Japan watching

Automatic chemical analyser

An "Automatic Chemical Analyser" which carries out many of the complex processes of chemical analysis has been developed by the Fundamental Research Laboratories of Nippon Steel Corporation (See photograph, right).

This analyser carries out, according to a predetermined program, many processes which had previously been performed manually, including the injection of sample solution, addition of reagent, heating of reactor, agitation and circulation of reactant, measurement of absorbancy, calculation and printing of analytical results, and washing of the reactor.

The only manual operation remaining for the researchers is the dissolution of the samples with acid and the placement of the samples on the turntable. The samples will then be automatically analysed at the rate of one every six minutes. The accuracy and repeatability are the same as those obtained by an experienced chemical analyst through spectrophotometry.

At the Laboratories, the analyser is being used to determine the phosphorus, manganese, and silicon content of steel. Range of determination is 0.0005–1% for phosphorus, 0.0005–2% for manganese, and 0.001–1% for silicon.

Top metallurgical post assigned

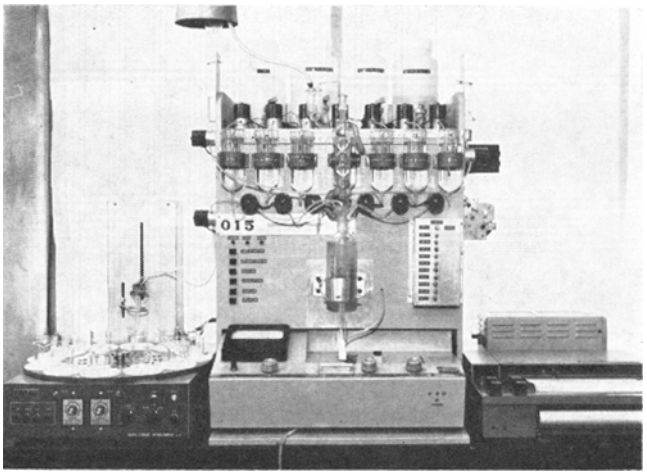
(Nippon Steel News, February 1972)

Mr. Ikuya Noda, Nippon Steel managing director and general superintendent of Kamaishi works, has been elected to the Science Council of Japan. He was elected at the Council's 9th General Meeting held last December, winning the highest number of votes among nationwide candidates in the metallurgical field.

Mr. Noda was named to serve a three-year term in the Engineering Division. He succeeds Mr. Kizo Takeda, Nippon Steel's senior managing director, general superintendent of Nagoya works, whose three-year term with the Council's Engineering Division expired last December.

The Council, established in 1949, has seven divisions, or areas of specialty, and a total of 210 members representing various fields of natural and social sciences. Its function is to encourage scientific research, and to promote the application and advancement of science in industry, administration, and other fields of public welfare.

New market for CorTen? The Japanese steel salesman may have opened a new market for CorTen steel in shrines.



Nippon Steel's "Automatic Chemical Analyser", which carries out many complex processes of chemical analysis automatically, is shown with the turntable on the left and the recorder on the right.

$5.3 million desulfurization product

(Nippon Steel News, February 1972)

Tests were begun in February by nine major Japanese steel companies under a joint project to develop a process of desulfurization of exhaust gas emitted by sintering plants. The tests were begun at a model plant built under the supervision of the Committee on Development of Exhaust Gas Desulfurization Technique and Plant Engineering formed by the Iron & Steel Institute of Japan.

These tests are aimed at developing a new process in which the circulating ammonia water from the coke oven is used for absorbing the sulfurous acid gas. The target is to remove more than 90% of sulfurous acid gas. Research is also being conducted on the treatment of used ammonia water, and on the quality of material most suitable for the construction of desulfurization plants.

The testing plant has a capacity of treating 150,000Nm^3 of the exhaust gas per hr. The tests are expected to cost $5.3 million.

New Mizushima giant to cost $37 million

The cost of Kawasaki's 4th blast furnace at Mizushima is reported to be 11,300 million Yen. Under the new monetary exchange agreements, this computes to about $37 million. The new furnace will have a daily iron capacity of over 10,000 metric tons.

BOF 80%—E.Fce. 17.7%—OH 2.3%

Of the total crude steel production of 88.5 million metric tons in Japan in 1972, the electric furnace produced 15.7 million tons, while the not quite dead open hearth accounted for a little over two million tons.

Wide flange beam gauge using cesium isotopes

An isotope gauge for simultaneously measuring the thicknesses of the flanges and web of a wide flange beam with cesium 137 gamma rays has been jointly developed by Nippon Steel Corporation and Fuji Electric Co., Ltd., it was announced at the recent 10th Japan Isotope Conference.

Although the isotope method has been used before, none of the previous devices were able to measure all three parts of wide flange beams simultaneously.

The new gauge has a maximum error of 1% in the case of steel 90mm or less in thickness, and 2% for steel 90mm ~ 120mm thick. It measures the thicknesses of wide flange beams during rolling, and feeds the measured results back to the rolling process. It uses five curies of cesium 137 with detectors placed at a distance of one meter from the gamma ray source. The radioactive rays which pass through the steel are converted into electric current to measure the thickness.