus : *Macacus*.

*M. radiatus*, Desm., Bonnet Macaque. *Hab.* India. *a, b.* Deposited for exhibition October 12, 1871.

*M. erythræus*, Schreb., Rhesus Monkey. *Hab.* India. *a, b.* Deposited for exhibition April 14, 1871. *c-e.* Deposited for exhibition October 12, 1871.

*M. nemestrinus*, Desm., Pig-tailed Monkey. *Hab.* India. *a-c.* Deposited for exhibition October 12, 1871.

Genus : *Cynocephalus*.

*C. hamadryas*, Linn., Arabian Baboon. *Hab.* North Africa. *a.* Deposited for exhibition November 9, 1871.

*C. mormon*, Linn., Mandrill. *Hab.* Africa. *a.* Purchased January 17, 1871.

*C. babouin*, Desm., Yellow Baboon. *Hab.* Africa. *a-c.* Purchased July 6, 1871. *d-f.* Deposited for exhibition Oct. 12, 1871.

Family: *Cebidæ*.

Genus: *Ateles*.

*A. ater*, F. Cuv., Black-faced Spider Monkey. *Hab.* Brazil. *a.* Purchased March 21, 1871.

Genus: *Cebus*.

*C. apella*, Erxl., Capuchin Monkey. *Hab.* Guiana. *a.* Deposited for exhibition October 12, 1871.

*C. capucinus*, Erxl., Weeper Capuchin Monkey. *Hab.* Brazil. *a, b.* Purchased July 6, 1871. *c.* Presented October 14, 1871.

*C. versicolor*, Puch., Weeper. *Hab.* Brazil. *a.* Purchased July 6, 1871. *b.* Deposited for exhibition October 5, 1871. *c.* Deposited for exhibition November 3, 1871. *d.* Presented by Lieut. Frederick Russell, U. S. A., 1871. *e.* Presented by Prof. S. F. B. Morse, Dec. 29, 1871.

*C. hypoleucus*, Geoff., White-throated Sapajou. *Hab.* Central America. *a.* Deposited for exhibition May 8, 1871. *b.* Presented by Genl. A. de Gorloff, October 17, 1871.

Genus: *Callithrix*.

*C. sciureus*, Kuhl., Tee Tee Monkey. *Hab.* Brazil. *a.* Purchased May 16, 1871. *b.* Presented by Rev. C. N. Cate, October 10, 1871.

Genus: *Hapale*.

*H. jacchus*, Linn., Marmoset Monkey. *Hab.* Brazil. *a.* Presented by Mr. T. Bailey Meyers, June 3, 1870.

Order: CARNIVORA.

Family: *Felidae*.

Genus: *Felis*.

*F. leo*, Linn., Lion. *Hab.* Africa and South Western Asia. *a.* Deposited for exhibition April 11, 1871. *b, c.* Purchased July 20, 1871. *d, e.* Deposited for exhibition January 8, 1872. *f-i.* Deposited for exhibition January 9, 1872. *j-l.* Born in the menagerie, 1872.

*F. tigris*, Linn., Tiger. *Hab.* Asia. *a.* Deposited for exhibition November 28, 1871. *b-d.* Deposited for exhibition February 13, 1872.

*F. leopardus*, Linn., Indian Leopard. *Hab.* Asia. *a, b.* Deposited for exhibition April 11, 1871.

*F. varia*, Schreb., African Leopard. *Hab.* Africa. *a.* Presented by A. A. Silver, Esq., U. S. Commercial Agent, Africa, October 3, 1868. *b, c.* Purchased May 23, 1871.

*F. leopardus melas*, Peron, Black Leopard. *Hab.* Asia. *a.* Deposited for exhibition June 21, 1871.

*F. concolor*, Linn., Puma. *Hab.* North and South America. *a.* Presented by Brigadier-General N. B. McLaughlin, U. S. A., November 17, 1868. *b.* Presented by Philip Figyelmesy, Esq., U. S. Consul, Demerara, April 28, 1869. *c.* Purchased January 12, 1871. *d, e.* Born in the menagerie.

*F. pardalis*, Linn., Ocelot. *Hab.* Texas and South America. *a.* Presented July 20, 1871. *b.* Deposited for exhibition October 25, 1871. *c.* Deposited for exhibition December 1, 1871.

Genus: *Lynx*.

*L. canadensis*, Raf., Canada Lynx. *Hab.* Canada. *a.* Deposited for exhibition June 26, 1871.

Family: *Guepardidæ*.

Genus: *Gueparda*.

*G. guttata*, Schreb., Cheetah. *Hab.* Africa and Asia. *a.*  
Purchased July 20, 1871.

Family: *Canidæ*.

Genus: *Canis*.

*C. latrans*, Say., Prairie Wolf. *Hab.* Western United States.  
*a.* Presented by Mr. W. H. Beard, March 7, 1871. *b.* Presented by Mr. John Wolf, 1871.

*C. occidentalis*, var. *griseo-albus*, Rich., Grey Wolf. *Hab.* Western United States. *a, b.* Presented by Col. Floyd Jones, U. S. A., 1871.

*C. occidentalis*, var. *ater*, Rich., Black Wolf. *Hab.* Southern United States. *a.* Purchased July 10, 1871.

*C. familiaris*, Linn., Domestic Dog. *a.* Greyhound var. Presented by Mr. David Auchenback, July 27, 1866. *b, c.* Sheppard var. Presented 1871.

Genus: *Vulpes*.

*V. fulvus*, Desm., Red Fox. *Hab.* North America. *a.* Presented by Mr. A. Weber, April 29, 1871. *b.* Presented by Mr. A. E. Graham, May 29, 1871. *c.* Presented by Mr. Sigourney W. Fay, 1871. *d.* Presented by Mr. R. W. St. Clair, January 11, 1872.

*V. virginianus*, Rich., Gray Fox. *Hab.* United States. *a, b.* Purchased July 6, 1871. *c, d.* Presented by Mr. C. Muller, February 27, 1872.

Family: *Hyænidæ*.

Genus: *Hyæna*,

*H. crocuta*, Erxl., Spotted Hyena. *Hab.* South Africa. *a.* Deposited for exhibition April 11, 1871. *b.* Purchased May 23, 1871.

Family: *Viverridæ*.

Genus: *Viverra*.

*V. rasse*, Horsf., Rasse. *Hab.* Java. *a.* Presented by Mr. Charles J. Wirner, August 31, 1868. *b.* Presented by Captain J. W. Downing, April 25, 1871.

Genus: *Herpestes*.

*H. griseus*, Geoff., Gray Ichneumon. *Hab.* India. *a.* Purchased April 28, 1871.

Family: *Mustelidæ*.

Genus: *Putorius*.

*P. furo*, Linn., Ferret. *Hab.* Europe. *a.* Presented by Mr. B. F. Crane, April 1, 1870.

Genus: *Mephitis*.

*M. chinga*, Tied., Common Skunk. *Hab.* United States. *a.* Presented by Mr. C. A. W. Ryerson, December 4, 1871.

Genus: *Taxidea*.

*T. americana*, Waterh., Badger. *Hab.* United States. *a.* Deposited for exhibition April, 1871.

Family: *Ursidæ*.

Genus: *Ursus*.

*U. horribilis*, Ord., Grizzly Bear. *Hab.* Western United States. *a.* Presented by Mr. T. C. Durant, Nov. 28, 1868. *b.* Presented by Major-General William Meyers, U. S. A., Oct. 21, 1869.

*U. americanus*, Pall., Black Bear. *Hab.* North America. *a.* Presented by Mr. John J. Crooke, August 8, 1868. *b.* Presented by Col. E. H. Durfee, U. S. A., August 24, 1868. *c.* Deposited for exhibition April 24, 1869. *d.* Presented by Hon. John T. Deweese, June 21, 1869. *e.* Presented by Lieut. C.

A. Earnest, U. S. A., February 9, 1870. *f, g.* Presented by Mr. W. E. Morris, June 13, 1871.

*U. americanus*, var. *cinnamomeus*, Aud. and Bach., Cinnamon Bear. *Hab.* Western United States. *a.* Presented by Major-General G. A. Custer, U. S. A., May 22, 1871.

*U. arctos*, Linn., Brown Bear. *Hab.* Europe. *a, b.* Deposited for exhibition October 21, 1871.

*U. malayanus*, Raffl., Sun Bear. *Hab.* India. *a.* Presented by Mr. Washington Irving, U. S. N., September 12, 1868.

Genus: *Procyon*.

*P. lotor*, Storr., Raccoon. *Hab.* United States. *a.* Presented July 11, 1871. *b, c.* Presented by Mr. Thomas Concannon, July 19, 1871. *d.* Presented by Mrs. J. E. Ford, August 15, 1871. *e.* Presented by Mr. J. H. Eccles, August 22, 1871.

Genus: *Nasua*.

*N. narica*, Linn., Coati. *Hab.* Tropical America. *a.* Purchased July 6, 1871. *b.* Presented by Mr. William Krohue, 1871. *c.* Purchased September 19, 1871.

Order: RODENTIA.

Family: *Sciuridæ*.

Genus: *Sciurus*.

*S. carolinensis*, Gm., Gray Squirrel. *Hab.* United States. *a.* Presented by Master Henry Burrows, 1871. *b.* Presented by Miss M. Augusta Andrews, May 27, 1871. *c.* Presented by Mr. C. Schwartz, July 6, 1871.

*S. carolinensis*, var. *niger*, Bach. Black Squirrel. *Hab.* United States. *a.* Presented by Mr. S. M. Andrews, July 6, 1871. *b.* Presented by A. Liautard, M.D., February 2, 1872. *c.* Presented by Mr. Willis Benner, February 21, 1872.



*S. hudsonius*, Pall., Red Squirrel. *Hab.* Northern United States. *a.* Presented by Mr. Henry Garrison, November 23, 1871.

Genus; *Cynomys*.

*C. ludovicianus*, Ord., Prairie Dog. *Hab.* Western United States. *a.* Presented by Miss Annie Plumer, November 11, 1871.

Genus: *Arctomys*.

*A. monax*, Gm., Woodchuck. *Hab.* United States. *a.* Presented by Mr. V. T. Woodhull, June 28, 1871. *b.* Presented by Mr. James Hodges, June 3, 1871. *c.* Presented by Mr. O. S. Boyden, June 3, 1871. *d.* Presented by Mr. Philip Holmes, August 18, 1871. *e.* Albino, var. Presented by Master Henry A. Robinson, November 4, 1871.

Family: *Castoridae*.

Genus: *Castor*.

*C. canadensis*, Kuhl., American Beaver. *Hab.* Western United States. *a.* Purchased 1870. *b.* Deposited for exhibition February 26, 1872.

Family: *Muridae*.

Genus: *Mus*.

*M. rattus*, var. *albino*., Linn., White Rat. *Hab.* Europe. *a.* Presented by Mr. William J. Schofield, June 1, 1870.

*M. musculus*, var. *albino*., Linn., White Mice. *Hab.* Europe. *a-c.* Presented by Mr. P. Wager, June 10, 1871.

Genus: *Fiber*.

*F. zibithecus*, Cuv., Musk Rat. *Hab.* North America. *a.* Presented by Samuel W. Francis, M.D., June 6, 1871. *b.* Presented by Master Edward Scott, June 12, 1871.

Family : *Hystrioidæ*.

Genus : *Hystrix*.

*H. cristata*, Linn., African Porcupine. *Hab.* North Africa.

*a.* Deposited for exhibition January 8, 1871.

Genus : *Dasyprocta*.

*D. leporina*, Linn., Agouty. *Hab.* West Indies. *a, b.* Presented by Master W. N. Lawrence, May 10, 1871.

*D. aguti*, Linn., Golden Agouti. *Hab.* South America. *a, b.* Presented by Messrs. Day & Evans, September 28, 1871. *c.* Presented by Mr. T. F. Gallaher, February 12, 1872.

*D. nigra*, Gray, Black Agouti. *Hab.* South America. *a.* Deposited for exhibition April 11, 1871.

Genus : *Cavia*.

*C. aperæa*, Erxl., Guinea Pig. *Hab.* Brazil. *a.* Presented November 9, 1871. *b.* Presented by Mr. John N. Green, December 2, 1871.

Family : *Leporidae*.

Genus : *Lepus*.

*L. timidus*, Linn., Varying Hare. *Hab.* North Europe. *a, b.* Presented by Mr. Henry Reiche, September 25, 1871.

*L. cuniculus*, Linn., Common Rabbit. *Hab.* Europe. 10 specimens, 2 varieties.

Order : PROBOSCIDEA.

Family : *Elephantidae*.

Genus : *Elephas*.

*E. indicus*, Linn., Indian Elephant. *Hab.* South India. *a.* Deposited for exhibition June 20, 1871. *b, c.* Deposited for exhibition January 8, 1872. *d.* Deposited for exhibition March 2, 1872.

Order ; ARTIODACTYLA.

Sub-order : RUMINANTIA.

Family : *Camelidæ*.

Genus : *Auchenia*.

*A. vicugna*, Mol., Vicuna. *Hab.* Bolivia. *a.* Presented by H. Schuber, Esq., January 12, 1871.

*A. glama*, Linn., Llama. *Hab.* Peru. *a.* Deposited for exhibition April 11, 1871. *b.* Purchased July 6, 1871.

Genus : *Camelus*.

*C. dromedarius*, Linn., Common Camel. *Hab.* Egypt. *a.* Deposited for exhibition. *b.* Purchased July 8, 1871.

*C. bactrianus*, Linn., Bactrian Camel. *Hab.* Central Asia. *a.* Deposited for exhibition March 26, 1871.

Family : *Antilocapridæ*.

Genus : *Antilocapra*.

*A. americana*, Ord., Pronghorn Antelope. *Hab.* Western United States. *a.* Presented by Mr. W. P. Mellen, November 23, 1870. *b.* Deposited for exhibition November 26, 1870. *c.* Deposited for exhibition June 2, 1871.

Family : *Bovidae*.

Genus : *Ovis*.

*O. aries*, Linn., Domestic Sheep. 200 specimens. Southdown variety. 4 specimens Fat-tailed variety, from Syria. Purchased July 5, 1871. 3 specimens Black African variety. Presented by Mr. Louis Ruhe, February 19, 1872.

*O. montana*, Cuv., Mountain Sheep. *Hab.* Rocky Mountains. *a.* Deposited for exhibition January 8, 1872.

Genus : *Capra*.

*C. hircus*, Linn., Domestic Goat. *a, b.* Chinese variety. Presented by Mr. L. Spier, February 26, 1868. *c, d.* Chinese

variety. Bred in the menagerie. *c.* Angora variety. Presented by Roswell D. Hatch, Esq., January 13, 1870.

Genus: *Orcas*.

*O. canna*, Pall., Eland. *Hab.* South Africa. *a.* Deposited for exhibition March 7, 1871.

Genus: *Portax*.

*P. picta*, Pall., Nylghau. *Hab.* India. *a.* Deposited for exhibition January 8, 1872.

Genus: *Catoblepas*.

*C. gnu*, Gm., White-tailed Gnu. *Hab.* South Africa. *a.* Deposited for exhibition October 17, 1871.

Genus: *Bos*.

*B. grunniens*, Linn., Yak. *Hab.* Thibet. *a.* Deposited for exhibition March 16, 1871.

*B. indicus*, Linn., Zebu. *Hab.* India. *a.* Presented by Capt. William Brown, R. N. R., April 23, 1869. *b.* Deposited for exhibition October 25, 1871.

*B. taurus*, Linn., Domestic Cattle. *a.* Kerry variety. Deposited for exhibition. *b.* Flores variety. Presented by Charles W. Dabney, Esq., U. S. Consul, Fayal. *c-h.* Born in the menagerie.

Genus: *Bison*.

*B. americanus*, Gm., American Bison. *Hab.* Western United States. *a.* Presented by officers 7th U. S. Cavalry, May 1, 1868. *b.* Presented by Columbus Smith, Esq., January 25, 1871. *c.* Presented June 8, 1871. *d.* Born in the menagerie November 22, 1871.

Genus: *Bubalus*.

*B. caffer*, Sperm., Cape Buffalo. *Hab.* South Africa. *a.* Presented by Brig. Genl. Meigs, U. S. A., April 10, 1865. *b, c.* Born in the menagerie.

Family ; *Cervidæ*.

Genus : *Cervus*.

*C. canadensis*, Erxl., American Elk. *Hab.* Western United States. *a.* Presented by Mr. Charles M. Elleard, December 18, 1864. *b.* Presented by Hon. J. D. Caton, March 19, 1867. *c.* Born in the menagerie.

*C. virginianus*, Bodd., Virginia Deer. *Hab.* United States., *a.* Presented by Mr. G. T. D. Lanier, November 30, 1867. *b.* Presented by Mr. William J. Pease, January 9, 1868. *c.* Presented by Mrs. James F. Wenman, March 25, 1868. *d.* Presented by Mr. Turner, July 12, 1869. *e.* Presented by Mr. Paul S. Thebaud, September 14, 1869. *f.* Presented by Capt. Blake, November 9, 1869. *g.* Presented by Messrs. J. M. Sublett & Co., April 9, 1870. *h, i.* Presented by Hon. August Belmont, May 4, 1870. *j.* Presented by Mr. William Roy, January 31, 1870. *k-q.* Born in the menagerie. *r.* Deposited for exhibition May 25, 1871. *s, t.* Purchased July 7, 1871. *u.* Presented by Judge O'Sullivan, September 14, 1871. *v.* Albino variety. Deposited for exhibition January 8, 1872. *w, x.* Deposited for exhibition January 27, 1872.

*C. sika*, Temm., Japanese Deer. *Hab.* Japan. *a.* Presented by Capt. F. R. Baby, November 1, 1871.

*C. elephas*, Linn., Stag. *Hab.* Europe. *a.* Received in exchange September 8, 1871.

*C. dama*, Linn., Fallow Deer. *Hab.* British Islands. *a.* Albino variety. Presented by Mr. A. H. Barney, May 14, 1870.

*C. capreolus*, Linn., Roebuck. *Hab.* Europe. *a, b.* Deposited for exhibition February 19, 1872.

Genus ; *Axis*.

*A. maculata*, Gray, Axis Deer. *Hab.* India. *a.* Presented

by Capt. N. Collins, U. S. N., November 25, 1867. *b.* Purchased July 6, 1871.

Family : *Tragulidæ*.

Genus : *Tragulus*.

*T. pygmæus*, Briss, Musk Deer. *Hab.* Asiatic Islands. *a.* Purchased March 9, 1871.

Sub-order : NON-RUMENANTIA.

Family : *Suidæ*.

Genus : *Sus*.

*S. scrofa*, Linn., Domestic Hog. *a.* Japanese variety. Presented. *b.*, *c.* East India variety. Deposited for exhibition April 11, 1871.

Genus : *Phacochoerus*.

*P. æliani*, Ruppel, Wart Hog. *Hab.* Abyssinia. *a.* Deposited for exhibition May 11, 1871.

Order : PERISSODACTYLA.

Family : *Equidæ*.

Genus : *Equus*.

*E. burchellii*, Gray, Burchell's Zebra. *Hab.* South Africa. *a*, *b.* Deposited for exhibition June 7, 1871.

Family : *Tapiridæ*.

Genus : *Tapirus*.

*T. americanus*, Linn., American Tapir. *Hab.* South America. *a.* Deposited for exhibition 1871.

Family : *Rhinocerotidæ*.

Genus : *Rhinoceros*.

*R. unicornis*, Linn., Rhinoceros. *Hab.* India. *a.* Deposited for exhibition January 8, 1872.

Order : EDENTATA.

Family : *Bradypodidæ*.

Genus : *Cholopus*.

*C. didactylus*, Linn., Two-toed Sloth. *Hab.* Brazil. *a.* Deposited for exhibition May 26, 1871.

Order : MARSUPIALIA.

Family : *Didelphyidæ*.

Genus : *Didelphys*.

*D. virginiana*, Shaw, Opossum. *Hab.* United States. *a.* Presented by Mr. William N. Brush, May 8, 1871. *b-c.* Presented by Capt. William Curtis, September 28, 1871. *f.* Presented by Mr. Ehrick Parmly, October 20, 1871. *g.* Presented by Mr. James Paff, October 14, 1871. *h.* Presented by Mr. P. J. Faye, February 1, 1872.

Family : *Macropodidæ*.

Genus : *Macropus*.

*M. giganteus*, Shaw, Great Kangaroo. *Hab.* New South Wales. *a.* Deposited for exhibition May 11, 1871. *b.* Deposited for exhibition October 17, 1871.

Genus : *Halmaturus*.

*H. derbianus*, Gray, Lord Derby's Kangaroo. *Hab.* West Australia. *a.* Purchased April 29, 1871.

### **Aves.**

Order : PASSERES.

Family : *Turdidæ*.

Genus : *Turdus*.

*T. musicus*, Linn., Song Thrush. *Hab.* Europe. *a.* Presented by Mr. Robert Kemp, June 26, 1871.

*T. iliacus*, Linn., Red-wing Thrush. *Hab.* Europe. *a.* Purchased April 28, 1871.

*T. merula*, Linn., Blackbird. *Hab.* Europe. *a.* Purchased April 28, 1871. *b-d.* Purchased May 23, 1871.

*T. migratorius*, Linn., American Robin. *Hab.* United States. *a.* Presented by Mr. John Fagin, November 13, 1867. *b.* Presented by Miss McCabe.

Genus: *Harporhynchus*.

*H. rufus*, Linn., Brown Thrush. *Hab.* Eastern United States. *a.* Presented by Mr. James H. Roome, July 7, 1868.

Genus: *Mimus*.

*M. polyglottus*, Linn., Mocking Bird. *Hab.* Southern United States. *a.* Purchased May 23, 1871. *b-m.* Purchased August 1, 1871.

Family: *Saxicolidae*.

Genus: *Sialia*.

*S. sialis*, Linn., Bluebird. *Hab.* North America. *a-f.* Purchased May 23, 1871.

Family: *Fringillidae*.

Genus: *Padda*.

*P. oryzivora*, Linn., Java Sparrow, *Hab.* Java. *a-l.* Purchased May 23, 1871.

Genus: *Donacola*.

*D. castaneothorax*, Gould, Chestnut-breasted Finch. *Hab.* Queensland. *a, b.* Purchased April 28, 1871.

Genus: *Tector*.

*T. alector*, Temm., Red-billed Weaver Bird. *Hab.* South Africa. *a, b.* Purchased April 28, 1871.



Genus: *Cyanospiza*.

*C. cyanea*, Linn., Indigo Bird. *Hab.* United States. *a, b.* Purchased April, 1871.

*C. ciris*, Linn., Nonpareil. *Hab.* United States. *a-f.* Purchased May 23, 1871. *g-l.* Purchased June 6, 1871.

Genus: *Paroaria*.

*P. larvata*, Bodd., Red-headed Cardinal. *Hab.* Brazil. *a-f.* Purchased April, 1871.

Genus: *Guiraca*.

*G. ludoviciana*, Linn., Rose-breasted Grosbeak. *Hab.* United States. *a.* Purchased July 6, 1871.

Genus: *Cardinalis*.

*C. virginianus*, Briss., Cardinal Bird. *Hab.* United States. *a, b.* Purchased April 28, 1871. *c-h.* Purchased May 23, 1871, *i-l.* Purchased June 6, 1871.

Genus: *Passer*.

*P. domesticus*, Linn., European Sparrow. *Hab.* Europe. *a-d.* Bred in the menagerie.

Genus: *Coccothraustes*.

*C. vulgaris*, Briss., Hawfinch. *Hab.* Europe. *a.* Purchased May 23, 1871.

Genus: *Fringilla*.

*F. cœlebs*, Linn., Chaffinch. *Hab.* Europe. *a, b.* Purchased May 23, 1871.

*F. montifringilla*, Linn., Mountain Finch. *Hab.* Europe. *a-l.* Purchased May 23, 1871.

*F. spinus*, Linn., Siskin. *Hab.* Europe. *a-f.* Purchased May 23, 1871.

Genus: *Linota*.

*L. cannabina*, Linn., Linnet. *Hab.* Europe. *a-f*. Purchased May 23, 1871.

Genus: *Loxia*.

*L. curvirostra*, Linn., Crossbill. *Hab.* Europe. *a-l*. Purchased May 23, 1871.

Genus: *Carduelis*.

*C. canaria*, Linn., Canary. *Hab.* Canary Islands. *a-d*. Bred in the menagerie.

Genus: *Pyrrhula*.

*P. rubicilla*, Flem., Bullfinch. *Hab.* Europe. *a, b*. Purchased April 29, 1871.

Genus: *Emberiza*.

*E. melanocephala*, Scop., Black-headed Bunting. *Hab.* Europe. *a, b*. Presented by Mr. J. Jones, April, 1871.

Family: *Icteridæ*.Genus: *Icterus*.

*I. vulgaris*, Daud., Troupial. *Hab.* South America. *a*. Purchased January 17, 1871. *b-d*. Purchased July 14, 1871,

Genus: *Quiscalus*.

*Q. versicolor*, Vieill., Purple Grackle. *Hab.* Eastern United States. *a*. Purchased May 23, 1871.

Family: *Sturnidæ*.Genus: *Gracula*.

*G. musica*, Linn., Mynah. *Hab.* India. *a*. Purchased April, 1871.

Genus: *Acridotheres*.

*A. tristis*, Linn., Paradise Mynah. *Hab.* India. *a*. Presented 1870.

Family : *Corvidæ*.

Genus : *Pica*.

*P. caudata*, Flem., Magpie. *Hab.* Europe. *a.* Purchased April 28, 1871.

Genus : *Corvus*.

*C. monedula*, Linn., Jackdaw. *Hab.* Europe. *a, b.* Presented July 17, 1871.

*C. americanus*, Aud., Common Crow. *Hab.* North America. *a.* Presented by Mr. John Akhurst, May 2, 1871. *b.* Presented by Samuel W. Francis, M.D., June 6, 1871. *c, d.* Presented by Mr. William H. Radford, August 29, 1871.

Order : ZYGODACTYLI.

Family : *Psittacidæ*.

Genus : *Ara*.

*A. ararauna*, Linn., Blue and Yellow Macaw. *Hab.* South America. *a.* Deposited for exhibition July 29, 1871.

*A. chloroptera*, Gray, Red and Yellow Macaw. *Hab.* South America. *a.* Deposited for exhibition, 1870. *b.* Presented by Mr. W. De Peyster, August 24, 1870. *c.* Purchased July 6, 1871. *d.* Presented July 10, 1871.

Genus : *Conurus*.

*C. xantholæmus*, Scl., St. Thomas Conure. *Hab.* West Indies. *a, b.* Presented September 8, 1871.

Genus : *Chrysotis*.

*C. ochrocephalus*, Bp., Amazon Parrot. *Hab.* Brazil. *a.* Deposited for exhibition September 11, 1871.

Genus : *Psittacus*.

*P. erithacus*, Linn., Gray Parrot. *Hab.* West Africa. *a.* Purchased April 29, 1871.

Genus : *Agrapornis*.

*A. Pullaria*, Linn., Lovebird Parrakeet. *Hab.* West Africa.  
*a-d.* Purchased April 28, 1871.

Genus : *Palæornis*.

*P. torquata*, Linn., Ring-necked Parrakeet. *Hab.* India. *a, b.*  
 Purchased April 29, 1871. *c, d.* Purchased July 6, 1871.

Genus : *Electus*.

*E. polychlorus*, Scop., Electus. *Hab.* Moluccas. *a.* Purchased  
 April 29, 1871.

Genus : *Mclopsittacus*.

*M. undulatus*, Shaw., Undulated Grass Parrakeet. *Hab.*  
 Australia. *a-j.* Purchased April 28, 1871.

Genus : *Calopsitta*.

*C. novæ-hollandiæ*, Gm., Crested Ground Parrakeet. *Hab.*  
 Australia. *a-c.* Purchased April 28, 1871. *d, e.* Purchased July  
 6, 1871.

Genus : *Psephotus*.

*P. multicolor*, Brown, Many-colored Parrakeet. *Hab.* Australia.  
*a.* Purchased April 28, 1871,

Genus : *Platycercus*.

*P. eximius*, Shaw, Rose-hill Parrakeet. *Hab.* New South  
 Wales. *a.* Purchased January 17, 1871.

*P. pennantii* Lath., Pennant's Parrakeet, *Hab.* New South  
 Wales. *a-e.* Purchased May 23, 1871.

Genus : *Aprosmictus*,

*A. scapulatus*, Bechst., King Parrakeet. *Hab.* New South  
 Wales. *a.* Purchased April 28, 1871.

Genus : *Cacatua*.

*C. moluccensis*, Gm., Rose-crested Cockatoo. *Hab.* Moluccas.  
*a.* Purchased May 23, 1871.

*C. cristata*, Linn., White-crested Cockatoo. *Hab.* Moluccas.  
*a.* Purchased July 6, 1871.

*C. galerita*, Lath., Greater Sulphur-crested Cockatoo. *Hab.* Australia. *a.* Purchased July 6, 1871.

*C. sulphurea*, Gm., Lesser Sulphur-crested Cockatoo. *Hab.* Moluccas. *a.* Presented by E. G. Bartlett, M. D., March 2, 1871.

*C. philippinarum*, Gm., Red-vented Cockatoo. *Hab.* Philippine Islands. *a.* Deposited for exhibition September 11, 1871.

Genus : *Elophus*.

*E. roseicapillus*, Bonap., Rose Cockatoo. *Hab.* Australia. *a,*  
*b.* Purchased May 23, 1871.

## Order : ACCIPITRES.

Family : *Strigidae*.Genus : *Bubo*.

*B. virginianus*, Gm., Great Horned Owl. *Hab.* North America. *a.* Presented by Mr. Roswell Chamberlain, June 21, 1871. *b.* Presented January 24, 1872. *c.* Presented by Mr. W. B. Skidmore, February 5, 1872.

Genus : *Nyctea*.

*N. nivea*, Daud., Snowy Owl. *Hab.* North America. *a.* Presented by Samuel W. Francis, M.D., June 6, 1871. *b-c.* Presented by Mr. Smith, March 6, 1872.

Genus : *Syrnium*.

*S. nebulosum*, Fost., Barred Owl. *Hab.* North America. *a.* Presented by Mr. Edward K. Hayt, June 3, 1871. *b.* Presented by Samuel W. Francis, M.D., June 6, 1871.

Family ; *Falconidæ*.

Genus : *Aquila*.

*A. canadensis*, Linn., Golden Eagle. *Hab.* North America.

*a.* Presented by Hon. Robert B. Roosevelt, January 25, 1871.

*b.* Presented by Mr. David Johnson, December 13, 1871.

Genus : *Haliaetus*.

*H. albicilla*, Linn., Sea Eagle. *Hab.* North Europe. *a, b.*  
Presented by Consul Heyse, September 28, 1871.

*H. leucocephalus*, Linn., Bald Eagle. *Hab.* North America.  
*a.* Presented October 28, 1867. *b.* Presented by Mr. William Bement, April 14, 1868. *c.* Presented by Americus Club, September 12, 1868. *d.* Presented by Mr. G. T. Laird, October 6, 1868. *e.* Presented by Mr. N. Dexter, January 20, 1869. *f.* Presented by Hon. A. B. Cornell, January 26, 1869. *g.* Presented by Brevet Lieut. Col. H. S. Gansevoort, U. S. A., April 27, 1869. *h.* Presented by Captain R. W. Reed, May 24, 1869. *i, j.* Presented by Mr. William Stuart, May 28, 1869. *k, l.* Presented by Hon. Allen Munroe, August 27, 1869. *m.* Presented by Mr. David Wisder, October 22, 1869. *n.* Presented by Hon. William G. Bergen, December 19, 1870. *o.* Presented by Mr. William H. Radford, February 5, 1872.

Genus : *Thrasætus*.

*T. harpyia*, Linn., Harpy Eagle. *Hab.* South America. *a.*  
Presented February 23, 1872.

Genus : *Pandion*.

*P. carolinensis*, Bonap., Fish Hawk. *Hab.* North America.  
*a.* Presented October 19, 1871.

Family : *Vulturidæ*.

Genus : *Gyparchus*.

*G. papa*, Linn., King Vulture. *Hab.* South America. *a.*  
Deposited for exhibition June 9, 1871.

Order : PULLASTRÆ.

Family : *Columbidæ*.

Genus : *Columba*.

*C. livia*, var. *domestica* Linn., Domestic Pigeon. *a-z*. 6 varieties. Bred in the menagerie.

Genus : *Sturnænas*.

*S. cyanocephala*, Linn., Blue-headed Pigeon. *Hab.* West Indies. *a-f*. Presented by Mr. H. R. Bishop, August 29, 1871.

Genus : *Streptopelia*.

*S. risoria*, Linn., Ring Dove. *Hab.* Africa. *a-f*. Purchased August 11, 1871. *g*. Presented by Mr. H. R. Bishop, August 26, 1871. *h-j*. Presented by Master Leonard Benedicks, September 10, 1871. *k*. Presented by Master Frank Copeland, September 18, 1871.

Genus : *Phlogænas*.

*P. cruentata*, Lath., Red-breasted Pigeon. *Hab.* Philippine Islands. *a*. Presented by Captain B. F. Marsh, Ship *Rattler*, August 18, 1869.

Genus : *Goura*.

*G. coronata*, Linn., Crowned Pigeon. *Hab.* New Guinea. *a*. Deposited for exhibition February 21, 1872.

Family : *Penelopidæ*.

Genus : *Penelope*.

*P. greyyi*, Gray, Greey's Guan. *Hab.* New Granada. *a*. Presented by Hon. Hamilton Fish, Secretary of State, October 24, 1870.

Family : *Cracidæ*.

Genus : *Crax*.

*C. alector*, Linn., Crested Curassow. *Hab.* Guiana. *a*. Presented by Hon. Hamilton Fish, Secretary of State, October 15, 1870. *b*. Presented by Mr. Franklin Allen, July 10, 1871.

Genus : *Pauxi*.

*P. mitu*, Linn., Razor-billed Curassow. *Hab.* Tropical America. *a.* Presented by Mr. A. Joel, November 30, 1867,

Order : GALLINÆ.

Family : *Meleagrididæ*.

Genus : *Meleagris*.

*M. mexicanus*, var. *domesticus*, Linn. Domestic Turkey. *a.*  
*b.* Albino variety, Presented by Mrs. Kelly, March 13, 1871.

Family : *Perdixidæ*.

Genus : *Ortyx*.

*O. virginianus*, Linn., Common Quail. *Hab.* United States.  
*a-c.* Presented by Master Frank C. Moller, June 30, 1871.  
*f-g.* Presented by Mr. John D. Crimmins, March 30, 1872.

Family : *Numididæ*.

Genus : *Numida*.

*N. meleagris*, Linn., Guinea Fowl. *Hab.* Africa. *a.* Albino variety. Presented by Mr. J. P. Hurd, December 19, 1870.  
42 specimens bred in the menagerie.

Family : *Pavonidæ*.

Genus : *Pavo*.

*P. cristatus*, Linn., Peafowl. *Hab.* India. *a.* Presented by Mrs. Appel, May 25, 1871. *b.* Presented June 20, 1871. *c-f.* Albino variety. Deposited for exhibition October 17, 1871. 28 specimens bred in the menagerie.

Family : *Phasianidæ*.

Genus : *Phasianus*.

*P. colchicus*, Linn., English Pheasant. *Hab.* British Islands. *a.*  
Presented by Samuel W. Francis, M. D., June 6, 1871.



*P. torquatus*, Gm., Ring-necked Pheasant. *Hab.* China. *a.* Purchased March 6, 1871.

*P. versicolor*, Vieill. Japanese Pheasant. *Hab.* Japan. *a, b.* Deposited for exhibition October 6, 1871.

Genus: *Thaumalea*.

*T. picta*, Linn., Golden Pheasant. *Hab.* China. *a, b.* Purchased March 6, 1871. *c.* Deposited for exhibition October 6, 1871.

Genus: *Euplocamus*.

*E. nycthemerus*, Linn., Silver Pheasant. *Hab.* China. *a.* Presented by Mr. R. L. Maitland, Jr., February 26, 1867. *b, c.* Deposited for exhibition, 1872. *d.* Bred in the menagerie

Genus: *Gallus*.

*G. domesticus*, Linn., Domestic Fowl. *a.* China variety. Presented by Dr. J. P. Macgowan, February 9, 1869. *b.* Hybrid variety. Presented by Mr. W. B. Dinsmore, June 1, 1869. *c.* Hybrid variety. Presented by Mr. W. H. Bailey, December 15, 1871. *d, e.* Domestic variety. Presented by John Hoey, May 13, 1871. *f-h.* Domestic variety. Purchased May 13, 1871.

Order: BREVIPENNES.

Family; *Struthionidæ*.

Genus: *Struthio*.

*S. camelus*, Linn., Ostrich. *Hab.* Africa. *a-c.* Deposited for exhibition May 26, 1871. *d, e.* Deposited for exhibition August 12, 1871. *f.* Deposited for exhibition September 9, 1871.

Genus: *Casuarinus*.

*C. galeatus*, Vieill., Cassowary. *Hab.* Ceram. *a.* Deposited for exhibition January 8, 1872.

Genus: *Dromæus*.

*D. novæ-hollandiæ*, Vieill., Emu. *Hab.* New South Wales. *a* *b.* Purchased May 23, 1871.

Order: GRALLÆ.

Family: *Scolopacidæ*.

Genus: *Philohela*.

*P. minor*, Gray, Woodcock. *Hab.* Eastern North America.  
*a.* Presented by Mrs. F. Thomas, June 1, 1871. *b.* Captured in  
 Madison Avenue Park, 1872.

Family: *Gruidæ*.

Genus: *Grus*.

*G. cinerea*, Bechst., European Crane. *Hab.* Europe. *a.* Pre-  
 sented by Consul Heyse, Swinemunde, Prussia, September 28,  
 1871.

*G. canadensis*, Linn., Sand-hill Crane. *Hab.* Western United  
 States. *a.* Deposited for exhibition April 11, 1871.

Family: *Plataleidæ*.

Genus: *Platalea*.

*P. ajaja*, Linn., Rosey Spoon-bill. *Hab.* Southern United  
 States. *a.* Deposited for exhibition November 20, 1871.

Family: *Ciconiidæ*.

Genus: *Ciconia*.

*C. nigra*, Ray., Black Stork. *Hab.* Europe and Africa. *a-d.*  
 Purchased October 17, 1871.

*C. alba*, Linn., White Stork. *Hab.* Europe and Africa. *a.*  
 Purchased, 1867.

Genus: *Xenorhynchus*.

*X. senegalensis*, Shaw., Saddle-billed Stork. *Hab.* West Africa.  
*a.* Purchased October 17, 1871.

Family: *Ardeidæ*.

Genus: *Ardea*.

*A. cinerea*, Linn., English Heron. *Hab.* Europe. *a.* Presented  
 October 27, 1869.

*A. herodias*, Linn., Blue Heron. *Hab.* United States. *a.* Presented by Mr. A. J. Huntoon, April 19, 1871.

Genus: *Demiegretta*.

*D. pealii*, Bonap., Peal's Egret. *Hab.* Florida. *a.* Purchased August 2, 1871.

Genus: *Tigrisoma*.

*T. braziliense*, Linn., Tiger Bittern. *Hab.* West Indies. *a.* Presented by Hon. Hamilton Fish, Secretary of State, October 18, 1870.

*T. cabanisi*, Heine., Bittern. *Hab.* Central America. *a.* Presented by Mr. Henry Arthur, October 28, 1865.

Genus: *Botarus*.

*B. lentiginosus*, Steph., Common Bittern. *Hab.* North America. *a.* Presented 1871.

Genus: *Nyctiardea*.

*N. gardeni*, Gm., Night Heron. *Hab.* United States. *a.* Presented 1871.

Family: *Phanicoptera*.

Genus: *Phœnicopterus*.

*P. antiquorum*, Linn., Flamingo. *Hab.* Egypt. *a, b.* Deposited for exhibition August 2, 1871.

Order: LAMELLIROSTRES.

Family: *Anatidæ*.

Genus: *Cygnus*.

*C. olor*, Gm., White Swan. *Hab.* Europe. *a.* Presented by the Worshipful Company of Vinters, London, October 18, 1860. *b, c.* Presented by the Worshipful Company of Dyers, London, October 18, 1860. *d-y.* Bred in the menagerie.

*C. buccinator*, Rich., Trumpeter Swan. *Hab.* North America.  
*a.* Presented by Mr. Adolph Strauch, September 23, 1865.

*C. atratus*, Lath., Black Swan. *Hab.* Australia. *a.* Presented  
 by Mr. Charles M. Rice, August 25, 1869.

Genus: *Plectropterus*.

*P. gambensis*, Linn., Spur-winged Goose. *Hab.* Africa. *a*,  
*b.* Purchased May 23, 1871.

Genus: *Anser*.

*A. brachyrhynchus*, Baill., Pink-footed Goose. *Hab.* Europe. *a*,  
*b.* Purchased May 23, 1871.

*A. cygnoides*, Linn., Chinese Goose. *Hab.* China. *a-e.* Pre-  
 sented 1869.

Genus: *Bernicla*.

*B. leucopsis*, Bechst., Bernicle Goose. *Hab.* Northern Europe.  
*a, b.* Purchased May 23, 1871.

*B. canadensis*, Linn., Canada Goose. *Hab.* Canada. *a-c.*  
 Presented by Hon. August Belmont, May 14, 1870. *d, e.* Pre-  
 sented 1870.

Genus: *Chenalopex*.

*C. jubata*, Spix., Orinoco Goose. *Hab.* Amazon River. *a.*  
 Purchased September 19, 1871.

Genus: *Dendrocygna*.

*D. autumnalis*, Linn., Red-billed Tree Duck. *Hab.* Tropical  
 America. *a, b.* Purchased May 23, 1871.

Genus: *Anas*.

*A. boschas*, var. *domesticus* Linn., Domestic Duck. 25 speci-  
 mens. Bred in the menagerie.

Genus: *Cairina*.

*C. moschata*, Linn., Muscovy Duck. *Hab.* South America.  
*a.* Presented by John Frederick, M.D., November 17, 1870.

Order: STEGANOPODES.

Family: *Pelecanidæ*.

Genus: *Pelecanus*.

*P. fuscus*, Linn., Brown Pelican. *Hab.* Southern United States.  
*a.* Purchased October 17, 1871. *b.* Presented by Mr. John S. Tenner, November 2, 1871.

Order: LONGIPENNES.

Family: *Laridæ*.

Genus: *Larus*.

*L. glaucus*, Brunn., Glaucous Gull. *Hab.* Northern United States.  
*a.* Presented 1872.

## REPTILIA.

Order: TESTUDIANTA.

Family: *Emydoidæ*.

Genus: *Emys*.

*E. guttata*, Schw., Speckled Terrapin. *Hab.* North America.  
*a, b.* Presented by Richard E. Kunze, M.D., March, 1870.

Genus: *Cistudo*.

*C. virginica*, Ag., Box Turtle. *Hab.* United States. *a.* Presented 1871.

Family: *Chelydroidæ*.

Genus: *Chelydra*.

*C. serpentina*, Schw., Snapping Turtle. *Hab.* United States.  
*a.* Presented 1870.

Order: CROCODILIA.

Family: *Crocodylidae*.

Genus: *Alligator*.

*A. mississippiensis*, Daud., Alligator. *Hab.* Southern United States. *a.* Presented by Master Eugene Kelly, April 7, 1871. *b.* Deposited for exhibition April 15, 1871. *c.* Presented by Mr. Harry McCoun, April 27, 1871. *d.* Presented by Mr. William Miller, June 3, 1871. *e.* Presented by John S. Griffith, June 4, 1871. *f, g.* Purchased July 10, 1871. *h-j.* Presented by Mr. Lewis W. Blake, October 2, 1871. *k.* Presented by Dr. Sabine, October 14, 1871.

Order: SAURIA.

Family: *Iguanidae*.

Genus: *Iguana*.

*I. tuberculata*, Laur., Tuberculated Iguana. *Hab.* Tropical America. *a.* Presented by Mr. Arthur Huges, July 15, 1871.

Genus: *Phrynosoma*.

*P. cornuta*, Gray, Horned Toad. *Hab.* Texas. *a, b.* Presented by Mr. R. D. Heron, May 8, 1871. *c, d.* Presented by Mr. A. Campbell, May 8, 1871. *e.* Presented by Miss Grace Carnes, July 8, 1871. *f, g.* Presented by Miss Leo Dare, August 2, 1871. *h.* Presented by Messrs. Day & Evans, September 28, 1871.

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*List of species exhibited for the first time.*

### **Mammalia.**

#### **QUADRUMANA.**

Chingkau.

*Presbytes cristata*.

Java.

Moustache Monkey.

*Cercopithecus cephus*,

West Africa.

Patas Monkey.	<i>Cercopithecus ruber.</i>	West Africa.
White-collared Mangabey.	<i>Cercocebus athiops.</i>	West Africa.
Bonnet Macque.	<i>Macacus radiatus.</i>	India.
Pig-tailed Monkey.	<i>Macacus nemestrinus.</i>	India.
Arabian Baboon.	<i>Cynocephalus hamadryas.</i>	West Africa.
Yellow Baboon.	<i>Cynocephalus babouin.</i>	Africa.
Brazilian Monkey.	<i>Cebus versicolor.</i>	South Am.

## CARNIVORA.

Tiger.	<i>Felis tigris.</i>	India.
Lynx.	<i>Lynx canadensis.</i>	Canada.
Cheetah.	<i>Gueparda guttata.</i>	Africa.
Black Wolf.	<i>Canis occidentalis.</i>	S. U. States.
Spotted Hyena.	<i>Hyæna crocuta.</i>	South Africa.
Common Skunk.	<i>Mephitis chinga.</i>	United States.
Brown Bear.	<i>Ursus arctos.</i>	Europe.

## RODENTIA.

African Porcupine.	<i>Hystrix cristata.</i>	Africa.
Black Agouti.	<i>Dasyprocta nigra.</i>	South Am.
Varying Hare.	<i>Lepus timidus.</i>	N. Europe.

## ARTIODACTYLA.

Vicuna.	<i>Auchenia vicugna.</i>	Bolivia.
Mountain Sheep.	<i>Ovis montana.</i>	Rocky Mts.
African Sheep.	<i>Ovis aries.</i>	South Africa.
White-tailed Gnu.	<i>Catoblepas gnu.</i>	South Africa.
Japanese Deer.	<i>Cervus sika.</i>	Japan.
Stag.	<i>Cervus elephas.</i>	Europe.
Roebuck.	<i>Cervus capreolus.</i>	Europe.
East India Hog.	<i>Sus scrofa.</i>	East Indies.

## PERISSODACTYLA.

Burchell's Zebra.	<i>Equus burchellii.</i>	South Africa.
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## EDENTATA.

Two-toed Sloth.	<i>Cholopus didactylus.</i>	Brazil.
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## MARSUPIALIA.

Lord Derby's Kangaroo.	<i>Halmaturus derbianus.</i>	W. Australia.
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**Aves.**

## PASSERES.

Red-Winged Thrush.	<i>Turdus iliacus.</i>	Europe.
Chestnut-breasted Finch.	<i>Donacola castaneothorax.</i>	Queensland.
Red-billed Weaver Bird.	<i>Textor alecto.</i>	South Africa.
Nonpareil.	<i>Cyanospiza ciris.</i>	United States.
Red-headed Cardinal.	<i>Paroaria larvata.</i>	Brazil.
Rose-breasted Grosbeak.	<i>Guiraca ludoviciana.</i>	United States.
Hawfinch.	<i>Coccothraustes vulgaris.</i>	Europe.
Mountain Finch.	<i>Fringilla montifringilla.</i>	Europe.
Linnet.	<i>Linota cannabina.</i>	Europe.
Crossbill.	<i>Loxia curvirostra.</i>	Europe.
Bullfinch.	<i>Pyrrhula rubicilla.</i>	Europe.
Paradise Mynah.	<i>Acridotheres tristis.</i>	India.

## ZYGODACTYLI.

Blue and Yellow Macaw.	<i>Ara ararauna.</i>	South Am.
Amazon Parrot.	<i>Chrysotis ochrocephalus.</i>	Brazil.
Gray Parrot.	<i>Psittacus erithacus.</i>	West Africa.
Lovebird Parrakeet.	<i>Agrapornis pullaria.</i>	West Africa.
Electus.	<i>Electus polychlorus.</i>	Moluccas.
Undulated Grass Parrakeet.	<i>Melopsittacus undulatus.</i>	Australia.
Crested Ground Parrakeet.	<i>Calopsitta novæ-hollandiæ.</i>	Australia.
Many-colored Parrakeet.	<i>Psephotus multicolor.</i>	Australia.
Pennant's Parrakeet.	<i>Platycercus pennantii.</i>	N. S. Wales.
King Parrakeet.	<i>Aprosmictus scapulatus.</i>	N. S. Wales.



White-crested Cockatoo.	<i>Cacatua cristata.</i>	Moluccas.
Red-vented Cockatoo.	<i>Cacatua philippinarum.</i>	Philippine Is.

## ACCIPITRES.

Sea Eagle.	<i>Haliæetus albicilla.</i>	Europe.
King Vulture.	<i>Gyparchus papa.</i>	S. America.

## PULLASTRÆ.

Blue-headed Pigeon.	<i>Starnænas cyanocephala.</i>	West Indies.
Crowned Pigeon.	<i>Goura coronata.</i>	New Guinea.

## GALLINÆ.

Japanese Pheasant.	<i>Phasianus versicolor.</i>	Japan.
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## BREVIPENNES.

Ostrich.	<i>Struthio camelus.</i>	Africa.
Emu.	<i>Dromæus novæ-hollandiæ.</i>	N. S. Wales.

## GRALLÆ.

Woodcock.	<i>Philohela minor.</i>	Eastern U. S.
European Crane.	<i>Grus cinerea.</i>	Europe.
Black Stork.	<i>Ciconia nigra.</i>	Africa.
Saddle-billed Stork.	<i>Xenorhynchus senegalensis.</i>	West Africa.
Blue Heron.	<i>Ardea herodias.</i>	United States.
Peal's Egret.	<i>Demiegretta pealii.</i>	Florida.
Flamingo.	<i>Phaenicopterus antiquorum.</i>	Egypt.

## LAMELLIROSTRES.

Spur-winged Goose.	<i>Plectropterus gambensis.</i>	West Africa.
Pink-footed Goose.	<i>Anser brachyrhynchus.</i>	Europe.
Bernicle Goose.	<i>Bernicla cucopsis.</i>	N. Europe.
Orinoco Goose.	<i>Chenalopex jubata.</i>	Amazon Riv.

*List of species bred during the year.*

3 Lions.	<i>Felis leo.</i>	Africa.
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2 American Panthers.	<i>Felis concolor.</i>	North America.
1 Raccoon.	<i>Procyon lotor.</i>	North America.
3 Guinea Pigs.	<i>Cavia aperæa.</i>	Brazil.
12 Rabbits.	<i>Lepus cuniculus.</i>	Europe.
160 Southdown Sheep.	<i>Ovis aries.</i>	England.
2 Chinese Goats.	<i>Capra hircus.</i>	China.
2 Flores Cattle.	<i>Bos taurus.</i>	Flores Islands.
1 Bison.	<i>Bos americanus.</i>	Western U. S.
3 Red Deer.	<i>Cervus virginianus.</i>	United States.
1 Axis Deer	<i>Axis maculata.</i>	India.
8 East India Pigs.	<i>Sus scrofa.</i>	East Indies.
4 Canary Birds.	<i>Carduelis canaria.</i>	Canary Islands.
10 Domestic Pigeons.	<i>Columba livia.</i>	
15 Guinea Fowls.	<i>Numida meleagris.</i>	Africa.
18 Pea Fowls.	<i>Pavo cristatus.</i>	India.
6 Silver Pheasants.	<i>Euplocamus nycthemerus.</i>	China.
2 Polish Fowls.	<i>Gallus domesticus.</i>	
7 Swans.	<i>Cygnus olor.</i>	Europe.
67 White Ducks.	<i>Anas domesticus.</i>	

*LIST of Animals Exhibited, not belonging to the Department, with Names of Owners and Time Exhibited.*

EXHIBITOR.	ANIMAL.	TIME EXHIBITED.
American Steamboat Company,.....	19 Monkeys,.....	241 days.
Mr. Paul Agnelli,.....	2 Monkeys,.....	1 year.
Mr. George Keating,.....	1 Monkey,.....	125 days.
Mr. A. P. Montant,.....	1 Monkey,.....	69 days.
Mr. Leopold Sand,.....	1 Monkey,.....	166 days.
Mrs. Abbie R. Van Blarcom,.....	1 Monkey,.....	148 days.
Mr. Louis Ruhe,.....	1 Baboon,.....	142 days.
Professor S. F. B. Morse,.....	1 Monkey,.....	92 days.
Mr. J. M. French,.....	1 Lion,.....	225 days.
Mr. P. T. Barnum,.....	2 Lions,.....	80 days.
Messrs. Smith & Nathans,.....	4 Lions,.....	82 days.
Messrs. C. Reiche & Bro.,.....	1 Tiger,.....	124 days.
Mr. Louis Ruhe,.....	3 Tigers,.....	46 days.
Mr. J. M. French,.....	2 Leopards,.....	225 days.
Messrs. C. Reiche & Bro.,.....	1 Black Leopard,.....	283 days.
Mr. Louis Ruhe,.....	2 Ocelots,.....	153 days.
Mr. P. T. Barnum,.....	1 Lynx,.....	163 days.
Mr. J. M. French,.....	1 Hyena,.....	225 days.
Mr. J. M. French,.....	1 Badger,.....	225 days.
Messrs. Smith & Nathans,.....	1 Black Bear,.....	1 year.
Mr. Louis Ruhe,.....	2 Brown Bears,.....	161 days.
Mr. G. W. Hulse,.....	1 Beaver,.....	43 days.
Mr. P. T. Barnum,.....	1 African Porcupine,.....	80 days.
Messrs. C. Reiche & Bro.,.....	1 Elephant,.....	38 days.
Mr. P. T. Barnum,.....	2 Elephants,.....	80 days.
Messrs. C. Reiche & Bro.,.....	1 Elephant,.....	27 days.
Mr. J. M. French,.....	1 Llama,.....	225 days.
Commissioners Prospect Park,.....	1 Camel,.....	4 years.
Mr. P. T. Barnum,.....	1 Bractian Camel,.....	14 days.
Capt. Powell, U. S. A.,.....	1 Pronghorn Antelope,.....	180 days.
Mr. P. T. Barnum,.....	1 Mountain Sheep,.....	80 days.
Mr. E. Howes,.....	1 Eland,.....	1 year.
Mr. P. T. Barnum,.....	1 Nylghau,.....	80 days.
Messrs. C. Reiche & Bro.,.....	1 White-tailed Gnu,.....	163 days.
Mr. P. T. Barnum,.....	1 Yak,.....	1 year.
Mr. Louis Ruhe,.....	1 Zebu,.....	157 days.
Hon. A. H. Green,.....	1 Kerry Bull,.....	4 years.
Mrs. Appel,.....	1 Red Deer,.....	310 days.
Mr. P. T. Barnum,.....	1 White Deer,.....	80 days.
Mr. Louis Ruhe,.....	2 Roebucks,.....	40 days.
Mr. P. T. Barnum,.....	1 Wart Hog,.....	1 year.
Messrs. C. Reiche & Bro.,.....	2 Zebras,.....	297 days.
Mr. P. T. Barnum,.....	1 Tapir,.....	1 year.
Mr. P. T. Barnum,.....	1 Rhinoceros,.....	80 days.
Messrs. C. Reiche & Bro.,.....	1 Two-toed Sloth,.....	30 days.
Mr. P. T. Barnum,.....	1 Kangaroo,.....	1 year.
Messrs. C. Reiche & Bro.,.....	1 Kangaroo,.....	165 days.
Mr. Charles Volzing,.....	1 Macaw,.....	49 days.
Hon. Henry Hilton,.....	1 Parrot,.....	201 days.
Hon. Henry Hilton,.....	1 Cockatoo,.....	201 days.
J. L. Morrill, M.D.,.....	1 King Vulture,.....	295 days.
Mr. Louis Ruhe,.....	1 Crowned Pigeon,.....	62 days.
Messrs. C. Reiche & Bro.,.....	2 Flamingos,.....	90 days.

# APPENDIX F.

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## TABLES

SHOWING PARTICULARS OF THE INJURY TO TREES,

Occurring in the Spring of 1872.

# STATEMENT

OF THE

## TREES AND MORE VALUABLE SHRUBS

FOUND DEAD (ROOT AND BRANCH), ON THE CENTRAL PARK,

SPRING OF 1872.

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<i>Abies canadensis</i> (Hemlock Spruce).....	730
“ <i>pectinata</i> .....	319
“ <i>cephalonica</i> .....	12
“ <i>excelsa</i> .....	1,200
“ <i>alba</i> and <i>cerulea</i> .....	700
“ <i>nigra</i> .....	30
“ <i>nordmaniana</i> .....	6
“ <i>clanbraziliana</i> .....	3
“ <i>menziesii</i> .....	4
“ <i>morinda</i> .....	2
“ <i>amabilis</i> .....	5
“ <i>grandis</i> .....	9
“ <i>pinsapo</i> .....	7
<i>Alnus cordata</i> .....	39
<i>Acer striatum</i> .....	3
“ chiefly <i>campestre</i> et <i>tartaricum</i> .....	76
<i>Amygdalus prunifolia florepleno</i> .....	50
<i>Betula alba</i> .....	9
<i>Bignonia radicans</i> .....	12
<i>Cedrus libani</i> (all seedlings).....	11
<i>Cryptomeria elegans</i> et <i>elegans nana</i> .....	21
“ <i>japonica</i> .....	3
<i>Cupressus lawsoniana</i> .....	1
<i>Castanea vesca</i> .....	49
<i>Catalpa syringæfolia</i> .....	21

<i>Ceanothus americanus</i> and hybrids.....	150
<i>Crætagus microphylla</i> .....	5
<i>Cercis canadensis</i> .....	65
<i>Comptonia asplenifolia</i> (newly planted).....	200
<i>Carpinus americana</i> .....	33
<i>Cytisus capitatus</i> .....	50
<i>Calycanthus levigatus</i> .....	4
<i>Eleagnus argentea</i> .....	2
<i>Halesia tetraptera</i> .....	62
<i>Ilex opaca</i> .....	8
“ <i>aquifolium</i> .....	14
<i>Juniperus suecica</i> .....	28
“ <i>sabina tamariscifolia</i> .....	60
“ <i>virginiana</i> .....	797
“ <i>hibernica</i> .....	3
<i>Laurus sassafras</i> .....	184
<i>Liriodendron tulipifera</i> .....	
<i>Mahonia aquifolia</i> et <i>japonica</i> .....	179
<i>Magnolia glauca</i> .....	2
<i>Negundo aceroides</i> .....	114
<i>Pinus austriaca</i> .....	36
“ <i>sylvestris</i> .....	109
“ <i>strobus</i> .....	128
“ <i>ponderosa</i> .....	3
<i>Quercus cerris</i> .....	217
<i>Retinospora</i> (chiefly <i>ericoides</i> ).....	34
<i>Rhododendron</i> , chiefly <i>catawbiense</i> et <i>maximum</i> .....	130
<i>Rhus cotinus</i> .....	223
<i>Robinia inermis</i> et <i>viscosa</i> .....	15
<i>Spiraea arifolia</i> .....	12
<i>Thuja</i> of all species and varieties, chiefly <i>occidentalis</i> (American “ <i>arbor vitæ</i> ”)....	1,389
<i>Taxus</i> , chiefly <i>baccata</i> .....	151
<i>Ulmus campestris</i> .....	106
<i>Wisteria sinensis</i> .....	12

TABLE showing condition of various Trees and Shrubs in Central Park, Spring of 1872, as noted by R. DEMCKER, Landscape Gardener.

SPECIES.	WHEN PREVIOUSLY HEALTHY, VIGOROUS AND WELL ESTABLISHED.	WHEN RECENTLY TRANSPLANTED.	WHEN PREVIOUSLY NOTED TO BE UNTHRIFTY.	REMARKS.
<i>Abies alba</i> .....	Generally unharmed.....	Seriously injured.....	Dead.....	{ Previously healthy trees injured only when on very dry or exposed ground.
" <i>cerulea</i> .....	do. ....	Generally dead.....	do. ....	do.
" <i>nigra</i> .....	do. ....	Dead.....	do. ....	do.
" <i>excelsa</i> .....	{ A few dead, many slightly in- jured.....	{ Many dead, most injured .....	Generally dead.....	{ Previously healthy trees, sometimes killed and often seriously injured when on dry and exposed ground
" <i>clanbrasiliana</i> .....	Generally unharmed.....	Seriously injured.....	A few dead.....	Grafted plants suffered less than cuttings.
" <i>douglasii</i> .....	do. ....	Several dead .....	All dead.....	Suffered severely whenever exposed to N.W.
" <i>canadensis</i> .....	Universally injured.....	do. ....	do. ....	do.
" <i>cephalonica</i> .....	do. ....	do. ....	do. ....	do.
" <i>grandis</i> .....	do. ....	do. ....	do. ....	do.
" <i>nobilis</i> .....	do. ....	do. ....	do. ....	do. (grafted.)
" <i>amabilis</i> .....	do. ....	do. ....	do. ....	do. do.
" <i>pinsapo</i> .....	do. ....	do. ....	do. ....	do. (Seedlings.)
" <i>pectinata</i> .....	do. ....	do. ....	do. ....	do. All killed in the drier localities.
<i>Alnus cordata</i> .....	Slightly injured.....	Seriously injured.....	Dead.....	Wood not well ripened at setting in of winter.
" <i>viridis</i> .....	do. ....	do. ....	do. ....	do.
<i>Acer campestre</i> .....	Younger plants seriously injured,	Very seriously injured.....	Dead.....	{ Suffered much unless well established in sheltered places.
" <i>tartaricum</i> .....	do. ....	do. ....	do. ....	do.
<i>Betula alba</i> .....	Seriously injured; some dead..	do. ....	do. ....	Wood not well ripened.
<i>Cedrus libani</i> .....	{ Foliage browned, but not seri- ously injured.	Uninjured .....	Seriously injured.....	.....
<i>Cephalotaxus fortunei</i> mas. & fem.	Twigs only injured.....	do. ....	do. ....	.....
<i>Cryptomeria japonica</i> .....	{ Some badly injured; most but slightly.	Slightly injured.....	Dead.....	{ All in sheltered places. One established tree killed on very bleak northern exposure.
<i>Cupressus lawsoniana</i> .....	Young wood generally dead.....	Dead or badly injured.....	do. ....	.....
<i>Castanea vesca</i> .....	Seriously injured.....	Seriously injured.....	Dead.....	.....
<i>Catalpa syriacaefolia</i> .....	Young wood killed.....	do. ....	do. ....	.....
<i>Ceanothus americanus</i> .....	Dead to root.....	Dead to root.....	do. ....	.....
<i>Cephalanthus occidentalis</i> .....	Slightly injured.....	do. ....	do. ....	.....
<i>Cercis canadensis</i> .....	{ Generally seriously injured; old plants often killed to root.....	Many dead.....	do. ....	.....
<i>Comptonia asplenifolia</i> .....	Much injured.....	Dead.....	do. ....	In dry localities.
<i>Corylus avellana purpurea</i> .....	do. ....	Much injured.....	Dead.....	Wood unripened; grafted suffered least.
<i>Daphne cneorum</i> .....	Generally dead to root.....	Dead to root.....	do. ....	{ Those grafted on mezerium survive and a few cuttings in sheltered places.
<i>Evonymus jap. fol. var.</i> .....	Slightly injured.....	do. ....	Dead.....	Grafted plants suffered least.
<i>Halesia tetraptera</i> .....	Much injured.....	Much injured.....	do. ....	Wood unripened.
<i>Hydrangea hortensis</i> .....	do. ....	do. ....	do. ....	.....
" <i>japonica</i> .....	do. ....	do. ....	do. ....	.....

<i>Ilex aquifolium</i> .....	Slightly injured.....	Much injured.....	.....	.....
" <i>opaca</i> .....	do.	Slightly injured.....	.....	.....
<i>Juniperus virginiana</i> .....	{ Seriously injured when exposed to N.W. ....	Many dead.....	Generally dead..	In low and sheltered situations only unharmed.
<i>Juniperus sabina tamariscifolia</i> ...	do.	do.	Dead.....	{ In low and sheltered situations only un- harmed; <i>Juniperus Sabina</i> (common savin) uninjured.
" <i>suecica</i> .....	Much injured.....	do.	do.	.....
" <i>hibernica</i> .....	do.	do.	do.	.....
<i>Kalmia latifolia</i> .....	Slightly injured.....	Slightly injured.....	.....	Uninjured in moist and sheltered places.
<i>Liriodendron tulipifera</i> .....	Uninjured.....	Uninjured.....	Dead.....	Those killed were exposed on dry soil.
<i>Mahonia aquifolia</i> .....	Much injured.....	Much injured.....	do.	Suffered in all soils and localities.
" <i>japonica</i> .....	Slightly injured.....	do.	do.	do.
<i>Negundo aceroides</i> .....	Generally much injured.....	Many killed to the root.....	do.	Suffered in all positions; grafted plants least,
<i>Pinus strobus nana</i> .....	Unharmed.....	Slightly injured.....	do.	Many dead in all exposures and soils.
<i>Quercus cerris</i> .....	Many dead.....	Dead.....	do.	{ From cuttings; uninjured in sheltered posi- tions.
<i>Rhus cotinus</i> .....	do.	do.	do.	do.
<i>Retinospora ericoides</i> .....	Slightly injured.....	Slightly injured.....	do.	do.
" <i>obtusata</i> .....	do.	do.	do.	do.
" <i>pisifera</i> .....	do.	do.	do.	do.
<i>Rhododendron catawbiense</i> .....	do.	do.	{ Often dead, gen- erally very seri- ously injured...	{ Grafted plants suffered least and hybrids of <i>ponticum</i> , especially the dwarf Belgian, suffered little even when much exposed.
" <i>maximum</i> .....	do.	do.	do.	.....
" <i>ponticum</i> .....	Very slightly injured.....	Uninjured.....	do.	.....
<i>Sequoia gigantea</i> .....	Severely injured.....	Many dead to root (Nursery)...	do.	.....
<i>Taxus adpressa</i> .....	Slightly injured.....	New growth dead.....	Dead to root...	{ Healthy, well established plants seriously injured only when much exposed.
" <i>baccata</i> .....	Many badly injured.....	do.	do.	do. fared about with <i>Abies canadensis</i> .
" <i>baccata aurea</i> .....	Uninjured.....	.....	.....	.....
" <i>erecta</i> .....	Many badly injured.....	New growth dead.....	Dead...	As <i>Taxus baccata</i> .
" <i>canadensis</i> .....	{ (Few in the Park) in some cases badly injured.....	.....	.....	.....
<i>Thuja occidentalis</i> .....	{ Many dead; most, seriously in- jured.....	{ Generally very badly injured, often killed.....	{ Dead, except in favored localities	{ Escaped injury only when in sheltered and <i>moist</i> localities.
" <i>orientalis</i> and its varieties..	do.	Dead; seedlings in nursery killed	Dead.....	Suffered in all soils and localities.
<i>Thujaopsis borealis</i> .....	Injured.....	Much injured.....	.....	.....
<i>Torreya grandis</i> .....	Dead to root.....	Many dead to root.....	.....	.....
<i>Ulmus campestris</i> .....	Generally uninjured, a few dead	.....	.....	Wood not well ripened.
" <i>montana</i> .....	Slightly injured.....	.....	.....	do.
" <i>fastigiata</i> .....	do.	.....	.....	do.



APPENDIX G.

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STATISTICAL TABLES,

COMPILED FROM THE GATE-KEEPERS' RETURNS

OF THE

NUMBER OF VISITORS

ENTERING THE CENTRAL PARK.

TABLE showing the Number of Visits to the Central Park, by each Gate, for each Month, during the Year 1871.

ON FOOT.

MONTHS.	Totals.											
	59th st. and 5th av.	64th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 6th av.	59th st. and 7th av.	59th st. and 8th av.	59th st. and 8th av.	72d st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.
January	128,127	19,143	35,516	11,566	2,045	79,762	23,559	53,951	14,093	405	2,482	13,337
February	45,783	7,608	11,340	6,801	1,216	23,268	7,849	61,675	6,357	154	1,564	180,756
March	68,928	27,626	11,191	7,101	7,095	21,867	15,549	26,417	4,291	670	1,419	196,280
April	82,135	58,218	16,159	13,121	15,734	41,159	2,303	60,364	6,686	2,228	2,123	328,188
May	148,263	52,824	30,467	18,740	7,829	56,059	53,494	73,060	10,445	2,842	9,236	481,554
June	155,169	52,492	26,244	19,731	15,646	74,069	71,025	96,798	11,394	4,587	4,036	548,609
July	221,252	47,873	42,546	32,624	9,927	60,339	89,537	110,341	11,878	5,389	5,523	654,326
August	204,644	38,655	30,834	20,987	6,059	81,892	97,661	119,396	14,108	5,576	6,848	636,873
September	170,667	67,148	27,410	27,788	8,976	58,781	74,541	124,469	3,565	1,926	2,259	577,233
October	137,254	35,872	21,668	14,993	8,821	41,934	43,042	88,241	7,687	922	1,477	413,643
November	69,649	34,793	10,366	7,236	5,735	18,230	21,559	32,139	4,120	2,372	548	211,304
December	108,440	27,777	18,239	8,687	3,071	54,789	38,431	70,166	7,819	598	7,009	345,026
Totals	1,540,311	470,029	281,980	189,375	92,154	612,149	559,250	917,217	102,443	27,669	35,490	4,957,178

TABLE showing the Number of Visits to the Central Park, by each Gate, for each Month, during the Year 1871. (Continued.)

ON HORSEBACK.

MONTHS.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.	110th st. and 6th av.	110th st. and 7th av.	TOTALS.
January .....	831	153	57	249	360	25	21	18	621	.....	2,335
February .....	533	206	30	244	301	8	.....	6	388	.....	1,716
March.....	1,623	280	98	628	752	66	3	72	712	.....	4,234
April.....	3,305	200	107	633	1,122	130	281	102	883	.....	6,769
May.....	6,923	168	150	607	2,169	149	200	342	1,483	16	12,215
June.....	6,516	256	83	1,005	1,475	226	229	245	1,199	139	11,453
July.....	4,092	253	62	527	986	84	403	211	1,433	272	8,323
August.....	2,215	837	117	130	291	674	169	692	113	25	5,269
September.....	3,153	140	194	215	1,006	167	171	130	957	348	6,501
October.....	3,704	148	46	705	1,151	100	62	.....	608	34	6,778
November.....	4,143	47	103	258	1,423	46	229	.....	1,266	17	7,553
December.....	1,763	213	28	247	904	9	27	44	490	.....	3,805
Totals.....	38,801	2,908	1,075	5,039	12,020	1,704	1,823	1,862	10,373	851	76,951

TABLE showing the Number of Visits to the Central Park, by each Gate, for each Month, during the Year 1871—(Continued.)

CARRIAGES.

MONTHS.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.	110th st. and 6th av.	110th st. and 7th av.	TOTALS.
January .....	15,068	2,017	636	9,409	5,600	298	231	999	30,012	.....	64,270
February .....	16,388	2,951	670	4,441	5,856	179	156	986	14,988	.....	46,615
March.....	34,807	3,782	3,097	26,122	14,185	107	397	1,203	25,216	.....	108,916
April.....	44,112	3,100	1,575	17,454	15,864	331	840	2,345	40,805	.....	126,426
May.....	108,501	4,040	2,071	17,094	15,193	648	1,342	6,632	58,515	199	214,235
June.....	82,821	2,756	2,889	14,778	23,989	605	604	3,681	52,394	1,179	185,696
July.....	102,817	4,589	2,614	6,383	14,322	654	1,557	4,254	47,211	2,210	186,611
August.....	71,346	6,097	2,193	9,855	19,274	875	2,872	6,445	46,740	816	166,513
September.....	105,341	3,203	3,520	12,697	21,558	644	5,474	2,706	58,651	3,075	216,869
October.....	107,116	4,195	2,228	16,550	17,697	619	1,007	.....	60,329	615	210,356
November .....	82,960	1,920	2,058	10,105	23,522	364	1,569	.....	51,735	329	174,562
December .....	24,189	3,059	989	4,859	12,778	386	230	.....	20,913	.....	67,403
Totals.....	795,466	41,709	24,540	149,747	189,238	5,710	16,279	29,251	507,509	6,423	*1,768,472

\* Estimating that three persons enter the Park in each vehicle, this table shows that the number of persons entering in carriages was 5,305,416.

TABLE showing the Number of Visits to the Central Park, by each Gate, for each Month, during the Year 1871—(Continued.)

SLEIGHS.

MONTHS.	59th st. and 5th av.	72d st. and 5th av.	79th st. and 5th av.	90th st. and 5th av.	59th st. and 8th av.	72d st. and 8th av.	96th st. and 8th av.	100th st. and 8th av.	110th st. and 6th av.	TOTALS.
January .....	22,660	1,058	410	8,157	4,386	122	40	435	42,773	80,041
February .....	12,397	1,433	346	2,219	16,782	121	78	813	16,806	50,995
March.....										
April.....										
May.....										
June.....										
July.....										
August.....										
September .....										
October.....										
November.....										
December.....	2,206	516	95	961	2,511	28	19	.....	4,050	10,386
Totals.....	37,263	3,007	851	11,337	23,679	271	137	1,248	63,629	*141,412

\* Estimating that three persons enter the Park in each sleigh, the number entering in sleighs was 424,266.

TABLE showing the Number of Visits to the Central Park, on Concert Days, during the Year 1871.

	ON FOOT.	ON HORSEBACK.	IN CARRIAGES.	TOTAL PERSONS.
May 20th.....	28,054	486	33,094	63,634
“ 27th.....	32,721	477	33,981	67,179
June 3d .....	25,321	364	19,830	45,515
“ 10th.....	57,756	369	30,639	88,764
“ 17th.....	53,074	411	31,155	84,640
“ 24th.....	4,139	163	7,941	12,243
July 1st.....	23,107	338	22,648	45,993
“ 4th.....	60,828	198	14,368	77,394
“ 8th.....	37,387	380	31,164	68,931
“ 15th.....	18,327	337	23,106	41,770
“ 22d.....	31,355	321	23,181	54,857
“ 29th.....	12,759	214	16,602	29,575
Aug. 5th.....	29,089	172	18,621	47,882
“ 12th.....	27,213	167	18,522	45,902
“ 19th.....	32,873	218	18,090	51,181
“ 26th.....	20,715	127	15,765	36,607
Sept. 2d.....	30,298	190	20,793	51,281
“ 9th.....	30,513	237	29,121	59,871
“ 16th.....	20,129	204	21,096	41,429
“ 23d.....	32,507	294	34,914	67,715
“ 30th.....	28,571	299	46,278	75,148
21 Days.....	636,736	5,966	514,809	1,157,511

TABLE showing the Number of Visits to the Central Park, on Sundays, for each Month during the Year 1871.

MONTHS.	ON FOOT.	ON HORSEBACK.	IN CARRIAGES.	IN SLEIGHS.	TOTALS.
January.....	103,273	230	23,337	43,593	170,433
February.....	26,264	85	9,120	7,491	42,960
March.....	85,226	253	58,167	.....	143,646
April.....	190,584	1,342	99,720	.....	291,646
May.....	171,144	1,362	113,130	.....	285,636
June.....	163,162	1,000	69,273	.....	233,435
July.....	228,435	1,374	136,341	.....	366,150
August.....	216,394	690	90,279	.....	307,363
September.....	220,243	988	175,842	.....	397,073
October.....	166,168	1,261	173,877	.....	341,306
November.....	72,480	1,521	143,706	.....	217,707
December.....	103,957	993	60,192	.....	165,142
TOTAL.....	1,747,330	11,099	1,152,984	51,084	2,962,497

TABLE showing the largest and smallest number of visits to the Park, in winter and in summer respectively, in the year 1871.

IN WINTER (JANUARY, FEBRUARY, MARCH AND DECEMBER.)		
The largest number of visitors, on foot, on any one day, was.....	59,958	on Sunday, 17th December.
The smallest number of visitors, on foot, on any one day, was.....	451	on Tuesday, 14th February.
The largest number of visitors, on horseback, on any one day, was.....	385	on Monday, 25th December.
The smallest number of visitors, on horseback, on any one day, was.....	7	on Thursday, 26th January.
The largest number of visitors, in carriages, on any one day, was.....	21,576	on Sunday, 19th March.
The smallest number of visitors in carriages, on any one day, was.....	270	on Tuesday, 14th February.
The largest number of visitors, in sleighs, on any one day, was.....	43,629	on Saturday, 28th January.
The smallest number of visitors, in sleighs, on any one day, was.....	30	on Sunday, 22d January.
The largest number of visitors, of all classes, on any one day, was.....	76,279	on Monday, 25th December.
The smallest number of visitors, of all classes, on any one day, was.....	734	on Tuesday, 14th February.
IN SUMMER (APRIL TO NOVEMBER INCLUSIVE.)		
The largest number of visitors, on foot, on any one day, was.....	82,211	on Sunday, 25th June.
The smallest number of visitors, on foot, on any one day, was.....	1,038	on Thursday, 4th May.
The largest number of visitors, on horseback, on any one day, was.....	2,555	on Tuesday, 20th June.
The smallest number of visitors, on horseback, on any one day, was.....	27	on Thursday, 4th May.
The largest number of visitors, in carriages, on any one day, was.....	53,919	on Sunday, 24th September.
The smallest number of visitors, in carriages, on any one day, was.....	906	on Thursday, 4th May.
The largest number of visitors, of all classes, on any one day, was.....	109,068	on Sunday 24th September.
The smallest number of visitors, of all classes, on any one day, was.....	2,421	on Thursday, 4th May.
The total number of visits, in carriages, during the year, was.....	5,305,416	
The total number of visits, in sleighs, during the year, was.....	424,266	
The total number of visits, on horseback, during the year, was.....	76,951	
The total number of visits, on foot, during the year, was.....	4,957,778	
	<u>10,764,411</u>	
The average daily number of visits, of all classes, was.....	29,464	
The proportion of foot visits to the whole number, was.....	45 in 100	



TABLE showing the Number of Visits to the Central Park, for each month, during the past nine years.\*

MONTHS.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.
January.....	169,621	809,359	892,474	543,470	991,724	634,368	503,346	358,619	819,254
February.....	200,601	305,680	380,159	484,075	251,652	477,999	295,932	354,676	475,302
March.....	179,114	301,536	343,578	291,405	261,313	328,475	319,234	397,096	527,262
April.....	363,143	372,303	576,955	240,107	686,999	396,437	639,921	621,776	714,235
May.....	149,302	607,243	582,280	778,087	615,131	561,822	736,670	808,362	1,136,474
June.....	504,785	470,135	771,685	879,239	753,589	1,028,156	849,427	970,007	1,117,150
July.....	375,627	1,115,783	914,548	712,995	725,669	765,246	959,123	947,460	1,222,482
August.....	549,526	439,566	950,638	682,405	614,114	741,519	978,685	842,534	1,141,681
September.....	681,861	507,021	891,918	826,593	766,635	596,203	731,081	1,070,063	1,234,341
October.....	486,046	452,219	530,000	1,344,181	743,959	711,339	613,395	938,232	1,051,489
November.....	237,486	373,682	475,968	537,485	374,114	457,008	428,731	696,372	742,543
December.....	429,388	365,652	282,936	519,331	442,956	391,226	295,412	623,629	582,198
Total for Year.....	4,326,500	6,120,179	7,593,139	7,839,373	7,227,855	7,089,798	7,350,957	8,628,826	10,764,411

\* In this table slight errors in the statements of previous years have been corrected.

TABLE showing the number of visits to the Central Park, on Sundays, for each month, during the past eight years.

	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.
January.....	198,429	166,597	173,971	185,097	218,323	177,195	120,325	170,433
February.....	114,502	43,953	100,228	49,987	110,421	96,407	102,605	42,960
March.....	111,946	89,951	68,435	112,708	102,923	112,941	79,709	143,646
April.....	99,532	191,813	172,602	256,505	110,659	175,059	157,926	291,646
May.....	209,176	111,540	237,252	191,464	223,295	194,175	266,894	285,636
June.....	126,387	200,172	183,765	202,422	253,681	192,310	289,239	233,435
July.....	225,547	266,655	203,771	207,329	167,576	233,040	229,658	366,150
August.....	90,033	190,453	201,290	204,694	265,403	313,518	190,140	307,363
September.....	90,749	212,184	268,031	258,768	132,411	175,129	244,598	397,073
October.....	98,141	190,562	171,685	205,358	196,049	151,252	199,864	341,306
November.....	81,296	115,366	109,676	82,484	168,091	117,079	100,088	217,707
December.....	110,196	74,134	143,552	86,895	44,333	35,961	101,078	165,142
Total for year....	1,555,934	1,853,380	2,034,258	2,043,711	1,993,165	1,974,066	2,082,124	2,962,497

APPENDIX II.

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TABLES

RELATING TO BOATING AND SKATING

IN THE

CENTRAL PARK.

# TABLE

## SHOWING THE USE OF BOATS ON THE CENTRAL PARK

During the Season of 1871.

	CALL BOATS.	PASSAGE BOATS.
Number of passengers served during the week ending 8th April,	39	302
" " " " " 15th "	456½	2,012½
" " " " " 22d "	438	1,584
" " " " " 29th "	330½	1,418
" " " " " 6th May,	636½	1,942½
" " " " " 13th "	549½	2,323½
" " " " " 20th "	972	3,681
" " " " " 27th "	1,342½	5,402½
" " " " " 3d June,	1,548	5,109
" " " " " 10th "	1,204	3,762
" " " " " 17th "	965½	2,628½
" " " " " 24th "	749	1,856
" " " " " 1st July,	1,792½	4,670½
" " " " " 8th "	2,173	7,114½
" " " " " 15th "	1,141	3,501½
" " " " " 22d "	904½	3,294½
" " " " " 29th "	1,064½	3,637½
" " " " " 5th August,	1,737	5,641½
" " " " " 12th "	1,452	5,187½
" " " " " 19th "	1,546½	5,190
" " " " " 26th "	936	4,237½
" " " " " 2d Sept.,	1,385	4,945½
" " " " " 9th "	1,374½	5,058½
" " " " " 16th "	714½	2,918
" " " " " 23d "	756	2,870½
" " " " " 30th "	771	3,320½
" " " " " 7th Oct.,	240½	1,014
" " " " " 14th "	515½	1,690
" " " " " 21st "	249½	1,132½
" " " " " 28th "	174½	938
" " " " " 4th Nov.,	49	421½
" " " " " 11th "	38	364
TOTALS.....	28,246	99,169½

The number of boats in use during the season was 35.



*at the Park, since it was opened to the Public in 1858.*

1865-66.	1866-67.	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.
1865. Jan. 8	1866. Dec. 15	1867. Dec. 17	1868. Dec. 14	1870. Feb. 25	1870. Dec. 26	1871. Dec. 15
" 9	" 10	" 18	" 15		" 27	" 16
" 10	" 19	" 19	" 16		" 28	" 17
" 11	" 20	" 20	" 19		" 29	" 19
" 12	" 21	" 21	" 20		" 30	" 20
" 15	" 22	" 24	" 22		" 31	" 21
" 17	" 26	" 25	" 24		1871. Jan. 1	" 22
" 18	" 28	" 30	" 25		" 2	" 25
" 19	" 29	" 31	" 26		" 3	" 28
" 21	" 30	1868. Jan. 3	" 27		" 4	" 29
" 22	" 31	" 5	" 28		" 7	" 30
" 23	1867. Jan. 1	" 6	" 29		" 8	1872. Jan. 2
" 24	" 2	" 7	" 30		" 9	" 3
" 26	" 3	" 9	" 31		" 10	" 6
" 27	" 4	" 10	1869. Jan. 2		" 11	" 7
" 28	" 5	" 11	" 3		" 12	" 8
" 29	" 6	" 12	" 6		" 13	" 9
" 30	" 7	" 13	" 7		" 17	" 10
Feb. 1	" 8	" 14	" 11		" 18	" 11
" 2	" 9	" 15	" 13		" 19	" 15
" 3	" 10	" 16	" 14		" 20	" 16
" 4	" 11	" 17	" 16		" 21	" 17
" 5	" 12	" 18	" 17		" 22	" 18
" 6	" 13	" 19	" 18		" 23	" 19
" 7	" 14	" 20	" 20		" 24	" 21
" 17	" 15	" 22	" 21		" 25	" 22
" 18	" 16	" 23	" 22		" 26	" 23
	" 19	" 25	" 23		" 27	" 24
	" 20	" 26	" 24		" 28	" 25
	" 23	" 28	" 26		" 29	" 26
	" 24	" 31	" 27		" 30	" 27
	" 25	Feb. 1	" 28		" 31	" 28
	" 26	" 2	Feb. 1		Feb. 2	" 30
	" 27	" 3	" 2		" 3	" 31
	" 28	" 4	" 5		" 4	Feb. 1
	" 29	" 5	" 6		" 5	" 2
	" 30	" 6	" 7		" 6	" 4
	Feb. 1	" 7	" 8		" 7	" 5
	" 2	" 8			" 8	" 7
		" 10			" 10	" 8
		" 11			" 11	" 9
		" 12			" 13	" 10
		" 13			" 15	" 15
		" 14			" 16	" 16
		" 15			" 19	" 17
		" 16			" 20	" 18
		" 17			" 22	" 24
		" 18			" 23	
		" 19				
		" 20				
		" 22				
		" 23				
		" 24				
		" 25				
		" 26				
		" 28				
		" 29				
		Mar. 1				
		" 4				
		" 5				
		" 6				
Days 28	Days 39	Days 61	Days 38	Days 1	Days 48	Days 47

# APPENDIX J.

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STATEMENT

AS TO

PUBLIC CONCERTS.

TABLE showing the Number of Promenade Concerts in the several Parks during the year 1871.

		MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	TOTAL NUMBER IN EACH PARK.
Mt. Morris Square .....	Mondays .....	22 29	5 12 19 26	3 10 17 24 31	7 14 21 28	4 11 18	18
Tompkins Square .....	Tuesdays .....	23 30	6 13 20 27	11 18	1 8 15 22 29	5 12 19	16
Madison Square .....	Thursdays .....	25	1 8 15 22 29				6
City Hall Park .....	Fridays .....		30	7 14 28	11	8 22	7
Battery Park .....	" .....	26	2 9 16 23	21	4 18	1	9
Central Park .....	Saturdays .....	20 27	3 10 17 24	1 4 8 15 22 29	5 12 19 26	2 9 16 23 30	21
Number of concerts for each month .....		8	22	17	16	14	
Total Number of concerts during the year 1871 .....							77



APPENDIX J.

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TABLES

OF

LABOR AND RATES OF WAGES.

STATEMENT showing in Number of Days the Force, in various classes, employed on the Parks and other Works under charge of the Board,  
for twelve months, ending May 1st, 1872.

MONTHS.	General Foremen.	Foreman.	Assistant Foreman.	Inspectors.	Sculptors.	Modelers.	Carpenters.	Painters.	Stone-Cutters.	Masons.	Iron-Workers.	Blacksmiths.	Plumbers.
1871.													
May.....	81	2,216	125	30	27	27	2,142	2,403	5,101	3,418	28	489	27
June.....	78	2,505	222	29	26	8	2,303	2,385	5,516	3,742	46	559	26
July.....	78	2,751	265	31	25	..	2,281	953	6,310	3,734	50	572	25
August.....	81	2,993	274	31	27	..	2,066	1,952	5,564	4,113	27	686	27
September.....	78	2,739	265	30	26	..	1,048	963	4,912	3,432	47	701	26
October.....	78	2,771	214	31	26	..	584	638	4,080	3,175	46	706	26
November.....	78	2,435	181	29	25	..	610	643	2,931	2,035	36	652	24
December.....	51	1,429	12	31	25	..	459	118	670	269	24	458	25
1872.													
January.....	54	1,450	..	31	26	..	393	136	1,006	183	23	394	26
February.....	50	1,365	..	27	24	..	371	119	1,280	146	9	389	24
March.....	55	1,303	..	31	26	..	398	129	1,215	127	14	407	26
April.....	82	1,242	..	30	26	..	411	150	1,940	391	25	417	43

STATEMENT showing in Number of Days the Force, in various classes, employed on the Parks and other Works, under charge of the Board,  
for twelve months, ending May 1st, 1872.—Continued.

MONTHS.	Helpers.	Steam Engineers	Gardeners.	Skilled Gardeners and Division Gardeners.	Blasters.	Rock-men.	Laborers.	Skilled Laborers.	8 Horse-Teams.	Double Teams,	Carts.	Female Attendants.	Gate-Keepers.
1871.													
May .....	260	56	1,104	458	152	4,846	50,643	458	80	3,845	6,961	217	1,371
June .....	334	69	1,113	421	169	5,939	55,411	767	77	4,166	7,808	203	1,398
July .....	434	98	1,172	447	204	7,091	52,505	831	75	4,489	7,709	222	1,368
August .....	518	113	1,260	491	285	8,235	57,239	941	81	5,187	8,713	213	1,533
September .....	572	84	1,081	492	298	8,189	50,236	1,019	72	5,238	8,469	204	1,386
October .....	607	78	919	453	294	7,862	41,818	996	77	5,012	7,719	212	1,444
November .....	577	76	817	405	245	7,205	33,535	900	72	4,799	6,989	204	1,585
December .....	432	116	448	360	264	7,728	21,823	975	6	4,567	6,397	227	920
1872.													
January .....	322	131	414	356	322	8,697	24,026	1,020	..	4,202	5,005	244	855
February .....	347	120	356	316	280	8,627	24,046	958	..	3,477	4,323	228	815
March .....	366	128	362	293	273	8,207	19,715	933	..	3,079	3,191	199	804
April .....	387	127	666	72	254	9,245	23,272	1,037	..	3,797	3,996	204	737

STATEMENT showing the Average Working Force, in various classes per day, employed on the Parks and other Works under charge of the Board,  
for twelve Months, ending May 1st, 1872.

MONTHS.	General Foreman.	Foreman.	Assistant Foremen.	Inspectors.	Sculptors.	Modelers.	Carpenters.	Painters.	Stone-Cutters.	Masons.	Iron-Workers.	Blacksmiths.	Plumbers.	Helpers.	Steam Engineers.	Gardeners.	Skilled Gardeners.	Blasters.	Rockmen.	Laborers.	Skilled Laborers.	8 Horse Teams.	Double Teams.	Carts.	Female Attendants.	Gate-Keepers.
1871.																										
May .....	3	82	5	1	1	1	79	89	188	126	1	18	1	9	2	41	13	6	179	1875	17	3	142	257	7	44
June .....	3	96	8	1	1	1	88	91	212	143	2	21	1	12	3	42	16	6	228	2131	25	3	160	300	7	53
July .....	3	105	10	1	1	..	87	72	242	143	2	22	1	16	4	45	17	8	273	2019	32	3	172	296	7	47
August .....	3	97	9	1	1	..	76	72	206	152	1	25	1	19	4	40	16	10	265	1846	30	3	167	284	7	49
September ..	3	105	10	1	1	..	40	37	189	132	2	27	1	22	3	36	18	12	315	1674	34	2	174	283	7	4
October .....	3	89	8	1	1	..	22	24	157	122	2	27	1	23	3	35	17	11	302	1608	38	3	191	297	8	46
November ..	3	81	6	1	1	..	23	24	112	78	1	25	1	22	3	25	13	9	240	1117	30	3	160	234	6	52
December ..	2	46	1	1	1	..	14	4	26	10	1	18	1	17	4	14	11	14	297	704	31	3	152	106	7	29
1872.																										
January .....	2	47	..	1	1	..	15	5	41	7	1	15	1	12	5	13	13	12	334	775	33	..	161	161	7	27
February .....	2	47	..	1	1	..	15	5	51	6	1	16	1	14	5	14	11	11	345	829	33	..	139	149	8	28
March .....	2	42	..	1	1	..	15	5	45	5	1	15	1	14	5	12	9	10	265	636	20	..	99	103	6	36
April .....	3	41	..	1	1	..	15	6	72	15	1	15	2	15	5	22	5	10	308	770	35	..	131	130	7	25

TABLE showing the rate of pay per day from the commencement of the work to April 1st, 1872. (The working day previous to April, 1870, was ten hours; since that date it is computed at eight hours.)

	1857.	1858.		1859.		1860.		1861.		1862.		1863.		1864.	
	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.
Foremen.....	\$1 50	\$1 50	\$1 75	\$1 75	\$2 00	\$2 00	\$2 00	\$2 00	\$2 00	\$2 00	\$2 00	\$2 00	\$2 20	\$2 50	\$3 00
Assistant foremen.....			1 25	1 25	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 65	1 80	2 25
Laborers.....	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	90	90	1 00	1 25	1 25	1 50	1 80
Double teams.....	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	2 75	2 60	2 70	3 30	3 50	3 90	4 40
Carts.....	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	1 80	1 75	1 80	2 20	2 50	2 80	3 15
Blacksmiths.....	1 50	1 50	1 50	1 50	1 75	1 87½	1 87½	1 87½	1 60	1 60	1 65	1 90	2 00	2 50	3 00
Helpers.....	1 00	1 00	1 00	1 12			1 25	1 25	1 00	1 05	1 10	1 25	1 35	1 60	1 90
Carpenters.....	1 50	1 50	1 50	1 50	1 75	1 75	1 75	1 75	1 60	1 60	1 75	2 00	2 00	2 50	3 00
Rockmen.....					1 10	1 10	1 10	1 10						1 60	1 90
Blasters.....															
Hand-drillers.....					1 10	1 10	1 10	1 10							
Gardeners.....				1 40	1 40	1 00	1 30	1 30	1 15	1 10	1 10	1 30	1 40	1 60	1 90
Masons.....			1 75	2 00	2 00	2 00	2 00	2 00	1 65		1 75		2 20	2 50	3 00
Stone-cutters.....			1 75	2 00	2 00	2 00	2 00	2 00	1 65		1 75		2 25	2 75	3 00
Bricklayers.....			1 75	1 75	2 00	2 00	2 00		1 65	1 70					
Pavers.....					1 25		1 10	1 10	1 00	1 00			1 35	1 60	1 90
Tile-layers.....					1 10	1 10	1 10	1 10	1 00						

TABLE showing the rate of pay per day from the commencement of the work to April, 1st, 1872, continued.  
(The working day previous to April, 1870, was ten hours; since that date it is computed at eight hours.)

	1865.		1866.		1867.		1868.		1869.		1870.		1871.		1872.
	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.	November 1.	April 1.
Foremen.....	\$3 00	\$3 00	\$3 00	\$3 00	\$3 50	\$3 50	\$3 50	\$4 00	\$4 00	\$4 00	\$4 00	\$4 00	\$4 50	\$4 50	\$4 50
Assistant foremen.....	2 25	2 25	.....	.....	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	3 00	3 00	.....
Laborers.....	1 90	1 90	1 90	1 90	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Double Teams.....	4 70	4 70	4 70	5 00	5 50	5 50	5 50	5 50	5 50	5 50	5 44	5 44	5 44	5 44	5 44
Carts.....	3 40	3 40	3 40	3 40	3 80	3 80	3 80	3 80	3 80	3 80	3 60	3 60	3 60	3 60	3 60
Blacksmiths.....	3 25	3 25	3 25	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50
Helpers.....	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
Carpenters.....	3 25	3 35	3 25	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 00	4 00	4 00	4 00	4 00
Rockmen.....	2 00	2 00	2 00	.....	.....	.....	.....	2 25	2 25	2 25	2 24	2 24	2 24	2 24	2 24
Blasters.....	.....	.....	.....	.....	.....	.....	.....	2 50	2 50	2 50	2 44	2 44	2 44	2 44	2 44
Hand-drillers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Garneners.....	2 00	2 00	2 00	2 00	2 10	2 10	2 10	2 35	2 35	2 35	2 40	2 40	2 40	2 40	2 50
Masons.....	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 50	4 50	4 50	4 24	4 24	4 24	4 24	4 24
Stoke-cutters.....	3 50	3 50	3 50	3 50	4 00	4 00	4 00	4 25	4 25	4 50	4 24	4 24	4 24	4 24	4 24
Bricklayers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pavers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tile-layers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

APPENDIX K.

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TABLES  
SHOWING WORK DONE  
ON THE  
MORE IMPORTANT UNDERTAKINGS  
OF THE  
DEPARTMENT.

## STATEMENT OF WORK DONE

ON SEVERAL UNDERTAKINGS OF THE DEPARTMENT OF PUBLIC PARKS

FROM APRIL 20TH, 1871, TO JUNE 15TH, 1872.

---

### SIXTH AVENUE.

4,215 cubic yards earth excavation.  
12,931 square " Telford foundation laid.  
5,953 cubic " hard gneiss furnished and spread.  
8,654 " " trap-rock " "  
12,362 lineal feet curb set.  
37,013 " flagging laid.

### SEVENTH AVENUE.

37,699 cubic yards earth excavation.  
27,892 " " rock "  
101,809 square " Telford foundation laid.  
19,434 cubic " hard gneiss, furnished and spread.  
13,886 " " trap-rock, " "  
26,064 lineal feet curb delivered and mostly set.  
20,445 " flagging delivered (not laid).

### TENTH AVENUE.

42,460 cubic yards excavation.  
59,200 " filling.  
600 lineal feet culvert.  
9,680 cubic yards rubble wall.

### BOULEVARD.

134,634 square yards Telford foundation laid.  
71,468 lineal feet curb delivered.  
67,324 " " set.  
128,032 square feet flagging delivered.  
30,155 " " laid.  
21,846 cubic yards trap-rock delivered.  
88,688 square " roadway finished.  
27,750 cubic yards earth excavation.  
4,100 " rock excavation.  
12,000 cubic yards filling.



## AVENUE ST. NICHOLAS.

26,770 cubic yards rock excavation.  
 16,500 " " earth excavation.  
 84,500 " " filling furnished.  
 5,000 " " rubble stone, broken.  
 1,665 " " gravel delivered.  
 19,000 lineal feet curb delivered.  
 19,000 " " gutter stone delivered.

## 145TH STREET.

1,400 cubic yards earth excavation, for grading and shaping for superstructure.  
 5,370 square yards Telford foundation laid.  
 1,194 cubic yards hard gneiss.  
 972 " " trap-rock.  
 1,500 lineal feet curb delivered and set.  
 1,600 " " flagging delivered and laid.  
 50 " " vitrified pipe laid.  
 2 circular basins built.

## MANHATTAN STREET.

96,500 cubic yards filling furnished.

## 124TH STREET.

1,005 lineal feet curb delivered and set.  
 989 " " gutters taken up and reset.  
 14,549 square feet Schillinger pavement laid.  
 77 square yards wooden pavement taken up and relaid.

## MOUNT MORRIS PARK.

103,521 square feet Day's vul. con. pavement laid (one coat).  
 2,650 " " Day's vul. con. pavement laid (two coats).  
 1,848 lineal feet vitrified drain-pipe laid, 6"  
 2,215 " " vitrified drain-pipe laid, 4"  
 2,010 " " iron water-pipe laid, 2"  
 200 " " lead water-pipe laid.  
 5 drinking-hydrants set.  
 6 road-hydrants set.  
 81 silt basins and inlets built.

## BATTERY PARK.

4¼ acres ground shaped and fertilized.  
 10,000 cubic yards filling.  
 27,472 square feet walks graded and prepared for superstructure.  
 206,593 " " walks graded and laid with Schillinger pavement.  
 5,929 square yards paving for Battery place, and State and Whitehall streets.  
 765 lineal feet curb furnished and set on streets, 6"  
 2,587 " " curb furnished and set on walks, 2½"  
 1,959 " " drain-pipe laid.  
 1,948 " " water-pipe laid.  
 1 receiving basin built.  
 33 silt basins.

- 673 cubic yards masonry built in sea-wall and basin.
- 1,493 " " rip-rap in foundation of sea-wall and basin.
- 3,318 cubic feet garden mould furnished.
- 468 locust posts set.
- 7 drinking-hydrants set.
- 3 drinking-hydrants for horses set.
- 1 ladies' cottage built.
- 4 urinals built.

## RESERVOIR PARK.

- 11,500 cubic yards earth moved and removed.
- 3 $\frac{4}{10}$  acres surface in plots shaped and fertilized.
- 59,161 square feet surface in walks graded and paved inside park.
- 19,606 " " " " " outside park.
- 1,413 lineal feet curb set on streets, 6"
- 6,532 " " " " around plots, 2"
- 1,252 " " drain-pipe laid.
- 988 " " water-pipe laid.
- 49 silt basins built.
- 1 urinal built.
- 23 $\frac{1}{2}$  cords manure furnished.

## GRAND STREET PARK.

- 325 lineal feet iron railing and base set.
- 428 " " 6" curb set on streets.
- 138 " " 2" curb set.
- 147 " " drain-pipe laid.
- 133 " " water-pipe laid.
- 227 cubic yards garden-mould furnished.
- 2 cords manure furnished.

## UNION SQUARE.

- 2 $\frac{1}{4}$  acres shaped and fertilized.
- 46,000 square feet of walks graded and prepared for superstructure.
- 5,792 lineal feet curb set.
- 1,327 " " drain-pipe laid.
- 842 " " water-pipe laid.
- 41 silt basins built.
- 400 cubic yards stone and concrete in foundation of fountain.
- 30 " " brick masonry " " " "
- 32 $\frac{1}{4}$  cords manure furnished.

## PARK AVENUE PARKS.

- 700 lineal feet granite coping furnished and delivered.
- 1,050 " " iron railing furnished and part set.

## WASHINGTON SQUARE.

- 8 $\frac{28}{100}$  acres area of square.
- 49,740 square feet walks graded.
- 148,636 " " " paved with Day vulcanite pavement.
- 3,681 square yards wood pavement laid on roadways, Ingersoll patent.
- 9,000 cubic yards earth excavation.
- 636 " " masonry in fountains.

208 cords manure spaded in plots.  
 1,866 lineal feet 6" curb set.  
 9,067 " " 2" curb set.  
 2,110 " " drain-pipe furnished and laid.  
 1,857 " " water-pipe furnished and laid.  
 6,070 " " gas-pipe furnished and laid.  
 186 lamp-posts.  
 1,713 chain-posts.  
 1 urinal erected.  
 10 stop-cocks.  
 8 drinking-hydrants.  
 2 house-hydrants.  
 1 road basin.  
 53 silt-basins.  
 11 street washers.

## MADISON SQUARE.

6 $\frac{14}{100}$  acres area of the park.  
 108,185 square feet of walks paved (Schillinger).  
 4,600 square yards stone pavement on Broadway, 23d street and Madison avenue laid and relaid.  
 3,500 square feet bridge stone laid.  
 33,000 cubic yards earth excavation.  
 81 " " masonry in fountains.  
 108 cords manure spaded in plots.  
 2,431 lineal feet 6" curb set.  
 9,132 " " 2" " "  
 2,735 " " drain-pipe laid.  
 45 silt basins built.  
 5 road basins.  
 2 fountain basins partially built.  
 2,371 lineal feet water-pipe laid.  
 3,167 " " gas-pipe laid.  
 107 new gas-lamps furnished and set.  
 13 stop-cocks set.

## JACKSON SQUARE.

2 $\frac{27}{100}$  acres area of square.  
 5,900 square feet walks graded.  
 103 cubic yards masonry in foundations.  
 460 lineal feet railing.  
 462 " " coping.  
 6 lamp-posts furnished and set.

## CITY HALL PARK.

1,467 square feet walks paved with Scharf pavement.  
 2,186 " " " " " Schillinger pavement.  
 205 cubic yards masonry in fountain.  
 7 lamp-posts set.

## CENTRAL PARK.

*Transverse Roads.*

- 8,727 cubic yards excavation.
- 60 " " wall masonry.
- 17,635 square yards granite pavement.
- 10,882 lineal feet 6-inch curb.
- 148 brackets and lamps fitted and put up.
- 1 silt basin built.

*Park Enclosing-Wall along Eighth Avenue.*

- 1,000 lineal feet upper vertical wall, of Ohio stone.
- 1,422 " " lower vertical wall, Ashler.
- 4,390 " " blue-stone coping.
- 1,922 " " rubble foundation wall.
- 3,708 " " " " " laid dry.
- 32 " " wing wall at side transverse road No. 1.

*Interior of Park adjacent to Eighth Avenue.*

- 44,200 cubic yards excavation.
- 95,500 " " filling.

*Interior of Park adjacent to 110th Street.*

- 800 lineal feet rubble wall, laid dry.
- 8,700 cubic yards filling.
- 1,038 lineal feet 18-inch vitrified pipe laid.

*Interior of Park adjacent to Fifth Avenue.*

- 3,900 cubic yards excavation.
- 8,800 " " filling.
- 300 " " rubble wall, laid dry.

*Entrance at 85th Street and Eighth Avenue.*

- 5,800 cubic yards excavation.
- 3,000 " " loam for foundation of slopes.

*Sewer from Museum Building connecting with Sewer near 59th Street.*

- 1,500 cubic yards excavation.
- 63 " " brick masonry.
- 45 " " rubble masonry.
- 1,672 lineal feet vitrified pipe laid.
- 4 man-holes built.

*Widening of the East Drive—78th to 104th Streets.*

- 7,550 lineal feet length of drive widened.
- 8,400 cubic yards excavation.
- 6,300 " " foundation stone for road-bed.
- 9,650 " " gravel.
- 3,500 lineal feet gutter laid.

*New Ride, west of East Drive—97th to 104th Streets.*

- 1,800 lineal feet of new ride.
- 3,000 cubic yards excavation.

1,600 cubic yards foundation-stone for road-bed.

400 " " gravel.

3,600 lineal feet gutter laid.

*Foundation for Conservatory.*

1,000 cubic yards masonry in foundation.

.972 piles driven.

4,965 cubic feet granite in 64 piers.

430 " " brick sewer built.

*Bridge No. 26.*

220 cubic yards masonry.

691 cubic feet granite.

*Pavement Laid.*

3,503 square yards Scharff pavement laid in walks.

8,833 " " Grahamite " " "

1,400 " " wood " " in stable yard.

*Area at Fifth Avenue and 58th Street.*

250 lineal feet curb set.

500 " " pipe laid.

2 receiving basins built.

200 cubic yards masonry for foundation of basin.

1,300 cubic feet cut blue-stone for fountain.

*Manhattan Square.*

14,570 cubic yards excavation.

61,610 cubic yards filling.

*The Terrace.*

The long panels in the flank walls of steps reset with slabs of polished blue granite, to replace marble which had been thrown out by frost.

Polished granite furnished for two niches of the Arcade.

The granite for the fountain basin polished and hollowed out at the quarry. Plans and detail drawings for the bronze and copper work finished.

*Stable.*

The keepers' house and sheds, in connection with the stable on transverse road No. 3, completed.

*Belvidere.*

The clock-tower carried up to its full height.

The stone flagging of the esplanade nearly completed. The wood shelter in NW. angle roofed and painted.

*Menagerie.*

The large menagerie building, west of Museum, painted and cages erected for the animals

*Sheepfold.*

The sheepfold and barn entirely completed, except the plastering and carpenter-work of the two loggie at ends.

*Conservatory.*

The foundation walls for the large conservatory at 74th street carried to the basement floor line. Sixty-four granite piers set.

*Small Structures.*

The ombre, or sheds for passengers in waiting, at Eighth avenue and at Fifth avenue entrances, completed.

Six buildings, with earth-closets, for working-men, erected.

A ladies' cottage built at the Farmers' gate, at 110th street.

A similar cottage in Washington square.

A tool-house built in Washington square.

A urinal erected in Reservoir square.

# APPENDIX J.

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## STATEMENT OF GIFTS,

OTHER THAN THOSE ACKNOWLEDGED IN THE REPORT OF THE DIRECTOR OF THE  
MENAGERIE,

RECEIVED BY THE DEPARTMENT,

DURING THE YEAR 1871.

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1871.

- March 22. Capt. Jno. H. Mortimer, residence unknown, specimens of Rock from Giant's Causeway, Ireland.
- April 6. H. W. Swift, Matteawan, N. Y., 1 Lawn Mower.
- " 18. A. J. Duvalé, New York City, 1 preserved specimen of a Sword Fish.
- May 20. J. Brice, New York City, 6 Silver Pheasant's Eggs.
- July 17. John Babcock, New York City, 1 Pr. Ptd. Pruning Shears.
- October 3. Ed. S. Browne, residence not known, 1 specimen Iguana, in alcohol.
- " 14. Manuel Martie, New York City, 1 crate and 4 sacks of Conch Shells.
- " 26. Francis Meyer, Minn., Ram's Horns from Ram 27 years old.
- December 6. Jas. C. Talcot, New York City, 6 Wooden Snow Shovels.
- " 19. H. W. McCoon, Long Eddy, Sullivan Co., N. Y., 1 Hornet's Nest.
- 

- April 6. Prof. Robert Demcker, Mt. St. Vincent, 26 packages Imported Seed.



1871.

- May 6. Geo. Colton, C. P., 32 packages Imported Seed.
- May 12. E. T. Sanford, N. Y. City, 6 packages Seed.
- " 29. Prof. R. Demcker, Mt. St. Vincent, 1 lot Plants.
- July 7. Mathias Douado, Astoria, N. Y., 1 very large *Acacia* Linfolin; 1 very large *Bignonia Venusta*; 1 very large *Charlewooden Congesta*; a collection of 37 *Coleus* Var.
- " 7. E. T. Lagrave, C. P., 6 *Wistaria Flora Alba*.
- " 7. Prof. Robert Demcker, C. P., collection of Ferns, 14 species; collection of Bromelicias, 8 species; collection of *Amarydes*, &c., 10 species; collection of *Sedun*, &c., 9 species; 1 *Agave lurida*; 1 *Escheveria grande flora*; 1 *Escheveria Glauca Vereus*; 1 *Escheveria Sanquinsa*; 1 *Crassuta*; 1 *Semperiven Orbiedan*; 2 *Aloe Ciliares*; 1 various kinds of Cactus; 1 *Ardesia Cremulata Alba*; 4 varieties of Plants; 3 new Plants from New Granada; 3 varieties *Scar. Geranium*, new; 1 *Dianthus Mulci*; 1 *Ficus Cooperi*; 12 Acorns *Granifolus* Var.; 18 Plants with variegated leaves; 20 new bedding Plants; 6 seeds of the Cow Tree from Orinoco River; 4 new kinds of *Carmin* Varis.
- " 7. Prof. Robt. Demcker, C. P., 1 new *Marantha* from Upper Amazon River.
- " 7. Lorenz & Wiegand, Astoria, N. Y., 50 Double *Peturias*.
- " 7. W. C. Wilson, Astoria, N. Y., 6 Flat *Peturias*.
- August 4. Mr. Levi D. Vincent, residence not known, a quantity of Long Moss.

1871.

August 16. Wm. Sneidecker, residence not known, 1 box of Seedlings of *Sequoia Gigantea*, also a piece of Wood and Bark of same tree.

" 22. Prof. Robt. Demcker, C. P., 7 assortments of Seeds; 151 packages of Seeds.

" 29. John Dougall, New York City, 500 Tulip Bulbs.  
September 8. Mr. Sherwood, Harlem, 1 Spruce; 1 Hibiscus; 4 Lilacs.

" 8. Mr. Debevious, Harlem, 1 Spruce; 16 mixed Shrubs.

" 8. Mrs. Jno. D. Campbell, N. Y. City, 1 India Rubber Tree, (*Ficus Elastica*.)

October 4. Prof. Robert Demcker, Mt. St. Vincent, C. P., 50 rare Plants; 225 packages imported Seeds.

" 26. Wm. W. Edwards, Brooklyn, N. Y., 1 box Mountain Ash Seed, from Hunter, Green Co., N. Y., in Catskill Mountains.

November 1. Miss Elizabeth S. Whiting, Elizabeth, N. J., 1 *Acacia Lophantha*.

" 6. Mrs. Paul M. Lagrave, N. Y. City, 1 *Pinus* (*Niva* species), from Japan.

" 22. W. E. Corcy, N. Y. City, 1 *Nereus Oleander*.

1871.

January 31. William Roy, New Orleans, 1 Deer.

February 6. Mrs. Thomas, New York City, 1 Rabbit.

' 16. John H. Doyle, New York City, 2 Bobolinks (D).\*

" 25. James Boarer, New York City, 2 Willoughby Pugs (D).

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\*Those marked (D) are dead.

1871.

- June 23. Wm. M. Miller, New York City, 1 Alligator.
- July 5. John S. Griffith, Brooklyn, N. Y., 1 Alligator.
- " 11. R. H. Thurston, New York City, 1 Raccoon.
- " 21. Miss Lydia Harper, New York City, 1 Rabbit.
- August 11. S. W. Fay, New York City, 1 Red Fox.
- " 18. Donor not known, 1 Alligator.  
Felix P. Dixon, New York City, 1 Hawk (D).
- Sept. 1. Mast. A. C. Calicen, New York City, 3 Snakes  
(D).
- " 8. Mast. E. F. Gibson, New York City, 2 Rabbits.  
Mast. Chas. B. Cowell, Brooklyn, N. Y., 2 Specimens of Birds.
- October 4. Edward Bird, New York City, 1 Bittern.
- " 10. Edward Tyrrell, New York City, 1 Box Turtle.  
Ehrick Parmly, New York City, 1 Opossum.
- " 11. J. Fleischel, New York City, 1 Six-legged Sheep.
- " 12. Arthur C. Hoag, Hoosick, New York, 1 Eagle.
- " 13. George Parmly, New York City, 1 Lop-eared Rabbit.
- " 14. John Edgar, New York City, 1 Monkey.  
Miss Lizzie Lee, New York City, 2 White Mice.
- " 16. Miss Annie Clevenger, New York City, 1 Pigeon.
- " 19. Thos. F. Freeman, residence unknown, 1 Hawk.
- Nov. 9. P. C. Langevin, Woodburgh, N. Y., 1 Guinea Pig.  
Clarence Childs, Port Richmond, N. Y., 1 Young Deer.
- Dec. 6. Consul Heyse, Prussia, 1 Deer.