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Sommario/riassunto

This monograph is the first comprehensive historical overview of the global synthetic ammonia industry, highlighting its critical role in fixing nitrogen from the air in order to produce the fertilizers that support a significant portion of the world's population. While the first part includes the storied Haber-Bosch process, introduced in 1913 by the German firm BASF, its main focus is on the largely forgotten Italian chemist Luigi Casale, the inventor of an alternative synthetic ammonia process. Casale had the distinction of launching the global synthetic ammonia industry through, and unlike BASF, the licensing of his technology. The narrative here incorporates the first biography of Casale, with descriptions of his innovations, and the early years of his company, Ammonia Casale SA. Technical challenges, relationships with collaborators and investors, and patent issues are discussed. The second part, through a macro perspective, explores the industry's international expansion, the evolution of novel technologies, and contributions to the Green Revolution. Included are the roles of engineering contractors, high-capacity manufacturing units, and geopolitical contexts. The final chapter covers the recent past, and briefly looks to the future with moves towards sustainability within the context of green hydrogen and ammonia production. This story of one of the world's most important industries is recommended for historians of modern science, technology, and business, chemical engineers, practitioners in the petroleum and chemical industries, and readers interested in technological advances that have shaped our world today.
