INTRODUCTION:
In the fall of 2012 at the Coyote Canyon South Hill-Maupin Site (CCSH-MS) a fragmented cannon bone was discovered in a southwest facing cut in the hill designated locally as South Hill. This site is some 300 meters southwest of the Coyote Canyon Mammoth Site in Benton County, Washington. The CCSH-MS site is part of a 32-acre parcel of research land currently being studied by the MCbones Foundation in southwest Kennewick, Washington, and is located in the Horse Heaven Hills of the Columbia Plateau (Fig. 2). The bone was found at an elevation of ~314 m asl. Here we investigate the bone element identity and species, and its relationship, if any, to the Ice Age flood deposits and mammal bones at the Coyote Canyon Mammoth Site.

Fig. 2: Location of the CCSH-MS Camelops hesternus site.

SPECIMEN DESCRIPTION:
The bone is partial and fragmentary; approximately one third of the bone (distal end) is missing (see Fig. 1). The greatest extant length is approximately 275 mm. Cancellous bone is exposed in patches on the edges of the articular epiphysis. The bone exhibits late stage 2/early stage 3 weathering. CAT scan sectioning of the bone reveals evidence of two fused bones (Fig 1 F). It is morphologically consistent with the structure of an artiodactyl cannon bone. The CAT scan aided in the diagnosis as to the side of the cannon bone (right metatarsal). The proximal surface of the bone has two discernable crescent shaped facets in the medial and lateral positions. The greatest breadth of the proximal end is 70.7 mm. The bone recovered in the fall of 2012 is 9.5 cm below the bone from the proximal end. The plantar side of the diaphysis has two clear nutrient foramina located 113 mm below the proximal articulation. The greatest breadth of the bone at the nutrient foramina is 38.0 mm. The circumference of the bone at the nutrient foramina is 137.0 mm.

Fig. 1: Six views of the CCSH-MS Camelops hesternus right metatarsal. A: proximal, B: medial, C: dorsal, D: plantar, E: lateral, and F: CAT scan-sections made during diaphysis. (Photos: K. Detrick; Radiograph: N. Mara; Graphic image: N. Event)

MORPHOMETRIC DIAGNOSIS:
By visual comparison we determined the bone was a metapodial (cannon bone), and through morphological comparison we eliminated other potential candidates from the artiodactyls such as cervids and bovids. With the exception of the other Pleistocene artiodactyls. Focusing on camels in North America, we found the bone was too robust to be Hemiauchenia and too long to represent Paleolama. The proximal end of the metatarsal is eroded, and lacks the postero lateral process (for attachment of the long plantar ligament) prominent in many camels. We compared the metric ratio of proximal greatest breadth to depth for our specimen against the same data for Hemiauchenia and Camelops metatarsals from La Brea and American Falls (Fig. 3). In addition the plantar foramen is consistent with similar foramina found on Camelops specimens from La Brea and American Falls sites. Our specimen compares well to Camelops hesternus metatarsals from American Falls.

Fig. 3: CCSH-MS camelid metatarsal specimen compared to Camelops hesternus metatarsals from La Brea and American Falls.

RADIOCARBON DATING:
A single sample for carbon analysis was collected from the bone, and sent to Beta Analytic, Inc. (Miami, FL). The sample gave a date of IRMS AMS 21010±70 BP (Beta 45508), suggesting an early LGM calibrated age range of 25,450-25,275 ± 30 (2σ) calBP (at 68% probability), with a range of 25,525-25,215 ± 20 (2σ) calBP (at 95% probability). Isotope analysis on this specimen yielded scores of -18.9 (d13C) and +7.2 (d15N), suggesting a terrestrial LGM diet dominated by C3 vegetation. Given the radiocarbon date and the associated stratigraphic limiting OSL date we believe the bone was redeposited from an earlier stratigraphic context.

SIGNIFICANCE:
This modest record of Camelops hesternus from the Coyote Canyon-South Hill site apparently provides initial documentation of 14C/AMS dated specimens of Yesterday’s Camel from the Columbia Plateau of western North America (Fig. 5).