CORPORATE

profile...

From its postwar interest in nitric acid plants, Chemical & Industrial Corp. has built a thriving business as designer and builder of fertilizer plants and consultant to fertilizer manufacturers

THE POSTWAR FERTILIZER INDUSTRY, as never before, has attracted many companies new to that business. With those organizations are many new younger staffs, eager to add their ideas to the background of existing knowledge and to keep progress at a vigorous pace.

Chemical & Industrial Corp. is one of these young companies. Devoted to the processing of ammonia and its allied products in the fertilizer and chemical industry, C&I is a designer and builder. It has had a part in the building of almost every new major nitrogen fertilizer plant in the United States since World War II, as well as a number abroad, primarily because of its contributions of ideas and techniques.

Chemical & Industrial developed its original interest in fertilizers through nitric acid plants. Just after the war, the original group under the leadership of H. H. Hamilton, now C&I's president, had its team of engineers decontaminating, dismantling, and rehabilitating government ordnance plants. This provided an excellent opportunity to demonstrate its theories by dismantling and redesigning certain portions of the plants for use in the fertilizer industry.

Special Emphasis on Nitric Acid

The group put special emphasis on nitric acid units and made a worldwide study of all the processes, both atmospheric and high pressure. They then licensed the well-established DuPont high pressure process, incorporated some of their own modifications and began building plants. The results spoke well for the work and during the past few years most of the major chemical plant construction companies have called on C&I to work with them when the project called for nitric acid, ammonium nitrate, or nitric phosphate.

In the days shortly after the war stainless steel equipment was very hard to get in the U. S. C&I arranged with Phoenix-Rheinrohr, one of the largest steel mills in Europe to obtain the stainless steel and have its vessels fabricated in Rheinrohr's own shops. Today, in line with serving the customer with what best serves his needs, equipment is still purchased wherever quality dictates.

The President . . .

H. H. Hamilton

Plant planning, a specialty

Plant Improvements

Among the improvements in nitric acid plants made by C&I was an increase of 15 to 25% in capacity of the absorption columns without an increase in size. Single plant capacities increased as much as 500% with improved overall efficiency and reduced operating costs. An expander turbine, using the tail gas from the plant, was first introduced by C&I when it designed and built the nitric acid plant for Phillips Chemical Co. at Etter, Tex. Since that time all of C&I's nitric acid plants have this equipment and are recovering two thirds of the necessary energy to drive the compressor from the exhaust gas.

A Plant Self-Sufficient in Energy

The company now is at work on combination and further development of some of these innovations and indicates that a plant completely self-sufficient with respect to energy is in the offing.

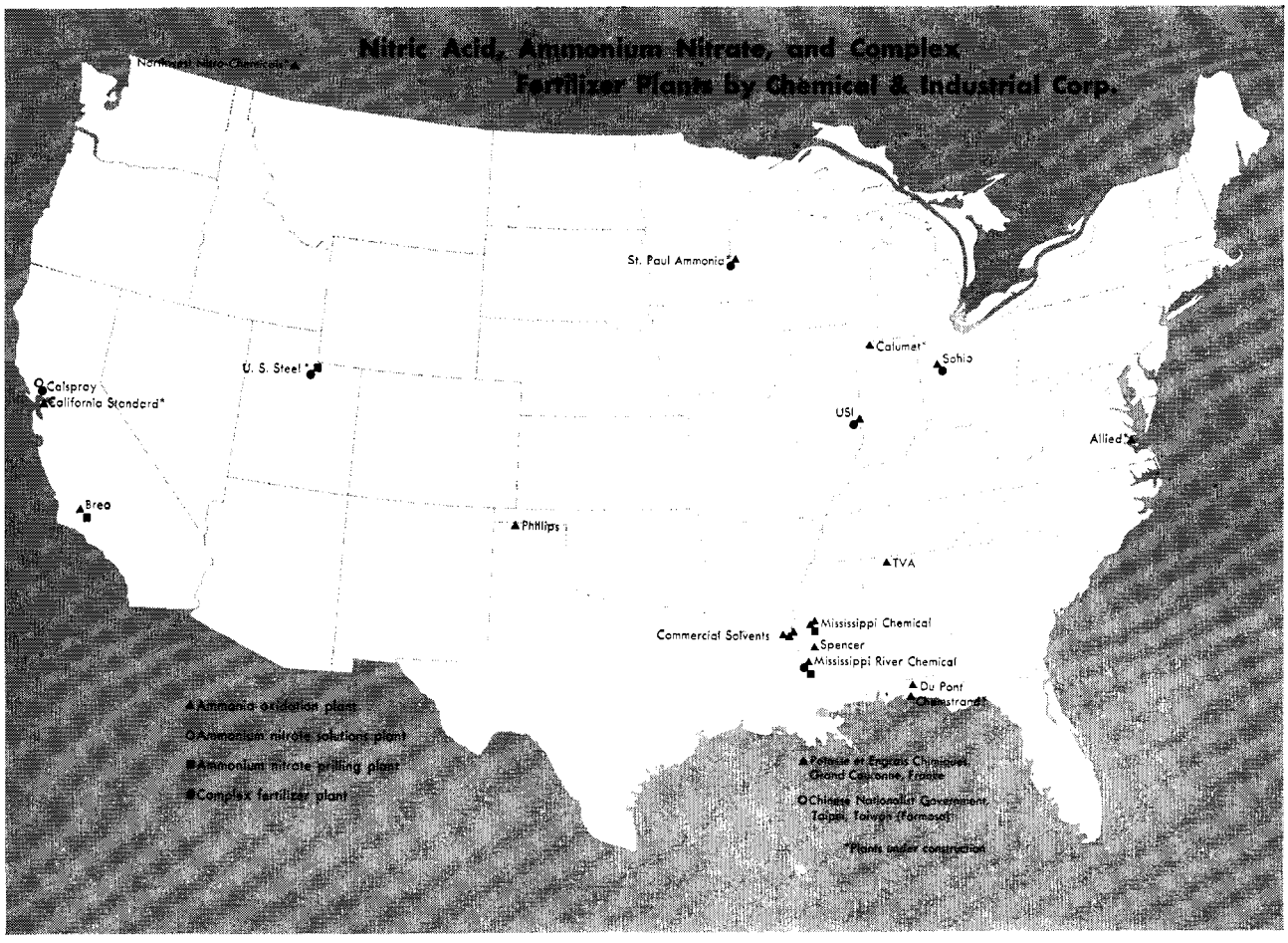
A tail gas reduction unit, or decomposer, is another special C&I design feature. It converts the NO_2 and NO in the tail gas to colorless, harmless nitrogen, thereby generating heat for steam. Some of the recent installations of the decomposer are at Brea Chemicals, Los Angeles, and Standard Oil of California, Richmond.

Ammonium Nitrate

C&I followed up its initial entry via nitric acid by undertaking construction of plants for using the acid in fertilizer production. It is licensor for building plants using Commercial Solvent's Stengel process to produce granular ammonium nitrate and also for producing solutions. C&I is a strong believer in the merits of the Stengel granular product. Of particular importance is the cost, considerably lower than that for the conventional prilled product. Also the Stengel process can be readily adapted to produce ammonium nitrate limestone and ammonium nitrate sulfate mixtures, processes not yet in use in the U. S., but under consideration.

C&I's feeling for the Stengel process is not forced by lack of alternative, as it also builds prilled ammonium nitrate plants. In fact, C&I has built most of the standard ammonium nitrate prilling plants constructed in the U. S. recently, including Mississippi Chemical, Yazoo City; Brea Chemicals, Los Angeles; Mississippi River Chemical near Selma, Mo.; and U. S. Steel, Geneva, Utah.

In view of the favor enjoyed by the prilled form and the cost advantages of the Stengel, C&I again has exercised its engineering resources in cooperation with Commercial Solvents and now is ready to build plants for producing Stengel process ammonium nitrate in uniform spherical form. While this may put the cost a little over that for the granular form, C&I says it will be considerably below that of today's conventional prilling plants.



The process requires no tall tower, rotary dryer or multiple coolers.

Phosphoric Acid and Complex Fertilizer

Recently C&I has been licensed to build Prayon process phosphoric acid plants, thus broadening its position. The company also has an interesting new prilled ammonium phosphate plant.

Chemical & Industrial believes that the present methods of making mixed fertilizers will be replaced by modern continuous chemical processes. Through arrangements with Potasse & Engrais Chimiques, it is licensed throughout the world to construct complex fertilizer plants using that company's process. California Spray-Chemicals and Taiwan Fertilizer Co. are at present installing this process. While the California Spray-Chemical Co. plant will be the first in the U. S., the PEC plants have been in most of the countries in Europe for some time. C&I is bullish over its prospects in this country. It feels that once the process gets into action here it will overcome some of the arguments that now are held to give preference to more conventional processes. The plant is flexible and can produce a great variety of grades, such as 15-15-15 and 24-24-0, and reportedly can go to 21-53-0.

C&I doesn't take on the building of the ammonia units. It sticks to its particular specialties. Those specialties now have grown to such an extent that C&I can build an entire integrated complex fertilizer plant. In addition to this, the company often designs plants for other companies to build.

Market Researchers and Consultants

C&I not only builds plants for its clients, it does surveys of the market possibilities in advance of locating the plants. Only a couple of years ago C&I studies showed some six areas of the country were ripe potential markets for the products of a nitrogen fertilizer plant. Today the company is building or has built units to serve every one of these areas. C&I is unique in that it is the only engineering company solely devoted to processing ammonia for agricultural and chemical needs.

In a period of about 10 years the organization has grown into what is now a well-established builder of plant units. Developing from a modest but sound base, C&I has also gained a prominent position as designer, consultant, and builder.