A soil auger of the post hole auger type has been used by the soil survey parties in the Wasco and Bakersfield areas in California and has been found useful over a much greater range of texture and moisture conditions than any other type of auger familiar to the authors. It consists of a 3 1/2-inch steel cylinder of thin-walled well casing 8 inches long to which are welded 2 triangular-shaped blades of high-grade tool steel, equally spaced on the bottom edge of the cylinder. The cutting edges of the blades are flared out slightly at the center so that the hole cut by the blades is a little larger than the outside diameter of the cylinder. The lower edge of each blade is curled inward slightly to hold the soil in the cylinder, and the tips of the blades are turned downward to make the auger dig in better. A number of adjustments on the shape of the blades may be necessary before the most effective set is reached. A hardwood handle is connected to a piece of 1/2-inch pipe, which is, in turn, fastened to the cylinder with two steel strips welded to the pipe and to the inside wall of the cylinder. Strips slightly wider than those shown on the diagram are recommended because these narrow strips are rather easily twisted. Sixty inches is a convenient length for the entire auger, the general features of which are illustrated in figure 1.

Augers with 2-inch, 3 1/2-inch, and 4-inch cylinders have been used. It is difficult to remove the soil from the cylinder in the 2-inch auger. The 4-inch auger appears to be about the maximum size for general use under the wide variety of conditions encountered in the field, with the 3 1/2-inch most desirable.

In using the auger it is necessary to fill the cylinder completely and then give it a few additional turns to pack the soil. Soils that are real dry may be brought though they are as coarse as light sandy loams or loamy sands. The auger successfully used in loose sands are slightly moist but not when dry. For medium-textured soils ranging from sandy loams to clay loams, good results are obtained either under wet conditions. The auger works very well in heavy soils when they are dry, but soils, when wet or even when very moist, pack tightly in the auger and are removed with great difficulty. The worm auger is more desirable under these conditions.