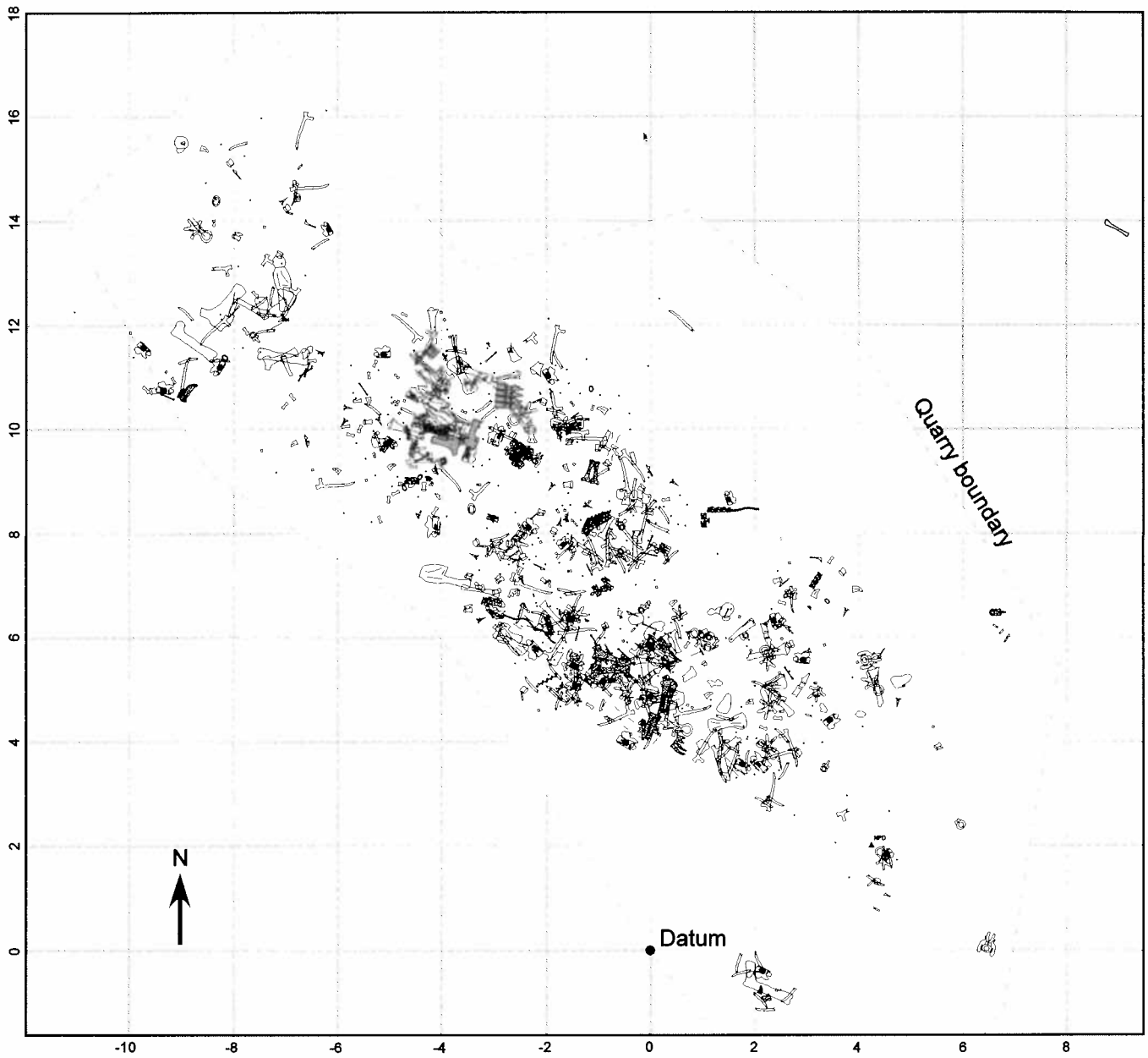

FIGURE 3—Quarry map showing position of bones excavated during the first four Cincinnati Museum Center field seasons (2000–2003). The bones are tightly packed, and adjacent specimens are often in contact with one another. Shading indicates bones that are either articulated or closely associated. Grid squares are each 2 m × 2 m.

t = dip direction of quarry bed (255°);
b = azimuth of element from datum;
d = depth of element below datum; and
D = distance of element from datum.

Errors in corrected depth values arise as a result of variability in the average attitude of the quarry bed, creating inaccuracies in the absolute depths of elements below the upper contact of the bone bed. The corrected depth values, however, are internally consistent and accurately reflect the relative depth distribution of items. Given measurement errors in azimuth, distance, and depth relative to the quarry datum, corrected depth values reported here are reliable for only relatively low resolution analyses using depth intervals at least 25 cm thick.

A number of sediment samples from the quarry and the surrounding strata were collected for grain-size analysis to constrain spatial variation in grain size to aid in interpretation of the depositional environment at the site. The position of each sample within the quarry was recorded prior to removal.

Lab Methods

X-ray diffraction analysis was used to ascertain the mineralogical composition of the quarry sediments. Samples collected from the quarry and nearby vertical pits (Fig. 4C) were analyzed for horizontal or vertical transitions in grain size. Each sample was sonicated before analysis to break down any matrix not fully disaggregated by hydrochloric acid and peroxide treatments. Three analytical runs were performed on every sample using a Beckman Coulter particle-size analyzer, and the average of these analyses was used to produce grain-size curves.

Each skeletal element was examined for evidence of bone modification features such as bite marks (Chure et al., 1998), insect borings (Rogers, 1992), weathering cracks (Miller, 1975; Lyman and Fox, 1989), abrasion (Shipman and Rose, 1983), and breakage (Villa and Mahieu, 1991). Weathering damage was categorized using the stages developed by Behrensmeyer (1978) and modified with the understanding that grease content cannot be assessed for fossilized bone (Fiorillo, 1988). Some difficulty