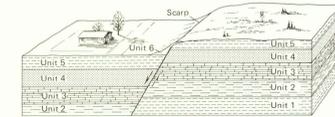


INTRODUCTION

This map shows the location of known or inferred faults in part of Salt Lake County and Salt Lake City, Utah. Most of the faults in the Sugar House quadrangle are part of the Wasatch fault zone, but the thrust faults in Neffs Canyon and Mill Creek Canyon are much older than the faults of the Wasatch fault zone. Knowledge of the fault locations should be helpful to people concerned with using and developing land, and to people concerned with disaster planning in the not unlikely event of a major earthquake in the vicinity of Salt Lake County. Movement along faults in this area may not be confined to those shown on the map. Fracturing of the ground surface could happen anywhere within or near the fault zone, although it is most likely to happen along or near the younger faults.

WHAT ARE FAULTS?

Faults, shown by the colored lines on the map, are fractures that extend into the crust of the earth. They mark places where the rocks of the earth's crust have broken. The accompanying sketch shows how a fault might appear in cross section, such as in a deep roadcut or on the side of a very deep trench. The arrows show the relative movement on opposite sides of the fault. The faults were formed at various times from great pressures within the earth caused parts of the crust to break and slide past one another.



A knowledge of the location of faults and an understanding of the nature of the earthquake activity that is related to them is necessary for man to accommodate himself and his works to these hazards. Geologic mapping shows that the earth's crust has broken repeatedly in the vicinity of Salt Lake County, and many of the offsets are so large that they must have been accompanied by major earthquakes. The time when movement last occurred on a fault can be roughly determined by learning the age of the youngest geologic formation that has been broken by the fault (unit 5 in the sketch), and the oldest formation that has not been affected (unit 6 in the sketch). The ages of the geologic formations that are younger than the bedrock in this area have been obtained by the radiocarbon dating method, and by determining the amount of weathering they have undergone since they were formed. Scarps a few feet to a few tens of feet high mark most faults along which there has been movement within the last 5,000 years. Older faults probably once had similar scarps, but these scarps have now been mostly removed by erosion. The inferred age of the last movement of the various faults is shown by the different colors on the map.

FAULTS ARE IMPORTANT TO PEOPLE

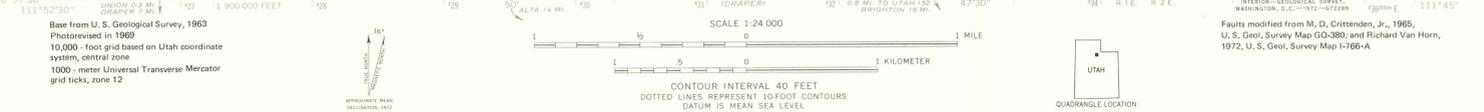
The location of the faults and the time movement last occurred on them are important to the people who live in the Salt Lake County area for several reasons:

1. Vital utilities such as gas mains, water mains, sewer lines, electric lines, and telephone cables that cross a fault may break or be severely damaged by renewed movement along the fault.
2. Buildings, roads, railroads, bridges, and tunnels constructed across a fault may be severely damaged by renewed movement along the fault, which could cause one part of the structure to move relative to another part.
3. Violent shaking of the earth's surface may occur as much as several miles away from the fault in the event of renewed fault movement. This shaking may severely damage manmade structures, activate landslides, and cause the ground to settle. The severity of the shaking and its effects would depend on the strength of the earthquake, the weakness of the earth materials, and other factors. Although movement may take place along any of the faults shown on the map, or even in areas where faults are not shown, the most likely place for future movement is along the most recent faults or in areas near them - either as renewed movement of, or as new movement along the extension of, existing faults, or as new, separate faults.

EXPLANATION

All faults are approximately located or inferred. They are dotted where concealed by overlying deposits and queried where their existence is likely or suspected but not definitely known.

- Faults along which some movement probably has occurred within the last 5,000 years
- Faults along which some movement probably occurred between 3,000,000 and 5,000 years ago
- Faults that probably have been inactive during the past 3,000,000 years
- Thrust faults that are much older than the Wasatch fault zone and that probably have been inactive for many millions of years



MAP SHOWING RELATIVE AGES OF FAULTS IN THE SUGAR HOUSE QUADRANGLE, SALT LAKE COUNTY, UTAH

By
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1972