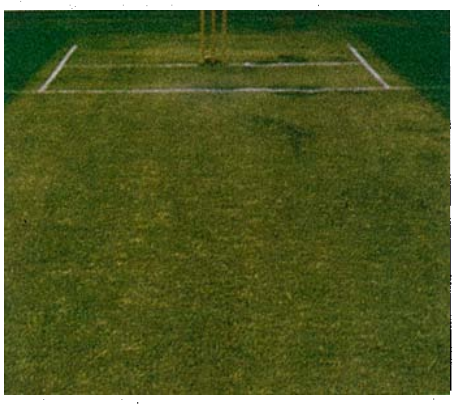
A new wicket at the MCG

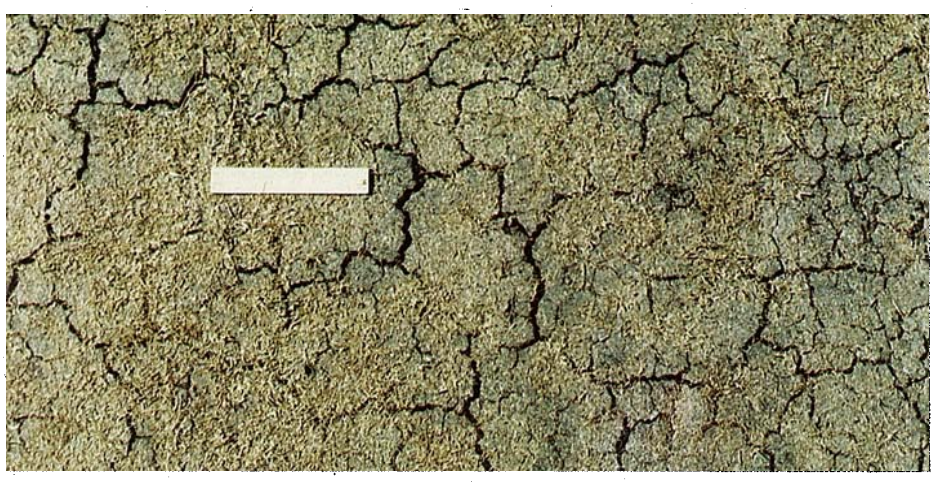
As cricket aficionados well remember, the state of the wicket at the Melbourne Cricket Ground in the summer of 1981/82 called forth as great an outcry as the adjudication of a myopic umpire.



The old wicket in poor condition. *Below:* a close-up of some of the cracks, with a scale 150 mm long.

Both batsmen and bowlers suffered from the problem — variable bounce. The ball mostly bounced low, in some cases becoming a grubber, but occasionally it lifted from a good length. Although not as seriously, the affliction had also shown up in 1980/81.

The fault lay with bare patches that looked like the bottom of a drought-stricken dam. The surface had shrunk and cracked into islands that tended to curl up at the edges. These 'saucers' could give when hit by a fast ball and, depending on whether the ball struck the centre or the rim, the rebound height varied.



In vain, the curator tried to promote growth of grass and cure the problem.

The grounds management called on Dr Don McIntyre, a soil physicist with the CSIRO Division of Soils in Canberra. After some close observation and analysis of core samples, Dr McIntyre pin-pointed the problem and offered a solution. Now, under optimum conditions of moisture, aeration, and temperature, the newly laid M.C.G. wickets (10 in fact) are performing well.

Dr McIntyre measured cracks in the wicket up to 10 mm wide.

Clay for bricks

In Australia, a turfed wicket is made of heavy clay soil. When wet, the clay is plastic, so it can be rolled to a smooth level surface. When dry, it sets hard like a brick pavement, giving good bounce to the ball.

And, of course, the pitch must be green. Fine turf binds the playing surface together with its roots, reinforcing the clay

pavement like straw in mud bricks. Also, water uptake by the roots dries out the pitch deeply and uniformly, preventing the surface from 'saucering'.

It is to a curator's credit that he can get anything to grow on a wicket's hard compacted surface. One species that will survive repeated compaction by heavy rollers and the close shaving of mowers is couch grass (*Cynodon dactylon*) and it is widely used on Australian wickets, including those of the M.C.G.

Bat, ball, and players' feet also injure couch's leaves, and the plant withers from an enforced abstinence from water for the entire period of a match — perhaps 5 or 6 days. Cricket regulations forbid watering during the period of a game, and the wicket is quickly covered if rain descends. Even so, as surburban gardeners may suspect, after the game is over, and water penetrates the soil, the couch springs back from underground stolons.

Progress in constructing new wickets. Heating cables are being covered with the original heavy clay soil.

Couch is a summer grass, however, and it met its match in the unusually cold and wet winter and spring that Melbourne had in 1980, and again in 1981. Normally, it lies dormant until the warmth of spring develops; but, unfortunately, in these two extreme years it failed to recover in time for the Test matches.

Of course, other factors apart from Melbourne's inclement weather contributed. Cricket pitches must work harder than in the lazy days of yore, under the onslaught of one-day games as well as Test and Sheffield Shield matches. Whereas a pitch was previously only used perhaps once a season, now some of the pitches are used twice, or even three times.

Football can share the blame, too. The playing season for Australian Rules now lasts a couple of weeks longer, and that means more damage and less time to repair it. Football boots never trample upon the hallowed pitch at Lords; the M.C.G., however, must bear the indignity of a worn spot where 'centre bounces' are fought.

More than 60 000 sprigs of couch were planted in five of the new wickets, a painstaking job that occupied six men for about a week. Couch seed was sown when the latest five were prepared.

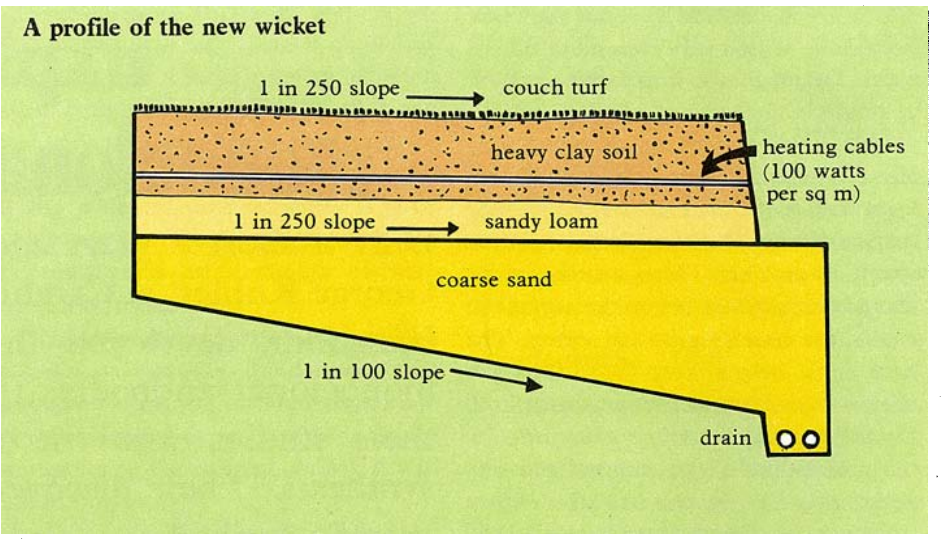
The cores smelt of hydrogen sulfide.

When Dr McIntyre was called in, he inspected the pitch surface carefully, took cores of soil for analysis, and, in the cause of science, watched a couple of Test matches. He made observations and took photographs of the pitch as it deteriorated with play.

By the end of a Test match between the West Indies and Australia at the end of 1981, Dr McIntyre measured cracks in the wicket up to 10 mm wide. Some sections of adjoining saucers differed in height by 4 or 5 mm.

The root of the problem

The cores, taken to a depth of 1·5 m, provided incontrovertible evidence of what was wrong. The soil was waterlogged. When cut open, the cores were very wet



The idea was to provide optimum conditions of moisture, aeration, and temperature for couch growth.

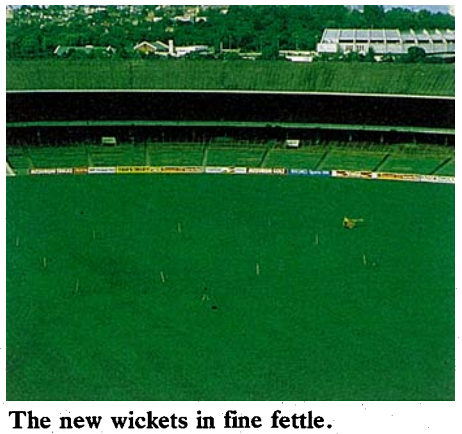
below about 5 cm depth and smelt of hydrogen sulfide. This indicated that the water had excluded air and permitted anaerobic bacteria to produce toxic sulfur compounds.

As a result, couch had difficulty growing. Where it did survive, the roots couldn't penetrate far into the soil. The cores showed roots extending to a depth of only 3 to 5 cm, then spreading horizontally.

The poor soil conditions accounted for the couch's failure to grow. Dr McIntyre explains that, where grass was absent, only the top few millimetres of soil became really dry. A dry layer on top of moister conditions underneath produces stresses that give rise to saucering. In contrast, turf with deep penetrating roots allows uniform drying of the pitch to a good depth.

Where couch survived but had only shallow roots, a uniformly dry layer appeared over a wet plastic one as the wicket dried. The wicket then responded with a consistent low bounce.

Clay soils are very susceptible to waterlogging because water passes through them only very slowly. The difficulty with the M.C.G. wicket, Dr McIntyre judged, was that the clay layer was unduly thick



The new wickets in fine fettle.

(about 75–90 cm) and it overlay the Yarra floodplain, which was even more impervious. Drainage was impossibly slow.

Warm and dry

He recommended that a much shallower layer of clay soil be used for the playing surface (about 20 cm) and that it sit on a well-drained base. Also, heating cables should be installed below the surface to extend the couch's growing season. The heat would help to keep the turf dry and firm in winter, ameliorating damage from football boots.

Dr McIntyre's tests showed that the actual clay soil in the M.C.G. wickets — first obtained from Merri Creek in 1859 — is a good one. It is a dark heavy clay that shrinks upon drying. Over the course of a 4- or 5-day match, water loss causes a mass of deep, fine cracks to form, allowing water to penetrate easily and revive the parched couch quickly.

Drainage was impossibly slow.

And so the M.C.G. wickets have been rebuilt, retaining a 20-cm top layer of the original soil but providing better conditions underneath to promote growth.

Mr Peter Semos of the City Parks Administration of the Department of the Capital Territory in Canberra supervised the reconstruction, which was done in two stages: five wickets in 1982 and five more this year. In 1982, more than 12 000 sprigs of couch were carefully planted by hand into each wicket's surface; this year seed was sown, a much easier task.

Even after a relatively short time, the new wickets are maturing remarkably well. They'll take 2 or 3 more years to reach their peak, when we should expect to see some really good play on them.

A lot of effort goes into making a first-rate wicket, and sometimes somebody suggests a synthetic turf. But, as Dr McIntyre observes, that just wouldn't be cricket.

Andrew Bell

More about the topic

Australian cricket pitch soils and profiles. D.S. McIntyre. *Papers Second National Seminar on Turf Management, Canberra, May 1983.*

Cricket wicket construction. P. Semos, *Papers, Second National Seminar on Turf Management, Canberra, May 1983.*