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SUBSURFACE LIMESTONE RESOURCES IN CENTRAL ILLINOIS; A SUMMARY REPORT

Introduction

This report discusses the pre-Pennsylvanian limestone and dolomite resources of 18 counties in central and east central Illinois, Figure 1. According to the 1960 census these counties have a population of 1,086,641 people. The area is growing in population and industry.

In 1965 there were 7 limestone quarries in the 18 county district, Figure 1. Their production totaled 2,725,514 tons valued at $4,029,909 and was comprised of 2,308,337 tons of aggregate, roadstone and screenings, 386,177 tons of agricultural limestone and 31,000 tons of stone for miscellaneous uses. This is a production of 2.5 tons per capita as compared to a 4.3 per capita figure for the state as a whole.

Many of the counties in the area have no limestone outcrops more than 5 feet thick, and undeveloped outcropping deposits of stone that offer promise for large scale development are uncommon.

In view of the foregoing there has been considerable speculative interest as to the possibilities of the deeper, sub-Pennsylvanian bedrock strata as potential sources of general purpose crushed stone or chemical stone that might be produced by underground mining from shafts or inclines. This report presents the results of a preliminary evaluation of these matters insofar as is permitted by the well records in the Survey's files for these counties. Mostly only those wells for which there are sample studies were generally used.

Show - County boundaries, county names and towns indicated, quarries

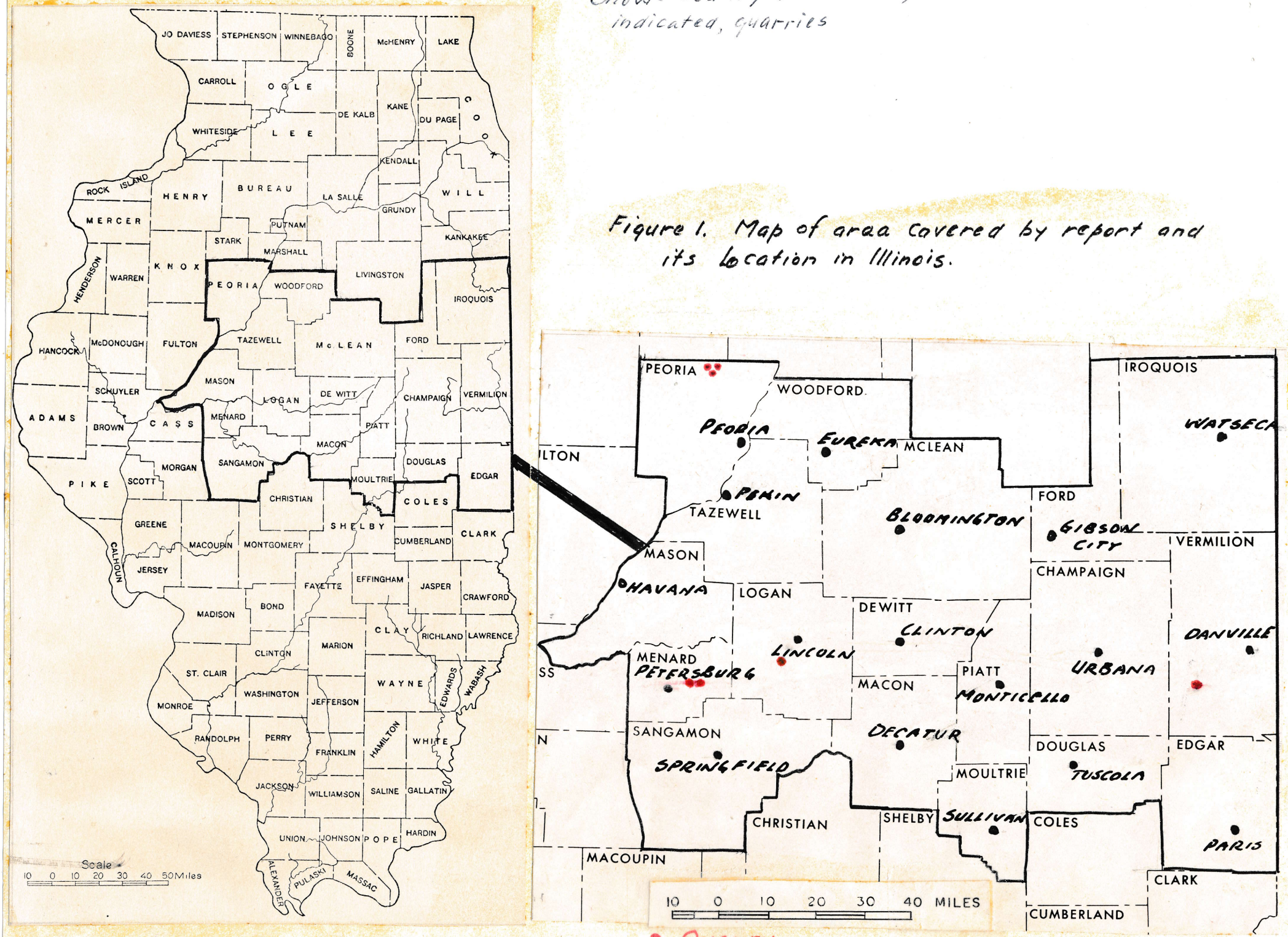

Figure 1. Map of area covered by report and its location in Illinois.

No chemical or physical tests are available for the sub-Pennsylvanian limestones and dolomites. The descriptions of the well cuttings have been made by different persons and hence have some variations. Probably the records in any given area should be regarded as a source of a general picture of limestone and dolomite resources that can be used for an overall evaluation of resources and can be helpful in the planning of a program of test drilling and exploration to determine subsurface mining possibilities should economic conditions make this desirable.

Geologic Names

For the convenience of those wishing to use the well records involved in this study to follow up this report, the geologic names used herein are those found commonly on the records. The names are those that have been in common use by the drillers and oil company geologists in any given area and vary somewhat in different parts of the 18 county area. Those wishing to know the equivalency of the well record names as used herein with those of the most recent stratigraphic nomenclature will find such data in Table 1.

Ground Water

One of the major unknown factors bearing on the commercial underground mining of limestone or dolomites in central Illinois is the extent to which they carry ground water. Notations regarding water appear on a few well records, chiefly wells drilled for oil, but the records do not afford a critical body of data bearing on the presence and quantity of water in the limestone and dolomite bedrock strata. On the basis of general information it is very probable that some of the limestone and dolomite formations are water bearing in such amounts as to discourage underground mining under ordinary circumstances. There is also the possibility that considerable thicknesses of stone occur in some places that are essentially dry or of low water yield.

"Usable" Limestone or Dolomite

There are a large number of limestones and dolomites whose descriptions in the well records indicate that for various reasons they are of questionable acceptibility for the usual crushed stone purposes. In this category are shaly, argillaceous, clayey, silty, chalky, soft or sandy rocks. Brown limestones and dolomites may be of questionable soundness. Oil stained stone might be acceptible for a limited number of uses such as roadstone, riprap and possibly agstone but would be doubtfully satisfactory for aggregate. The cost of developing a subsurface mine is such that the mining of thin layers of stone, for example those less than 20 feet thick, is likely to be comparatively unpromising as compared to thicker beds. In order to avoid frequent repetition of these qualifying remarks regarding the subsurface limestones and dolomites, the terms "usable stone," "usable limestone," or "usable dolomite" are used herein as convenient terms to signify a deposit that is 20 feet or more thick and is not sandy, silty, clayey, argillaceous, shaly, cherty, chalky, soft, oil stained or brown.

Additional Data

The well records used in this investigation are available for inspection at the offices of the Survey in the Natural ~~History~~ Resources Building, Urbana, Illinois. Also on open file are individual more detailed reports covering each of the counties discussed herein.

Bibliography

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