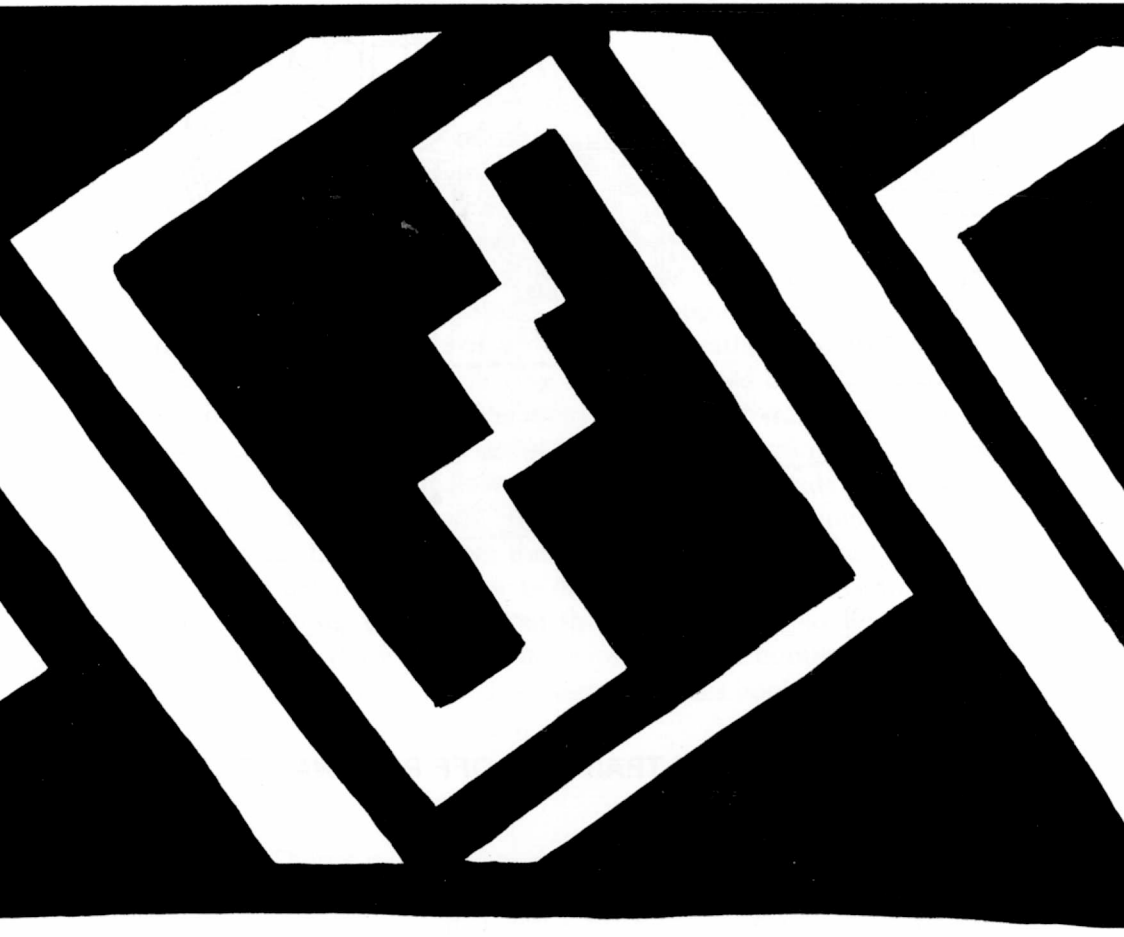
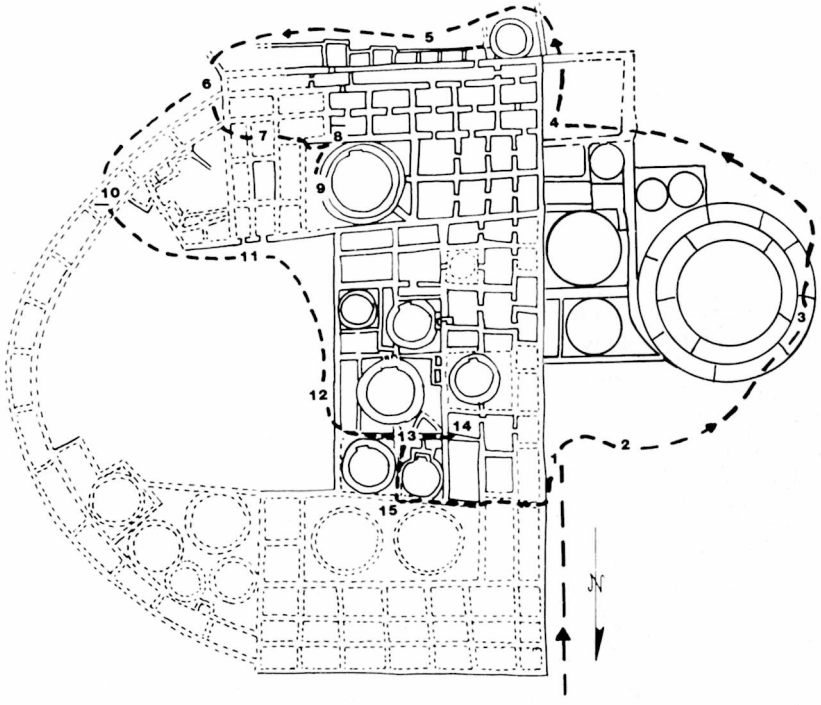
PUEBLO DEL ARROYO



CHACO CULTURE NATIONAL HISTORIC PARK
NEW MEXICO



PLEASE STAY ON TRAIL AND OFF RUIN WALLS

PUEBLO DEL ARROYO

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PUEBLO DEL ARROYO

After 500 years of relatively little change, the Pueblo Indian farmers of Chaco Canyon experienced a cultural explosion in the A.D. 1000s. People who were accustomed to living in small, scattered pueblos of ten to thirty rooms — each sheltering a clan, or a large extended family — found themselves in almost an urban environment. Between about A.D. 1025 and 1075 the population of the canyon doubled, and the home of a slow-moving, rather primitive society became the setting of a thriving center operated by a tightly structured social system where the interests of the individual were subordinated, not just to close family, but to a larger community. During this period irrigation canals were dug, a network of roads was laid out to radiate in all directions, and with an intensive building boom a dozen great houses of from three to five stories were built.

Pueblo del Arroyo is one of those great houses. It has several features different from those seen at Pueblo Bonito and Chetro Ketl. Along the one quarter-mile trail are numbered markers corresponding to numbered paragraphs in this booklet. Please stay on the trail and off ruin walls.

1 Though most of the masonry in Pueblo del Arroyo corresponds with the best in Pueblo Bonito and Chetro Ketl — built with a dense, dark brown sandstone that occurs at the tops of the north cliff — much of it is made of the softer, lighter colored, blocky stone of the main cliff. It may be that the choicer material was in short supply in this part of the canyon by the time the pueblo was started.

There seems to be more expression of personal preference on the part of the masons here than in the other great houses — there is a wider variety of types of stone veneer in relatively small sections of the house. Still, this 268-foot outer wall, and the balanced plan of

the village, are evidence that it was not a hodge-podge of individual efforts, but was a result of a pre-planned community activity operating under a central control.

Tri Wall [photo by Hal Malde]

2 This peculiar building was abutted to Pueblo del Arroyo's rear wall after some six feet of water-and wind-borne silt and sand had accumulated against that wall. It consists of two concentric bands of rooms encircling a central area. The "tri-wall structure,"

as it is known, is one of the ten similar complexes known in the Southwest — most of them north of the San Juan River. Their function isn't known, but most, if not all of them, enclose a kiva, and the two that have been excavated revealed none of the usual features of ordinary dwellings. During the later part of the Chaco culture there appears to be an increased variety of specialized buildings, such as this tri-wall structure.

Note the masonry of large blocks of soft sandstone with small stone spalls inserted in the mortar. That style of masonry and the type of pottery found here are common in the Mesa Verde area of southwestern Colorado and adjacent strips of Utah and New Mexico.

After a burst of activity and innovation the great experiment in Chaco began to slow down. By the mid-1100s the population began to dwindle and many rooms in the great houses were unused. Some of the slack was taken up by the Northern Anasazi who reoccupied some of the sites and built a few smaller pueblos of their own, but the boom was "busted," and after another century the latest arrivals also left.

3 It was this abandoned streambed on the left that gave Pueblo del Arroyo its name. This was the main channel of Chaco Wash in 1848 when the ruin was first described. Sometime between the summer of that year and the visit twenty-eight years later by William H. Jackson, a famous pioneer photographer, the channel shifted to its present position sixty feet to the south, and erosion deepened the new wash to sixteen feet. Cutting continued to a depth of thirty feet by 1940 — a process that seems to have slowed, or possibly even to have reversed. The new and old streambeds join just to your right.

Geologists have identified at least four major cycles of cutting and filling in the past 7,000 years in Chaco Canyon. Most of the eight centuries of Anasazi history in the canyon was in a period when the valley floor was rising because of deposition of silt from

erosion going on upstream at the head of the drainage. Some early dwellings built in the floodplain about A.D. 700 are buried under twelve to fifteen feet of water-carried soil. A short period of erosion, probably about the time of Pueblo del Arroyo's peak, cut a channel seven to eight feet deep, but this was silted up again after the canyon was abandoned, as sediments continued to bury smaller ruins and the lower walls of the larger ones. The scene before you is probably not much different from what it was in A.D. 1100.

4 This plugged door was one of only two first-floor doors leading out of the main pueblo — others may have existed in the low arc of unexcavated rooms fronting the plaza. The door was plugged with crude masonry and may, in fact, have been in use only a short time, having been left open only long enough to get materials into the inner rooms during construction. A similar door in the south wall was also closed off.

5 The three to four-story south wall, quite close to the old arroyo, began to settle during construction or very shortly after. To prevent its collapse diversion walls, no longer visible, were built at each end to force water away from the house. As an additional measure, a series of masonry buttresses, roughly four feet long and five feet high, were placed at the base of the wall. Still later, the settlers from the Mesa Verde country extended the buttresses and added an outer wall to build a two-story annex with eight or more ground floor rooms. You can easily see the contrast between the fine veneer and the cruder work that was characteristic of Mesa Verde at this period. The contrast was not as apparent when these rooms were lived in because the interior walls were plastered.

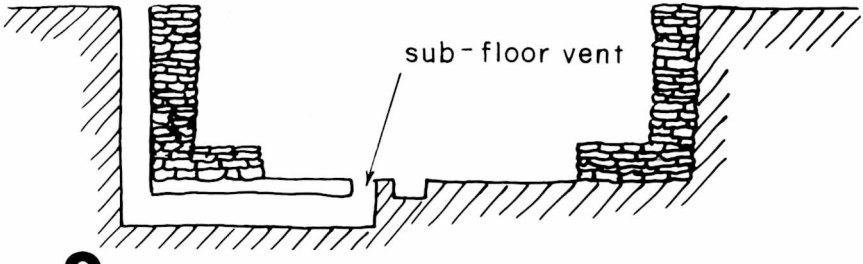
Holes were cut into the stone veneer of the older wall for beam seats, and at least three doorways were broken through to provide access to the interior rooms. One of the two rooms had a mealing bin, and four contained fireplaces. A small Mesa Verde style kiva was built at the west end of the new rooms, and another is suspected to lie below the surface in the unexcavated area at the east end. A sample from the clay rim of a firepit yielded an archeomagnetic date of A.D. 1130.

6 The unusually long and narrow room at your feet was originally built to extend 111 feet — almost the full length of the south side of the house. Later it was divided by two partitions — another partition may lie under this unexcavated corner. The second story, above the long room, was built from the beginning to include six rooms, corresponding to the division in the next tier of rooms to the north. The purpose of the corridor may have been to furnish protected access to the rooms in the southwest corner of the pueblo. Three doors leading out of the corridor, as it was first built, allowed access to a block of eleven ground floor rooms.

Note that the ground floor partition wall in front of you is wider at the top than at the bottom — evidence that the outer wall had leaned to the south before the long passage was divided.

7 The masonry in the west wing is the finest in the pueblo, but even here the excavators believed that many of the stones were salvaged from smaller nearby pueblos already in ruins, or were leavings from the depleted quarries on top of the north cliff.

8 The room in front of you is unusual in that it had a firepit on the ground floor of a three-story section. It is possible that it was built and used only during construction. A chimneyless fire down there would have made life unbearable for the people "upstairs."



9 This kiva is the largest excavated in Pueblo del Arroyo (there are probably eight kivas yet undug); it is the most typically Chacoan, and is one of the few that was not rebuilt, moved, or added later. It is still unaltered in the space provided for it when the south wing was built. It was set into a rectangle of stone retaining walls, the corners of which — outside the circular wall of the kiva — were filled with rubble and leveled even with the flat roof of the kiva. This made a small courtyard surrounded on three sides by third floor living quarters.

The kiva was equipped with the traditional Chaco-style sub-floor ventilator, and eight pilasters made of masonry-enclosed, squared timbers lying across the bench with their butts set back into the wall. Fist-sized, cup-shaped cavities were carved into the surfaces of the horizontal logs to make receptacles for offerings to bless the kiva before the timbers of the cribbed roofing were laid in place. This was common practice during Chaco's classic period. The small repositories were then sealed with carefully fitted lids of stone or wood. Though the kiva was partly destroyed by fire, and subsequently used for a trash dump, the nearly consumed pilasters still held their sacred gifts. The archeologists recovered 542 beads, pendants, scraps of shell and turquoise from them.

Before leaving, turn to look back into the pueblo's central section. The courtyard you are standing in was an offset continuation of a larger terrace of rooftops extending into the center of the north wing. Imagine tall ladder poles standing above the hatchways of nine kivas out there — one with a banner of feathers as a notice that the kiva is in sacred use. At a fire at the edge of the court a woman stirs corn gruel in a smoke-blackened pot. Seated leaning against the wall of her third floor home, another nurses her baby. Children chase each other down ladders into the plaza where dogs bark at their heels. An old man on a kiva roof is weaving a basket of yucca leaves, while his brother dozes in a doorway dreaming of still older times when giants walked the earth.

10 About one-third of the ruin was excavated in the summers of 1923 through 1926 by Karl Ruppert, a young archeologist who later became noted for his explorations in the Mayan cities of Yucatan. He worked under the general direction of Neil Judd who was digging in Pueblo Bonito at the same time for National Geographic Society and the U.S. National Museum.

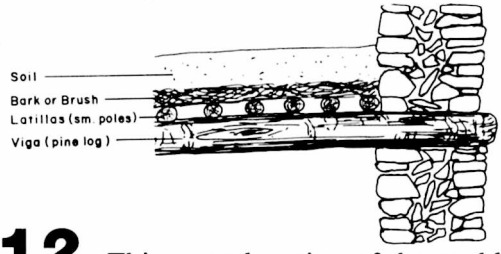
You are standing on the unexcavated rubble of an arc of one-story rooms which enclosed the plaza. It is probable that a great kiva lies below the open plaza but the expedition's funds ran out before the testing was completed.

The entire building and its court cover a little more than one acre.

1923 Excavation

11 These dark ground floor rooms were used for storage. Living quarters with fireplaces were in upper stories above them. Go inside and look up at the walls overhead. Note that the walls above you are offset somewhat. When the builders completed a room they put in a ceiling of heavy timbers across the shorter span, then smaller poles were laid at right angles to them. The poles were covered with split juniper shakes, which in turn were topped with shredded juniper bark, reeds or grass, and finally five or six inches of earth. The ceiling provided a platform from which to work, while raising the wall

of the upper room. Each succeeding wall, as work progressed upward, had less weight to bear and could be made a little thinner, but once the ceiling was in place the workmen couldn't see the exact dimensions of the wall below them and sometimes they misjudged.



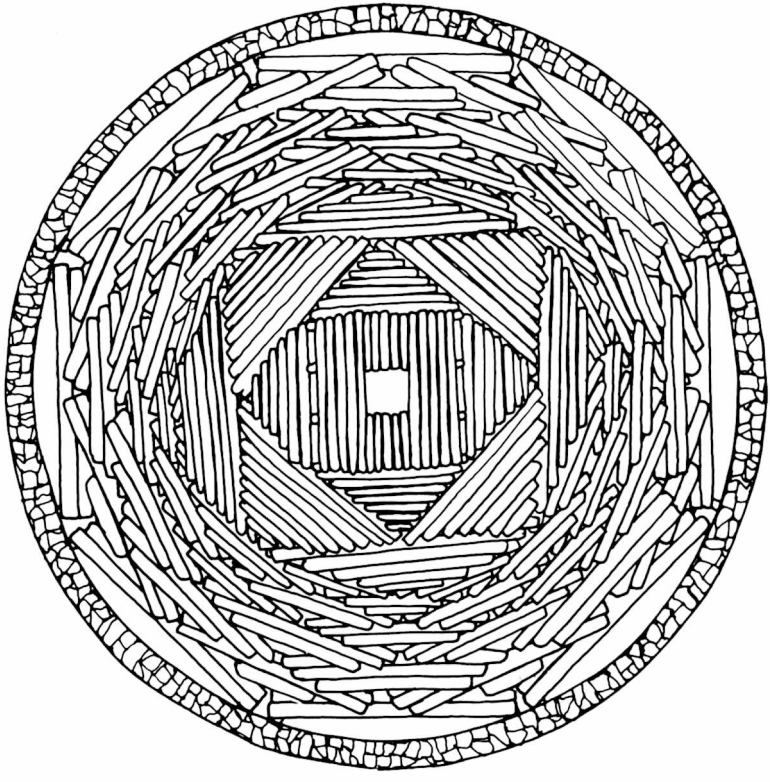
12 This central section of the pueblo was built first, with construction starting about A.D. 1075 — about forty years after its close neighbors, Pueblo Bonito and Chetro Ketl. The north and south wings were added still later, between 1105 and 1117. Pueblo del Arroyo differs from most other great pueblos in facing east rather than south, and it is the only one set out in the open floodplain away from the cliffs. But like the others, it was a terraced house with a four-storied section at the rear, stepped down to one-story rooms like the one in front of you.

This room is unusually long but it had a firepit in the floor and was apparently used for a while as a dwelling. The skeletons of three macaws were found on a few inches of drifted sand on the floor and the room may have been used for a time as a macaw pen. These gorgeous birds were highly prized for their feathers which were used in ceremonial costuming. They are native to southern Mexico and were not raised here — only mature birds are found.

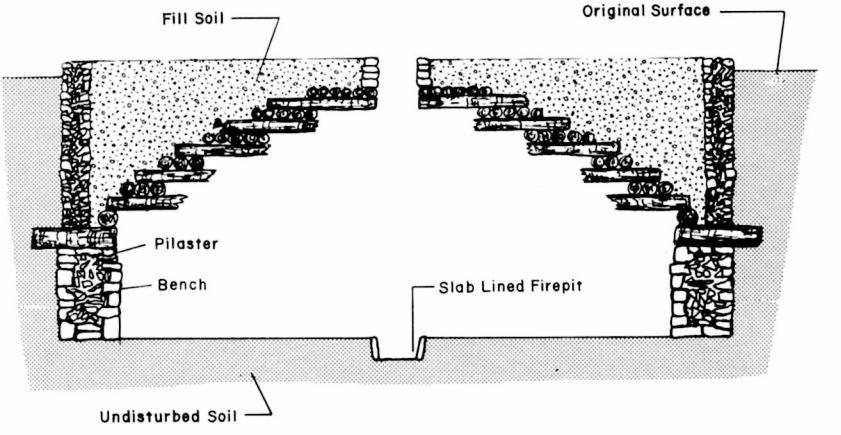
Other items of trade from Mexico are shells from the Gulf of California, and small "hawk's bells" cast of copper. One article of trade that was going south was turquoise. The treasured blue stone was used in great quantities in central Mexico where it does not occur. There is no turquoise mine in the vicinity of Chaco but many beads, pendants, and chips of waste stone are found. Chaco Canyon may have obtained its turquoise from Cerillos, south of Santa Fe.

13 The circular chambers around you are kivas, which are, among the modern pueblos, primarily religious structures for prayer meetings, performances of ritual, and for dressing rooms for the elaborate ceremonial dances held in the plaza. They could be used as council rooms, club houses, and workshops when the weather was bad. There was no separation between church and state in the pueblo world. All aspects of life were viewed as parts of the whole pattern.

The smaller kiva, on your right, was roofed with long timbers from wall to wall to make a six-foot ceiling and also a flat, open courtyard in front of rooms to the west and south. A hatchway over the firepit made a smoke hole, as well as an entry by means of a ladder. The trench in the floor, except for an opening in the firepit, was covered with small sticks and flagstones to make a subfloor tunnel which went under the wall to join a vertical shaft that opened in the courtyard to provide ventilation.

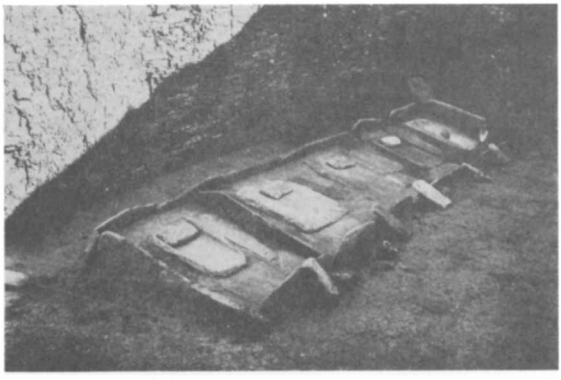


The larger kiva, on the left, is more typical of Chacoan kivas. The bench supported six pilasters, each consisting of a horizontal log encased in plastered masonry. The pilasters held the butts of logs reaching from pilaster to pilaster to encircle the chamber. Above these, another series of somewhat shorter logs made a smaller ring. Additional tiers of logs made circles of ever-decreasing size until the desired height was reached. The remaining space was covered with poles, leaving an opening for a hatchway. The result was a dome-shaped ceiling, but the roof was flat at the surface of the courtyard after the space outside the log cribbing was filled with rubble and covered with packed soil.



Several two-story rooms were torn out to create space for these kivas, and the rooms themselves had been built above still earlier kivas that had been filled to provide foundations for them. Renovation didn't cease with the building of the latest kivas. The large one was originally furnished with a subfloor ventilator tunnel, but at some later date the tunnel was filled, an opening was made in the bench south of the firepit, and a new tunnel was burrowed back to join the old shaft. A masonry deflector was erected on the floor just south of the firepit to prevent a strong draft of air from blowing directly on the fire. This system of deflector and ventilation tunnel above the floor is a common trait in the Mesa Verde area north of the San Juan River.

14 The first construction of this section of the pueblo consisted of a long line, two rooms deep — living rooms backed by smaller storerooms. At first the big room at your right was part of the open plaza. A kiva lies five feet below the floor at the north end. The kiva was abandoned and filled when this room and several others to the east and south were put up. The doorways in the east wall were plugged when those eastern rooms were torn down to make room for the kiva you have just passed.



The ground floor room, with a living room above it, was equipped with five mealing bins for grinding corn. Several hours were needed to grind the daily meal requirement for a family, and until a couple of generations ago it was still a common practice in the pueblos for related women to work together at the task to relieve the arduous drudgery.

15 The north wing of the pueblo remains unexcavated except for a kiva that was dug out in recent years in order to preserve it. The exposed upper walls were deteriorating and it was excavated to the floor so loose stones could be put back into place and be remortared.

An unexcavated section of a ruin can be a valuable archeological resource. For example, before the technique of dating by means of tree-rings was developed in the 1920s by a scientist from the University of Arizona (working primarily with timbers from Pueblo Bonito), construction wood specimens were commonly discarded as worthless, or even used for an expedition's cooking fires. Until the 1950s when the half-life of carbon-14 could be determined and dated, charcoal was thrown out with the back-dirt. In the 1960s a method was developed that made it possible to determine, within a few years, the date the clay liner of a firepit was first burned — but only after many such features had been exposed to weather and destroyed. This untouched part of the ruin is a safety-deposit of material where still undiscovered techniques may be applied in the future.

OTHER THINGS TO SEE IN CHACO CANYON

1) Across the canyon on the small sites and CASA RINCONADA TRAIL you may explore an isolated great kiva, and visit three small pueblos.

2) Just east of the Pueblo del Arroyo is PUEBLO BONITO the largest ruin in Chaco Canyon.

3) CHETRO KETL, about ¾ of a mile east, is the second largest of great houses.

4) At the VISITOR CENTER, 4½ miles east and up the canyon, you can get further information. There are restrooms and a small museum there.

PLEASE RETURN THIS BOOKLET
TO THE STAND AT THE START OF THE TRAIL
OR
DEPOSIT 40¢.

4th Printing — SPMA — 10M — 7/87

Brief Metric Conversion Table

½ inch	=	12.70 millimetres
1 inch	=	25.40 millimetres
2 inches	=	50.80 millimetres
1 foot	=	30.48 centimetres
1 yard	=	0.914 metres
¼ mile	=	400 metres
½ mile	=	800 metres
1 mile	=	1.6 km
3½ miles	=	6.5 km
4½ miles	=	7.2 km
15 miles	=	24 km
20 miles	=	32 km
60 miles	=	96 km
200 miles	=	320 km
1 acre	=	0.4 hectares
2½ acres	=	1 hectare