## Scientific American

## PROGRESS OF THE LOUISIANA PURCHASE EXPOSITION.

With but eight months more still to elapse before its opening day, the Louisiana Purchase Exposition can point to a more satisfactory record of accomplishment than ever before rewarded the efforts of world's fair builders. It is stated that the co-operation and official participation of more national governments than ever before took part in a universal exposition have been secured. The fair site of 1,240 acres is quite ample for the requirements of so vast an undertaking.

Five of the great exhibit palaces are now practically completed. The others, according to contract, must be finished within the year. So far advanced is the gigantic work of construction that it may be questioned if a single contractor will be found wanting when his contract time has expired. Even months before the opening day, the Exposition will be ready for at least a private inspection.

It has been said that the site of the Exposition grounds covers a space of 1,240 acres. This includes 60 acres recently leased. By this addition, the grounds have assumed the shape of a parallelogram, about a mile wide and nearly two miles long. As the result

of this acquisition, a much more satisfactory arrangement of the terminal problem, the intramural railway s c h e m e, gateway locations, and various other important matters that have been awaiting this consummation of the company's original plans, has been definitely decided upon.

The illustrations which are herewith presented tell better than words something of the architectural beauty of the Exposition. The staff work is probably the most exquisite that has ever been seen at a world's fair. The pictures representing one of the towers of the Varied Industries Palace, as well as a corner entrance to the same structure, admirably s h o w something of the architectural refinements which will add to the charm of the Exposition. The work of the Electricity and Machinery palaces is likewise distinguished by the beauty of the staff work.

How imposing this long line of beautiful buildings must be can well be gathered from the illustration, which was

taken at a point looking east along the main transverse avenue from the roof of the Varied Industries Palace. To the right may be seen the north façade of the Electricity Palace, the Education Palace with its magnificent colonnade, and the globe and obelisk of the Palace of Mines and Metallurgy in the distance. To the left appear the south façade of the Varied Industries Palace and the Manufactures' and Liberal Arts palaces. In the great central space between these two files of structures are lagoons with terraces and borders of asphalt roadway.

No exposition has been more lavishly provided with sculpture in staff and bronze. Of the half-million dollars' worth of sculpture on the ground, one-fifth will represent material to remain forever on the permanent Art Palace. This work includes "Sculpture," by Daniel Chester French; "Painting," by Louis St. Gaudens; six figures, each by a different sculptor, representing art at various periods of human development; "Truth," by Philip Martini; "Nature," by Charles Grafly; "Inspiration," by Andrew O'Connor. All these will be marbles. Two griffins in hammered copper by Phinister Proctor, and twenty-two portrait madallions in white limestone to form a frieze under the cornice will complete the permanent decorations of the Art Palace.

Every building on the grounds has received an allotment of sculpture as plentiful as this. As these sculptures are, however, in plaster instead of in bronze, they will be less expensive. All the architects have made provision in pediments and tympani, in spandrels over archways, on towering constructions, etc., for sculptural decoration. In the case of each building the sculptures will be symbolical of the exhibits which the structures will shelter.

The avenues of the Exposition, especially the central, 600-foot main avenue, will receive elaborate sculptural ornamentation. At the northern end of the main avenue will be a colossal group entitled "The Apotheosis of St. Louis," an equestrian statue by Charles H. Niehaus, of which the principal figure is the King of France, after whom the city of St. Louis is named. On the same axis with this group is the towering "Louisiana Purchase Monument", by Karl Bitter, which stands at the northern end of the main basin. Continuing, this axis passes through the center of the central cascade. All the boat landings in the main avenue are dressed out with animal groups. Four colossal animal groups by Solon H. Borglum, which will ornament the landing at the base of the Louisiana Purchase Monument, have passed the

## FROM CRUISER TO RACING MACHINE.

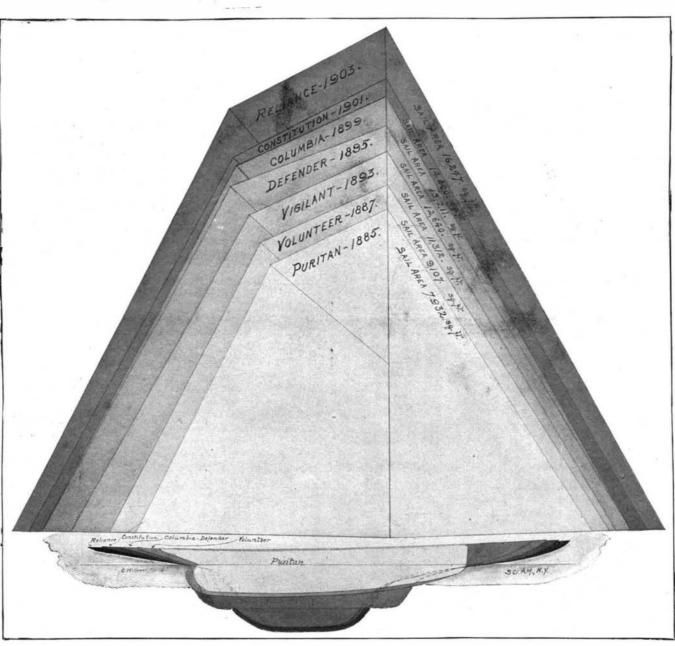
It is a curious fact that in the selfsame year in which the New York Yacht Club has adopted a new rule of measurement, designed to kill the racing freak and bring about a return to the wholesome, seaworthy, and comfortable yachts of fifteen years ago, the boat which they have built to defend the cup embodies in the most exaggerated degree all those undesirable features at which the new rule is aimed. It is also another curious fact that the challenging yacht conforms so much more closely to the new rule that if "Reliance" and "Shamrock III." were to be measured under this rule for the forthcoming races, the challenger would receive such a large time allowance that the return of the cup to the land of its nativity would be a foregone conclusion.

What might be called the scientific period of yacht designing in this country begins at about the period of the races of "Puritan" against "Genesta," in 1885. The growth to the exaggerated proportions of hull and sail plan shown in our accompanying diagram, is the logical and inevitable outcome of a rule of measurement altogether too broad and loose in its specifications. The only elements taxed in this rule are length on the water-line when on an even keel, and

total sail area. To the competing designers the rule has said, "When your yachts are placed under the measurer's tape, if 90-footers they must not be over 90 feet long on the water-line, or if 70-footers not over 70 feet. If you choose to make them a little less than these lengths, their rating will be diminished accordingly. Outside of this restriction you may do just anything you please in modeling vour hulls. The v may be built of any material; they may be broad or narrow, shallow or deep; light and leakable as a wicker basket, or tight and heavy as an ironclad. As to the spread of sail, you may crack on just as much as you please; always with the understanding, however, that the more you carry the greater will be your racing measurement."

Now at the time of the "Puritan"-"Genesta" races, our yacht designers were beginning to emerge from the rule-of-thumb methods that characterized the days of the centerboard sloop and schooner, and were

beginning, thanks to the victorious career of one or two imported deep-keel English cutters, to appreciate the value of outside lead as an element of sail-carrying power. Hence, the "Puritan" carried a large proportion of her 48 tons of lead ballast on the keel, and although she was marked by the shoalness of body and limited draft of the prevailing centerboard type, she was an extremely able sea boat, fast and comfortable, a wooden vessel of first-class construction, with a reasonable spread of sail which she was well able to carry in a blow, as was proved in that memorable race of twenty miles to leeward and back in half a gale of wind in which she won by a narrow margin over "Genesta." At the close of her racing career "Puritan" was changed from sloop to schooner-rig. and to-day she is doing service as a snug and comfortable cruiser. "Mayflower," the next cup defender, was an improved "Puritan," with 5 feet more length on the water-line and 8,824 square feet of sail; she was built of wood, and subsequently to her defense of the cup, she was turned into a comfortable cruiser. Her sail area is so nearly the same as that of her successor "Volunteer" that to avoid crowding our drawing her sail plan does not appear. "Volunteer" was designed by Burgess, the designer of "Puritan" and "Mayflower." She was the first of our large sloops



GROWTH OF THE AMERICAN CUP DEFENDER FROM CRUISER TO RACING MACHINE,

sketch stage. The architectural lines of all these monuments are designed by E. L. Masqueray, Chief of Design of the Exposition. The sculptor follows and carries out these lines in his figures and groups.

The climax of the sculpture is reached in the Cascade Garden and the Terrace of States. The three big cascades are masses of sculpture composed in obedience to a chaste architectural design. The main cascade, picturesquely named "Liberty Fountain," will be done by H. A. McNeil; the side cascades, symbolical respectively of the Atlantic and the Pacific oceans, will be done by Isidore Konti.

The Colonnade of States, the ribbon which ties together the three fine units of the composition, forms a frame for fourteen giant seated female figures, each symbolical of one of the States and Territories which have been carved out of the Louisiana Territory. The sculptors of these symbolical figures are all young men who have not yet achieved great reputations in their profession, but who, from their education and training, promise much.

Of the 250 sculptures that will hold a place in the Exposition, about thirty are portrait figures of inventors, discoverers, pioneers and explorers who have helped toward the development of the Louisiana Purchase Territory.