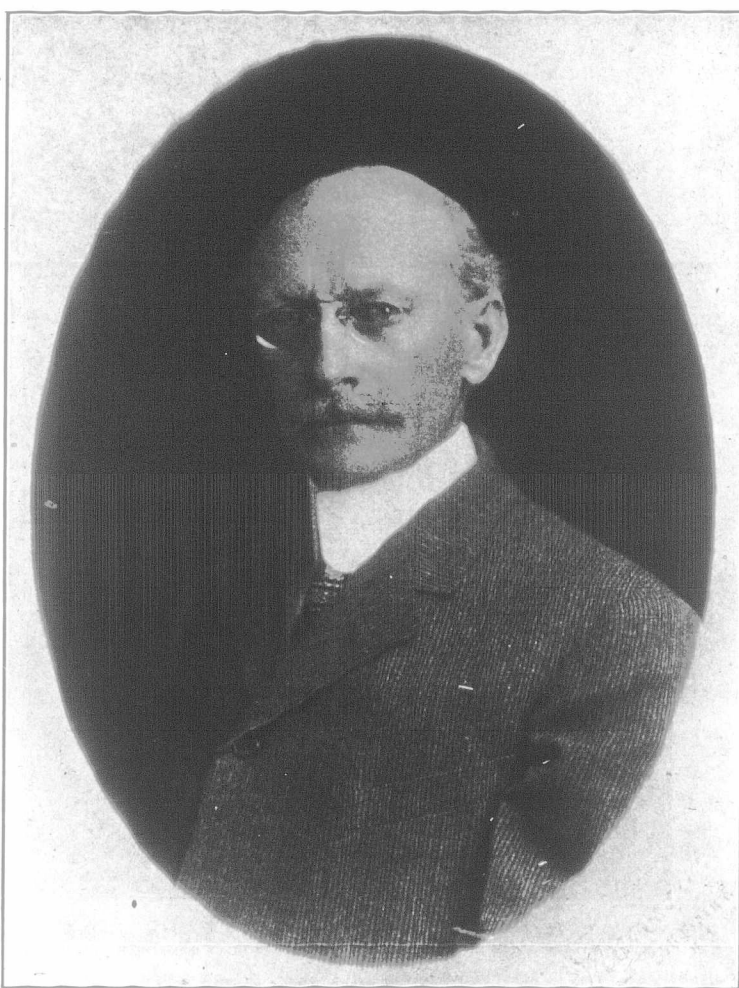


## THE CHEMIST IN MODERN INDUSTRY.

By T. Linsey Crossley

Can you arrange an apparatus to remove the moisture from forty-thousand cubic feet of air per minute? How's that for an order? Dr. James Gayley put that order to himself and the result of his thinking saves the American Iron and Steel industry some \$15,000,000 to \$30,000,000 annually. It has been recognized for many years that the humidity of the atmosphere had a bearing on the quality of iron produced in a blast furnace, but after some attempts to feed dry air to the furnaces, it was considered a sort of dispensation of Providence to be accepted with resignation. Here's how Gayley attacked it and

to make an installation. In his address of acceptance of the Perkin medal he says, "Here my most difficult work began, to persuade my associates that air did really carry moisture and that it could appreciably, even in a small degree, affect the working of a blast furnace." Even when Gayley offered to pay half the expense himself, it was a year before appropriations were made. In 1904, EIGHTEEN years from the start, the air-drying apparatus was put in, and when two-thirds of the air going to the furnace was dried, it was found that a nine per cent greater ore and flux charge could be handled with no in-



Dr. JAMES GAYLEY, Perkin Medalist, 1913

it is characteristic of most of the successful solutions of industrial problems. He got data, reliable data, first hand data and lots of it every day for FIVE YEARS before he began experimenting. If the captains of industry at times recognized that standard method, they would not be continually asking "What use have I for a chemist?" Set a trained mind to work collecting data for a year or so and see what comes of it. Gayley found that his air blast of 40,000 cubic feet per minute was pumping water at a rate of 73 gallons per hour in February to 237 gallons per hour in June to each furnace.

Fourteen years after starting on the work, plans were ready and Gayley asked for \$100,000

crease of fuel and that much greater output. In six months time a regular economy of 15% was decided upon, though up to 20% was proven possible. That means in every blast furnace, 15% less fuel, 15% more output. It's a pretty thing, too, for the manager who is faced with dull times, can save fuel with small increase in output, and when confronted with booming conditions he can keep up his fuel and get a much increased output.

There was a picture in my old fairy book of the valley where old moons were made into new ones. The establishment of the Messrs. Heller, in Paris, where rubies and sapphires are made on a commercial scale, calls this to mind. Many