The international exposition was held in Moscow in September, 1965. More than 20 countries participated in the exposition. Although the exposition was devoted to industrial chemistry, the editors believe that our readers will be interested in the exhibits of some firms which manufacture metals and alloys and those involved with the application of these metals and alloys in the chemical industry, and also some of the new equipment used in heat treatment and metal science.

The Soviet pavilion exhibited equipment for chemical machine construction of "classical" and new stainless steels (0Kh23N28M3DT for example), and titanium alloys. Of particular interest were high-strength, pore-free machine parts made of carbides and nitrides of titanium and zirconium and of high-melting-point metals produced by precipitation from the gaseous phase. Many new apparatus for physicochemical investigations were exhibited.

The largest exhibit was presented by West Germany. Eleven metallurgical firms and plants exhibited their products.

Krupp manufactures and supplies equipment for mining, chemical, oil, and other industries. Nirost produces stainless and acid resistant steels of the austenitic, austenitic-ferritic, ferritic, and martensitic-martensite types (about 50 different steels in all). Steels without stabilizing elements contain less than 0.03% C. This firm manufactures stainless steels of the austenitic and ferritic types containing sulfur for better workability. The properties of the steels are described in detail in the catalogs.

The Krupp plants use many vacuum smelted steels, technically pure titanium, and titanium alloy ticrutan (Fig. 1) for apparatus used in the chemical industry. New types of ticrutan (titanium with 0.2% Pd and titanium with 0.2% Pd and 0.25% O) are highly corrosion resistant in nonoxidizing media. Krupp produces ferritic-ferritic-austenitic, and austenitic heat resistant steels for equipment operating in aggressive media at high temperatures. They also produce a wide variety of tools made of the hard widia-Krupp alloys.

The Manesman Corp. exhibited pipes for chemical, atomic, and oil-refining equipment, large welded pipes of different steels and nonferrous metals, rolled sheets and parts, pipelines, tanks, and metal structures. This corporation produces open hearth cast iron, ordinary rolled and heat treated carbon steels, light steels, good quality steels (structural, tool, stainless, heat resistant, high speed cutting), and nonferrous metals and alloys. For chemical equipment the corporation uses titanium and titanium alloys, alloys with a high nickel concentration, Hastelloy Monel, and pure nickel, and also bimetals. Laboratories of this firm investigate the properties of alloys and steels and develop new materials.

The Fenix-Reynor Company exhibited articles for the chemical industry made of stainless, acid resistant, and heat resistant and cold resistant alloys. This form makes wide use of cladded metals and two-layer sheet materials.

The Buderus steel smelting plant of the Edel Steel Company exhibited equipment for the chemical industry made of high quality steels. This plant produces 200,000 tons of different steels (from unalloyed to highly alloyed steels) and alloys. The firm has power equipment for vacuum remelting of steels using refined electrodes weighing seven tons. Of particular interest was an apparatus for extrusion of pipe, high quality stainless steel pipe lines, and pipe produced by hot pressing.

The Karl Kantsler firm, manufacturers of machines and apparatus for the chemical industry, exhibited welded parts and pipelines of acid resistant and stainless steels, Hastelloy, zirconium, titanium, and tantalum.
Sandwiken (Sweden) had a very interesting exhibit of steel sheets, wire, and pipe. This firm supplies the chemical industry with stainless and acid resistant steels, chromium-nickel austenitic steels containing molybdenum and a very low amount of carbon (0.03% or less), high chromium and high nickel alloys (with 20% Cr and 35% Ni, for example), and special highly corrosion resistant steels of the sanicro type (for example, nickel alloys with 16% Cr and 9% Fe).

This firm manufactures a large amount of pipe made of low and high alloyed steels. The firm also manufactures a very high purity steel.

In addition, the firm produces prestressed structures, which considerably decreases the cost of the structures.

Avesta, one of the largest concerns in Sweden, manufactures a wide variety of stainless steels for the chemical industry.

The French metallurgical firm Ugines supplies stainless steels and heat resistant steels and alloys for the chemical industry: martensitic chromium steels (19% Cr), ferritic steels (17% Cr), steel with 0.07% C, special automatic steels from the oversize parts of ingots with a high sulfur concentration and additions of molybdenum and zirconium, austenitic steels of the 18/8 type with molybdenum, stabilizers, and copper, acid resistant steels, low and high alloyed steels, alloys of the monel type, Hastelloy, inconel, etc. The concentration of carbon in unstabilized austenitic chromium-nickel steel is 0.05-0.09%. Acid resistant steels contain no more than 0.03% C. The catalog of this firm give detailed data on the corrosion resistance, mechanical and physical properties, technological singularities of production, and use of the materials.

The S. I. G. E. firm (France) exhibited pipes of stainless steel, heat resistant alloys, nickel, incoloy, inconel, monel, Hastelloy, invar, covar, tantalum, and vanadium, and also dispersion hardened stainless steels with an ultimate strength up to 150 kg/mm². The firm recommends diffusional chromating, which makes it possible to increase the hardness to HV 2200. At the same time, the corrosion resistance increases in nitric acid and demineralized water, and ordinary steel is heat resistant up to 900°C, stainless steel up to 1100°C, and the inconel alloy up to 1300°C.

The Loren Esco firm manufactures welded pipe (with a spiral seam) for the chemical, food, and other industries from ferritic chromium steel and austenitic chromium-nickel steels.

Pompey (France) exhibited heat resistant chromium-nickel austenitic and austenitic-ferritic steels of ordinary compositions, ferritic and martensitic chromium and chromium-nickel heat resistant steels, stainless high chromium ferritic-martensitic, austenitic, and austenitic-ferritic chromium-nickel steels with molybdenum (up to 6%) with and without stabilizers, semi-stainless chromium-aluminum steels (up to 7% Cr), and also heat resistant and wear resistant structural steels and special structural steels. This firm does considerable scientific research work concerning the replacement of expensive stainless steels with low alloyed or unalloyed steel. Studies of the singularities of corrosive media and their influence on the metal are being made. This firm makes wide use of heat treatment as well as passivation and metal coating of low alloyed steels.