INTRODUCTION

The Connecticut Valley Urban Area covers about 5,000 square miles from New Haven and New London, Conn., on Long Island Sound north to Brattleboro, Vt., and Keene, N.H. Major cities within the project area include New Haven and Hartford, Conn., and Springfield, Mass. Commuter traffic to these urban centers reaches almost all parts of the project area. Interstate routes provide major north-south and east-west transportation corridors. Urbanization and industrial development are likely to continue within this central valley area of New England. If anticipated growth is to be accomplished in an orderly manner and with a minimum of adverse environmental effects, information on the nature and distribution of natural resources will be necessary. The objective of the Connecticut Valley Urban Area Project (CVUAP) was to anticipate this need by providing geologic, hydrologic, and topographic information to aid in planning and resource management. This information is presented in the form of maps, each showing a single resource characteristic or combination of related characteristics of the land surface, earth materials, or water resources at a common scale and in a simplified format. This is one in a series of CVUAP maps.

USE OF CVUAP MAPS

Regional and local planners and other decisionmakers responsible for resource management should find these maps helpful in land-use analysis. Because statutory regulations, technological capabilities, available funding, and local land-use priorities vary from place to place and can be expected to change with time, these maps are designed to provide a resource-data base with maximum flexibility for long-term usefulness. The maps can be used in various combinations, as in a series of overlays, according to the specific needs of a particular planning problem. As planning criteria change, the selection of pertinent resource-characteristic maps can be adjusted to meet the changing needs.

These maps are at a scale of 1:125,000 (1 inch equals about 2 miles). The average line width on these maps would be more than 50-feet wide on the ground, and the smallest area easily distinguished would be a square larger than 40 acres. In addition, the units portrayed on the maps and the method of data collection were designed for 1:125,000-scale presentation. Therefore, CVUAP maps or maps derived from them are not intended to replace onsite investigations, and they should not be enlarged or otherwise manipulated in an attempt to increase map resolution.

PURPOSE OF THIS MAP

This map shows the areal distribution of unconsolidated materials which are composed of loose rock particles deposited predominantly through the action of glacial ice and glacial meltwater. These materials vary greatly in thickness, in mineral composition, and in particle-size distribution. Each map unit characterizes the mixture of particle-sizes (texture) in the unconsolidated material to a depth of at least 3 feet beneath the soil layer.

Figure 1 shows the typical three-dimensional relationship between bedrock and unconsolidated materials in the Connecticut Valley Urban Area. Bedrock is overlain in most places by unconsolidated material; surface exposures of bedrock occur throughout the map area, but mainly in the upland till areas; bedrock outcrops are not shown on this map.

There are two major types of unconsolidated materials—TILL DEPOSITS and STRATIFIED DEPOSITS. As can be seen in figure 1, *till* blankets the bedrock surface in varying thicknesses. It was laid down directly by glacial ice, either buried beneath the ice as the glacier moved over the land surface or dropped out of the ice as the glacier melted. Deposits of till are relatively nonsorted, nonlayered mixtures of all particle sizes in differing proportions. The texture of till ranges from loose, sandy, bouldery material with some silt and clay to compact, clayey, silty material with little sand and few boulders. The textural variations within till are not shown on this map. *Stratified deposits* overlie till in many areas, especially in upland valleys and the central lowland. Most of these materials were deposited in temporary glacial lakes and streams formed by water from the melting glacial ice. Others, such as terrace and flood-plain deposits, were also laid down by water, but water of nonglacial origin such as rain and snowmelt. The action of water sorted the material into layers containing mixtures of particular grain sizes, such as gravel, sand, silt, and clay. Very often the texture of stratified material at depth is different from the texture of the surface materials shown on the map (fig. 1).

Textures are defined in terms of particle-size distribution within a deposit. Figure 2 shows the diameter ranges of 11 particle sizes and defines 3 particle-size classes— gravel particles, sand particles, and fine particles. Figure 3 shows the range of particle sizes which can occur in different proportions within each deposit as defined by the map units—till deposits, sand and gravel deposits, sand deposits, and fine deposits.

SOURCES OF DATA

Compilation of this map is based on information from different sources at several different scales. Published and unpublished geologic maps are the primary source; logs of wells and test borings and reconnaissance field mapping supplied additional basic data for selected areas. Massachusetts and Connecticut portions of the map area were compiled primarily from 1:24,000-scale maps; Vermont and New Hampshire portions were compiled from 1:62,500-scale maps. Sources of data are listed below by quadrangle (fig. 4).

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Radway, J. A., 1976, Map showing unconsolidated materials, Avon quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–514C, scale 1:24,000.

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BERNARDSTON, MASS.—VT.
Stone, J. R., 1975, unpub. data.

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BRANFORD, CONN.
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COLRAIN, MASS.—VT.
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DEEP RIVER, CONN.
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Stone, J. R., 1974, unpub. data.

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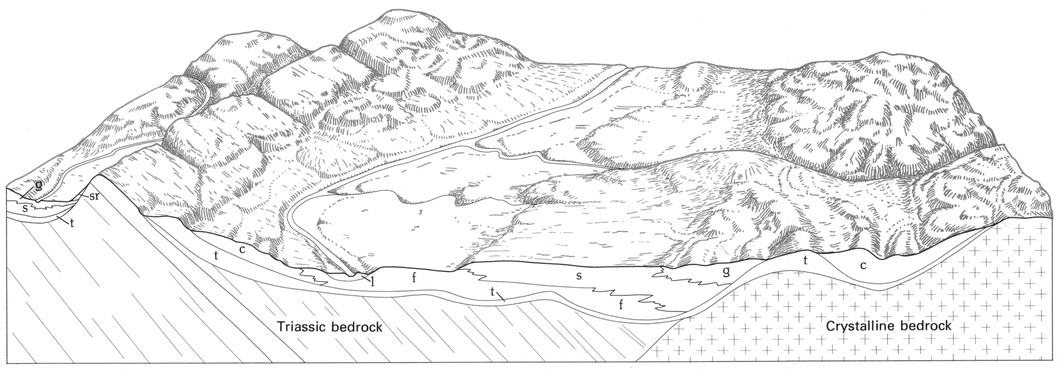

EXPLANATION

- t — Till deposits
- g — Sand and gravel deposits
- s — Sand deposits
- f — Fine deposits
- c — Sand and gravel deposits and sand deposits, undifferentiated
- l — Sand deposits and fine deposits, undifferentiated
- sr — Sliderock

FIGURE 1.—*Block diagram showing relationship between bedrock and mapped units*

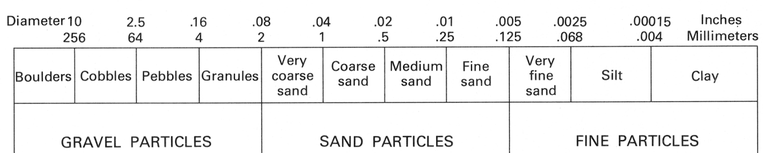

FIGURE 2.—*Diagram showing particle-size classification used in this report*

FIGURE 3.—*Diagram showing ranges of particle sizes in the mapped textural units*

FIGURE 4.—*Index map showing locations of quadrangle within the project area. The sources of data used in compiling the map are listed by quadrangle on this sheet*

MAP SHOWING TEXTURES OF UNCONSOLIDATED MATERIALS, CONNECTICUT VALLEY URBAN AREA, CENTRAL NEW ENGLAND

By

Janet Radway Stone, Elizabeth Haley London,
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1979