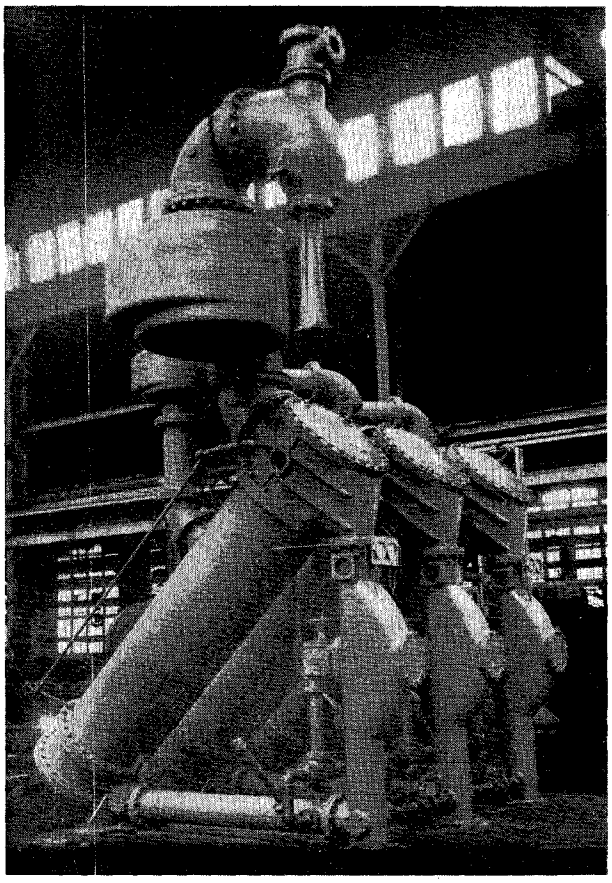


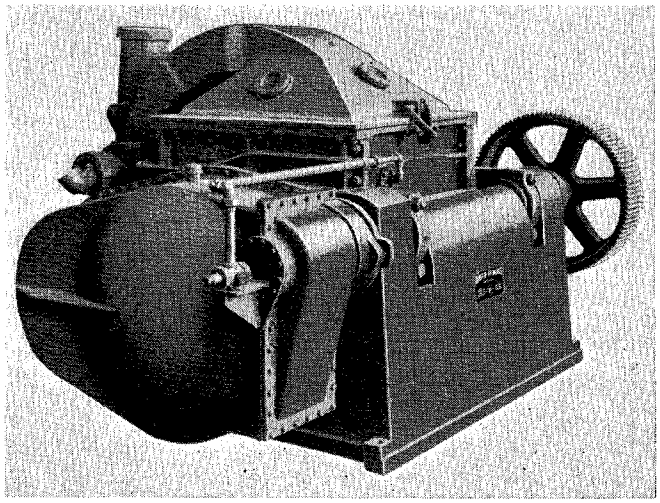
Courtesy, Struthers-Wells

RECENT TYPE OF INCLINED EVAPORATOR

Domestic equipment manufacturers were not encouraged to greater production. Prevailing designs were those to be found in the current textbooks, and the materials of construction were the ones most commonly available—iron, steel, some nonferrous materials (less frequently alloyed than native), and, of course, wood and ceramic materials.

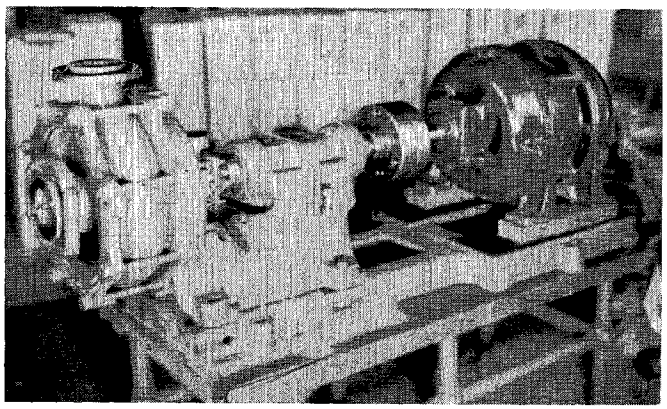
WAR among foreign nations changed this situation. Under pressure of orders from abroad, our own peace industry was forced to augment its supplies of chemical raw materials. The necessity of producing larger quantities called for necessary equipment expansion. Restraints on transportation reduced our imports and furnished part of the inspiration which proved desirable. Idle capital was encouraged by possible profits, and technical ability was augmented by patriotism. Existing industries expanded and gaps were filled by American business initiative.

If six hundred and fifty firms were reported as supplying the preponderance of equipment used in plants making chemicals and chemical products, approximately 10 per cent of these possessed the initiative to advertise the fact that they were ready to supply all the needs of industry. Quickly this figure was increased by the demand; within a year the number was more than doubled, and in another year it was doubled again. When the industry reached a point near saturation, the amount of increase gradually diminished. Later, demands for special types of equipment created new industries and brought new manufacturers.



Courtesy, Baker Perkins Company, Inc.

HEAVY-DUTY VACUUM MIXER DESIGNED FOR PLASTICS, RESINOUS COMPOUNDS, PAINTS, AND INKS



DURIRON CENTRIFUGAL PUMP

To the redounding credit of the equipment manufacturers of that period the point should be made that they responded to the world's need and produced equipment of all kinds quickly. By astute research, by trial and error, by Yankee ingenuity, and by all of the liberal methodism known as the American Way, they made equipment for every difficult type of chemical industrial service. Improvement followed improvement. Chemical engineering equipment made of ceramic materials unheard of before was brought forward to triumph over difficult applications. Plastic materials made from synthetic resins came into use as materials of construction. Suggestions were taken from history. The Sheffield plate makers provided the idea for plating over base metals high in mechanical strength with metals which were more highly resistant to corrosion. There were also innumerable side applications of plating (coating), involving rubber, plastics, glass, and ceramics. The values of impregnated lumber were rapidly discovered and applied.

Reactions at unheard of high pressures and temperatures were gradually accommodated successfully by equipment devised for a new scale of physical constants. Chemical engineering processes, such as distillation, evaporation, filtration, and drying, were advanced through improvements in corrosion-resistant materials. Known, but little used, metals and alloys became the sub-