Wyre Forest Study Group

THE GOODMOOR OAK

Brian Stephens

For many years the Goodmoor Oak (Nat.Grid.Ref; SO 7230 7610) has been a notable tree growing beside a footpath, thirty paces north from the road passing the former Far Forest station. The late Dr. Norman Hickin recorded a description in his book "The Natural History of an English Forest" (Hutchinson 1971), pages 6-8. That was thirty-five years ago, and now, with the kind permission of the owner, Mr. Stephen Betts, there has been opportunity to report the tree's present condition prior to the 2004 growing season. This is not an ancient or veteran oak, but it is old, healthy, large and loved.

The tree grows on more or less level meadow-land, at 92m OD, as an isolated standard, probably a maiden. The surrounding land forms a spur sloping gently NE from 100 m OD, before dropping more steeply to the headwaters of Dowles Brook and to the west, steeply to Lem Brook, flowing north to its confluence with Dowles. The Worcestershire County Boundary follows these streams, so the tree is definitely in Worcestershire, but only by 200 - 300 metres.

Like the Mawley Oak and others growing on the higher, drier, acid soils of Wyre, the Goodmoor Oak is *Quercus petraea*, the Sessile or Durmast Oak. Dr. Hickin quotes various measures, taken on 20th October, 1968, but gives no details of methods. He writes of the Goodmoor Oak on page eight;

"The girth at six feet was found to be 15ft 6in. This gives a diameter of almost 5ft."
(4ft 11in. = 1.49m actually)".
" Several large burrs occurred at breast height."

The "several burrs" would seem to have developed. They now form a continuous swelling round the south, west and north, giving a girth at 6ft. (1.82m) of 19ft 1in.(5.81m) and spread upwards from 4ft 6in.(1.37m) to 6ft 6in. (2.03).

The conventional "breast-height" for measures of girth was 4ft 6in, now metricated to 1.3metres. Usually this height is clear trunk, but here, this height includes the edge of the burr and beginnings of root buttresses. Girth at 4ft 6in. (1.37m) is 18ft 9in.(5.71m). Dividing by Pi gives a diameter of 5ft 11½ in. (1.82m).

One needs to reach up to seven feet to measure straight trunk, which now has a girth of 16ft 9in.(5.10m) and a diameter of 5ft 4in.(1.62m). This measure probably most closely corresponds to Dr. Hickin's value for girth of 15ft 6in. (4.72m) and diameter of "almost 5ft" (1.52m). So, we may surmise that in 35 years the trunk diameter has grown

from 4ft 11in.(1.49m) to 5ft 4in.(1.62m), an extra five inches. The extra 5in. (127mm) diameter means a growth increment of 2½in.(63mm) in all directions, equivalent to 0.07in.(1.7mm) per year over the 35 years, or growth rings of nearly one tenth of an inch per year.

Above about eight feet, (2.4m) the trunk decreases slightly then rises straight and smooth for perhaps 12ft,(3.65m) before increasing again as four massive branches diverge, with leaders at a high angle and laterals spreading widely. On the SE side, at 8-9ft,(2.4-2.7m) marks suggest that a low branch disappeared many years ago and high above, on the south side, a large branch broke off recently while in leaf, not during a storm, leaving a wound about 3ft long by 18in wide (1.0m x 0.5m), allowing water access to the heart of the trunk. At the same level, to the SW, another substantial bough was also lost recently. Throughout the canopy about a dozen small branches have died.

The height of the tree was estimated with an improvised theodolite, sighting a level base line of 40 metres (43.7 yds), and measuring the angle to the topmost twigs. The tangent of this angle (31 degrees) multiplied by the base length gives a height of 78.11 ft.(23.8m). The level base line intercepts the trunk at 7ft. (2.13) so this is added, giving a reasonably accurate total height of 85ft.(25.9m) Dr. Hickin quotes a height of 91ft,(27.7m), but without details of his method a valid comparison is difficult.

No one observing today would regard the tree as pyramid shape, as seemed to be the form in 1968, as shown by Dr. Hickin's drawing. It is indeed more rounded than conical and pleasingly symmetrical. Mr Betts confirms that over the years lateral branches have extended upwards to fill out the canopy leaving the height much the same? Photographs might be the only way prove this, but searches so far have not revealed any images of the tree in the nineteenth or twentieth centuries.

The spread of the canopy measured 96ft 9in. (29.48m) E-W and 98ft5in. (30.00m) N-S. Since the extent of the canopy was measured on the ground having judged the perpendicular from the extreme twigs, the 20in. (0.51m) difference can be ignored. Taking a diameter of the canopy as 98ft 5in. (30.00m) one can derive other dimensions. Dr. Hickin records the canopy as covering 630 yds² in 1968 and from this one can also calculate canopy dimensions.

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Thus in 1968;

Area of canopy;	= 630 yds² (526.74 m5)
x 9	= 5670 ft²,
divide by Pi	= 1804.817,
square root= 42.48	

Hence;

Radius of canopy	= 42ft 6in.(10.82m)
Diameter of canopy	= 85ft, (25.9m),
Circumference	= 89yds. (81.38m).

From measures of the trunk and canopy we obtain a set of values which can be used to reveal the pattern of growth over a period of 35 years. See Table 1.

A tree such as this, nearing maturity, would not be growing as rapidly as a younger specimen, and annual growth of 0.07in. (1.7mm) would seem quite reasonable. This value matches closely with estimates of growth from other parts of the Forest, namely 0.073in, (1.85mm); 0.087in, (2.20mm); 0.097in, (2.46mm); 0.124in, (3.14mm) per year, over about 100 years. (Worcestershire Record No. 12 April 2002, p 13). For comparisons, diameter is possibly easier to visualise than girth, giving a linear idea of growth. Bearing in mind that growth rates are quite variable we can derive a rough estimate of age for the Goodmoor Oak based on the above rates. Half the 5ft 4in. (1.62m) diameter gives the radius of 2ft 8in.(0.812m). Dividing this value by an estimated growth rate of 0.07in. (1.7mm) per year gives an estimate of age as 457 years, thus a possible origin about 1547 AD. The present health and state of the tree suggests a younger age and hence faster growth. Using a growth rate of 0.124 in. (3.14mm) per year, we get an age of 258 years and a possible date of planting around 1746 AD, which might seem more plausible.

Currently The Woodland Trust is mounting a campaign to obtain protection for ancient trees similar to that which applies to buildings. One would hope for more security than buildings receive. Meanwhile Oaks nationwide are threatened with "Sudden Oak Death" from the fungus *Phythopthora ramorum*. To date this disease has been found at 370 sites, mostly in nurseries and garden centres, with Rhododendron the main host and source of infection. In the United States *P. ramorum* attacks Oak, but was thought not to infect native Oak in Britain. A more virulent form now seems to have emerged, provisionally named *P.kernovii*, which has been found on two Oaks in Cornwall. This news serves to emphasise the importance of monitoring and the significance of the biological records currently being assembled.

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Year	1968		2004		Growth over 35 years	
ft ins metre	ft ins	metre	ft ins	metre	ft ins	metre
Height	91.0	27.70	85.0	25.90	?	?
Girth (4ft 6in)	-	-	18.9	5.70	-	-
Girth (6-7 ft)	15.6	4.72	16.9	5.15	1.3	0.43
Diameter of trunk	4.11	1.49	5.4	1.60	0.5	0.11
Diameter of canopy	85.0	25.90	98.6	30.00	13.6	4.10
Radius of canopy	42.6	12.95	49.0	14.90	6.4	1.95
Area of canopy	630 yd²	526.74 m²	838 yd²	700 m²	208 yd²	173.26 m²
Perimeter of canopy	89 yd	81.0	102 yd	93.3	13yd	12.3

TABLE 1   Dimensions of the Goodmoor Oak.

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