ECONOMIC GEOLOGY OF IOWA'S ROCK MATERIALS

The geological materials that have been a part of Iowa's economy are:

Limestone	Clay (shale)
Gypsum	Coal
Sand and Gravel	Lead and Zinc

Limestone: the limestone industry in Iowa produces annually between 25 and 30 million tons of limestone. This is used as follows:

- 75% Road materials either as aggregate in paved roads or as road surfacing material
- 12% For manufacture of Portland cement
- 10% For soil conditioner -ag-lime
- 3% Miscellaneous such as rip-rap, mineral feed for stock, dimension stone for building construction and for chemical uses such as lime and in sewage treatment filter beds.

Most of the production comes from open quarries but there are eight underground mines producing limestone. Because of the environmental concerns limestone is being produced from fewer quarries now than it was a few years ago but those fewer quarries are producing more. Rehabilitation of the land is more economical when fewer quarries are worked to a large size.

Gypsum: The gypsum industry in Iowa produces from one to one-and one-half million tons annually. It occurs at three stratigraphic horizons; the Jurassic, the Mississippian and the Devonian. The jurassic production was first began in 1872. From 1872 the industry began converting to strip mining and rather quickly all operations were from open pit quarries. All production in the Jurrassic is from the Ft. Dodge area.

Production in the Mississippian was started near Centerville in the late 20's. This was a shaft mine reaching the gypsum at about 500 feet. The mine closed during the depression of the 30's and has never been reopened. A new mine has been opened (1975) at Harvey (near Pella) in the Mississippian at a depth of about 200 feet.

The only Devonian production is a deep shaft mine (600 foot depth) at Sperry (about 10 miles north of Burlington.) This was started in 1961 and is an active, growing mine.

Gypsum is used for the manufacture of wall board, plaster, paint, soil conditioner and medical, dental and art plaster. It is also used in the manufacture of Portland cement.

Sand and Gravel: The sand and gravel industry produces about 15 to 20 million tons per year. Almost all of the material goes into road construction or to concrete-ready mix plants. The sand and gravel comes from Pleistocene materials or from recent river fill material. It is obtained either by digging from pits or by dredging from under-water deposits.

Clay: The clay industry is an old industry primarily making brick, tile, and sewer pipe. At one time there were over 400 plants in Iowa using all types of clay materials. As time went on, because of quality control and economics, plant numbers decreased and now only about a dozen plants are operating. Now they produce about a million tons of clay a year all from Cretaceous and Pennsylvanian shales. The characteristics that are important in determining the selection of raw clay are, burning temperature, color control, capability of burning without warping and extraneous minerals that produce undesirable stack emmissions.

One plant in Iowa produces light weight aggregate for use in concrete where dead weight of the structure must be kept down.

Coal: Back in 1971 the Iowa coal industry reached its peak producing about 7 million tons. Since then it has dropped to under a million tons with only 7 mines (5 strip and two underground) operating now. Active research on coal is being conducted now by I.G.S. and by Iowa State University to try and bring back the coal industry.

Lead and Zinc: Prior to the turn of the century lead and zinc mining was an active industry. This died down in the first half of this century and there is no mining in Iowa at the present time.

Problems: On any of the stip mining (limestone, gypsum, sand and gravel or coal) one of the problems relates to environmental concerns. In the past, none of these industries were concerned with land rehabilitation. Laws now require rehabilitation of the land. By law, this now requires permits issued by the State Department of Soils Conservation. Bonds are required at the time the permit is issued, and inspection by the department is required before the bond will be returned.

With coal and clay, the Air Quality Division of the Department of Environmental Quality checks on the stack emmissions of the coal burning industry and on the stacks of the clay kilns.