

WITANHURST
STRUCTURAL REPORT ON THE GARDEN STRUCTURES
11 MAY 2009 rev 26 May 2009

INTRODUCTION

The following report is the result of a visual inspection of the garden structures made by Michael Barclay Partnership LLP on 29 and 30 April 2009.

The garden structures consist of a number of retaining walls, steps, path, terraces and the remains of a terraced Italian garden. The structures appear to have been built in three or four phases with distinctive forms of construction.

1. Most of the brick walls both to the boundaries and within the garden in soft reddish brick with lime mortar.
2. Italian Gardens in brick with stone copings colonnades etc. To some extent these are built on top of earlier walls.
3. Grand steps and original tennis court walls. These are of crude brickwork faced in stone.
4. Existing tennis court walls are of later construction in stronger brickwork.

NOTE

The opposing faces of boundary walls were not examined.

The boundary wall along Highgate West Hill and the Pavilion were not examined but are discussed in other reports.

GENERAL OBSERVATIONS

The original brick walls (1) suffer from effects of weather which has damaged the faces of the soft brick and loosened the mortar. There has been movement owing to poor foundations and the action of trees in close proximity.

Construction both to the Italian gardens (2) and the grand steps (3) is of poor quality - poor compaction of fill and poor bonding leading to extensive structural damaged. Many of the stone surfaces have suffered badly from weathering.

The later tennis court walling tends to be in rather better condition.

REPORT

A detailed report follows with references to a site survey drawing and a series of photographs.

PHOTO REF.	LOCATION		CONDITION	RECOMMENDATIONS
1	1	Terrace and rockery steps	The sandstone(?) is of good quality, but both the terrace and steps are very uneven and almost certainly bedded on poor quality subbase material and underlying fill.	The terrace should be taken up and re-laid on compacted material. The steps should be taken up and re-laid on compacted material.
2, 3, 4, 5	2	Garden retaining wall of soft brick construction, retaining up to 1.3m of ground.	Poor, bricks loose, and wall up to 50mm out of plumb.	Take down and rebuild.
5, 5	2a	Brick paving and steps	Poor, bricks badly weathered and uneven. Inadequate subbase material.	Take down and rebuild.
6	3	Garden retaining wall of soft brick construction.	Poor, bricks loose, parts of the wall have collapsed.	Take down and rebuild.
8	4	Steps and wall.	Later addition in improved brickwork. Retains 1.7m of ground. Approx 30mm out of plumb. Severe deterioration in adjoining wall.	Rebuild required at north end.
9	5	Boundary wall	Could not be inspected from adjoining property. The wall at the east half has been rebuilt within the last 30/40 years. Brickwork weathered with cracking and severe deterioration at west end close at junction with wall 4.	Repair and partial rebuild required.
12	5, 7 and 8	There are three walls set in terraces leading from the tennis court up to the boundary wall at the top. The total earth retention is more than 3m. There are trees and scrub at the lower levels and a hedge at the top.		
9, 10, 11 and 12	6, 7	The top and middle soft brick walls are the earliest in construction - possibly designed as a composite system. The top wall is buttressed and the middle wall batters back.	The top wall could not be fully inspected without access from the adjoining properties. The walls are generally in poor condition. The top of wall 6 has a gap in the brickwork and is at least 100mm out of plumb. Parts may be dangerous.	Further inspection is required. Remedial measures may include partial reconstruction.
13	8	Tennis court wall. Wall of later construction, possibly 1950's	The bricks themselves are in reasonable condition, but the mortar is poor allowing slipping of the upper courses.	Repair and partial rebuild required.
14	8	Continuation of 1950's tennis court perimeter wall. The bank behind is overhung with decking to adjoining house.	Bricks reasonable, mortar poor.	Repair.
15	10	Buttressed 4.5m high retaining wall to the west side of the tennis court.	Diagonal cracks suggest foundation movement in the area of the pond. It is possible that the part above the pond has more substantial foundations than at the two sides.	Further investigation required including trial pits to assess the foundation. It may be possible to repair this wall.
16	11	Curved random stone wall to the east of the tennis pavilion.	This wall is in very poor condition.	Rebuild.
17, 18	12	Curved stair and square limestone(?) faced wall, backed in brickwork.	Stair steps uneven. Many of the limestone facings are weathered.	The steps require attention, but it may be possible to repair the wall.
19, 20, 21, 22, 22, 23, 24, 25	13	The walls to the lower terrace and grand staircase are of sandstone(?) blocks facing to a rough brick wall with an overall thickness of about 450mm. The coping and balustrades on the top are of softer limestone(?). The total ground retention is about 2m.	The sandstone blocks are of good quality, but the construction is very poor. The stones are not bonded to the brick and have bowed out from the face of the wall. The bricks are laid in a random manner. The copings and balustrade are severely weathered and partially collapsed. The sandstone steps and terrace have settled and are very uneven - an indication of poor subbase.	Take down and rebuild, the wall on a new foundation and re-lay the terrace and steps on compacted granular fill. It should be possible to save and re-use much of the durable sandstone facings and walking surfaces.

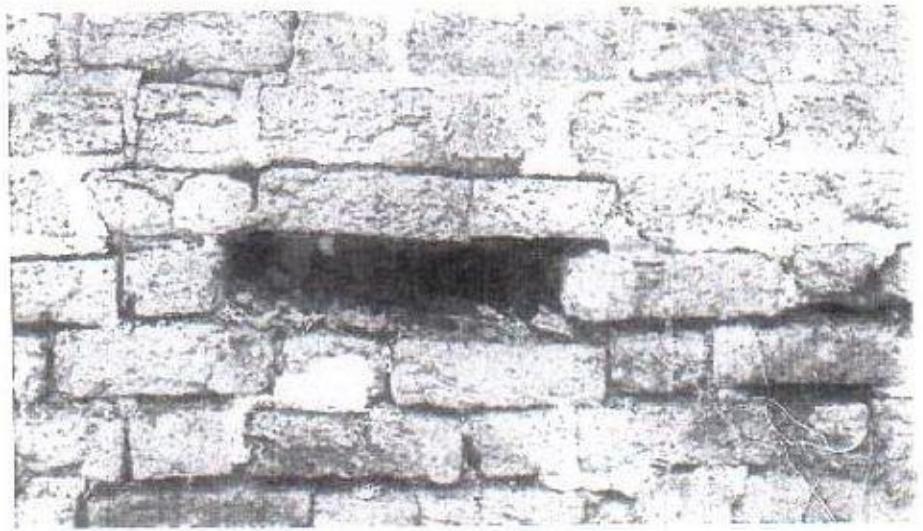
PHOTO REF.	LOCATION	CONDITION	RECOMMENDATIONS	
27, 28	14	Grand staircase	Similar construction to 13 above.	As 13
29	15	Curved stair and square limestone(?) faced wall, backed in brickwork and terrace	Wall construction similar to 13 above, but less deterioration. Terrace uneven.	Terrace should be re-laid on compacted granular material
30, 31	16	Sandstone (?) steps and low brickwall.	Stone is good, but sloping and uneven. Brick work is damaged.	Flagstones should be re-laid on compacted granular material. Rebuild brick walls.
	17	Sandstone (?) steps and low brickwall.	as 16	as 16
	18 - 23	Terraced Italian gardens	These gardens generally are in poor condition. The limestone copings and columns are all severely weathered and broken and the quality of the original construction poor: much of the construction is thought to have been built off inadequately compacted fill. Detailed comments on each element follow below.	
32, 33, 34, 35	18	Top head wall and central steps.	Brickwork weathered and cracking on both sides. East side 100mm out of plumb, west side 300mm out of plumb and now dangerous. Steps uneven.	Take down and re-build
32	19	Stone paving	Uneven	Re-lay on compacted granular material.
	20	East side walls and steps	Brickwork weathered and out of plumb.	Take down and re-build.
36	21	Middle head wall and steps	Brickwork weathered. Noticeable settlement - the two flanks slope at about 1 in 50 towards central stair	Take down and re-build
37	22	Middle east side wall and steps	Walls severely out of plumb.	Take down and re-build
36	23	Stone paving	Mostly already taken up and stacked.	
	24	Side wall	Severely out of plumb	Take down and re-build
38, 39, 40, 41	25	Bottom head brick wall, stone balustrade, central steps, side openings	Bad weathering to stone balustrade, slipped lintel to left side opening, cracking at junction with west side wall. Brick retaining wall appears to be reasonably robust. Steps uneven, plinths distorted.	Replace severely damaged features. Possibly repair the wall itself.
	26	Stone paving	Uneven	Re-lay on compacted granular material.
43, 44	27	Colonnades and pergolas	Timber mostly gone. Limestone (?) badly weathered and damaged and already dismantled. Most of the timber beams between the columns have gone.	Replace
45	28	Pool and walls, of concrete or possibly rendered masonry construction	Wall cracked and de-laminating.	Replace
46	29	Boundary wall in brick with 3.7m ground retention, possibly built up from concrete base.	Could not be fully examined as inspection only possible from one side..	Should examined from adjoining property.
47	30	Boundary wall in brick with large buttress behind. 3.8m ground retention	Could not be fully examined as inspection only possible from one side..	Should examined from adjoining property.
48, 49, 50, 51, 52	31	West wall of terraced gardens. A second brick wall is built on top of an earlier wall which was laid to a sloping brick course. Ground retention is up to about 1.5m	The brickwork is weathered, loose and generally in poor condition. In places it is as much as 225mm out of plumb	This wall should be taken down and re-built.
54, 55, 56	32	North west boundary wall. Brick with buttresses.	The wall is well buttressed and apart from weathering damage etc, the general condition appears to be fair. However this is a major retaining wall which could only be examined from one side.	Should examined from adjoining property and its stability further considered.
55	33	Garden room	Poor	Reconstruction may be necessary.



PHOTO 1: TERRACE AND ROCKERY STEPS



PHOTOS 2&3 : GARDEN WALL 2



PHOTOS 4&5: GARDEN WALL 2



PHOTO 6: GARDEN WALL 3



PHOTO 7: BRICK PAVING 2A

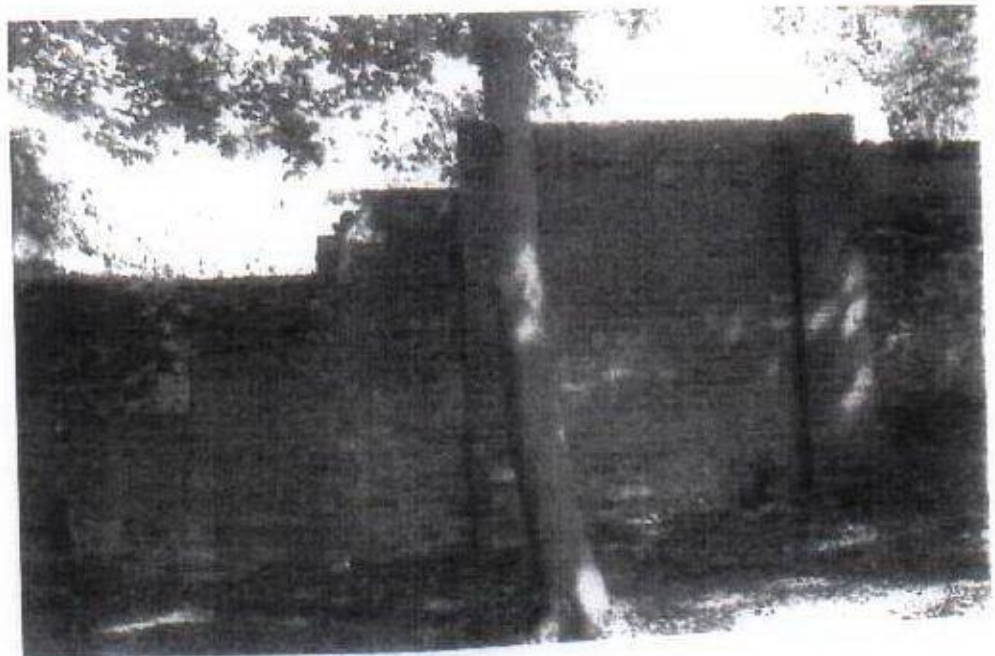


PHOTO 8 : GARDEN WALL STEPS 4



PHOTO 11 : BOUNDARY WALL

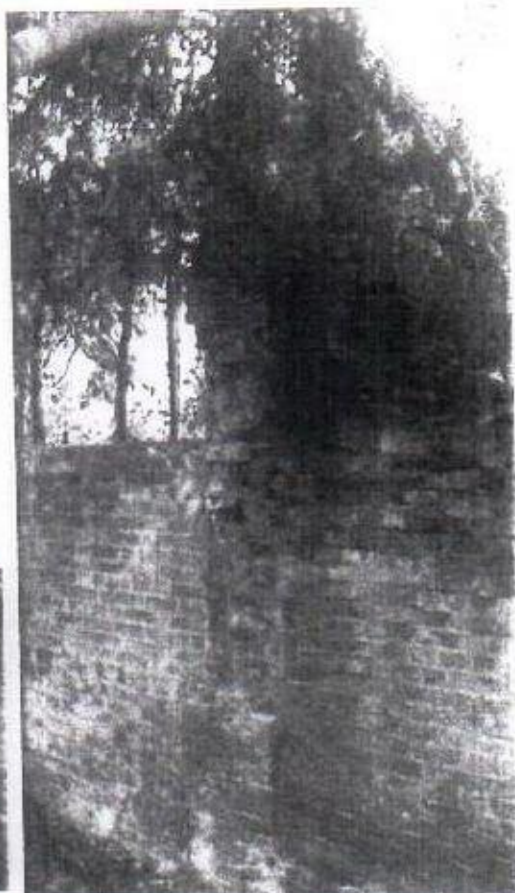


PHOTO 9: BOUNDARY WALL 5



PHOTO 10: BOUNDARY WALL 6

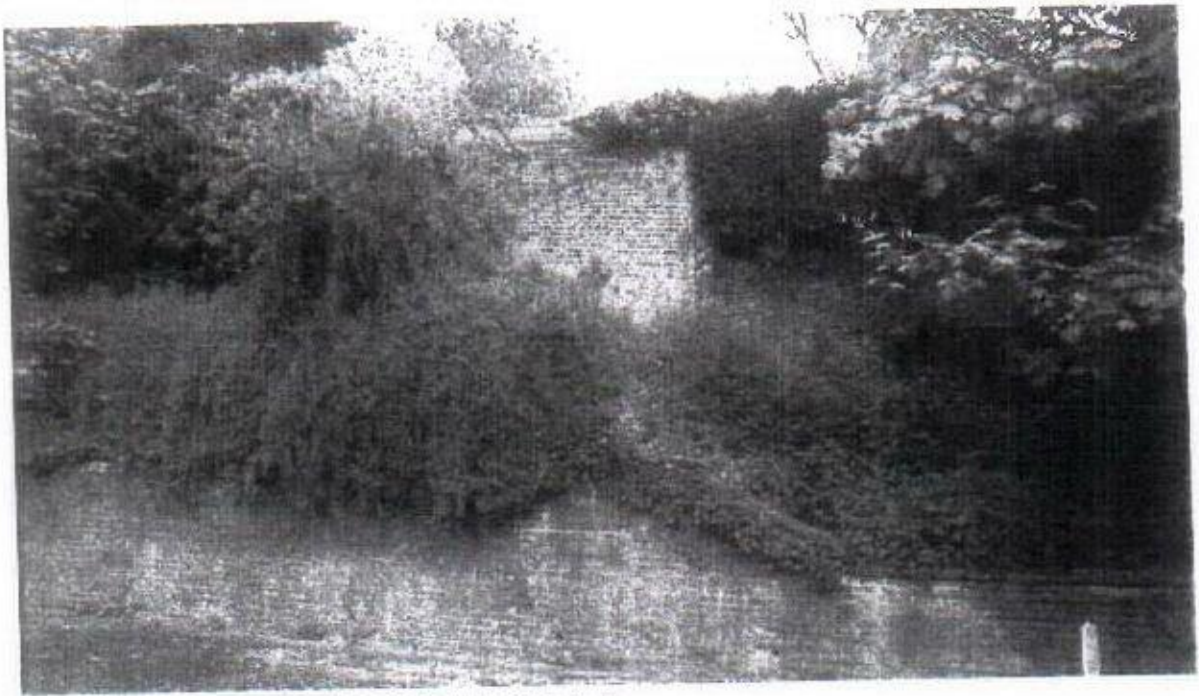


PHOTO 12: BOUNDARY WALLS 6,7 & 8



PHOTO 13: TENNIS COURT WALL 8



PHOTO 14: BOUNDARY WALL 9

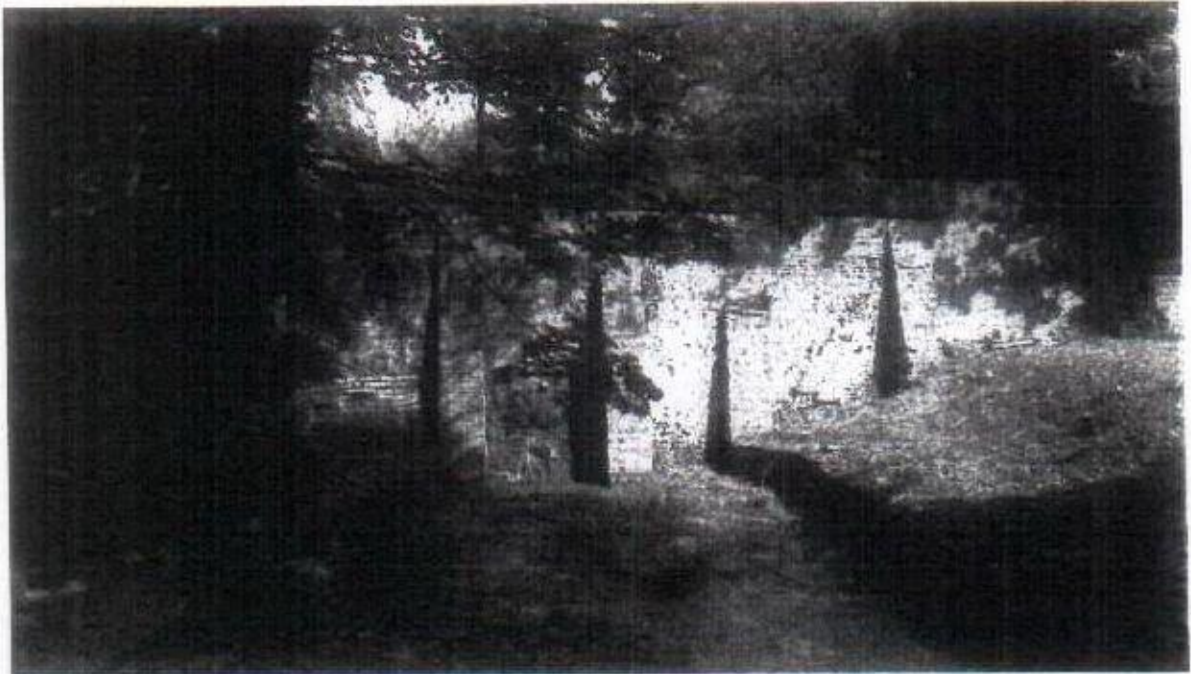


PHOTO 15: BUTTRESSED GARDEN RETAINED WALL

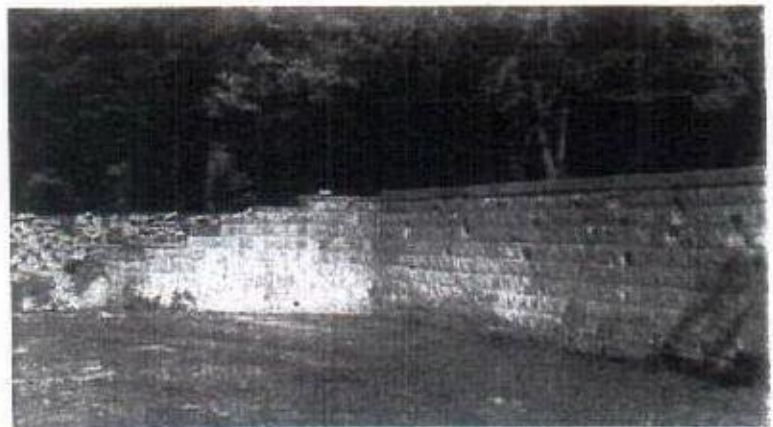


PHOTO 16: CURVED RANDOM STONE WALL AND STEPS



PHOTO 17: STEPS AND WALL 12

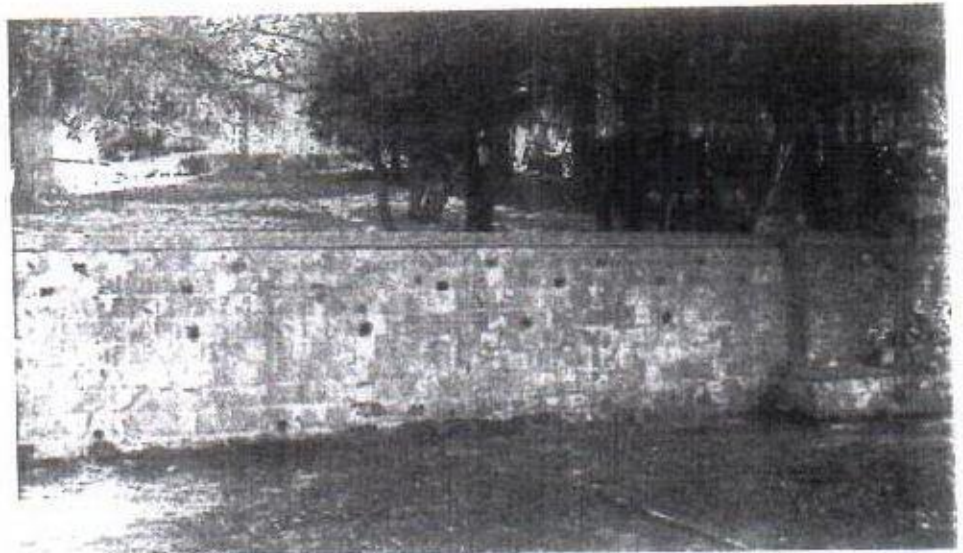


PHOTO 18: BLOCKED FACED WALL 12

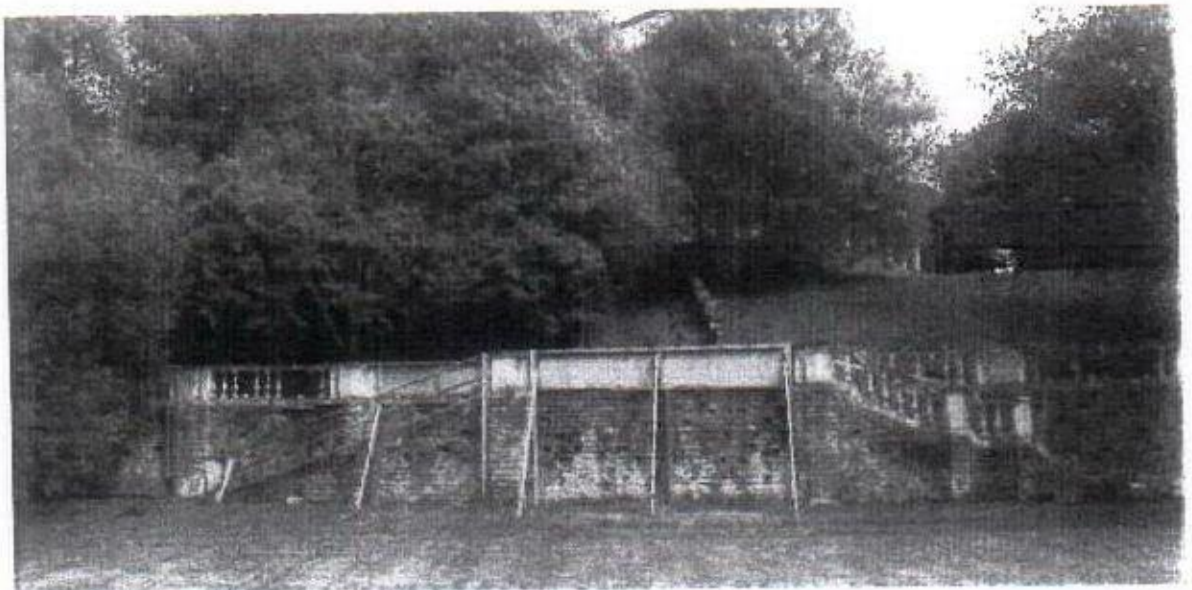


PHOTO 19: GRAND STAIR, LOWER TERRACE 13

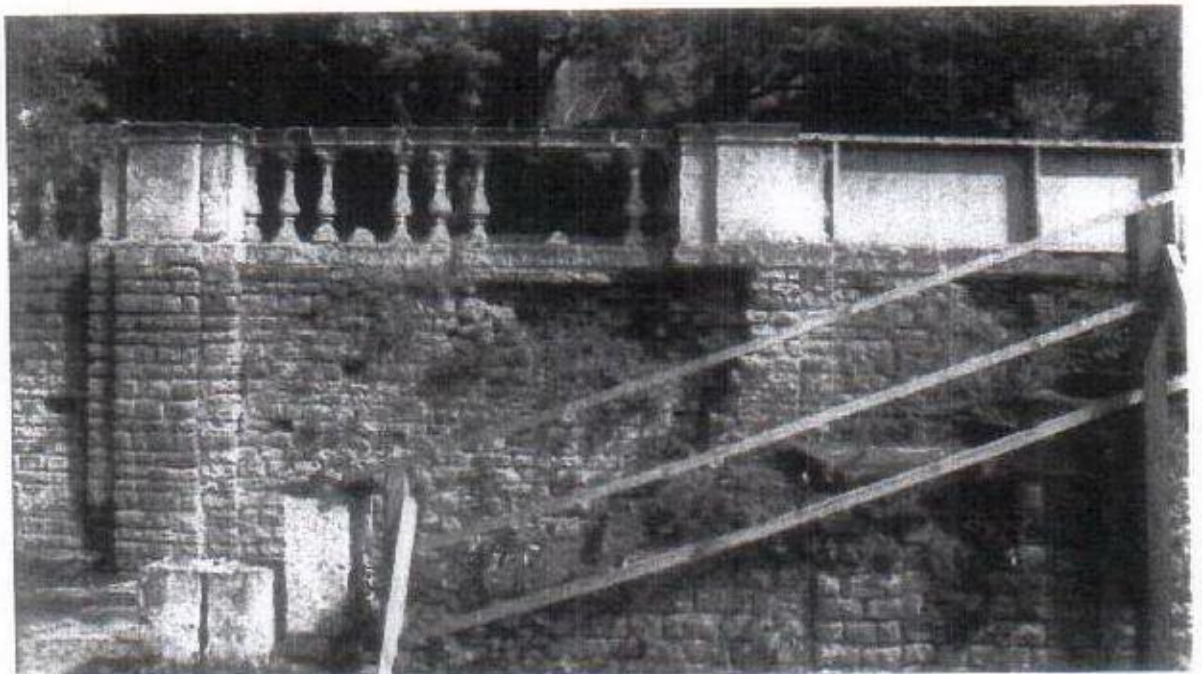


PHOTO 20: GRAND STAIR, LOWER TERRACE 13



PHOTO 23

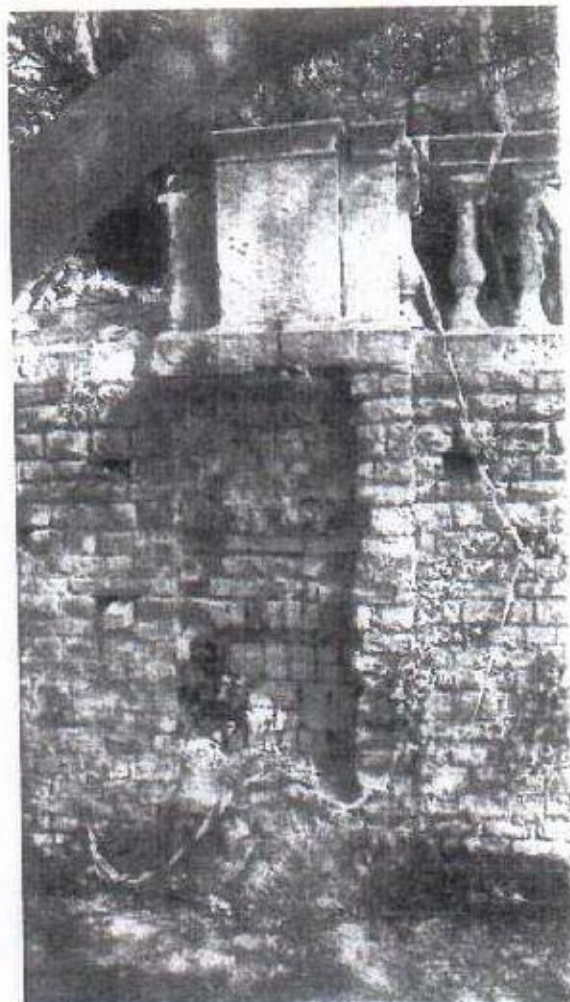


PHOTO 21



PHOTOS 21to23: LOWER WALL TO GRAND STAIRCASE 13

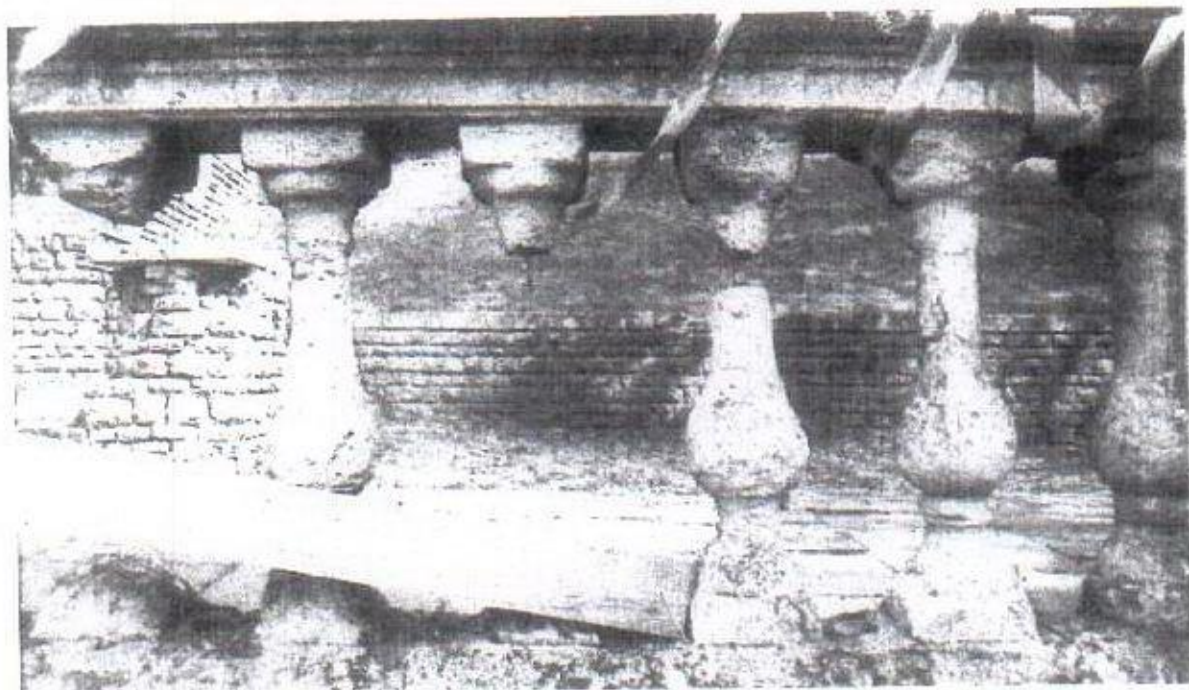


PHOTO 24: BALUSTRADE TO GRAND STAIRCASE LOWER TERRACE 13

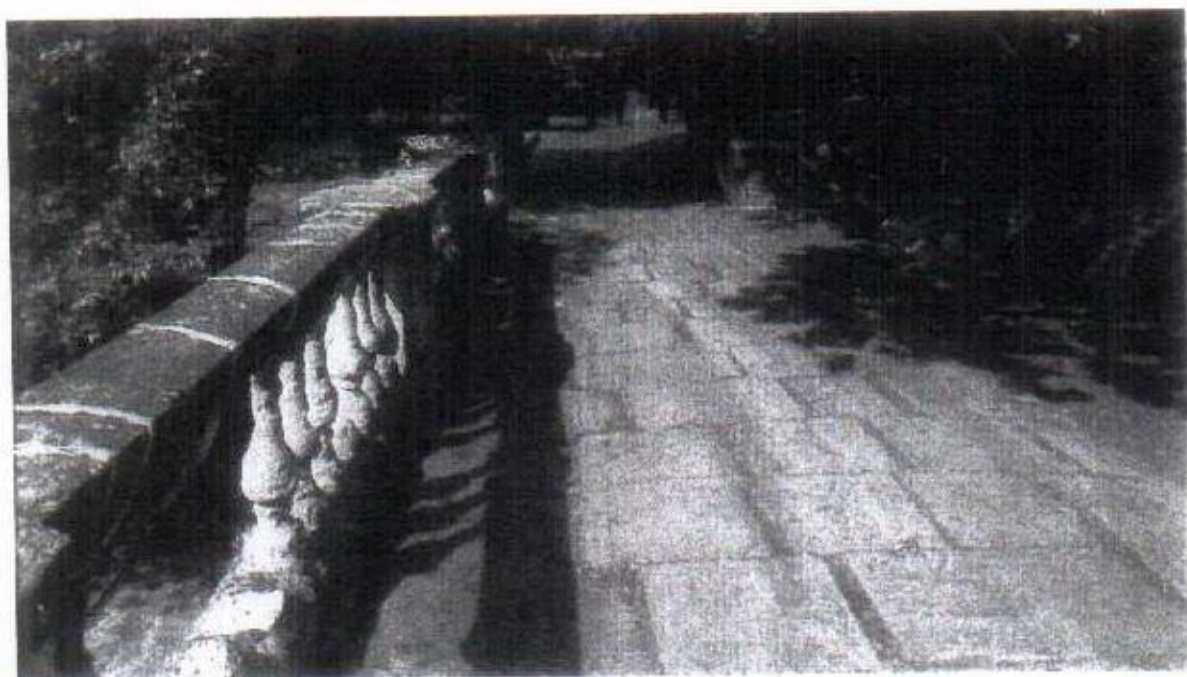


PHOTO 26: BALUSTRADE TO GRAND STAIRCASE LOWER TERRACE 13



PHOTO 27: GRAND STAIRCASE 14



PHOTO 28: GRAND STAIRCASE 14

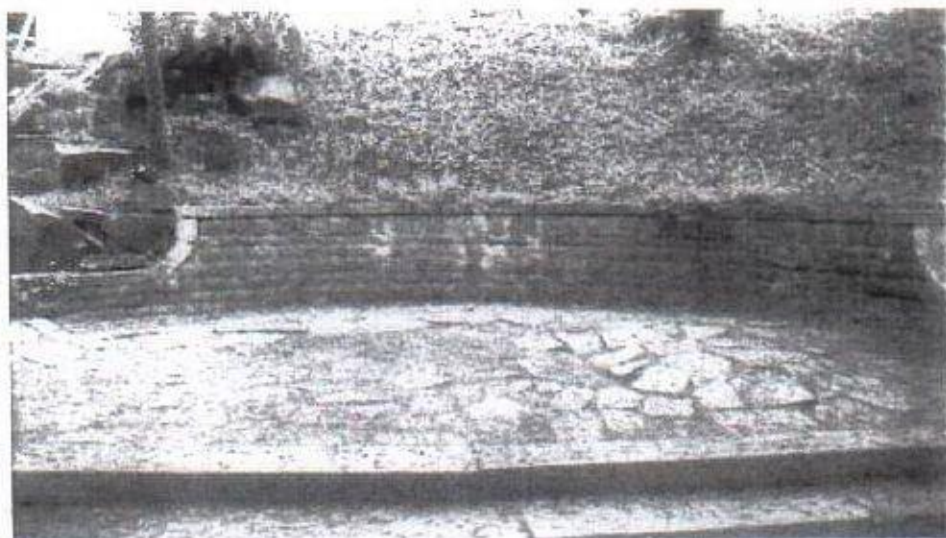


PHOTO 29: WALL AND TERRACE 15

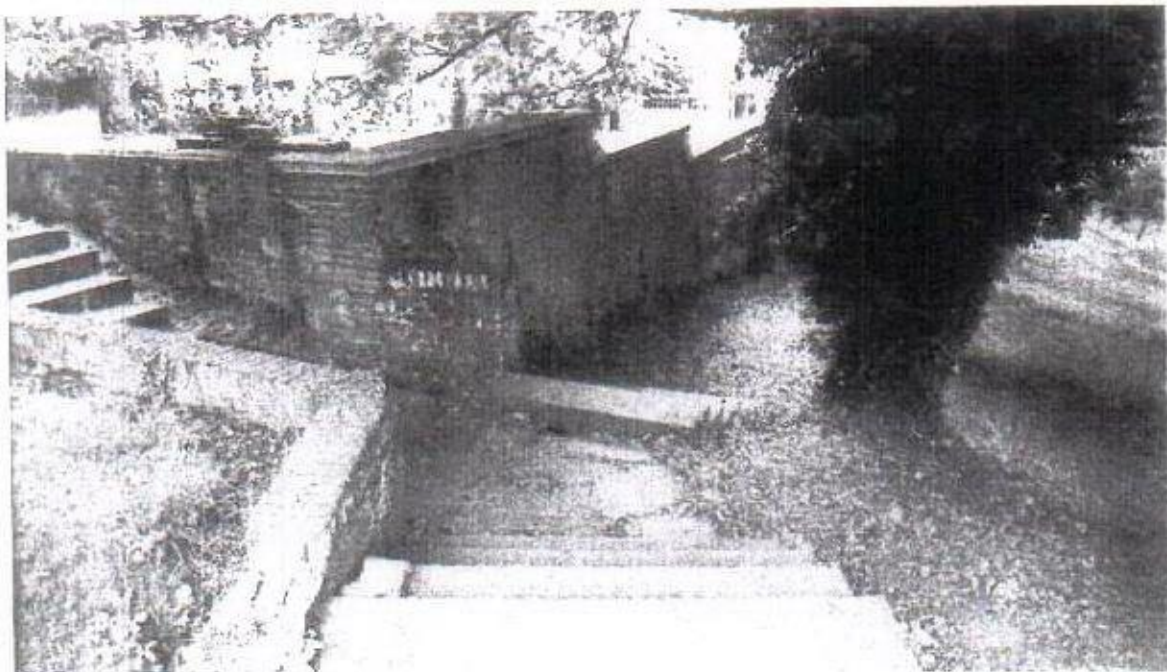


PHOTO 30: WALL AND STEPS 16



PHOTO 31: WALL AND STEPS 16

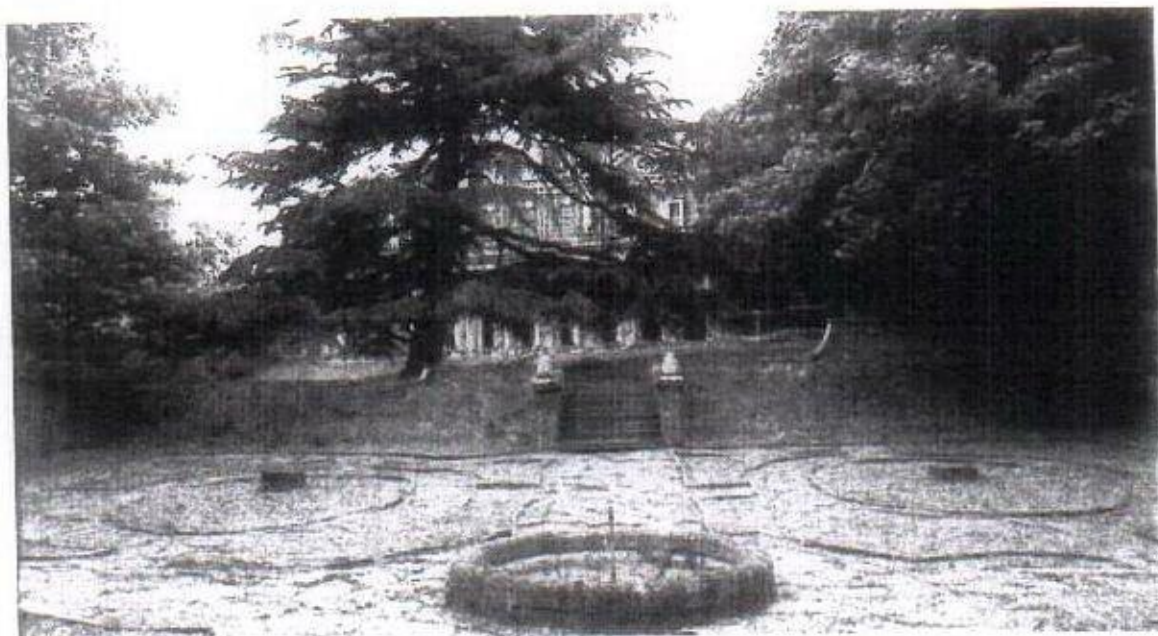


PHOTO 32: ITALIAN TERRACED GARDENS TOP HEAD WALL 18

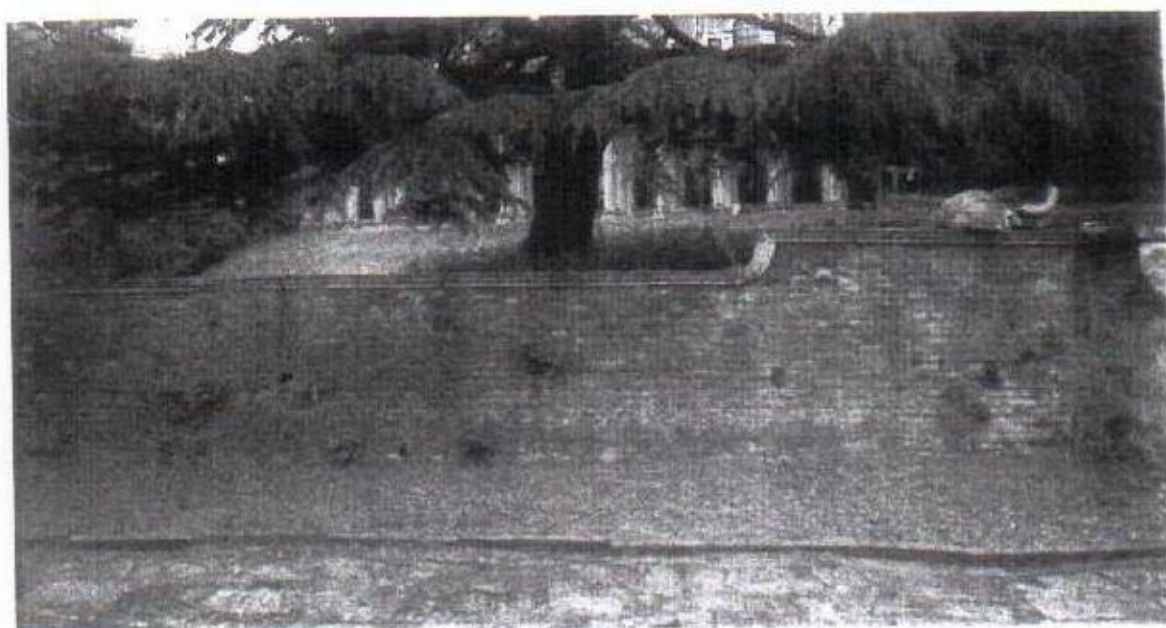


PHOTO 33: ITALIAN TERRACED GARDENS TOP HEAD WALL 18

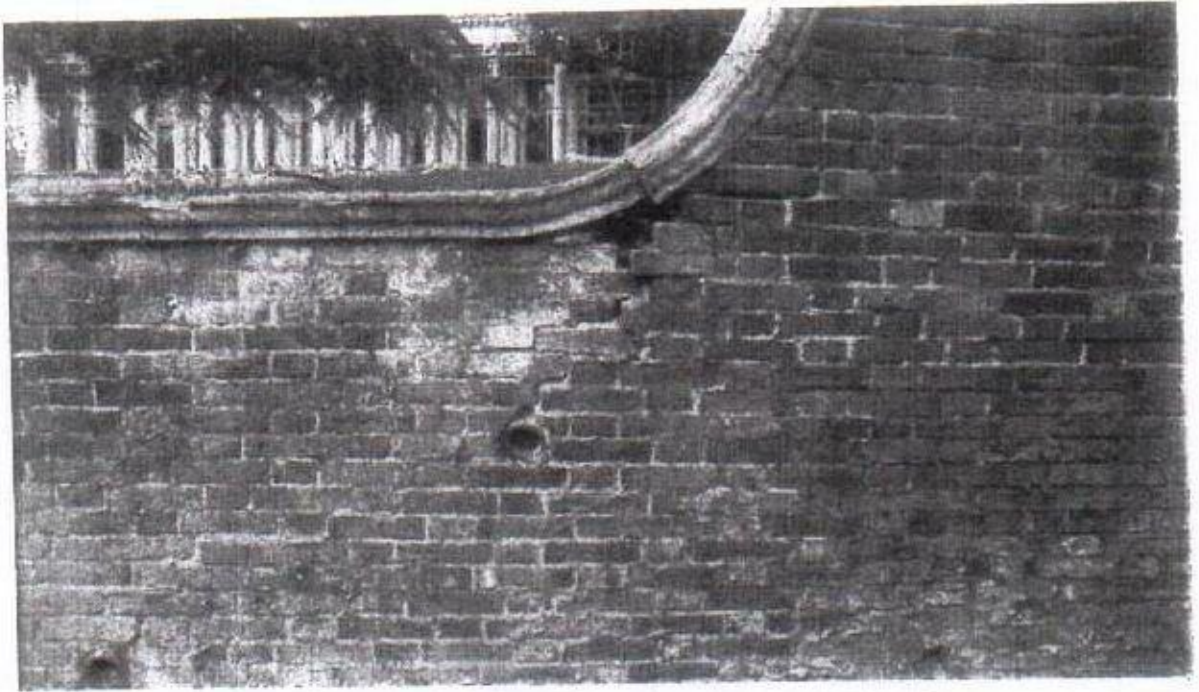


PHOTO 34: ITALIAN TERRACED GARDEN TOP HEAD WALL 18

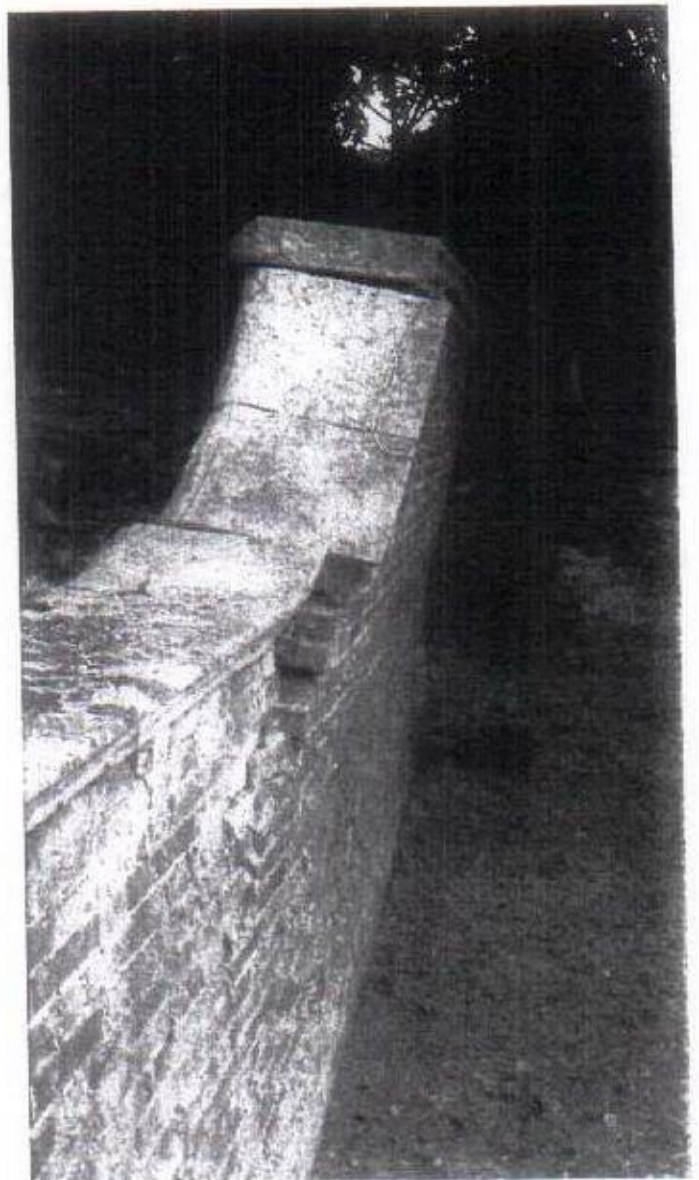


PHOTO 35: ITALIAN TERRACED GRADEN TOP HEAD WALL 18

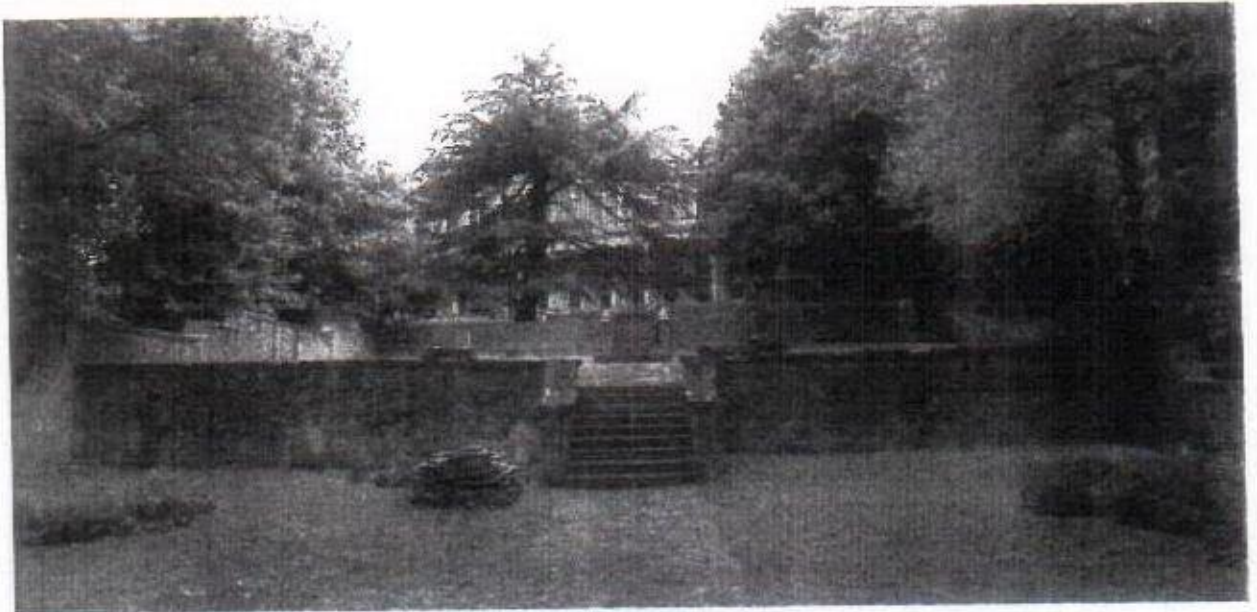


PHOTO 36: ITALIAN TERRACE GARDEN, MIDDLE WALL, 21&22



PHOTO 37: ITALIAN TERRACE GARDEN, MIDDLE WALL, 21&22



PHOTO 38: ITALIAN TERRACE GARDEN BOTTOM HEAD WALL 25

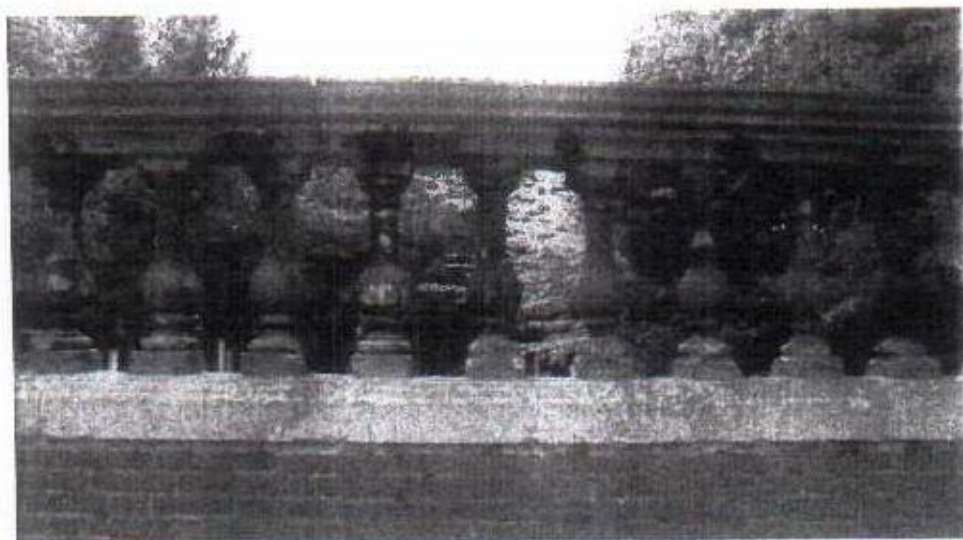


PHOTO 39: ITALIAN TERRACE GARDEN BOTTOM HEAD WALL 25

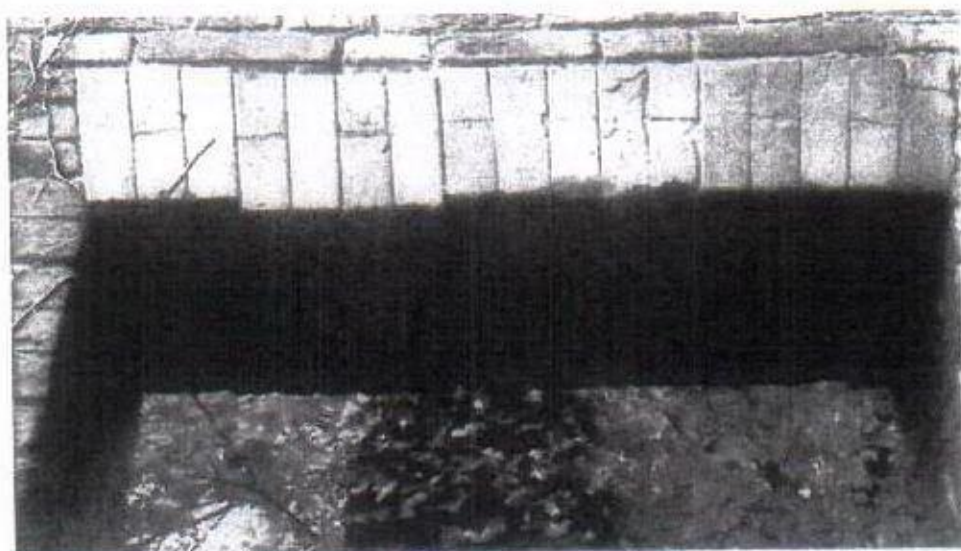


PHOTO 40: ITALIAN TERRACE GARDEN BOTTOM HEAD WALL 25



PHOTO 41: ITALIAN TERRACE GARDEN LOWEST TERRACE 27



PHOTO 43: ITALIAN TERRACE GARDEN LOWEST TERRACE 27



PHOTO 44: ITALIAN TERRACE GARDEN LOWEST TERRACE 27

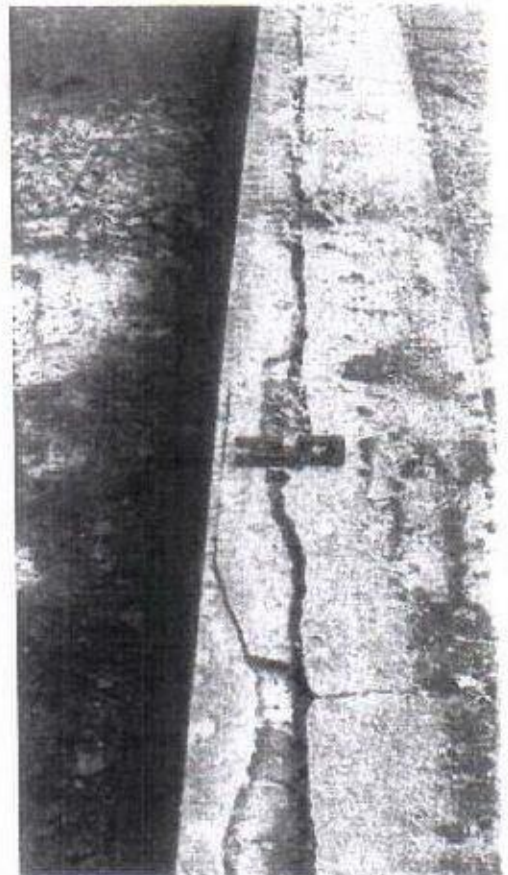


PHOTO 45: POOL WALL 28



PHOTO 46: BOUNDARY WALL 29



PHOTO 47: BOUNDARY WALL 30



PHOTO 48: WEST WALL OF TERRACE GARDENS 31



PHOTO 49: WEST WALL OF TERRACE GARDENS 31



PHOTO 50: WEST WALL OF TERRACE GARDENS 31



PHOTO 51: TERRACED ITALIAN GARDENS WEST WALL 31

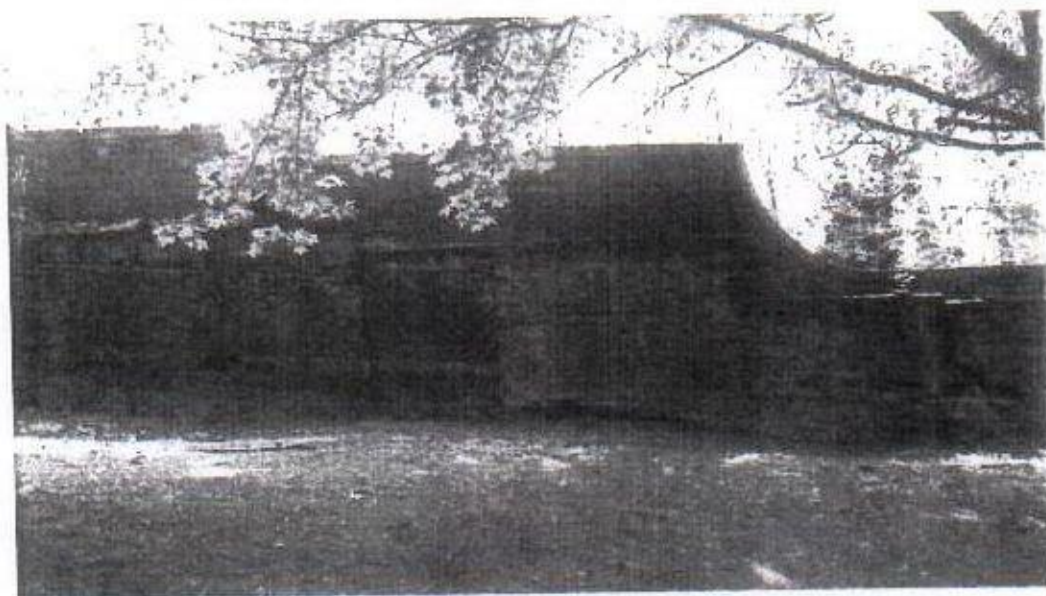


PHOTO 52 TERRACED ITALIAN GARDENS WEST WALL 31



PHOTO 53: TERRACED ITALIAN GARDENS WEST WALL 31

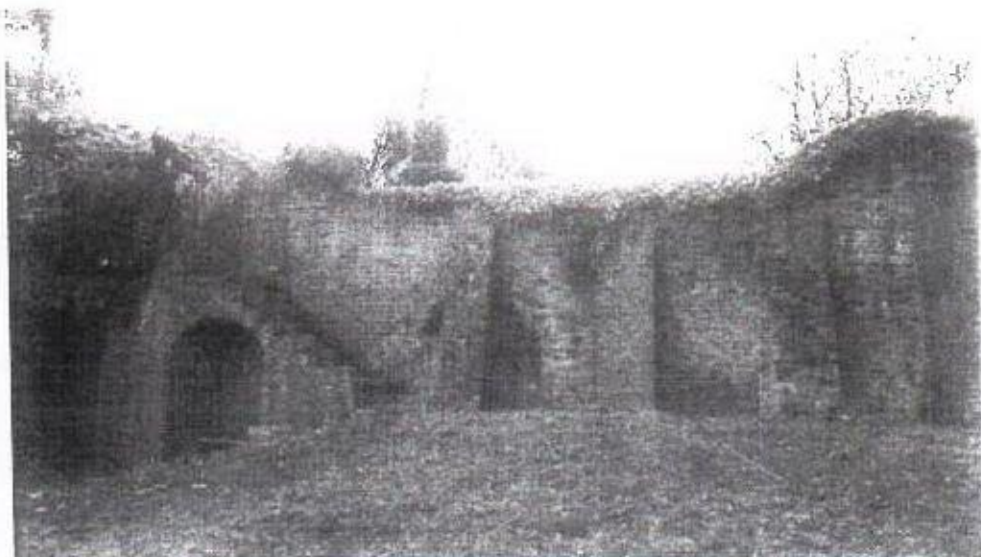


PHOTO 54: NORTH WEST BOUNDARY WALL 32



PHOTO 55: NORTH WEST BOUNDARY WALL 32



PHOTO 56: NORTH WEST BOUNDARY WALL 32