
The subtitle of this handsome and well-written monograph, "Glacial geology and archeology at the crest of the Colorado Front Range," is a nutshell summary intimating a bidisciplinary study. However, true to Quaternary studies, the breadth of subinvestigations required to place the archaeological sites in the Arapaho Pass area in geological and paleoenvironmental context expand well beyond the marriage of two disciplines.

The high energy environment of Arapaho Pass has been discontinuously utilized by man for at least the past 8500 years. Notable among the traces of human habitation are the remains of stone cairns and walls that served as a game drive system. Prior to and during this period, the processes of glaciation, snow and rock avalanche, debris flow, and cryoturbation have shaped and altered the topography of this area. In order to date the many archaeological sites scattered over more than 4 km² at elevations ranging from ca. 3400 to 3700 m and to establish the paleoenvironmental record for the area, the relative and absolute ages of the substrates of these sites and other landforms were determined.

Benedict had to reach deep into the Quaternarist's bag of tricks to accomplish this task. Among these quantitative and semiquantitative methods are radiocarbon dating, lichenometry, relative weathering, rind thickness analysis, and analysis of granite-surface weathering characteristics. The author used radiocarbon dating to calibrate these latter three methods. His generally favourable results will be useful to anyone interested in dating substrates in alpine or arctic environments. His use of a size frequency method in lichenometric dating of surfaces where a few individual lichens may have survived snow kill or stone overturning is particularly noteworthy in this regard. The results of these methods combined with geomorphic investigations have served to date five Neoglacial advances in the area.

The archaeological finds in this study illuminate a long and ingenious utilization of a geologically active and climatically fickle alpine environment by the first Americans. The archaeological sites have yielded tools, projectile points and other artifacts from the paleoindian to the protohistoric period. Benedict gives the game drive system and details of ships to be found thousands of facts about the Greenland and Davis Straits trade. They need only to be dug out to provide the foundation for a history of the whaling trade. Those facts are to be found nowhere else. This guide shows how to get at them.

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