market areas for the agricultural needs of the late '40's and early '50's. In other cases, conditions were not so favorable. The entire industry knows instances of producers' having absorbed freight equalization costs of $20 or more per ton to maintain economic operational levels.

Today the North Central states have the greatest growth potential. If any place now exists where it might be most favorable to put up an ammonia plant in 1958–59—and no producer will even say he's thinking along those lines—it would be in the Corn Belt, probably between eastern Nebraska and Des Moines, Iowa.

The smallest economical ammonia unit is about 50 tons per day—but 150 to 200 tons is more usual. To realize operating economies, groups of smaller companies have sometimes joined forces to build one large plant rather than several smaller ones. The most profitable nitrogen material today, from the manufacturer's standpoint, is probably ammonium nitrate, followed by ammonia and ammoniating solutions. Synthetic ammonium sulfate has undoubtedly been poorest from a profit view. Its recent rise in price to $34 per ton (causing a $2.00 differential between it and coke-oven sulfate) will help. Last year, and in first-quarter 1957 (prior to the increase for synthetic), 45% of total ammonium sulfate was coke-oven.

U. S. Steel still looks at coke-oven sulfate primarily as a method of cleaning up the coke-oven gas (by scrubbing with sulfuric acid). Ammonia recovery is secondary with the steel companies. To date, the use of phosphoric acid instead of sulfuric has not caught on. Diammonium phosphate is today produced mainly by Colorado Fuel & Iron, Shell Chemical, Ford, and TVA. Kaiser is producing some.

Future

Ammonia producers are now trying to ride out the problems of overcapacity and hoping for the best in the future. Those with large captive outlets for ammonia and other nitrogen materials are naturally in the best situation. Energetic selling, educational, and similar programs are being used by all. AG AND FOOD asked some of the newer producers why they built now with an unfavorable economic outlook ahead—for at least five years. They point to increased use of nitrogen by the farmer ahead; the trend to 1-1-1 ratio, and eventually perhaps even to 2-1-1. They planned to get in ultimately, and felt it was wiser to get in now and to start building a market for the years ahead.

TECHNICAL SECTION

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