is driven off as hydrocyanic acid but is recovered as ferrocyanides, sulphocyanides, or cyanides. In the United States, owing to commercial conditions, this recovery is usually not considered profitable and is neglected. Sodium cyanide, potassium cyanide, sodium ferrocyanide, potassium ferrocyanide, calcium ferrocyanide, ammonium sulfocyanide, ferric ferrocyanide, potassium ferricyanide, and sodium sulfocyanide are some of the cyanogen compounds produced.

Sodium and potassium cyanides are used in the cyanide process of gold and silver recovery. Potassium cyanide is used in the preparation of synthetic indigo, in photography, and in electroplating. Sodium cyanide is used in the preparation of hydrocyanic acid and in the preparation of the tear gas, cyanogen chloride. Sodium and potassium ferrocyanides are used in the preparation of ferric ferrocyanide (Prussian blue), which is used in dyeing, painting, and printing. Potassium ferricyanide is said to be used also in blue printing and dyeing. The sulfocyanides, the ferrocyanides, and the ferricyanides are all utilized in the making of cyanides. Hydrocyanic acid gas, because of its poisonous nature, is used in fumigating. Cyanogen compounds are very effective carburizing agents, and potassium cyanide and potassium ferrocyanide are used in the casehardening of steel.

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## CHILE AS A NITRATE PRODUCER

Before 1914, Chile, because of her extensive resources of natural nitrates, practically monopolized the world markets for one of the leading fertilizer materials. Since nitrogen also is an important war material, constituting the principal ingredient in many high-powered explosives, the World War and the widespread insistence upon national self-sufficiency for war materials brought about the development of nitrogen fixation plants in all of the larger countries. The production of by-product ammonia from gas and coke plants was likewise stimulated. As a result, Chile, even after the ocean lanes were reopened, was forced to fight for her lost markets. Since the world capacity to produce is still far in excess of annual consumption, the competition between natural and synthetic supplies has been keen and prices have fallen below pre-war levels.

Chile has recently succeeded in unifying her industry, utilizing the most efficient process now in operation, and the Government is a partner in the new company that will take over all of the present producing companies. These developments place Chilean nitrate of soda in a much more favorable position among the markets of the world. More intense competition will undoubtedly follow.

The methods of mining Chile saltpeter are given in the next section.

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*A Description of Your Chemistry Club Activities Would Be Helpful to Other Clubs.*