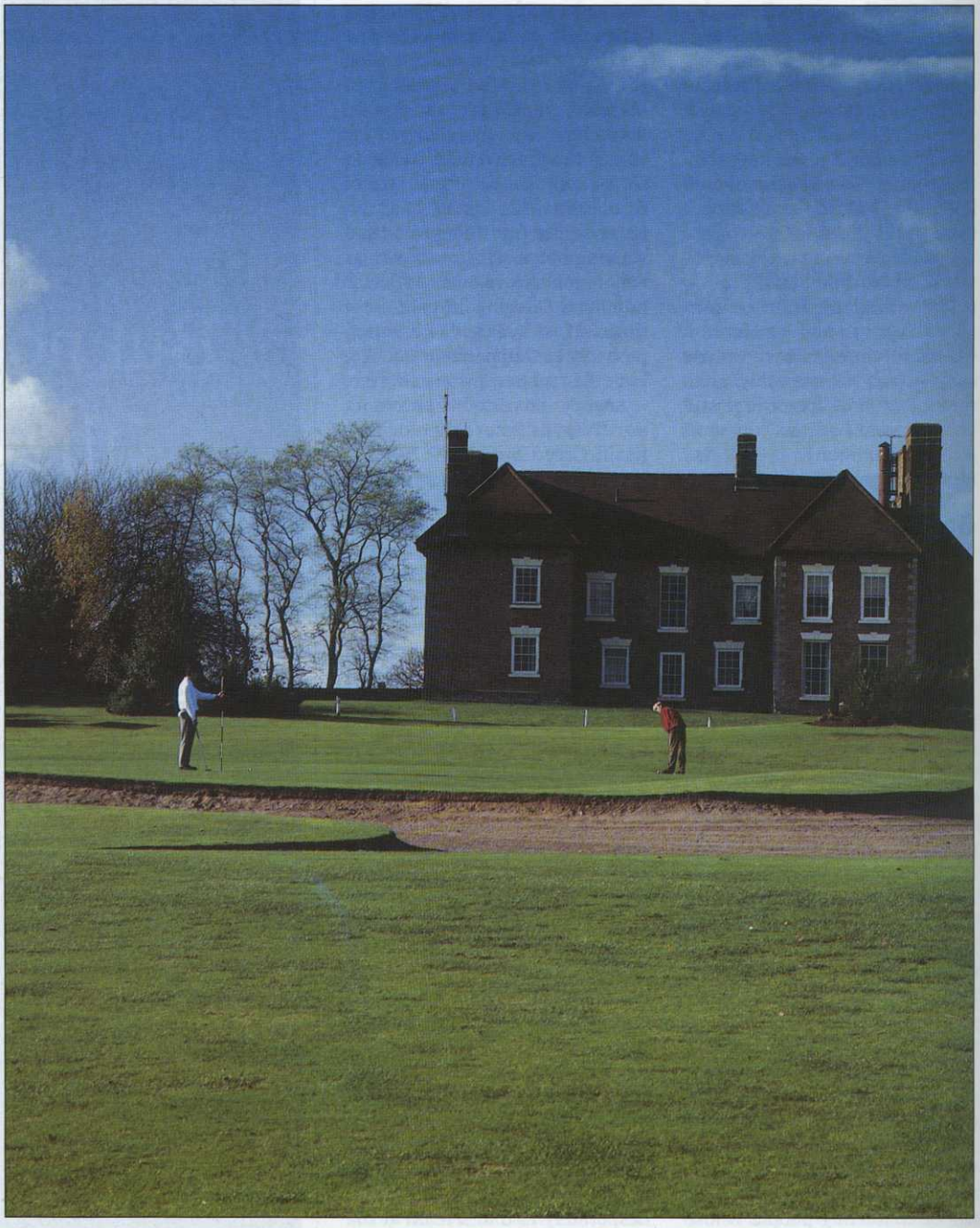
# The growth of SWT

**Bryan Griffiths, Chairman of Golfconsult International Ltd, looks back at the introduction of a new style of green construction.**



In the early 1970s most golfing folk had never heard of the acronym 'SWT'. A few thought it meant "sea-washed turf". It took years for the truth to sink in – that it was a very different thing and a revolutionary step forward. We are discussing the now better known "Suspended Water Table" (SWT) putting green specification. In the beginning there was ill informed scepticism among the British "experts" which was well aired in the golf press.

SWT first hit Europe from America in the 1960s and Britain in the early 1970s. The first three British courses incorporating the earliest version of SWT, all designed by the author, were Staverton Park, in Northants (l976), Dougalston, near Glasgow (1977) and Telford Moat House, in Shropshire (1978). A recent review of their performance in the interim shows that between them they have taken about 2 1/2 million rounds of golf – with no serious problems nor any use of winter greens.

This was not achieved without some initial difficulties for the greenkeepers tending the unfamiliar; inevitably mistakes were made. Happily, to their credit, the greenkeepers then responsible – the three are still there – soon mastered the arts of keeping SWT in superb condition over the next 20 odd years – the oldest in Britain, After this long experience in mature operation and many more since the late 1980s, the burden of proving that SWT is in any way inappropriate for Britain rests with those sceptics mentioned earlier.

With one exception there was a lag of some years before the next generation of SWT greens appeared. That was at Shifnal Golf Club (1929). Being close to Telford, members could try them and were sufficiently impressed to convert their own greens to SWT under the guidance of agronomist Martyn Jones of Myerscough College between 1983 and 1988. He was the first well-informed agronomist advocate of SWT in Britain. With long experience, he has now created SWT test beds for experimental purposes at Myerscough College.

In the early 1990s a veritable surge of new SWT construction began, perhaps sparked off by the so-called "signature" courses by big-name professionals. However, if strict SWT criteria is applied some claims would prove false – such as "sand greens"; US greens and others. There is only one authentic version – built precisely to the USGA (or British equivalent) SWT specification in every small detail. However creating SWT greens is a major (and expensive) construction management challenge. Without the tightest day by day close monitoring of the materials and work, failure is a high risk.

It should be pointed out in fairness that the critics of yesterday have come round to accepting SWT. There is now also a British version – not exactly re-inventing the wheel; more a valid claim for an equal substitute. For those concerned with new (or replacement) greens it would be prudent to do their homework very carefully.

Although there have inevitably been minor modifications along the way to the original USGA SWT specification of the 1960s, the basic formula remains of :

– slit plastic pipe herring bone drainage
– 100 mm gravel raft
– 50 mm coarse sand filter layer
– 300 mm rootzone mix

all to a depth tolerance of plus or minus 10 mm maximum and to strict material specification.

There has always been, as

# in Britain

greenkeepers know all too well, the problem of rootzone aeration. Over the years an industry has evolved supplying machinery to slit, spike, verti-drain and otherwise assault putting surfaces, in its simplest form, to get oxygen into the rootzone. Some older greens would hardly survive without this twice yearly brutal assault!

For the fortunate (or perceptive) owners of SWT greens, and more importantly their greenkeepers (which too many owners forget), an innovative and effective solution to deep aeration of SWT greens is at hand. Invented in the US and first used at the Augusta National, the drainage aeration system is here to stay. Unfortunately, older traditional greens are not suitable.

This new system enables air (and oxygen) to be forced through the rootzone, either by pumping in, or extraction via equipment attached to the drainage outlet. Thus it not only oxygenates but also removes the toxic gases so harmful to high quality putting turfgrass.

This perhaps is a clue to the quality of those infamous Augusta greens. According to some published reports, those greens are the famous golf course's last line of defence against today's powerhouse golf game, and the 300 yards plus drives with the new long range golf cannons. The impact of which is both astonishing and even disturbing at the same time. In 1995, young Tiger Woods drove 320 yards on the Par 4 11th of 455 yards, needing only a sand wedge to the green. On the Par 5s 2nd and 8th at 555 yards and 535 yards respectively his second shots were with 5 and 2 irons. No wonder those greens are a critical factor.

But readers can appreciate from all this that British golfers can now play SWT greens at home and for the price of a current green fee. Nor should we forget incidentally that the British amateur Gary Wolstenholme beat Tiger Woods in the last Walker Cup at Royal Porthcawl.

Several demonstrations in Britain of the SubAir SWT greens aeration equipment have taken place in the recent months on 25 modern construction greens in various conditions and circumstances and the general findings reflect a pattern of performance. Typically the bottom 50 – 100 mm of the rootzone were in a saturated state. The application of a vacuum on the drainage system removes this saturation, stimulating increased infiltration from the upper level of the profile and induction of fresh atmosphere through the surface. Essentially the system is an acceleration of the natural process of the movement of air and water through soil by means of gravity and atmospheric pressure. An initial complete air exchange within a green, as measured with an electronic soil gas analyser, takes anywhere between 15 minutes and two hours depending on conditions. Subsequent treatment time will vary according to seasonal growth conditions and treatment interval. A marked warming of the upper 50 mm of the rootzone was also evident when operating the system in the warmer conditions of the early Spring weather this year.

Nowadays we live with continuous change – in golf no less. This latest innovation, either in permanent installation or mobile form, will enhance the largely high quality and all weather characteristics of SWT greens to produce the finest putting surfaces available. There is however one important caveat. The end results are subject to continuous and effective greens maintenance. SWT is otherwise a waste of money without greenkeeper's expertise.

Which is where the experienced greenkeeper makes his entry on the stage – preceding pampered pros and cossetted club members lucky enough to play these superior greens. This is emphatically not to say, by any means, that superb putting surfaces are not produced by greenkeepers on many, older, traditional greens. How they do it is a mystery to most golfers – amounting to almost disguised genius in some cases. And perhaps this is the reason why, for so long, the unsung greenkeepers, too often with inadequate managerial support, are not as highly valued – and paid – as they undoubtedly deserve.