



With such natural bunkers it does beg the questions how do they go about building new bunkers or rebuilding existing ones?

"Since I've been here it has been a bit of trial and error. They hadn't built any bunkers here for a long time before I arrived so we played around really. We dug up cubes or material from heather and marram areas, like bricks really and built up a wall with these. I suppose you could call it revetting after a fashion," he explained.

"The trick is to make it look natural when it isn't. Donald Steel, who does work for the club, was delighted with the results we got. He drew them on paper for us and then left it to us and he was very happy with the bunkers and the shaping."

Two other issues which occupy much of Alan and his 16 man team in their efforts to maintain not just the world famous course but also the little sister Annesley course as well is the gorse and the courses' very shallow root zone.

"The gorse is definitely the main problem at Royal County Down. Sixty years ago we had no gorse and now we are overrun," Alan revealed.

"We would never want to eradicate it all but what happens is that the gorse kills the heather. What we are trying to do is create a gorse line so we'll manage these areas and not let them go out of control. The other areas we will try to wipe out.

"We are currently in the process of looking at the best eradication. We've tried chemical but generally it comes back again so I think we're going to have to take the bull by the horns and do what Ian McMillan did at Hankley Common and just root the whole place out."

Alan sees this as one of the main priorities the golf club has to deal with in the next few years.

"The club is so traditional that they want to get back to what it was like but it will be a long process turning what is gorse land back into heather land."

To alleviate the problem of the shallow root depth the club undertakes an extensive overseeding programme every autumn.

"If any drought comes along it just wipes out the plant so we have our overseeding programme which will be helped by the club's decision to install a new watering system to help bring on the young seedlings. It is just a maintenance tool for us. I'm looking forward to it going in as it will transform some parts of the course in the right way and not transform anything else. At some of the far holes the water pressure of the current system is very poor and we don't get sufficient coverage on the middle of the green. You can see a general thinning out of the sward which in turn allows the meadow grass to establish."

As an additional aid to improving the turf quality Alan has brought in a turf nursery.

"We introduced it for patching purposes and we have different types of seed - fairway, tees with a smooth stalked mix through it which takes the wear very well and some rough mixtures."

As well as course maintenance practices Alan also made changes to some of the other working practices at the club.

"When I arrived the boys were starting work at 8am when there were golfers out on the course before them. I wasn't used to this so I changed it so that we started at 6am and got the club to move tee times back to 8am from 7am so we had a two hour window to do our early morning work.

"The last thing you want is to have machines buzzing around golfers when they've paid £80 a round. We want them to go away having really enjoyed the product because it is a business now isn't it?"

Having tackled the Amateur Championship last year, by the time you read this, Royal County Down will have hosted the British Seniors Championship - the club's first professional event for 50 years.

"I did feel pressure on the run up to the Amateur but we had a great spring and I was very happy with the

course and I'm lucky that I have a really good staff to rely on."

The quality of the course was highlighted last April during the Masters when Steve Rider, interviewing Graeme Storm, the Amateur Champion asked him if he'd been frightened by the speed of the greens. Graeme said not really because he'd played on faster at Royal County Down.

"The greens were very fast then - 11.5 in the early morning and through the day they got faster than that. We are fortunate that the greens are sheltered and as long as the pin placements are sensible we can make them fast," said Alan.

With the best amateurs enjoying the RCD hospitality last year Alan is looking forward to the visit of the best seniors.

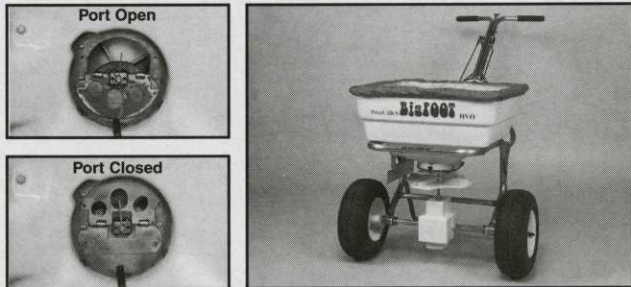
"It is a much bigger event than the Amateur. They are talking about 5,000 spectators per day and there will be a large tented village and cameras on every hole. I went to Portrush to get a feel for the size of it last year," said Alan, who added that the club had the Championship for two years.

It can only be good news that a course such as Royal County Down is being utilised as a venue for some of the major events on the calendar and in Alan Strachan and his team looking after it the course will always be at its natural best.



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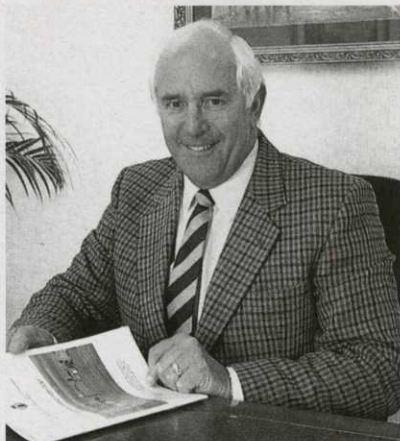
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Roland Taylor examines what it takes to produce and maintain water features

# Splash of colour



For many courses, especially those built in the last two decades, water features form an integral part of the design. They require a management programme similar to the rest of the course if they are to thrive and look good. Ponds, lakes, streams, ditches and any other areas of water, if left become clogged with silt, overgrown with vegetation, or turn into a stinking morass.

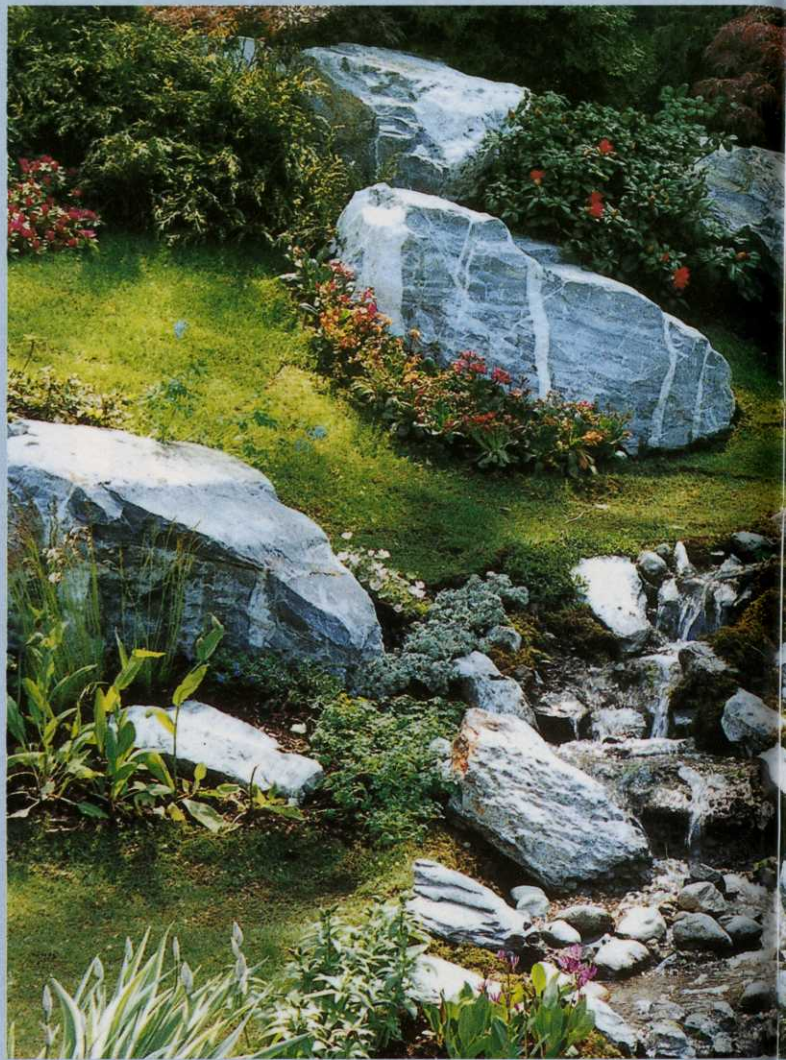
Often this is not Nature's fault but man's inconsideration of the environment. When areas of water are well managed and sympathetically landscaped, they enhance the surrounding area. The reflective qualities of an expanse of water will set off a green and its surroundings to perfection. With all the effort that has to go into maintaining the greens, tees and fairways it is little wonder

that other things that go towards making a course stand out are low on the list. Today's golfers are spoilt for choice and the surroundings can be a significant factor in deciding where they will play. Everyone has seen the change in the appearance of courses that television coverage has brought.

A great deal can be done to enhance the appearance of a course. This should not be dismissed. Top of all



# Splash of colour



greenkeepers' lists are obviously the playing surfaces, but the public are now very aware of their surroundings and what the eye beholds plays a significant part in their relaxation and enjoyment of the game. In some cases it determines whether they return or rejoin a particular course or club.

Landscaped water can add to a course's image. Its reflective qualities alone will transform an area. Add a fountain to an expanse of water and it suddenly becomes alive with movement, light and sound.

By putting a series of dams in a natural watercourse shallow and deep pools are formed. In these can be positioned boulders, stones and plants, plus a well-designed bridge spanning it and an area of tranquility for any frustrated golfers is created. Dreary ditches are transformed by selective planting of marginal plants. These will add splashes of colour throughout the spring and summer. For lakes and ponds there are now plenty of highly colourful water lilies to choose from. Their leaves act as shades against sunlight and will help to reduce algae growth. They need to be planted away from fountains or water falls. Marginal plants such as sedges and iris, especially the variegated forms give another dimension to the horizontal plane of the surface. Hostas come in a variety of greens and yellows, and when planted with ferns provide effective ground cover

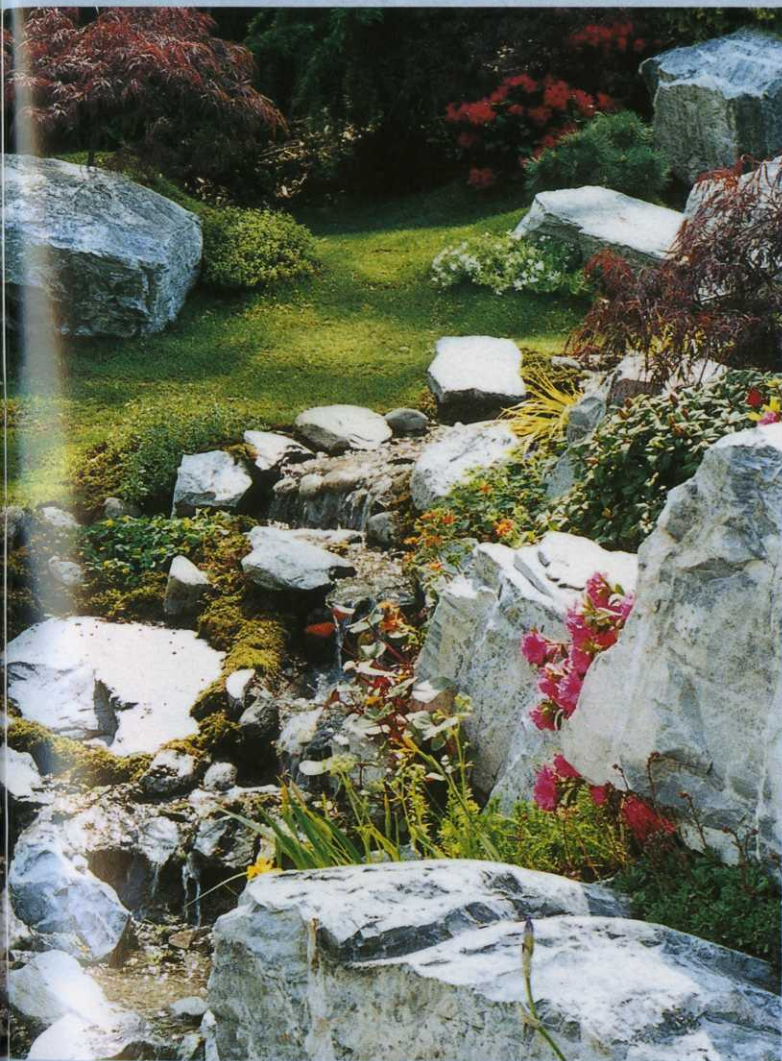
on banks throughout the summer. In the margins, groups of candelabra primulas and astibles will add splashes of colour.

Using a combination of royal fern (*Osmunda Regalis*) and the shuttlecock fern (*Matteuccia Struthiopteris*) can create a dramatic effect. Add to these a backdrop of the giant gunnera (*Gunnera Manicata*) and the effect is outstanding. Bamboos can also be added as they give movement and texture while acting as a screen.

If the soil is acid then for really big displays you would go a long way to beat rhododendrons and azaleas. Their reflected blooms in a pool in spring and early summer will be a talking point in the clubhouse. Likewise, acers in autumn put on a fantastic display and for winter and spring there are the willows (*salix*) with their attractive barks and catkins. The list is endless and for readers considering planting it may be worth consulting either a professional landscaper or reputable nursery. Both can recommend the most suitable for the soil and conditions the plants are to be grown in.

For many golfers the course is not just somewhere to play the game, it is a haven in which to relax from the stresses of modern life so the surroundings are important. Like every other leisure pursuit, golf operates in a highly competitive marketplace and many courses continually have to attract new play-





ers. Highly visual water features and colourful plantings not only look good in a leaflet they can also be a major selling feature.

#### Water Management

For any water features on a course to remain healthy and looking good requires knowledge of what goes on in the murky depths.

In this ecosystem there is a fine balance and the slightest change can really alter things drastically. The main reasons for a problem occurring are generally attributed to changes in temperature, nutrients or oxygen levels.

Where water is poorly managed, the knock-on effects soon become obvious.

**Plant and algae growth increases rapidly**

**Irrigation systems and pumps have to be continually cleaned**

**The volume of water drops as sludge builds up on the bottom**

**The shimmer on the surface disappears and it smells**

Another sign that there might be trouble afoot is an infestation of insects.

No two ponds or lakes are the same, so what is affecting one might not be the reason why another is deteriorating. Whilst there are control

methods for all these symptoms they are often only temporary, so it is important to identify what the cause is. At this point it could be worth calling in an expert - a limnologist (the equivalent of an agronomist).

If the water quality is to be maintained, it is essential a management programme is implemented because, like greens, there are certain operations that need to be carried out regularly.

An area of water is like a dustbin. Over a year large amounts of material are deposited and accumulate. These include grass clippings, seeds, soil, leaves, dead plants and animals, chemicals and fertilisers. While this ecosystem has methods of dealing with this decaying matter, there is a point when it becomes over loaded and things start to go wrong.

Plant and algae growth can be kept under control by using weed harvesters, rakes and some form of covering, such as polythene (Benthic barriers) over the bottom of the lake or pond. If large amounts of sludge and nutrients have built up the only answer is to call in a dredger. Both these operations are only treating the symptoms not the cause.

An alternative form of control is using chemicals and this is more popular because it is a relatively quick operation. However this kills off plants and algae, which sink to the bottom where they start decomposing, oxygen levels are reduced which,

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in turn, kills fish and produces a smell. Chemicals are expensive and again are only a partial solution.

There is another course of action that has for centuries proved to have beneficial and lasting effects on the quality of the water - aeration. Companies and organisations involved in the treatment of domestic and organic waste successfully use this process.

As the name implies aeration adds large amounts of oxygen to the water and in the process creates undercurrents that break up the temperature layers found in all lakes and ponds - in short, it mixes everything up.

The addition of large volumes of oxygen result in healthy and strong colonies of aerobic bacteria, which are essential for dealing with organic nutrients and waste. The digestive process of anaerobic bacteria (the baddies) is drastically curtailed.

The high circulation rate mixes the different temperature levels to produce more uniformity. Cold water from the bottom is distributed throughout the warmer surface levels and in doing so slows down the growth of algae. Other spin-offs from aeration include a lowering of iron and phosphorus levels.

All this adds up to better water quality control, reduced algae and plant growth plus sludge build-up.

On most courses, the areas of water are reservoirs for irrigation, so it is vital that they are well maintained and managed if the systems they supply are to work effectively. A restricted flow to pumps due to partially blocked filters places considerable stress on components and reduces both their efficiency and life. It is also time consuming to have to be continually cleaning them plus unblocked sprin-

kler heads. Apart from this the quality of the water being sprayed on to greens is of paramount importance to their healthiness.

It pays to make sure your water is good quality and looks good.

Finally, one of the more unorthodox uses for a water feature.

The clubhouse at the Costa Mesa Golf Club in the United States has a balcony that overlooks a large lake. One evening a group of members were sitting enjoying a drink and the scenery when an irate player appeared and proceeded to throw his bag and clubs into the lake and then stormed off. Ten minutes later he was seen wading out in to the lake to retrieve the bag. After much searching he found it, delved inside and upon finding his car keys promptly threw the bag and clubs back.

A leading European supplier of pumps and control systems reported that water features are becoming increasingly popular on courses throughout Europe. Kevin Shaw of Flowtronex Europe said, "That while it was possible to include the controls for a water feature within the main pump system it is not advis-

able. There is the risk of jeopardising the irrigation of the course." They have found that the pumping requirements for many features are often more demanding than was first expected so it is important to plan carefully.

At the new Marquess Course at Woburn Sands, a stand alone pump unit

was installed to provide 22 litres of water per second to cascade down waterfalls through two lakes. On another installation in Portugal that involved 600 metres of running stream the pump controls were incorporated in the main system. In this instance they were able to do it because the irrigation was operational at

night and the water feature ran during the day. They said both these examples were the exception rather than the rule.

The message is clear. Anyone contemplating installing a water feature that will require pumps should consult specialists who will be able to advise on the most suitable system.



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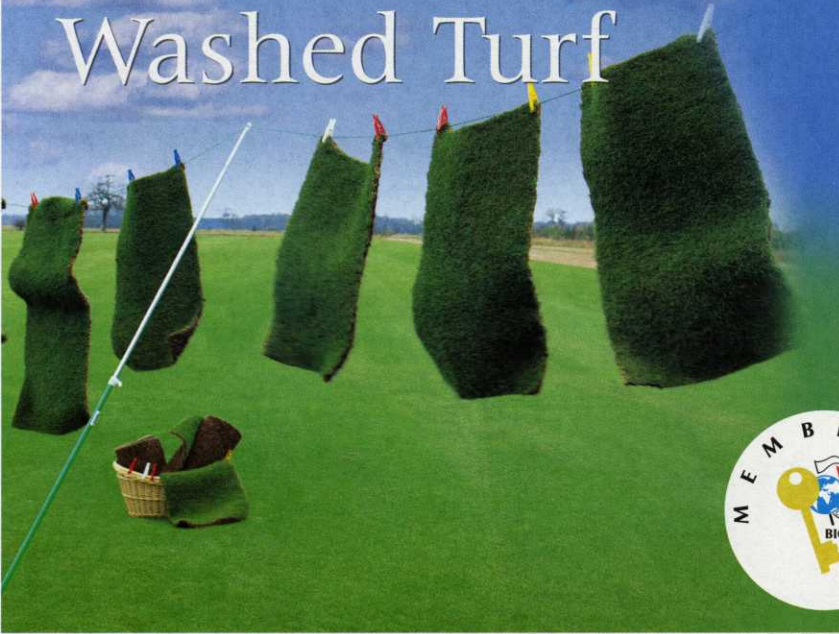
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# Grand occasion



When I left the position of Head Greenkeeper at North Weald Golf Club in Essex to pursue further qualifications at Writtle College, I had no idea that I would be travelling around the USA to meet the superintendents of some of the best golf courses in America, let alone play some golf. It all happened when I applied for the Grand Tour Scholarship sponsored by Rain Bird International, founded by Bettina Schrickel. Several weeks after applying, Bettina rang me up to tell me that I had been successful in my application, and that I would be trav-

elling with Paul Mogford, an Australian golf course designer, at the beginning of April.

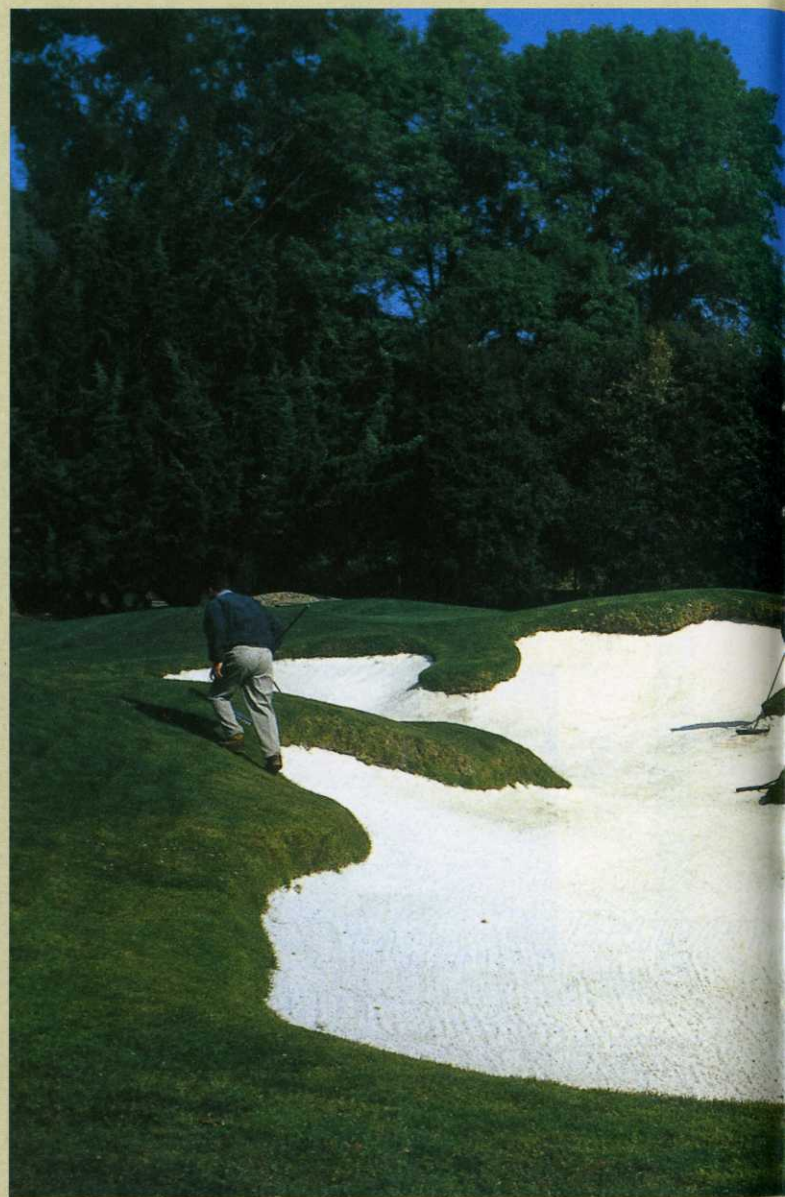
I arrived at Heathrow airport on an overcast Saturday morning for my flight to San Francisco and the beginning of the tour - 16000 miles, eight states, 21 golf clubs, and 23 days later I arrived back at Gatwick airport sporting a golden tan and a big Cheshire cat smile, but more valuable than that was the knowledge I had gained (the actual reason for going in the first place). A brief summary of my trip can be found on page 42.



One of the first problems encountered was the language barrier; it took a few days before I became accustomed to the names that they gave everything. With Smooth stalked meadow grass becoming (Kentucky) Blue grass, pedestrian mowers becoming walk mowers, etc...Then there was the Australian versions on top of that, with a strimmer (UK version), A.K.A. weed cutter (USA version), A.K.A. wipper snipper (Australian version).

My pre-conceived ideas of American golf courses were of those that you see on the telly, highly manicured and target golf, I was wrong. The majority of the courses played traditional chip and run, and only a few were highly manicured. It was interesting to see that a lot of the clubs were undertaking restoration projects to revert the evolved course back to its original design. As many of the courses were built in the golden age of course construction by eminent designers of the time (see table). Clubs such as Bel-air, Riviera, San Francisco, and Sourthen Hills have/are in the process of reverting their bunkers back to their original depth, shape, and mounding by using old photographs as a point of reference, and with the aid of a sympathetic designer/club professional. This was an area that all the superintendents enthused about, and their knowledge of their clubs history and original design was impressive.

It also raised an important issue, with golf courses being altered by the incumbent Club Captain or Head Greenkeeper wanting to leave their mark, these old masters will be lost forever, and in such a relatively short



period of time since their conception.

To bring the bunkers back into play, as originally intended, the match tees have either been extended back or new ones have been constructed. On some of the courses the use of a one to two inch polymer coating called "Bunker guard" was used too in the restored bunker to prevent erosion and reshaping that can occur over time through edge trimming and the play of golf.

Of all the courses that we visited, one common denominator was apparent, and that was that they all had wall-to-wall irrigation, everything was irrigated, even the rough. All the superintendents would tell me how many millions of gallons of water they used; in fact they could all use my annual consumption in one night! At first I thought that this was an obscene amount of water to use but after discussing with the superintendents about these amounts, all became clear. Depending on the area of the USA, the annual rainfall varied between 7-20 inches, but in most cases this rain came all at once over a two-month period in the wet season. This would account for their "Barrankas", a Spanish word for small canyons, which run through the

courses to catch and divert floodwater preventing it from causing any problems on the course. In fact some of the larger bunkers were called "Barranka bunkers". Anyway, this meant that the courses were without rainfall for ten months of the year, and given the high temperatures in the summer, irrigation even in the roughs was necessary.

This still may sound like a lot of water, but hardly any of the courses used potable water, as the majority irrigated with treated effluent water or well water. The level of treatment in the effluent water varied from secondary to tertiary treatments. The Pebble Beach Company actually has a main feed from the sewage company to its four courses, which is gravity fed. The pressure of which is so good that there is no need for a pumping system on any of the courses, except for a jockey pump on a high part of the course at Spyglass Hill Golf Club.

However, one problem with the treated effluent is that it builds up the salt levels in the rootzone due to its high sodium content. This has the effect of causing reverse osmosis on the grass plant, and therefore stressing it considerably. In the Monterey area, courses such as the Pebble Beach

