

LIVE AND LET LIVE!

CONSERVATION and greenkeeping need never be opposed interests, though, of course, if there is confusion about what either side wants, it would not be surprising to find disagreement over methods.

Much heat seems to have been generated earlier in the year over the term 'traditional greenkeeping.' Perhaps there would be less debate on fine points of interpretation if we divided greenkeeping into natural and artificial schools of practice.

The kind of greenkeeping I have consistently practised and taught for nearly forty years – often ploughing a lonely furrow and against both commercial interests and ill-thought-out advice by inexperienced or agriculturally motivated advisers, either in research station or agricultural college – is based on a very simple concept, appreciated long before the term ecology was invented!

This concept is, essentially, that if we copy those naturally occurring conditions which cause the vegetative cover of often widely differing environments to be dominantly the same fine-textured turf produced by fine fescues and bents (*Agrostis*), then those grasses will dominate the golf course. Whereas, if we alter those factors, then other, less desirable, coarser-leaved (more agriculturally productive) species will be able to invade and displace the fine turf grasses.

These factors have been known for a century, though not always by published research. They are chiefly low soil fertility and especially low phosphate and well-aerated, well-drained soil. Old Scots greenkeepers may not have even known what nitrogen or phosphates were, but they were using soot and sand as standard links management of greens a hundred years ago! Soot is a slow-acting nitrogen fertiliser!

The link between low levels of available plant foods and fine turf grasses is another long understood fact but, again, 'research' was merely providing a scientific justification for accepted practice, if not by all, then at least by thinking greenkeepers

By Jim Arthur

or enthusiastic amateurs who, even before the First World War, were striving to protect their courses from the heresies of farmers, who thought only in terms of feeding grass because it was the only way they could increase yields of hay and grazing.

Thus, the first conservationists were really 'greenkeepers', striving to avoid the destruction of those very factors that created golfing potential in the first place and to fight those who had not accepted the diametrically opposed aims and, therefore, opposite methods of grassland husbandry and sound greenkeeping.

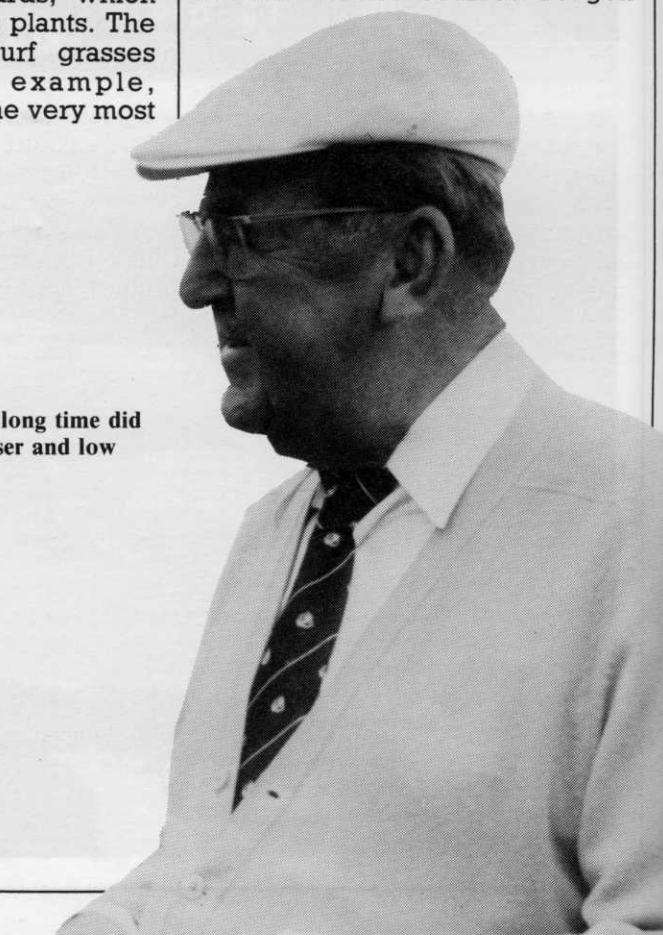
Errors

Terrible errors were made by soil chemists who thought only in laboratory terms. To them, low analyses were low in relation to preconceived standards, which they had set for crop plants. The fact that the fine turf grasses thrive on – for example, phosphate levels at the very most

one-tenth of what is regarded as a modest figure for *non-intensive* crop production – escaped them and phosphates were applied, (more culpably on the advice of the Sports Turf Research Institute than fertiliser firms since the Institute should have been guiding the latter), more and more heavily on a vicious spiral as the initial doses gave poorer results and predictably decreased the very grasses they were trying to encourage by other treatments.

It was not for lack of published work, let alone 'tradition,' that these errors were made. I can prove that I have consistently advised a no-phosphate programme for nearly forty years – often, in earlier days, in direct defiance of the Research Station employing me – and this was not my original thought, since I was only copying practices commonly used by good (links) greenkeepers long before the last war.

This heavy use of fertilisers (and even more so by farmers) did create enormous pollution problems and this is perhaps why it is so difficult to get planning permission against conservationist interests for new courses. Yet golf



Bobby Locke, who for a long time did not agree with low fertiliser and low irrigation regimes...

courses have probably the most stabilising effect of all in maintaining or conserving natural environments.

The link between poor soils and good golfing turf has been known since the start of published greenkeeping literature, but it would be foolish to claim it was never disputed. Even architects as good as Tim Simpson or golfers as expert as Bobby Locke did not agree with low fertiliser and low irrigation regimes, but time has proved them wrong.

There are many false prophets in current times and I fully accept that a major problem in course maintenance is that many golfers do not really appreciate good golfing conditions and worship The Great God Green. There are many references all this century to poor soils growing the best turf grasses. I quote a fairly recent one, from Dr H.W. Woolhouse, professor of Botany at Leeds University, in the journal of the Institute of Chemistry, *Chemistry In Britain*, dated February 1980. 'It may seem a trifle odd to suggest that some of the finest scenery in Western Europe owes its existence to a metal toxicity, but it is a fact that much of our heath and moorland exists on soils where the concentration of free aluminium would be toxic to crop plants. If this were not so, most of them would have been taken over for arable agriculture long ago.'

Later, he shows that only certain species - for example, *Agrostis*, heather, bilberry, etc - are tolerant of this aluminium toxicity and so dominate the vegetative cover as sole survivors.

In other words, the poorest

soils produce the best golfing grasses. The quote also explains the success of the 'acid theory,' especially on clay soils. The acidity releases aluminium and locks up phosphates and creates soil conditions that can be tolerated only by certain species. It is just chance that these happen to be ideal for golf, or is it a case of which came first - the golf or the grass on which it is best played?

Disaster can strike if naturally poor conditions are enriched or alien species introduced. Raising fertility permits 'alien' grasses to invade, or perhaps reduces the power of native fine grasses to keep them out, but such shallow-rooting species - for example, annual meadow grass - have poor drought resistance and so die with the first severe drought. This is quite apart from the fact that this ubiquitous species does not produce satisfactory golfing surfaces for many months of the year and has to be maintained artificially by water and fertiliser. Straight away, we are into a high-cost maintenance programme. Worse still, native flora are destroyed and an artificial cover replaces it.

Theory

For years, soil chemists have fallen for what I call the black-hole theory. They assume a constant loss of plant foods and imply that, without fertilisers, life on earth would cease, as plant foods become exhausted. They do not understand that such losses by leaching tail off and a level is reached that will always support some grass cover, outside tundra-like conditions, and there is not much golf played inside the Arc-

tic Circle! After years of no phosphate fertilisers, analyses still show modest levels, enough to more than support fine turf.

Naturally, there are many stresses to which golf courses are subjected today that are far more severe than they were even twenty-five years ago. The chief of these is traffic! It is unarguable that the prime cause of damage and destruction to coastal dune structures is pedestrian traffic and especially scrambling motor cycles.

The loss of dunes and threat to many of our famous links courses - such as Rye, St Andrews, Royal Portrush and Formby, which have been threatened with severe coastal erosion or windblown sand overwhelming fairways - are all caused primarily by pedestrian traffic or motor-bikes. The first step in such conservation work is to stop the traffic! It is no good just putting up notices though, on one occasion, a notice that read 'Nature Conservancy - Keep Out - Adders' worked wonders!

It is no good trying to ban traffic - it has to be diverted or nudged in the right direction, rather than prohibited. Traffic along or across dunes must be restricted to specific walkways and lateral trespass made almost impossible by means of transverse chestnut paling barriers and other obstacles. Then we can start planting stabilising grasses, protecting them, if necessary, with fencing or pig wire laid flat on the sand.

Such repair work has saved Rye and the St Andrews courses from erosion, but there are cases where the task is impossible -

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sometimes because the cause of the problem lies outside the control of those dealing with the erosion and sometimes because the scale of the work is too huge and too expensive.

Coastal protection in isolation is doomed to failure. Sometimes the problem starts many, many miles away, with new coastal works, jetties, or deeper-dredged channels altering the set of the tides and inexorably sweeping away sand built up over centuries.

However, as with all living ecologies, ebbs and flows have to be accepted. A dune structure is a mobile one, eroding and building up constantly. The sea takes, under equinoctial gales, but the wind gives, provided the blown sand can be trapped by dune grasses, which survive only if they are constantly growing upwards through a blown sand.

Incidentally, it is useless to try and erect impermeable barriers to tidal erosion – they merely seem to act as a challenge and the sea gets behind them – whereas permeable barriers, gabions filled with stone, not only reduce the full strength of the tide, but permit dune grasses to further stabilise the base of the dune.

Such man-induced wind erosion not only threatens golf courses, but the whole of our coastal structure and, with it, many rare maritime plants.

Another aspect of conservation and greenkeeping working hand-

in-hand is in the management of heather rough. Left to its own devices, with or without invasion by birch and pine, heather becomes long and woody and eventually dies. Burning on a cyclic pattern or spraying with grasskiller, Dalapon, in late winter, ensures both young growth and bare ground into which heather seeds can fall and germinate. Invasion of grass is fatal to such recolonisation. Seedling trees, birch and pine, start to establish in alarming numbers.

If we are to conserve heather, we must pull out rather than cut off seedling trees, since they are much harder to control when they have bushed out from cut stumps, kill off grass and top the heather, since burning is hardly feasible on a golf course!

Avoid

Needless to say, we must avoid all alkaline materials, not only obvious ones, such as lime and basic slag (used on so many courses in the past), but alkaline materials such as fenpeat. While the worst abuses now seem to be a thing of the past, I still hear of proposals to lime heather courses on the basis of soil analyses. Of course, the soil is acid on a heather course, but it will still grow grass and heather if not limed.

The message, therefore, is to make friends with your conservation officer, who will generally be on your side in positive management as against *laissez-faire*. Some little-used parts of the course could be made into managed nature reserves with the help of county naturalist trusts

– their chief value being the elimination from within its boundaries of the world's most dangerous predator, man!

At the same time, enlist his support to try to explain to excited members the difference between conservation and preservation – one requires the positive management of a constantly changing environment, while the other is doomed to failure before it starts, since you cannot stop the world and get off.

Provided golf courses are managed on a natural basis, and the soil and, so, the vegetation is not artificially altered, every part of the course will contribute to conservation, providing areas are generally undisturbed by man and there are no serious changes to the environment.

I have seen well over 120 of the approximate 199 species and subspecies of grass growing on or around (tidal marshes and dunes), golf courses as well as many rare plants. It is surprising how many birds – often rare, always interesting – you see on an advisory visit, ranging from harriers, short-eared owls, peregrines and merlins on coastal courses to hoopoes, orioles, rare warblers, blue-throats and similar rare migrants, while there is no better place to watch Brent geese and other wild fowl and waders than our coastal links.

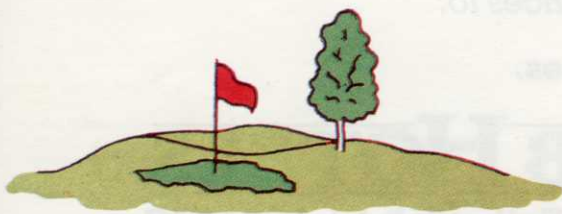
In many cases, a course will always be associated, in my mind, with some bird, animal or rare flower. It would be invidious to single them out, but I often think a life-long interest in our native fauna and flora makes me a shade less intolerant of some of the more aberrant and aggressive forms of *Homo sapiens*!

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