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#### Contenia.

(Illustrated articles are marked with an asterick.)	
Apparatus, ingenious	Flour, American, in Turkey 265
Apple trees, borers in 268	Flowers in winter 205
Appointments, important 263	Frost and the yellow fever 256
Around the world in thirty days. 259	Homes, old, made new* 265
Balloon expedition to the moon. 262	lce boat, the fast
Barrel, gun, breech-loading* 263	Inventions, agricultural, new 264
Beer and milk profits on 259	Inventions, engineering
Bees, what became of one hive. 266	Iron in New Zealand 259
Bicycle, the, as a road vehicle 257 Billousness, remedies, for	Lesdville, the place
	Meteoric specimens, collection of 201
	Mildew in cotton goods
	Moon, the, is it inhabited 1 257 Neglect of rest
Blasting by compressed air 239 Box. convenient, for artists* 262	Neglect of rest
Bullaloes, fate of a herd	Notes, inter cat bearing
Cabbage worm	Paint mine, Nevada
Cable, African 254	Patents, American. recent 258
Carbur ter. new	Peanut crop, the
Castings, English vs. American. 205	Petroleum, American in Europe 262
Circle, the not squared 201	Pottery, gray
Colors, aniline	Premiums for boys
Orab spider, the great'	Soakes as pets
Diphtheria in fowis	Spectrum of Brorsen's comet 258
Dove, Heinrich W lheim 261	Spontaneous combustion
Rogine Potery, novel*	State, a thriving
Exhibition, N. Y., site of the 236 Exhibition, Paris, reports on the. 264	Steamboat smaller than "Nina". 261
Exhibition, Paris reports on the. 264	Swine in the United States 260
Exhibitions, Australian	Tables turned, the 261
Explosive, now 259	Telephone, a., 28 years ago 261
Felence and its manufacture* 255	Telephone, elecchem, Edison's 200
Fences, sod	Textile industries of Finland 264
Forments, sizes of 259	Wood, unconsidered uses of 263
Fires, possible cause of 285	1

#### TABLE OF CONTENTS OF THE SCIENTIFIC AMERICAN SUPPLEMENT No. 178,

#### For the Week ending April 26, 1879. Price 10 cents. For sale by all newsdealers.

- I. ENGINEERING AND MECHANICS. -Roman's Hand Car. 1 figure. The Ohio River Bargue System. Iron and Steel at Furth. Report of Mr. J. D. MOWELL, Assistant Commissioner to the Paris Erhibition. The Atlantic and Pacitic Interoceanic Canal. A review of the vari-ous routes proposed, with estimates of cost By FREDERICK M. KEL-
- II. TECHNOLOGY.-Steel Welding. By SERGIUS KERN, M. E., St. TEGHNOLOGY.—Steel Welding. By SERGIUS LERN, M. D., C., Petersburg. Milling Machinery at the Paris Exhibition. 4 figures. Victor Flour Dressing Machine, Pin's Grain Cutter. Wilhelm's Grain Cutter. Silk Culture in the United States. Extracts from Professor Biley's Manual prepared for the Ucpartment of Agriculture. Clean Photo-Plates. F. A. Bridge's method of cleaning used plates. Lantern Slides and Transparencies. How to make and mount them. Proparation of Sulplate of Indigo. By M. VAN LAEB. Description of methods employed in France. Improved Cotton Stretchers. 1 fours. Messrs. Dobson & Barlow's Machine.
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Improved Cotton Stretchers. 1 mgure. messrs. Louson & Leanow & Machine ELECTRICITY AND ASTRONOMY.-Dr. S. M. Plush's Battery Cell. A useful modification of the Calland battery. Fabrig's New Composition for Electric Lighting. Electric Chronoxraph for Steam Boliers. For indicating at a distance the level of water in boliers. I figure. The Nebul r Theory. A lecture by Prof. Benjamin Peirce, of Har-ward, tracing the genesis of suns and planets, he relations of comete and shouting stars to other members of the solar system, the source of the sun's heat, and the heat from space. Relation of Meteorites to Comete (Continued from SUPPLEMENT No. 172).

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Amalgams. By H. Moissan.-" Garn et," the residue of the manu-Amalgams. By H. Moissan.-" Garn et," the residue of the manu-

#### THE SITE OF THE GREAT NEW YORK EXHIBITION.

The location of the buildings for the New York Exhibition of 1883 is just now the subject of much discussion. Though many conflicting interests are involved it is obvious that the question must be determined by a few paramount conditions.

Whatever local advantages may be offered by any or all of the suburban sites proposed, the single condition that the Ex- propagate the disease. It is true also that yellow fever epihibition must be easily and quickly accessible to the million demics in this country are stopped by cold weather. Yet, people on New York Island, on foot as well as by horse or steam conveyance, should compel the selection of a site on successive seasons, except in the tropics, the proof that frost the island and not above Central Park.

River front offering by far the greater advantages.

As any money contributed by the city and State should be put into a permanent building (as was done at Philadelphia), one would hesitate to pronounce yellow fever during the the chosen location must comprise, in part at least, lands suitable for permanent occupancy by public buildings, and if possible already belonging to the city.

The temporary structures must be near the permanent buildings, and in a place suitable for the wholesome housing and accommodation of vast multitudes. In all probability the sites of such buildings must also be public land, since the enterprise could not afford to pay rent, and private citizens are not likely to contribute private property for such uses without remuneration.

Where can such a situation be found? The projectors Central Park, against the invasion of which the press and the public have very forcibly protested. It is true that miles southeast of the Bermudas) fever broke out and the many fear; possibly the use of the Ball Ground and the at St. Georges, Bermuda, where there has been no yellow Green (west of the Mall) might result in no permanent cur- fever for several years. tailment of those open spaces, and no injury except to the turf, which could soon be replaced. Nevertheless any invasion of the city's too limited breathing space, even temporarily or for the most laudable purpose, should be deprean admirable setting for the Exhibition buildings; but the not suffice to stay the plague. cost would, at the least, be altogether too great.

The city has already set apart for a museum and zoological garden the sixteen-acre area bounded by 8th and 9th avenues and 78th and 81st streets, and known as Manhattan as it goes, the best planned museum building in the world. The money contributed for a permanent building by the city and State of New York could be used in completing the central cross of this museum building. The rest of the plan might be developed as one story temporary buildings, giving, with the main building, 16 acres of exhibition space. Temporary structures covering 40 or 50 acres more will be required for the purposes of the Exhibition.

Instead of going into the park for sites for these buildings why could not the city utilize therefor the now unused roadways between Manhattan Square and the river, comprising four broad avenues intersected by cross streets at right angles, all as yet unoccupied, and all graded, paved, lighted, and drained by the city at enormous cost? A more convenient and wholesome situation for a great fair could not be found. The river front would accommodate all the shipping of the Atlantic coast. The Hudson River Railway and the two elevated roads traverse the region already, and could easily be made to furnish quick and comfortable conveyance for 300,000 visitors a day, in addition to the almost limitless facilities afforded by the river.

would furnish an ample site for a vast building in the form two Exhibitions more widely separated in time. of a St. Andrew's cross; the junction of the Boulevard with 10th avenue another site, equally good. Between 78th and tion, the display might have been grander, though it may well 86th streets the Boulevard runs midway between 10th and be doubted whether the commercial effect would have been 11th avenues. The three avenues with the cross streets would, anywhere in this neighborhood, furnish sites for Exhibition buildings surpassing in magnitude any ever dreamed of hitherto.

The diversion of the pl asure driving on the Boulevard to reached by an exposition at the capital of the other. 9th or 11th avenue for a mile or so-the only inconvenience the Ramble.

Unfortunately, however, these confident statements involve several hypotheses which sadly lack confirmation. The germs themselves are hypothetical. We have no positive proof of their existence as living organisms; still less proof that frost kills them. It is true that an undetermined something, under favorable conditions not wholly understood, suffices to while the fever is not apt to rage in any locality during two is the arresting agent, and that it is able to put an end to the Accessibility by water from the surrounding cities, and disease permanently (or until it is reimported) is very far from convenience in handling materials as well as passengers, re-satisfactory. It is no uncommon thing for refugees from quire that the site chosen should be near the water; the North fever districts to return to their homes weeks after frost has set in, and then sicken and die of yellow fever. It is even asserted, on fair authority, that cases of sickness, which no summer season, have occurred repeatedly during the past winter in towns along the lower Mississippi; yet there has been no lack of severe frost in that region.

The recent outbreak of yellow fever on the United States Steamer Plymouth, after spending the winter at Boston, and being subjected to freezing and fumigation, complicates the matter still more. The Plymouth came to Boston last fall, from a cruise among the West Indies, with yellow fever on board. The vessel was free from the disease during the winter; and if there is any truth in the theory that frost is fatal to yellow fever, no cases should have occurred on that vessel of the Exhibition have pitched upon the lower part of without reinfection. Yet as soon as the steamer, which left Boston March 15, had arrived in southern waters (about 300 the necessary damage to the park might not be so great as steamer was forced to return. But one stop had been made

If the infection of yellow fever can withstand the winter climate of Boston, why should it not that of Memphis or New Orleans? If it can, the importation of the disease is not necessary to start an epidemic next summer, in which cated. From an artistic point of view the park would make case the most thorough refrigeration of incoming vessels will

There is another objection to the spending of so much money on an experimental vessel. If refrigeration should prove adequate for the disinfection of yellow fever ships, one refrigerating vessel will scarcely begin to do the work re-Square. The plan of a magnificent structure there has quired in all our southern ports; twenty would be none too already been perfected, and one wing built, making, so far | many. And why should a special steel ship be constructed to carry the simple apparatus needed for the production of cold? Any existing river steamer or fair sized tugboat would suffice for that purpose; and the \$200,000 appropriated would fit up and charter a large number of such small ves sels, each provided with all the machinery needed to refrigerate the hold of any vessel, should the experiment sustain the projector's theory. While two hundred thousand, or two hundred million, dollars would not be too much to pay for preventing an epidemic of yellow fever next summer, it is altogether too much to pay for an experiment which could be made for a tenth of the money, especially when there is a possibility that the wasted funds may be sorely needed in the practical application of the methods, the efficiency of which the experiment is expected to confirm.

#### THE AUSTRALIAN EXHIBITIONS,

The occurrence of two great Exhibitions in Australia, within a year of each other, is in some respects unfortunate; yet it may prove an advantage to exhibitors from this country and Europe, since it will be comparatively easy to transfer exhibits from the one to the other, and thus save The crossing of 9th avenue by the Boulevard at 64th street the double ocean transit that would be required were the Had Victoria and New South Wales united in a common exhibiso valuable. It must be remembered that Sydney and Melbourne are capitals of states together as large as France and Germany, and soon to be as populous; and in the absence of means of communication but few in either colony would be

Though the smaller city, Sydney, has boldly taken the lead likely to accrue from the temporary occupation of the streets in inviting the world to compete for her trade, and will named by Exhibition buildings-would be as nothing com- open the first world's fair south of the equator in September pared with the evils and inconveniences sure to attend an in- next, Melbourne follows in October, 1880. Like every vasion of Central Park. And the absence of immediate park other public work in New South Wales, the Sydney Exhibisurroundings to the buildings would be no serious objection i tion is a government undertaking, and a large sum of money to the proposed site for the fair, since it would be but a step has been voted for carrying it out. The building is well adfrom Manhattan Square into the park opposite the Lake and vanced, and France and England haveasked for more space than can be allowed. For American exhibitors there has The streets proposed to be occupied are of ample width for been reserved 30,000 square feet on the floor of the main Exhibition buildings; the Boulevard is 150 feet wide, the building, and half as much more for machinery. Already a considerable quantity of exhibits has been shipped from this port, and there is reason to hope that the United States will be creditably represented. It is proper to add that, with the exception of freightage, exhibitors will have no charges or commissions of any sort to pay. The space provided is free.

A margams. By H. MOISSAN.—"Garo et." the residue of the manu-facture of Magnuta. By JOUSSET DE BELLESNAE. Japanese Lacquer. A communication to the Manchester Literary and Philosophical Society. detailing the results of a chemi 1 examination of Japanese acquer or "Urushi." made in the laboratory of Tokio University. Japan. Philosophical Society of Glasgow. Report on papers read before the Chemical Network of the Solar Nay. Ingure. A paperread by Dr. Leeds before the American Chemi-cal Society. The Tenacity of Starch. By GRORGE WHEWELL, F.I.C., Construction of the Solar Society of Start Solar The Solar Chemical Society.

Analysis and Apparatus. Paper by J. W. THOMAS, Chemical ty, London. Brown's Centrifucal Apparatus for Paritying Gases. Society

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Society, London. Brown's Centritural Apparatus for Paritying Gases. A figures. Hadiation of Incandescent Platinum.-By VIOLUE. ARCHABOLOGY, GEOLOGY, NATURAL HISTORY.-Archaeological Explorations in Eas Tennessee. By F. W. PUTNAM (continued from No. 172), 16 figures The Geology of Coal. A lecture by Professor (REEN, of the York-shire (Eng.) College of Science. Reviews the evidence as to the origin of coal from vegetable matter, and the conditions under which coal beds originated. The Hobbin The habits and characteristics of a pet robin described by M. Sould The habits and characteristics of a pet robin described

of coal from vegetable batter, and the onditions under which coal beds originated.
The habits and characteristics of a pet robin described by Mary E. HOLMES.
A New Enemy of the Grapevine, 4 figures. The life history of Ino proorts ampelophaga, the moth which lately invaded the vineyards of Austria and thurgary.
The Anatomy of the Male Chimpansee.
Culture of the Calla Lip.-Plants of Ancient Exypt.
Italian Precautions against the Phylloxera.
Y. MST Eloo CY.-The New Observatory on the Pic dn Midl. of the Prenees. Fig. 1, view of the observatory on the Batometer and of the Magnetic Needle. An abstract of a paper presented at the February Meeting of the Kansas City Academy of Science, by Prof. JOHN D. PARKEE.
Y. MST ARKEE. How to prevent and citre bailance.

avenues 100 feet, and the cross streets from 60 to 100 feet.

#### FROST AND YELLOW FEVER.

On the theory that yellow fever is propagated by germs which cannot withstand a freezing temperature, the United States Senate has passed a bill appropriating \$200,000 for

the construction of a steel refrigerating ship to disinfect the holds and cargoes of vessels coming from infected ports.

The projectors of this plan of disinfection claim that no mere experiment is contemplated. The project, they say, is sure to succeed, since artificial refrigeration is a simple and well established process, and it is certain that yellow fever germs cannot withstand frost; accordingly it is perfectly feasible to freeze out any possible yellow fever infection that vessels from the tropics may bring to our shores.

The foundation of the Melbourne Exhibition was laid February 19. The building is to stand in the center of a large public park-Carlton Gardens-on the highest land in the city, and is to cover seven acres; the whole Exhibition will occupy about twenty acres. The cost of the buildings and all expenses incidental to the Exhibition will be defrayed out of funds voted by the Victoria Parliament. Applications for space should be made not later than June 30 next. There will be no charge for exhibition space. American manufac-