of health, which included moral restraints, alone could save it.

THE FRENCH DYE INDUSTRY[1]

THE issue of *La Nature,* April 15, contains an interesting summary of the French dyestuff industry, particular attention being paid to progress made since 1914. In 1913, 2,000 tons of dyes, of the value of seven million francs, were imported. Eighty-five per cent. came from Germany and ten per cent. from Switzerland. The balance of the consumption of 9,000 tons represented French manufacture. It is pointed out, however, that the dyestuff factories of France, of which there were four, were almost completely dependent on Germany for intermediates, the home production of which represented scarcely ten per cent. of the requirements. There were in addition German works which received intermediates or even finished dyes from Germany. The article refers to the ready adaptation of the dye works in Germany to the manufacture of munitions during the war, and does not omit to point out that, without the means of obtaining synthetic nitric acid, which the enemy had also perfected, his dye works would not have been of the slightest use to him.

The French efforts during the war are described at length. In April, 1916, the Syndicat National des Matières Colorantes was established, which had relations with the state and further arranged to take over after the war the national factories used in the manufacture of explosives. The Compagnie Nationale des Matières Colorantes et de Produits Chimiques was constituted in January, 1917, and at once set to work. Two factories rapidly grew up, the first at Nogent-les-Vierges on a semi-technical scale, and a large factory at Villers-St-Paul, with a contemplated capacity of 4,000 tons of synthetic indigo a year. This was abandoned during the German advance in 1918 and the material removed to Lyons, but it has again been set in operation, and, as a result of intensive work, the total production of the French factories had grown from 175 tons in 1919 to 765 tons in 1920. Since that time the production has decreased on account of the economic crisis, although the capacity of production is now stated to exceed 13,000 tons. With a few exceptions, dyes of all the main types are manufactured and progress is being made.

The company has two large centers of production. The Oissel Works, installed at the old national factory, with an area of 39,000 sq. m. of buildings, is connected with the main line from Paris to Rouen. The power is generated by turbo-alternators of the most modern type, each of 1,000 kilowatts. The factory is at present making intermediates, of which more than sixty are being produced, together with sulphur dyes and azo-dyes. These are produced directly from the intermediates without isolation of the latter from solution.

The second works is that at Villers-St.-Paul, with an area of 35,000 sq. m. of buildings, on the main line from Paris to Compiègne. A very modern boiler plant is installed, which when complete will consume 300 tons of coal daily. In this works are made the dyes which require special apparatus, such as indigo and alizarine, phthalic acid and basic dyes derived from it, triphenyl and diphenylmethane dyes, pyrazolone dyes, etc. Vat dyes are also made, and there are large research laboratories.

At Saint-Denis the old works has been enlarged, while a new works at Isère grew up during the war. It is stated that prices are now high owing to high costs of raw materials, and the yields could also be improved by the further efforts of the chemists, and particularly of the engineers.

[1] From *Nature.*

GOOD ROADS SCHOLARSHIP

NAMES of judges appointed to award the four years' university scholarship offered in connection with the national good roads essay contest are announced by the Highway Education Board.

The judges are: Henry C. Wallace, secretary of agriculture; George Horace Lorimer, editor of the *Saturday Evening Post,* and Dr. John Grier Hibben, president of Princeton University. The judges accepted responsibility for the award of the scholarship at the invitation of Dr. John J. Tigert, United States commissioner of education, who also is chairman of the board.

They have been supplied with copies of

fifty-four essays, representing each state, as well as the District of Columbia, the Canal Zone, the Philippines, Porto Rico, Hawaii and Alaska. Selection of the best essays, out of the thousands written in the states and territories, was made by leading educational institutions, such as a state university, or the state department of education.

It is estimated by officials of the board that at least 250,000 pupils of high school grade participated in the contest, and these fifty-four manuscripts, therefore, represent the cream of all papers presented. Essays were written on the subject, "How good roads are developing my community." In many states local prizes were given, as well as state prizes by the institutions conducting the contest.

The scholarship is given by H. S. Firestone, Akron, Ohio, a member of the Highway Education Board. It is intended to defray tuition and expenses of the student in college and is valued at not less than $4,000. The successful student, to be selected by the judges, may attend any college or university in the United States. It is expected that the judges will reach a decision in time to permit the successful boy or girl to enter college this autumn. The scholarship is given annually for the best essay on a subject pertaining to good roads.

THE ASSOCIATION OF IRON AND STEEL ENGINEERS

THE sixteenth annual convention will be held September 11 to 15, at Cleveland, Ohio. Following is the tentative program:

MONDAY, SEPTEMBER 11

9:30 A.M.

Business session—Election of officers.

2:00 P.M.

Report of Standardization Committees. F. W. Cramer, chairman.

Report of Sub-Committee on Motors. D. M. Petty, chairman.

Report of Sub-Committee on Lighting. R. G. Bauer, chairman.

Report of Sub-Committee on Control. F. W. Cramer, chairman.

Report of Sub-Committee on Cranes: "Résumé of AI&SEE Crane Code." R. S. Shoemaker, chairman.

Report of Sub-Committee on Transmission: "Investigation of Insulators for Steel Mill Service." A. R. Leavitt, chairman.

Report of Electric Development Committee. R. B. Gerhardt, chairman.

Report of Electric Furnace Committee. E. T. Moore, chairman.

Report of Safety Committee. "Safety Organization—General Safety Rules." F. A. Wiley, chairman.

TUESDAY, SEPTEMBER 12

9:30 A.M.

"Generating Station Development": D. B. Rushmore and E. Pragst.

2:00 P.M.

"Electrification of the International Nickel Company's Works for Monel Metal": F. C. Watson.

WEDNESDAY, SEPTEMBER 13

9:30 A.M.

"Steam Turbine Operation": L. W. Heller.

"Internal Combustion Engines for Power Generation in Steel Mills": D. M. Petty.

2:00 P.M.

"Judging the Combustion of Gaseous Fuels from Gas Analysis": A. G. Witting.

Topical Discussion—"Boiler Practices of 1922": J. B. Crane, E. R. Fish, Alfred Cotton, R. E. Butler, R. M. Rush and P. H. Falter.

THURSDAY, SEPTEMBER 14

9:30 A.M.

"A Review of Steel Mill Electrification": B. G. Lamme and W. Sykes.

2:00 P.M.

"Improvement in Efficiency of Electric Power Supply": Dr. C. P. Steinmetz.

7:00 P.M.

Sixteenth annual banquet.

FRIDAY, SEPTEMBER 15

9:30 A.M.

"Some Considerations in the Electrification of the Steel Plant Railroad Yard": R. B. Gerhardt.

2:00 P.M.

Inspection trips—Cleveland industrials.

SCIENTIFIC NOTES AND NEWS

THE centenary of the death of two distinguished astronomers occurred last month. William Herschel died on August 25, 1822, and Jean Baptiste Joseph Delambre on August 19.

AT the meeting of the French Association for the Advancement of Science, held at Montpellier from July 24 to 29, M. Mangin, director