

## SCIENCE:

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The World's Fair.			

OF THE PROGRESS toward the World's Fair of 1892, we have to report this week the first meeting of the finance committee. Of the twenty-five appointed on the committee by Mayor Grant, seventeen responded to their names on the call of the roll. These were William L. Bull, Calvin S. Brice, August Belmont, Samuel D. Babcock, Robert Dunlap, Henry B. Hyde, John H. Inman, Frederick A. Kursheedt, Jay Gould, Eugene Kelly, John McKesson, Hermann Oelrichs, William Rockefeller, Charles Stewart Smith, William Steinway, J. Edward Simmons, Jesse Seligman, Oswald Ottendorfer, the absentees being C. P. Huntington, H. O. Havemeyer, Morris K. Jesup, Ogden Mills, Joseph J. O'Donohue, Elliott F. Shepard, and Cornelius Vanderbilt. The last named sent a telegram expressing regret at his inability to attend the meeting, pledging his endorsement in any action taken, and promising to take a hand in the enterprise as early as possible. A motion by Mr. Bull to add the name of Mr. J. Pierpont Morgan was promptly carried. Mr. Babcock was elected chairman by a unanimous vote. He expressed the hope that the committee would be harmonious in its action, as had been the Plan and Scope Committee of the Centennial. He had been connected with that committee for eighteen months and they never had had a divided vote. The chairman suggested that the first business should be the election of a treasurer. His suggestion was promptly adopted, and J. Edward Simmons was chosen. The subject of permanent secretary was next

discussed. Secretary Wilson of the Chamber of Commerce was named by Mr. Smith and endorsed by Mr. Simmons. Mr. Belmont thought it was not well to act hastily, and believed it was of far more importance to get an executive committee of five or seven members. This committee, he said, could name a secretary, consider all the plans submitted to the Mayor, and be accountable to the general finance committee. Mr. Belmont finally made a motion for the immediate appointment of an executive committee of five by the chairman, and it was seconded by Mr. Bull. Mr. Smith withdrew his motion, and after some discussion the motion of Mr. Belmont was carried. Mr. Babcock named this executive committee: Messrs. Belmont, Morgan, Vanderbilt, Smith, Inman. On motion of Mr. Smith, Chairman Babcock and Treasurer Simmons were added to the committee. At the suggestion of Mr. Belmont, the chairmanship of the executive committee was transferred to Mr. Morgan. Mr. Belmont declared that his health would not permit him to do justice to the place. Mr. Smith offered the use of the Chamber of Commerce to the committee, and the place being convenient, it was accepted with thanks. The committee adjourned until 11 A.M. Wednesday at the Chamber of Commerce.

At the last meeting of the American Institute of Electrical Engineers it was decided to appoint a committee of fifteen to form a plan of organization for an international electrical convention to be held in this city coincident with the World's Fair of 1892. Secretary R. W. Pope was instructed to inform President Mascart of the electrical conference at Paris of this action, and to suggest that the unfinished work of the present conference be taken up at the proposed conference of 1892. The following were elected delegates to represent the institute at the Paris conference now in session: Thomas A. Edison, E. Wilbur Rice, jr., Carl Hering, Joseph Wetzler, and Nikola Tesla. All of them are now in France or on the way there. President Elihu Thompson will in a few days announce his appointments on the committee of fifteen and the work of organization will then be taken up. An invitation will be extended to all the electrical organizations of the country to participate in the proposed international conference.

## ORGANIZATION OF THE AGRICULTURAL EXPERIMENT STATIONS.

THE Office of Experiment Stations in the Department of Agriculture was established Oct. 1, 1888. The Department can aid the stations in their relations to each other, in their use of the results of research, and in their connection with the agricultural public. To be first among the stations, the department should be the servant of them all. It should exercise not dictatorship, but leadership. Its influence should be powerful in bringing the stations together and in co-ordinating their work; in making the fruits of other research and experience, past and present, at home and abroad, available to them; in prosecuting lines of pioneer research which will in a measure relieve the stations of a difficult but necessary task, and enable them to apply their energies more fully and successfully to the study of the questions which bear directly upon the practice of agriculture, and will at the same time prepare the way for the abstract inquiry which earnest station workers aspire to, but which the public have not sufficiently learned to appreciate; in collating, condensing, and distributing their results, and in helping to carry the practical outcome to the farmer in a form in which he will appreciate and use it.

It is vitally important that the highest scientific ideal be maintained, and every effort be made toward its realization. The future usefulness of the stations will depend upon what they discover of permanent value, and this must come largely from the most abstract and profound research. To forget this will be fatal. The stations must also remember that it is their office not only to experiment, but to teach; that it is their duty to gather information as well from accumulated stores as from the fields in which they are working, and to bring it not "down to the farmer," but home to him. By thus using their most honest and earnest effort to

help the farmer, they will secure from him and from the public at large the support they need for their highest work.

Unquestionably the stations ought to make practical experiments in the study of the problems before them. But in the long-run, those stations will do best that plan their work most philosophically, and the prosperity of the enterprise as a whole will be proportioned to its success in the discovering of the laws that underlie the right practice of agriculture.

In brief, the ultimate success of the stations will depend upon the discovery of principles. This is accomplished only by patient, profound, costly research, no small part of which has to do with the finding-out of the best methods of investigation of special problems. But while this work is essential, the stations are confronted with the necessity of doing what will directly and immediately help the farmer. The need and value of abstract research are not understood. To show its usefulness and help, prepare the way for the stations to prosecute it, and at the same time do some of the things that are most immediately and pressingly needed in these directions, is one of the important ways in which the department may aid the experiment station enterprise.

#### THE NEW BUILDINGS OF THE SORBONNE, PARIS.

THE people of France have never doubted the utility and necessity of the Sorbonne. During the long and splendid history of the Sorbonne, to quote from *Nature*, they have had ample experience of the value of a great teaching body in the capital; and the result is that this is one of the institutions in which men of all parties take a common pride.

So long ago as 1855 it was decided that new buildings for the Sorbonne should be erected, but the scheme was not really complete until 1881. It was then estimated that the expense would be 22,000,000 francs—a formidable enough sum, but one which caused no serious difficulty, as the city readily undertook to contribute half of it. The foundation was laid in 1885, and now a considerable part of the work is finished. This was opened on Aug. 5, in the presence of President Carnot, and the ceremonies on the occasion may be regarded as affording fresh evidence of the enthusiasm felt by educated Frenchmen for all that represents and tends to develop the highest intellectual life of the nation. Every university had been asked to send delegates elected by the students to the celebration; and the State, and the city of Paris, agreed to look upon them as their guests during the ten days of festivity in honor of science. This part of the programme was well carried out, arrangements having been made with different hotels to board and lodge the foreign visitors at the expense of the Hôtel de Ville and the Ministry of Public Instruction. Russia and Germany did not accept invitations, but the universities of Great Britain, of the Scandinavian countries, of Belgium, Holland, Greece, Switzerland, Italy, Spain, and the United States were represented. There were about 700 delegates from these countries, besides a large number who went at their own expense.

The exercises began on Sunday evening with a gala performance of "Faust" at the Opera House, which the President attended. On Monday the 5th, 3,000 persons assembled in the new amphitheatre, an immense hall adorned with frescoes. Each delegation had a standard-bearer carrying the flag of his nation, and the members of the various groups were warmly greeted by the public as they advanced to the places appointed for them. At 3 o'clock President Carnot arrived, and took his seat on the platform, surrounded by ambassadors, statesmen, and academicians. M. Ferry, as the minister who made the arrangements for the enlargement, was much cheered.

M. Gréard, rector of the Academy, made the first speech. He sketched the history of the Paris University, extolled the events of 1789, and described study as a common fatherland, which had brought together delegates from nearly all the European and American universities. M. Hermite next reviewed the mathematical teaching of the Sorbonne since 1808. M. Chautemps, President of the Municipality, vindicated democracy from the imputation of indifference to culture, and claimed credit for the body represented by him for having founded a chair of French revolution history and a chair of evolution. M. Fallières, Minister of Education, dwelt on

the efforts and sacrifices of the republic for the diffusion of culture. He referred to the moribund condition of the universities on the eve of the Revolution, and the want of cohesion between the colleges afterwards established, and eulogized the individuality now developed by the provincial universities.

#### THE MARINE CONFERENCE AT WASHINGTON.

THE following is the programme of subjects to be considered at the International Marine Conference which will meet at Washington on Oct. 16 of this year.

In General Division 1 will be considered marine signals or other means of plainly indicating the direction in which vessels are moving in fog, mist, falling snow, and thick weather, and at night; also rules for the prevention of collisions and rules of the road:—

1. Visibility, number, and position of lights to be carried by vessels, — (a) steamers under way; (b) steamers towing; (c) vessels under way, but not under command, including steamers laying cable; (d) sailing vessels under way; (e) sailing vessels towing; (f) vessels at anchor; (g) pilot vessels; (h) fishing vessels.

2. Sound signals, their character, number, range, and position of instruments, — (a) for use in fog, mist, falling snow, and thick weather as position signals; for steamers under way; for steamers towing; for sailing vessels under way; for sailing vessels towing (these signals to show the approximate course steered, if possible); for vessels at anchor; for vessels under way, but not under command, including steamers laying cable; (b) for use in all weathers as helm signals only; for steamers meeting or crossing; for steamers overtaking; for steamers backing; (c) whether helm signals shall be made compulsory or remain optional.

3. Steering and sailing rules, — (a) sailing vessels meeting, crossing, overtaking, or being overtaken by each other; (b) steamers meeting, crossing, overtaking, or being overtaken by each other; (c) sailing vessels meeting, crossing, overtaking, or being overtaken by steamers; (d) steamers meeting, crossing, overtaking, or being overtaken by sailing vessels; (e) special rules for channels and tideways where no local rules exist; (f) conflict of international rules; (g) uniform systems of commands to the helm; (h) speed of vessels in thick weather.

In General Division 2 consideration will be given to regulations to determine the seaworthiness of vessels, — (a) construction of vessels, (b) equipment of vessels, (c) discipline of crew, (d) sufficiency of crew, (e) inspection of vessels, (f) uniform certificates of inspection; in General Division 3 attention will be paid to the draught to which vessels should be restricted when loaded, and uniform maximum load mark; and in General Division 4 will be discussed uniform regulations regarding the designating and marking of vessels, — (a) position of name on vessels, (b) position of name of port of registry on vessels, (c) size of lettering, and (d) uniform system of draught marks.

In General Division 5 saving life and property from shipwreck will be considered:—

1. Saving of life and property from shipwreck at sea, — (a) duties of vessels after collision; (b) apparatus for life-saving to be carried on board ship (life-boats, life-preservers, life-rafts, pumps, and fire-extinguishing apparatus); (c) the use of oil and the necessary apparatus for its use; (d) uniform inspection as to (b) and (c).

2. Saving of life and property from shipwreck by operations from shore, — (a) organization of and methods employed by life-saving institutions; (b) the employment of drilled and disciplined crews of life-saving institutions; (c) the maintenance of a patrol upon dangerous coasts by night and during thick weather by day, for warning off vessels standing in danger, and for the early discovery of wrecks; (d) uniform means of transmitting information between stranded vessels and the shore; (e) life-boats, life-saving apparatus, and appliances.

3. Official inquiries into causes and circumstances of shipwrecks and other casualties.

In General Division 6 will come, necessary qualifications for officers and seamen, including tests for sight and color blindness, — (a) a uniform system of examination for the different grades; (b) uniform tests for visual power and color blindness; (c) general knowledge of methods employed at life-saving stations; (d) uni-