The Mosque in the Champ de Mars, Paris.

On the preceding page is a large engraving of one of the many structures erected in the grounds of the Exposition, representing the peculiarities of architecture of the different nations. This feature of the exhibition is not the least interesting of the grand display. The engraving herewith presented is one of a number we have procured from Paris, representing scenes in the Exhibition, which we shall publish from time to time. We give a translation of the description of the mosque from *L'Exposition Universelle Illustrée*,

The name mosque is derived from the Arab word *mesdchid* (place of prayer), through the intermediate Italian word *moschea*. The most characteristic details of these edifices are the domes that surmount them as well as the towers decorated with crescents at their tops, known as minarets, and from whose hights a crier, the *muezzin*, calls the "faithful" to prayer. The mosques are generally of square form, in front of them there is ordinarily a courtyard furnished with all that is necessary for ablution—which forms such an important part of the worship of Islam. The interior is simply ornamented with arabesques entwined with verses from the Koran. The most rigid Mussulmen utterly proscribe the representation of any object, animate or inanimate, and their priests instruct them that at the last judgment the figures delineated by designers, artists, or sculptors will come and demand of their authors to give them a soul under penalty of perdition. The ground floor of the mosque is covered with carpet and mats; as in Spanish countries one never finds any seats. At the southeastern part of the edifice a pulpit is raised for the priest, and the devout "faithful" should always turn their eyes in the direction of Mecca—which is indicated by a kind of niche. Mussulmen alone may enter the mosque; yet frequently in Turkey, Algiers, and the East Indies this rule is daily infringed, but of course not as often as is ventured on in the *Champ de Mars*.

Adjoining each mosque are a number of charitable establishments, such as schools, hospitals and kitchens for the poor. The expenses of worship and almsgiving are covered by the revenue from real estate that for this object is exempt from taxation.

The mosque of the *Champ de Mars* is simply an imitation on a small scale of the "Green" Mosque of Brusa. All the details of ornamentation have been copied with the most scrupulous care from those of the above named edifice. As to the proportions, they have been rigorously followed from principles adopted for the design of the monument called *Yéchil Turbé*—constructed at the same date as the Mosque of Brusa by the Sultan Mohamed I., one of the Ottoman sovereigns who, following the example of his predecessors Mourad and Bajezet, has largely contributed by his numerous pious endowments to constitute Turkish art—which is much more architectural than ornate.

In conformity with the usual custom, the plan of the Mosque of the Champ de Mars is square. The edifice is surmounted by a dome, supported by lozenge-shaped arches, thus uniting the circular portion to the square base. Preceding the principal hall is a vestibule for the purpose of receiving the shoes of the faithful—for with naked feet alone may they enter the holy place. The pavilion, situated on the right, and at an angle with the façade, contains the fountain (zibil), and in the corresponding one on the left, near the Minaret, are placed clocks to indicate the hours of prayer.

The minaret that surmounts the Mosque of the Champs de Mars gives but a feeble idea of that of the Mosque of Brusa, which towers 220 feet above the city and adjoining country.

In the interior of the principal hall you see the *mihrab*, near which they turn to worship, and the *miraber*, where the priest reads in a loud voice the verses of the Koran. The walls are covered with inscriptions, but can receive no images or other material objects.

The mosques are, in all Oriental countries, supported by the special endowments of private benevolence; consequently they are very varied in their proportions, as well as in the splendor of their ornamentation, thus following the fortunes of their founders.

Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents.

Mississippi Levees--Views of an Old Planter.

Messrs. Editors:—I have noticed in your issue, No. 14, an article on the subject of the Mississippi levees, by Mr. Berry, of Port Gibson. The subject is one that has been considerably agitated of late, in numerous contributions to our local papers; and the discussions were to the address of our citizens who were, by their knowledge of localities, the best judges of their merits. When they coutained sound views they were heeded, and, when preposterous or absurd, they were suffered to drift into oblivion. But when a contributor undertakes to enlighten the outside world, through the columns of a distant paper, and one calculated to exercise so much influence as the Scientific American, it becomes important to refute the errors which he may have committed. His argument is to the address of Congress, before which the question of the construction of levees on the Mississippi will be brought up again, and who will very naturally look for information to such persons as a "thirty years'" resident on the banks of the river, and an owner of lands. I hope, therefore, you will indulge a resident and planter of more than thirty years in stating the conclusions to which he had arrived from actual observations, and to suggest the manner in which the work should be done.

1st, Regarding the outlets to be given to the river above the Balize. The principal one now existing is the Atchafalaya, below the mouth of Red River, which discharges a large volume of water. It has been on the increase for a number of years, and seems to promise in time to take all the waters of Red River. The old inhabitants say that the fords in it have disappeared. The only other one existing is Bayou Lafourche, about two hundred feet wide, by twenty-five feet deep; but the current is not rapid, and it will probably not increase in size on account of its filling up about fifty miles below. The Bayou Plaquemine was about double the size, but it has been stopped up lately, as well as the Manchac, a long time ago. The effect of the stopping up of Bayou Plaquemine was to reclaim from inundation thousands of acres of land of first quality. No doubt it was for a similar object that the Manchac was closed. The opening, if made now, would necessitate leveeing on both sides, a distance of about a hundred miles, to prevent the inundation of a large amount of land now in cultivation. Beside, the effects of such an outlet would be disastrous to some of the best interests of the State, and of New Orleans. It would destroy the fish and oysters from which the city is now supplied; it would change the watering places from salt to fresh water: it would, in a short time, cause a deposit of sand and mud, injuring or preventing the navigation of Lake Pontchartrain, which is now the means of transit of a large trade, and of the products of the forest, such as lumber, pine wood, bricks, sand, tar, rosin, etc.; and all this to economise a few feet of levee. This would be the only possible outlet of the river on the east. On the west it would be equally disastrous, by drowning out the richest portion of the State in sugar lands, and it would be impossible to levee such an outlet, because it would run through an innumerable number of lakes and bayous forming a connected network from the entrance of the Atchafalaya to the sea shore, from fifty to one hundred miles in width.

Mr. Berry takes it for granted that contracting the banks of the river would have the effect of filling up the bed, which would require the levees to be made higher every year, until they would come to the hight of 100 feet, and threaten drear destruction to all the country around. The picture that he draws is perfectly appalling. But I beg leave to differ in opinion with him. It is probable that if the outlets were closed, and the river contracted and kept within its banks by levees, that the water would rise higher; but let us see how much by adding up the amount of the outlets, including Bayou Plaquemine. Bayou Lafourche, 5,000 square feet; Plaquemine, 10,000; the Atchafalaya, 40,000, or an aggregate of 55,000. Supposing the river to average one mile in width, it would be equal to a rise of nine feet (and this is an extreme case that could never occur), can it be doubted that the acceleration in the current would wash out the bottom, and make it deeper, instead of filling it up? An example in point, of the effect of the current in washing out the bottom, is what is seen yearly in Red River. Above Alexandria the river spreads into many lakes and a network of bayous, but at this point the waters are all united into one channel, because of a range of hills here crossing the river and forming what is called a fall. The water here rises to a hight of thirty feet. The rise in the river, as well as the fall, are very sudden, occurring in the space of eight or ten days. After a fall the old bed is filled up by a deposit of coarse sand, so that there is a depth of only two feet of water after the fall; but in a few days the channel is again cut out by the action of the current to a depth of eight or ten feet. I believe this law to be universal in rivers carrying much sand, and I see no reason why it should not apply to the Mississippi. And what is nine feet for the Mississippi when compared to thirty feet for Red River? In the latter is verified the fact that the current is not rapid in the bottom; but would a rise of nine feet in the Mississippi be sufficient to prevent a current in the bottom? But if the rule be that stopping outlets would cause a rise, it must not be taken for granted that the rule will work both ways. If outlets were made additional of equal capacity, it would not cause a fall of nine feet below the actual stage, nor approaching it. I have seen large breaks in the levee of a mile, where there was a high levee, through which the water flowed in a torrent, taking probably one third of the stream; the fall above was not more than from three to five feet a few miles up, and still less below.

But there is no necessity of contracting the banks of the Mississippi. The land is nearly level, with but a slight inclination from the river. Removing the levees further from the banks would be equivalent to an outlet of the same dimensions. And this plan would have a great advantage in this, that in a few years a deposit would take place between the bank of the river and the levee, and in many places I have seen it nearly as high as the levee, thereby diminishing considerably the risk of the levee giving way by the pressure of the water, and facilitating its stoppage in case it should break by accident. I say by accident, because with proper care and diligence a levee ought never to break. The causes of breaking in general are threefold: 1st, Crawfish holes from the water line to the land side, which gradually wash away a large excavation; they should be stopped on the water side. 2d, Washing away by the current when the levee is badly made. 3d, By caving, when made too near the edge where there is deep water. The usual way in which levees are made by contractors and incompetent superintendents is to pile up the dirt with wheel barrows, and for which the pay is so much per cubic yard. Levees made in this way will slide down with their own weight as soon as they are wet; example, what happened this last year for Grand Levee off Pointe Coupee. But the right way is to pack every alternate layer of about one foot in thickness by running over it with a horse and cart or with oxen. A levee made in this way with a proper base (about three feet for every perpendicular foot), is sure to be tight, and will perfectly well resist any pressure of water and the washing of the current, without any brick wall or wooden palisades. The present system requires to be changed radically wherever there is a bend, liable to be washed away or to cave. The levees are now generally too near the water. As for year after year they have been removed further back, it happens that in many places they have come up very close to buildings and valuable improvements, which has been the consideration for not placing them far enough.

It should be observed that in all streams the line of the current is longer than one running in the middle of the stream. The current in leaving a point strikes the bend on the opposite side, a mile or so below, from the next point the next bend, and so on alternately. So that the bends are always cutting away by abrasion, and, consequently, the river tending to get more crooked. This is exemplified in the many cut-offs which take place by a bend cutting a way across a peninsula; and generally the old bed fills up by a deposit of sand.

I know many old levees standing undisturbed for fifty years, not more than three or four feet high, some distance above the city of New Orleans; and actual measurements made at a distance of time of fifty years (the last made by Mr. Ellet, U. S. Survey) show no difference in the width, depth, or hight of the river, notwithstanding all the levees that have been above in that time.

Mr. Berry admits that it is a law of all flowing streams to cut out a channel, but, "in a state of nature," before the water shed is divided by cultivation. This is very true to a certain extent, but very far from being universal. The law does not apply to streams like the Mississippi, the Missouri, and Red River, which flow in valleys of alluvion, where their beds are perpetually changing, not according to any known rule or law, but seemingly by mere caprice. Those streams bear large quantities of sand and mud in flowing through virgin countries where there is no cultivation. He refers to the levee system in Europe, "which demonstrates the fact that levees must be made higher and higher every year, until they will become several hundred feet higher than the original banks of the river!" It would be better to cite localities and examples. I have seen it stated somewhere, but I cannot vouch for the truth of it, and it is the only example that I know, that the bed of the river Po, in Italy, was raised higher than the adjoining lands by the effect of levees. The system there was probably commenced before the time of the Romans, and it happens to be a mountain stream, a perfect torrent, carrying heavy pebbles. Would it be fair to say that the same effects would occur for the Mississippi in our time?

No doubt, before the war, the planters were always in dread behind their levees. Why? Only because they were badly made. Without the war, I have no doubt they would be perfect now. But the work has become impossible by the planters, because they have been impoverished and deprived of the means of controlling labor to effect the work. A work of such magnitude, and essential to the interests of several States, is really a national work, and in justice should be made by the Government, especially when in some instances the levees were destroyed by the Government. I have worked in stopping crevasses or breaks in the levee, where I controlled the labor of six hundred men, above or in the foaming waters, day and night. It could not be done now, for love nor money. I think Mr. Berry's philosophical remedy rather an unfortunate one, *no es ben trovato*, suggesting deep cultivation, two to three feet, to absorb the excess of waters. He does not inform us where this excess of waters will go, except by evaporation; and, for my part, I think they must ultimately go to the river. He does not suppose that all the land is to be cultivated—hills, valleys, swamps, rocks, mountains, and all; from these places the water must certainly go to the river. So that the hope of relief, which he holds forth by rendering the waters of the Mississippi controllable by man, seems an illusion.

As to the question of canals for navigation, in connection with the outlets proposed, they are not wanted. There are natural ones enough, and some to spare; and the railroad is better and cheaper to make.

New Orleans, La. J. C. Delavigne.

Beam Engines Sticking on their Centers.

Messrs. Editors:—In your issue of October 5th, I noticed a quotation from "Engineering," criticising "American Beam" or single cylinder marine engines, with reference to their liability to being caught on their centers; also editorial remarks, closing as follows: "The invention alluded to is intended only for infrequent contingencies."

Being acquainted with the performance of the engines of the Pacific Mail Steamship Company—the finest of this class—as also with the object of the invention alluded to, a few words of explanation may not be out of place.

While the valves of these engines are worked by the eccentrics, or, in technical terms, "hooked on," no assistance is ever required is passing the centers; this is shown by the steamers' logs. But while moving in port, or working at the dock, with the eccentrics unhooked, and the valves worked by hand—so as to stop or reverse on the instant—they are liable to be caught. This danger increases with the size of the engine, or lack of skill on the part of the engineer working the valves. Occasionally there are causes over which the engineer has no control, as in working our ferry boats through ice which obstructs the wheel floats, stopping the engine at the point of least power.

While this invention of Messrs. Vanderbilt & Sims is at hand in any case of emergency, it is more especially designed for use in port, and to push the engine off the center after it has been placed there for adjustment, that being the only point at which the engine can be properly adjusted and "keyed up."

The use of these hydraulic jacks will prevent such serious

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THE TURKISH MOSQUE IN THE PARIS EXPOSITION.—[See Next Page.]