

Bill Hawthorn looks at the history of golf course irrigation in the UK

There is a widely held belief that automatic irrigation of golf courses is a relatively modern intervention. At the 19th hole you will hear tales of golf courses that have supposedly been 'ruined' by pop-up sprinkler irrigation and in particular you will hear reference to some of the famous links courses, with tales of how their fairways have been totally wrecked. It might therefore surprise some of you to learn that two of the oldest golf courses in Britain have practised fairway irrigation for over 90 years. At St Andrews the pipeline system through the Links essentially comprises a five inch cast iron main which was laid down in the last century, including hydrant outlet points along the fairways. The Royal St Georges Golf Club at Sandwich had a cast iron main installed at the beginning of this century and that also had hydrant outlet points for the fairways. It is interesting to note also that the pipeline laid at St Andrews all those years ago forms part of a modern automated irrigation system in use today.

Irrigation of golf courses was a labour intensive affair until the

1960s. In more leisurely times, when the amount of play on courses was quite low and labour was cheap, it made sense for water to be applied by a hand-held hose or from a strategically placed rotating sprinkler. These rotating sprinklers came into being in the 1920s. They were normally heavy iron affairs requiring two men to drag them about

and having giant arms which rotated by a reaction from the water jet. In 1933 in the USA the impact drive mechanism for rotating a sprinkler was invented, leading immediately to a dramatic reduction in the size of the sprinkler unit. The design developed at that time continues to remain in production throughout the world in a funda-

mentally unchanged form.

In the United States during the late 1950s it became apparent that if one of these compact sprinklers could be taken and placed into housing in the ground, the design to 'pop-up' when the water came on, one could more conveniently set a sprinkler system to water a golf course. Hence the pop-



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up sprinkler for heavy turf applications was born. Engineers worked on other ways of rotating sprinklers, mainly by using a turbine driven by water through the gears. In this way the gear-driven pop-up sprinkler was born. American engineers soon began to utilise these sprinklers in order to more easily irrigate the thousands of golf courses in the Sunbelt states of the USA and quite soon on golf courses located in hot climates in other parts of the world.

In 1964 the writer was charged with the task of introducing automatic pop-up sprinkler irrigation to British golf courses. It was in the winter of 1964/65 that three courses had an automatic system introduced to water their greens, the very first being the Handsworth Golf Club in Birmingham. The technology was basic, although the fundamental principals were the same as they are today. That system had five plastic gear-driven sprinklers around each green, fed with water by a 24 volt AC pilot solenoid operated valve connected by a network of cables back to a sequence timer at the pumphouse. The water was drawn into the system from a lake,

utilising an item which is still in common use today: a Grundfos multistage pump.

Although the impetus to develop the first pop-up sprinkler equipment and control systems lay in the USA, mainly due to their climatic conditions dictating the development of a sophisticated irrigation manufacturing base, from the very beginning British engineers started to introduce their own ideas. The American approach to controlling sprinklers was by using a hydraulic control tube arrangement with miles of spaghetti-like plastic tubes connected to a controller of the rotary valve system variety. We British took the American valves and modified them for electrical operation. In a similar manner, the first reliable irrigation controller was an American hydraulic unit converted into electrical operation.

Those who are unaware of the complexities of keeping a golf course in top condition are often amazed to discover that irrigation takes place in the UK at all. Although it rains frequently it is also a cruel fact that rain does not always fall at exactly the → 36

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'The major advantage of an automatically controlled system is in the word 'control'.'

35 → right time. Golf course greens in particular are now constructed to provide exceedingly free draining surfaces which remain suitable for play in the wettest conditions. Consequently, in any spell of dry weather, moisture levels soon fall to a point where turfgrass can enter into a stress condition. The major advantage of an automatically controlled system may be found in the word 'control'. It is vital that a greenkeeper should be

able to apply just the right amount of water at just the right time if he is to obtain the best results.

Since those early days there has been an explosion in the number of supplying companies and the range of irrigation equipment available. Equally, the extent of irrigation considered necessary has grown in line with the demand for golf. With golf courses crammed with players from dawn to dusk, an efficient automatic watering system has

become as vital a tool for the greenkeeper to maintain a course in good condition as having a good mower or slitter.

It was British irrigation engineers who first tackled the problems of complexity in an installation by reducing the amount of electric cable necessary. The first ever successful two-wire irrigation controller was produced by Watermation in the late 1970s and it may now be seen that two or

three wire digitally controlled systems are the norm. Manufacture in the UK of pop-up sprinklers and control systems began in earnest as a real commercial proposition in the early 1980s. Now, by way of a most welcome reversal, British made pop-up sprinklers are being exported for installation on golf courses in the USA.

■ The author, Bill Hawthorn, is managing director of Watermation Sprinkler & Controls Limited.

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