words, "*a mutual improvement society.*" This valuable object is, no doubt, largely obtained by bringing the results of industry before public attention, for inspection and competition. Such occasions awaken thought and interest, inspire men with higher aims, and more powerful motives to improvement. Periodical meetings during the remainder of the year, especially the comparatively leisure season to farmers—the winter—would more effectually sustain and direct these impulses into fresh and practical channels. In this way the alleged sluggishness of the agricultural mind would be quickened, practical men would compare notes, and each would inspirit and improve the other by the mutual interchange of thought and the teachings of experience. Thus the foundations of agricultural knowledge would become broader and deeper, popular fallacies corrected, a pleasing social interest strengthened, a taste for reading and observation elicited, and the proffered aids of science with increased earnestness invoked. I am not aware to what extent "Farmers' Clubs," as they are termed, exist in this country;—the one in the city of New York has for many years had a wide reputation; and I have felt much pleasure and derived considerable profit from reading the reports of meetings for discussion during the exhibition-week of your Society, and also of its winter meetings in Albany. If the smaller societies in the country would generally follow out this principle, a fresh and most salutary impulse would be given to agriculture, and young men engaged in the pursuit would take a greater and more rational interest in its advancement, and better prepare themselves for the discharge of the public duties of life."

THE MAMMOTH SUSPENSION BRIDGE
Between New York and Brooklyn.

As our readers are probably aware, it is designed to build a grand suspension bridge to connect New York and Brooklyn: in fact, the work has already been commenced. This bridge will far exceed anything of the kind ever attempted, and its successful construction will put it in the same rank with the Menai tubular bridge, the Victoria bridge at Montreal, and the Niagara Railway suspension bridge,—if, indeed, it does not top the list of wonderful bridges. The design was conceived by the late John A. Roebling, who constructed the Niagara and Cincinnati suspension bridges, and its execution has been entrusted to his son.

We glean the following particulars respecting this great undertaking from our valued contemporary *The Manufacturer and Builder:*

The bridge is to be supported by four cables, resting on two piers situated on the shores. These piers are to be 1,620 feet apart, and 280 feet high, and the bridge-bed will rest 130 feet above tide-water, thus offering no impediment to navigation. The cables will consist of parallel steel wire, and will be nearly one foot in thickness. They will be anchored in solid masonry, 1,337 feet from the pier on the New York side, and 837 feet from that on the Brooklyn side. Thus the real span will be 3,794 feet in length; and the approaches beyond these points will be of arched masonry, thrown, like the half-spans between anchorage and piers, over streets and houses. These approaches will commence at the City Hall Park, in New York, and at the junction of Fulton and Sands streets in Brooklyn, and although rising but three and a-half feet to one hundred, will offer small obstruction to street travel.

Naturally, the piers must be capable of withstanding an immense strain. Their base at water-line is to be 134 feet long by 56 feet wide, and the heaviest masonry is to be employed in their construction. Each will contain over 900,000 cubic feet of granite, and will weigh over 70,000 tons. In each pier there will be two arches, for entrances to the bridge, and each archway will be 32 feet wide, giving passage to a railroad track, a carriage-way, and a sidewalk. The bridge will weigh 3,600 tons, and it is thought this will be increased by transitory weight of trains, carriages, horses, etc., to little less than 5,000 tons. To insure complete safety, therefore, the foundation of each pier will number 17,000 square feet of surface, upon which the pressure will be only about four tons per square foot.

A proper foundation for these massive piers is of the greatest moment. Labor upon the Brooklyn side was begun in January last, and has since been continued, dredging machines being employed preparatory to sinking the colossal caisson which has been built at Greenpoint. This will be floated into position at high tide. The caisson, necessary because the Brooklyn shore presents no rock-basis, is constructed of white pine timbers a foot square, the seams tarred to render them water tight, and a sheathing of tin between two of felt placed between the outside layers of timber, to make the whole air tight. It is 163 feet long by 102 feet wide on the outside, and 15 feet high. The sides are wedge-shaped, the lower edge being eight inches, and the upper something over eight feet, in thickness, and the roof resting on these sides is five feet thick, leaving a working chamber nine feet in height. All the timbers are bolted together with one and a-quarter inch bolts, varying from two to seven feet in length, and the structure is made as firm as possible in every way.

Six shafts, lined with boiler iron, pass through the roof of the caisson, in which the water therein collected will rise to the height of the tide outside. Two other shafts will allow the passage of workmen, and the removal of earth from within. Air-pumps will force air into the caisson through air-shafts, expelling the water, and enabling laborers to work upon the bottom. As fast as these excavate the earth, they will deposit it around the shafts, through which a dredging machine will lift it and dump it into scows.