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IDENTIFICATION AND ASSESSMENT OF ASBESTOS EMISSIONS FROM INCIDENTAL SOURCES OF ASBESTOS

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IDENTIFICATION AND ASSESSMENT OF ASBESTOS EMISSIONS FROM INCIDENTAL SOURCES OF ASBESTOS

by

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APPENDIX A

DETAILED DISCUSSION OF OCCURRENCE OF ASBESTOS AS AN ACCESSORY MINERAL AND MINING ACTIVITY IN THESE AREAS

Alabama

The Piedmont region in the east-central part of the state of Alabama has an extensive occurrence of metamorphic rocks as outlined in Figure A-1. Within the general region of metamorphism, amphibolite zones are quite prevalent in several counties as depicted in Figure A-2, a regional map naming counties. Asbestos and talc occurrences are tabulated in Table A-1. Localities in Tallapoosa and Chambers counties have been described in detail to pinpoint selected ultramafic pods that have been altered to asbestiform minerals including anthophyllite, tremolite and actinolite. Anthophyllite was mined intermittently during the late 1960's from the large mafic complex northeast of Dadeville in Tallapoosa County as shown on Figure A-3. Talc is available from the same region (Talledega County) from the American Talc Company (Alpine, Alabama 35014).

Neatherly wrote "The mafic and ultramafic rocks of the Piedmont region represent a wide variety of distinct but related rock types which have been involved in one or more cycles of regional metamorphism, structural dislocation, and pervasion by emanations mobilized from the country rock. Four processes of alteration are recognized: (1) serpentinization, (2) steatitization, (3) amphibolization, and (4) chloritization. All these processes occurred more or less concurrently throughout the mafic-ultramafic belt; however, one mode of alteration generally predominated over the other three at a given locality. The processes of amphibolization and steatitization were most widespread. Amphibolization is the alteration of pyroxenes (enstatite, hypersthene, olivine, etc) to amphibole minerals (anthophyllite, actinolite, tremolite, hornblende, etc). The amphibole formed in the Dadeville area is the orthorhombic variety, anthophyllite, commonly from olivine. Tremolite and actinolite also are commonly associated with the ultramafic rocks in the Dadeville area having been found along the periphery of the ultramafic-mafic rock complex."

While the asbestos mineral prospects of Tallapoosa County are not now being worked, talc is currently being mined by the American Talc Company in Talladega County. Elsewhere in the counties containing the amphibolite zones, large quantities of talc and soapstone are found over wide areas, close to the surface, and are of current and long-range interest. The current mining and quarrying activities in the area are summarized in Table A-2.

TABLE A-1. THE OCCURRENCE OF ASBESTOS, TALC, AND SOAPSTONE IN ALABAMA (FROM USGS MR-17 and MR-31).

Asbestos

Tallapoosa County:

1. Dadeville area. Short-fiber amphibole asbestos associated with basic intrusive rocks. Maynard and others, 1923; Pallister, 1955. 32° 54' 85° 44'

Talc and Soapstone

Talladega County:

1. Talladega. Talc probably derived from dolomite. McMurray and Bowles, 1941. 33° 19' 86° 13'

Tallapoosa County:

2. Dadeville area. Soapstone probably associated with mafic igneous rocks. Maynard and others, 1923; Pallister, 1955. 32° 53' 85° 40'

(Localities by North Latitude and West Longitude)

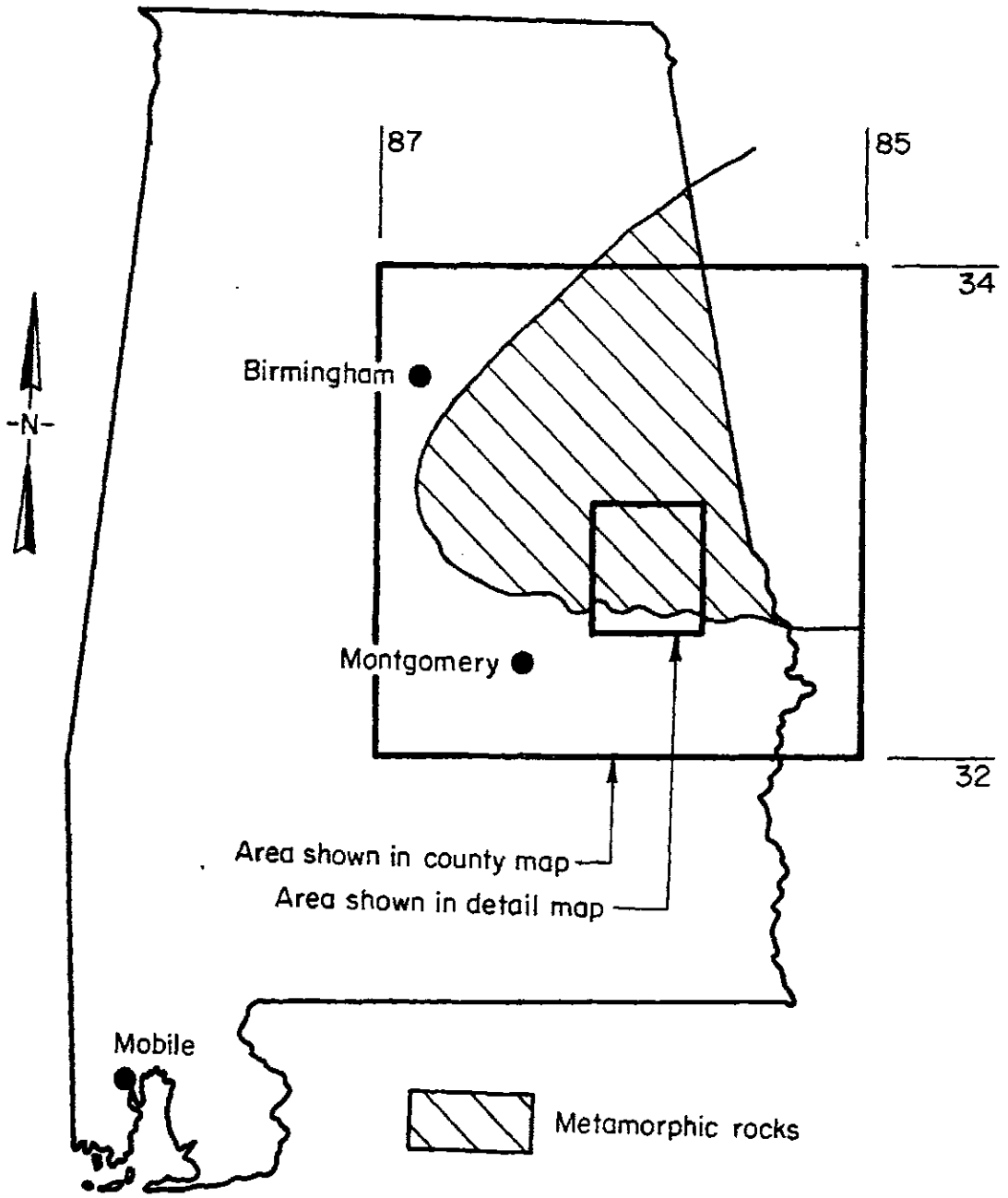

FIGURE A-1. METAMORPHIC ROCK OCCURRENCE IN ALABAMA

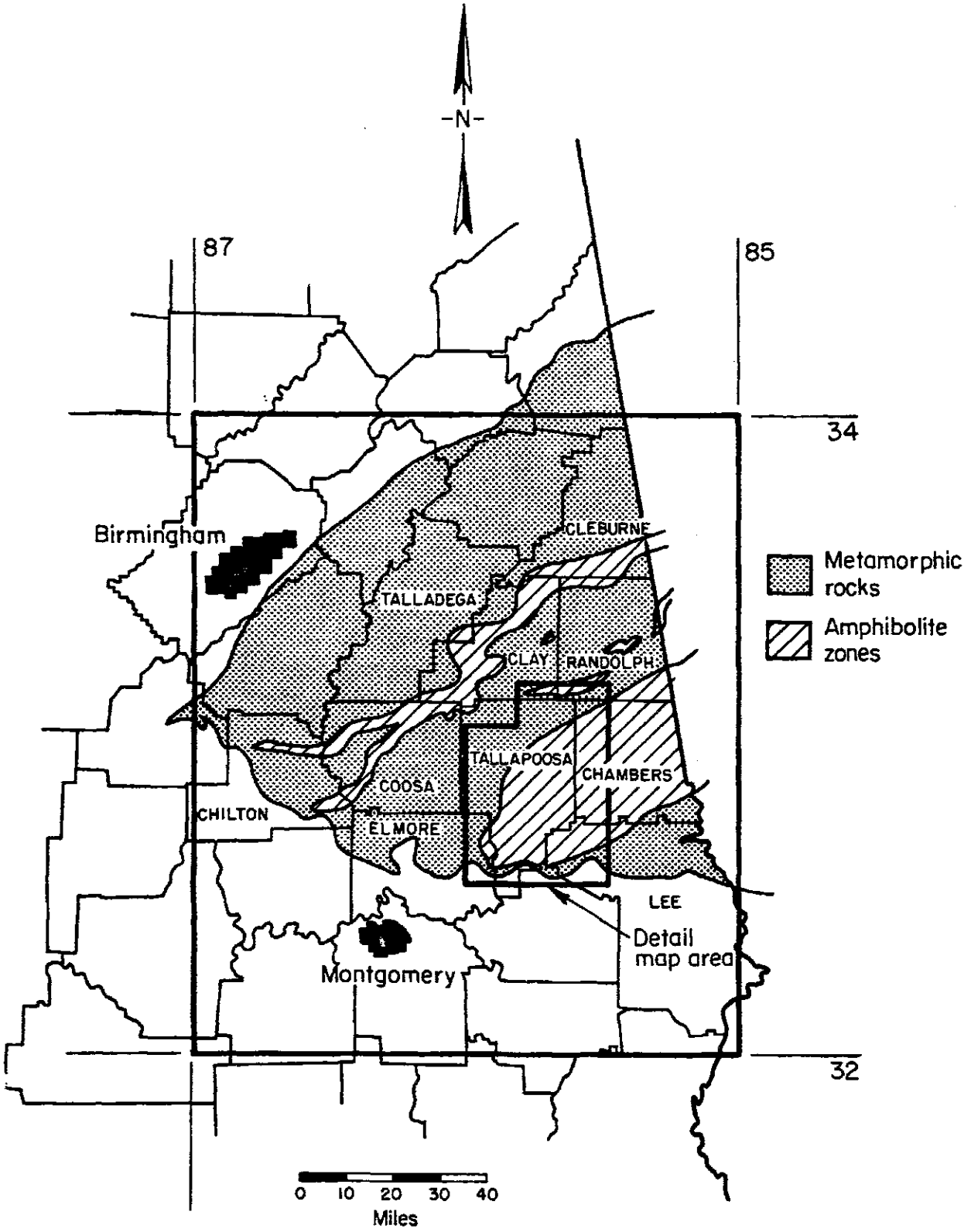

FIGURE A-2. MAP OF AREA OF ALABAMA CONTAINING METAMORPHIC ROCKS

FIGURE A-3. Portions of Clay, Randolph, Tallapoosa, Chambers, Lee, and Elmore Counties, Alabama, showing the occurrence of Amphibolite (massive and layered) with Chlorite Schist. Gabbro, Norite, and Ultramatic Pods locally intermixed. Areas of past Anthophyllite or talc mining.

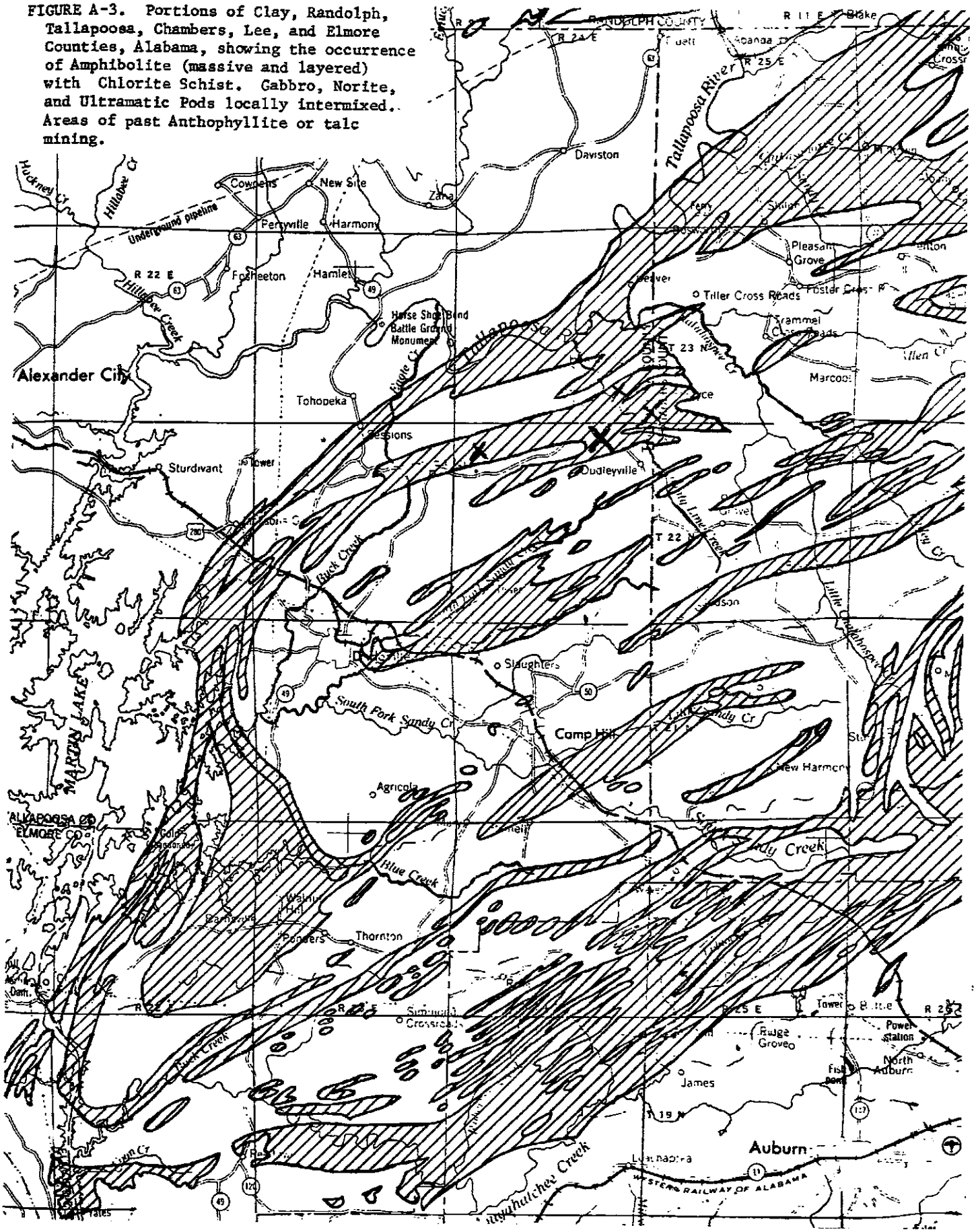

TABLE A-2. PRINCIPAL MINERAL PRODUCERS IN ALABAMA

County	Company and Address	Commodity
Chambers	----	None
Chilton	No major producer	Sand and gravel
Clay	----	None
Cleburne	No major producer	Sand and gravel
Coosa	----	None
Elmore	Jenkins Brick Company P.O. Box 91 Montgomery, Alabama 36101	Clay, sand and gravel
	Vulcan Materials Company P.O. Box 7324-A Birmingham, Alabama 35223	
Lee	No major producer	Stone
Randolph	United States Gypsum Co. 101 S. Wacker Drive Chicago, Illinois 60606	Scrap mica
Talledega	Vulcan Materials Company P.O. Box 7324-A Birmingham, Alabama 35223	Limestone, talc
	Georgia Marble Company Gantts Quarry, Alabama 35069	
	Thompson-Weinman & Company Cartersville, Georgie 30120	
	American Talc Company Alpine, Alabama 35014	
Tallapoosa	No current producer	Anthophyllite.

Source References

(1) Metamorphic Map of the Appalachians
Benjamin A. Morgan, 1972
USGS Map I-724

(2) Asbestos in the United States
A. H. Chidester and A. F. Shride, 1962
USGS Map MR-17

(3) Talc and Soapstone in the United States
A. H. Chidester and H. W. Worthington, 1962
USGS Map MR-31

(4) Talc and Anthophyllite Deposits in Tallapoosa and Chambers Counties, Alabama
Thornton L. Neathery, 1968
Bulletin 90, Geol. Surv. of Alabama

(5) Talc and Asbestos at Dadeville, Alabama
T. L. Neathery, et al, November, 1967
U.S. Bureau Mines, R.I. 7045

(6) Amphibolite Areas of the Pidemont Region (Map)
T. L. Neathery, et al, 1973
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(7) The Mineral Industry of Alabama
H. L. Riley and W. E. Smith, 1971
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