



Lincoln University Digital Dissertation

Copyright Statement

The digital copy of this dissertation is protected by the Copyright Act 1994 (New Zealand).

This dissertation may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- you will use the copy only for the purposes of research or private study
- you will recognise the author's right to be identified as the author of the dissertation and due acknowledgement will be made to the author where appropriate
- you will obtain the author's permission before publishing any material from the dissertation.

CRICKET AND CRICKET WICKETS

A discussion of the two

by Ian Challenger

A dissertation submitted in
partial completion of the
Diploma in Parks & Recreation
Management, Lincoln College,
1986.

Ian Challenger

TABLE OF CONTENTS

Introduction	vii - ix	
1. Historic Perspective		2
Evolution		2
New Zealand		4
Womens Cricket		6
2. Administrative perspective		10
Mens		11
Womens		22
3. Pitch Perspective		28
Pitch Behaviour		29
Pitch Playability		
Case Study: Lancaster Park		33
4. Conclusions		42
Glossary of Terms		44
Bibliography		52



The Aristocratic sport?

ACKNOWLEDGEMENTS

In writing this dissertation many people gave me their time and assistance. I take this opportunity to thank them, for without their help I would never have completed this report.

Mr. Russell Wylie, Groundsman of Lancaster Park, Mr. Graham Dowling, Executive Controller of the New Zealand Cricket Council, and Mr. Michael Allan, Immediate Past Captain of Lincoln Senior Cricket Team, and owner of a large cricket book library which he put at my disposal. These people in particular gave their time, resources and knowledge, to help me with this dissertation, which made quite a significant contribution to this paper.

Additionally I would like to thank Mr. J. Murphy, Mr. Stuart Westerby, Mr. Peter Williams, Mr. Brian Eathorne and Ms Brigit Legg. I would also like to take this opportunity to thank my supervisors, Mr. John Taylor who started the ball rolling, and Mr. Allan Taylor who gave it the final enthusiastic shove.

Finally I would like to thank my "technical team" - my mother who typed this report and helped in its final presentation, and my father, whose witty repartee made all the difference.

CRICKET - AS EXPLAINED TO FOREIGN VISITORS

You have two sides one out in the field and one in.

Each man that's in the side that's in goes out and when he's out he comes in and the next man goes in until he's out.

When they are all out, the side that's out comes in and the side that's been in goes out, and tries to get those coming in out.

Sometimes you get men still in and not out.

When both sides have been in and out including not outs,

Then thats the end

Hozat!

On the NZCC office wall
(from Wisden)

INTRODUCTION

Cricket: "Open air game played with ball, bats and wickets between two sides of eleven players each".
(Concise Oxford Dictionary)

Cricket is possibly one of the most complicated games played for recreation in the world to-day, with its complex rules and techniques. It is also perhaps the most long-winded and (on first glance) the most boring game ever conceived. As my father said while watching the third test against England earlier this year - "cricket is an exercise in sloth really".

Fifteen men or women stand for hours in a paddock. Two stand in front of sticks stuck in the ground, while 11 others gather round them. One of the 11 comes running in with a hard piece of leather in his/her hand, and when close enough throws said piece of leather at one of the people standing in front of the sticks, who in turn tries to hit the piece of leather, or ball, as hard as possible and run for the sticks placed 22 yards (20 m) away. One of the 10 people then chases the ball, and once caught throws it back to the centre of the paddock. The person holding the ball is called a bowler, the person in front of the 3 sticks (or stumps or wickets) a batsman, and the 10 others, who chase the ball, fielders. The ground on which they play is called the pitch, or wicket, and the two spare people are the umpires.

"The game continued. The bowler approached the wicket at a lope, a trot, and then a run. He suddenly exploded in a flurry of arms and legs, out of which flew a ball. The batsman swung and thwacked it behind him over the sight screens." (Adams, 1982, p 23).

Douglas Adams's description adequately sums up the game's two main facets. The first is a fielding side, with two or more people in this side who are able to bowl. The second are two people willing (or in some cases brave enough) to stand in front of the wickets and try to hit the ball once it's left the bowlers hand.

Memories of matches
lost and won,
Of summer afternoons
and sun,
Of many a doughty
innings played,
Of catches missed and
catches made.

Alfred Cochrane

The third area which Douglas Adams touched on is the wicket (or pitch). It could be argued that this last component is the most essential part of the game because you obviously need somewhere to play cricket, but more importantly, how a pitch performs can often effect the outcome of the game. A pitch should be fast and with some sideways movement for the seam and spin bowlers. Also it needs something for the batsmen so that they can score the runs, - "the opportunity to put a bit in, to get a bit out".

Often the problem is that the people who prepare the pitches are unaware of the intricacies involved in its preparation, particularly in school and club cricket where the pitch leaves a lot to be desired. The other facet of the game that needs to be dealt with before a ball can be bowled is administration, for without the club secretaries or New Zealand Executive Controller, no games can be organised or played.

In New Zealand cricket is administered by the New Zealand Cricket Council for the men and the New Zealand Womens Cricket Council for the women. The country is divided into various associations for the first class games who each administer cricket within their respective boundaries. Within the first class or major associations there are minor associations, such as the North Canterbury Cricket Association or Ashburton County Cricket Association. Within each minor association there are sub associations, such as the Ellesmere Sub-Association, and within these are the many clubs. Obviously, though, cricket didn't just appear one day, it was developed over a period of centuries to the game we know to-day. Originating about the 12th century using tree stumps as wickets, it slowly became popular with the masses, and indeed royalty.

The game has now taken on a distinctly commercial aspect, with professionals playing cricket all year round, partly in England and partly here at home. It is ironic, though, with the recent fuss over Kerry Packer's one-day circus and the wearing of the coloured "pyjamas" that the game originated with teams wearing at least a coloured ribbon in their hair, and at most a complete coloured outfit, to distinguish the teams. Not only that, but also most games were one day affairs. So perhaps it is only fair that this is one direction that the new game of cricket is venturing into. For it certainly is different to even the beginning of this century.

When the cricket season was over I felt a deep sadness. It was like the end of harvest.

Alison Uttley

It is the aim, therefore, of this dissertation, to answer three questions about cricket:

First, why do people play cricket? Thus look at cricket in its historic perspective to discover where it originated and its development throughout the years.

Second, how do people become involved in cricket? The administration of cricket, both internationally and domestically, including club cricket, and

the third question, and perhaps the most important - how do you prepare a pitch so that it is the best available on which to play cricket?

The other areas that are looked at are the main techniques involved in cricket which are explained in the glossary, and finally a short discussion on the game's future, in light of the recent changes within cricket.

It is hoped that this work will do more than gather dust in a library, but act as a guide to groundsmen and women who have the difficult task of preparing the cricket pitch for the local school or club, or even a Shell series game or international match.

I tend to believe that cricket is the greatest thing that God ever created on earth.

Harold Pinter

CHAPTER ONE

Cricket in its historic perspective



Broadhalfpenny Down

CHAPTER ONE

Cricket in its historic perspective.

Evolution

The origins of cricket are unclear, but English historians are quite adamant that it started in England around the 12th century. It is thought that the earliest form of the game was likely to have developed from what was called "bittle battle" where dairymaids defended their milk stools with their "bittles" (wooden milk bowls). The first bat was probably a branch of a shepherd's crook, and indeed the word cricket may well have developed from "cryce" which is an Anglo-Saxon word meaning "shepherd's staff". The wickets were tree stumps (hence the word) and the balls stones. (Elphinstone, 1985). A document in the Bodleian Library dated 1344 shows a nun holding a ball, while a monk waits to strike it. In the background are two monks and two nuns waiting to catch the ball. This illustration shows how cricket or a form of it, had spread to all quarters (Hayhoe Flint & Rheinberg, 1976).

The earliest written reference to cricket was in the early 1300's when an item in King Edward 1st wardrobe accounts recorded an item of his son's cricket wear (Wisden, 1978), and also of Prince Edward playing "creag" (Neely, et al., 1985, Johnston, 1972).

Later Edward IV outlawed "hands in and hands out" as it was then called, because it interfered with the masses archery practice, which was important to the country's defence at that stage, (Elphinstone, 1985).

The first definite reference to cricket was in 1598(c). It refers to one John Derwick "playing at crickett" (sic) whilst studying at the "Free School of Guildford" (Johnston, 1972, Wisden, 1978). The sport though, was still under threat from politicians of the day, with Cromwell banning cricket on the Lords day, and also in Ireland, where all "sticks" and balls were to be burned by the hangman. (Wisden 1978, Neely 1985, Johnston, 1972).

Lord's and the
Oval truly mean
Zenith of hard-
won fame,
But it was just
a village green
Mothered and
made the game.

G.D.Martineau

After the Restoration cricket began to return to favour, particularly with the aristocracy, many of whom began gambling on the game's outcome (Johnston, 1972, Hayhoe Flinit & Rheinberg, 1976). The first recorded game was in 1646 at Coxheath in Kent (Wisden, 1978). It was during this period that matches became more common between the counties of Kent, Surrey, Sussex and London, with the first county match between Kent and London in 1709 (ibid, 1978). By this time royalty had again become keen on the game. Frederick, Prince of Wales was in fact president of the London club, which in 1744 drew up the first laws of cricket (ibid, 1978). Unfortunately Frederick was killed due to his love of cricket, for in 1751 he was struck on the head by a ball and incurred an internal abscess (Neely, 1985, Elphinstone, 1985).

At this stage cricket was chiefly a country game, centred mainly around the Hambledon Club in Kent, which formed in 1767(c) (Wisden, 1978), but towards the end of the century the game moved to London and in 1787 the White Conduit Club changed its name to the Marylebone Cricket Club (MCC) (Neely 1985, ibid 1978, Johnston, 1972), after one of the White Conduit members encouraged Thomas Lord (who was tenant of a public house in Marylebone Road) to develop and manage a cricket ground. After a number of sites were developed he finally came upon the present site of Lords Cricket Ground in St. Johns Wood, London (Neely, 1985).

The MCC soon became confident enough that it revised and published a new set of rules for cricket in 1816, thus establishing itself as the head of the cricket world, and making Lords its Mecca.

In 1846 William Clarke gathered together "the eleven of England" and set out on a tour of England with his professional cricketers. Clarke's team would play wherever a purse was offered, wet or fine, and against whichever club offered. (Neely 1985). Other "travelling cricketers" later started up, and two or three teams toured the country throughout the year. This gave rise not only to professionalism, but also gave young players such as W.G. Grace the chance to establish themselves in cricket, and perhaps the opportunity of also becoming professionals. From England cricket spread to wherever the Union Jack was flown, growing most popular in South Africa, Australia, New Zealand, West Indies, India and Pakistan. Regular tours between England and



Jack Hobbs "the master"

Gone for ever are the days when we and Australia thought that we were the only people who could really play cricket!

Sir Pelham Warner

Australia were started in the mid nineteenth century, both considering the other as the "Great Enemy", contesting the famed Ashes.

This was the state of cricket in England when the first settlers arrived in New Zealand. Over-arm bowling had just been established as the accepted way to bowl, and England was soon to lose its first test match against a foreign side, and thus starting the Ashes series between England and Australia. Now regular test matches are held between six of the seven test playing sides (the seventh is South Africa) and England and Australia find they are no longer the greatest teams in the world.

New Zealand Cricket

New Zealand was settled in the mid 19th century, largely by the lower classes of English society. They brought with them part of their Victorian way of life, which included cricket. Charles Darwin in 1835 commented on freed Maori slaves and Missionaries playing cricket in the Bay of Islands which shows that cricket did arrive early (Neely, 1985) The first newspaper report of cricket was also in the Bay of Islands in 1841. The first fully reported game was in Nelson three years later. (Brittenden, 1983).

But during these early years of settlement, the major problem was transport, and until this was improved games were largely between groups of friends. The first inter-provincial match was not until 1859-60, when the Auckland team travelled by steamer to Wellington. (Neely, 1985, Brittenden, 1983).

In Dunedin the first game was held on the present Octagon site between married and single men in 1848, but in the 1870's the Carisbrook swamp was drained and the cricket ground developed. Christchurch played their first match in Hagley Park in 1851, to mark the first ten years of settlement. Lancaster Park was developed in the 1880's, mainly because an entrance charge could be made, whereas this could not be done at Hagley Park as it was a Government Reserve. (Neely 1985, Shatter, 1974).

Wellington's cricket development began with the formation of the Wellington Cricket Club in 1849 and a match was arranged on the flat land at Te Aro. The Basin Reserve

was developed after the 1855 earthquake had reclaimed the land in the Basin Reserve region. But it wasn't until 1878 that the Basin was finally ready for its first cricket match. (Neely, 1985).

Auckland began as early as 1845 when a small but dedicated crowd turned up on Bosworth Field to play a five-a-side cricket match. The first cricket ground was developed by the English troops at Albert Park, but when this land became needed for development, the present site at Eden Park was drained (Neely, 1985).

The first touring side to come to New Zealand was George Parr's "All England 11" who were invited by a Dunedin hotelier in 1864. They took part in a tournament between Southland, Otago and Canterbury. The English side won most of the matches and thus the tournament. (Neely 1985, Brittenden, 1983). Nelson was the first to form a Cricket Association and did so in 1874. Wellington formed one a year later, Otago in 1876, Canterbury in 1878 and Auckland, the last of the bunch in 1881, (Brittenden, 1983). The first Australian tour was in 1877/78 and in 1879 Canterbury toured across the Tasman. (Ibid 1983).

In the next few years, until the New Zealand Cricket Council was formed, regular visits by England and Australia occurred, playing against 15, 18 or 22 opponents. The New Zealand Cricket Council was formed in 1894 in Christchurch, where it has remained ever since. New Zealand was admitted to the Imperial Cricket Conference (now the International Conference) in 1926 and played its first official test against England in 1929, (ibid 1985, ibid 1983). But it was not until 1956 that New Zealand won its first test match (against the West Indies) and it was another five years before its first overseas win (against South Africa). The first test rubber was won in 1969 against Pakistan (Neely 1985, Brittenden 1983). Since then New Zealand's cricketing prowess has increased dramatically and since 1980 New Zealand has not lost a test rubber at home. Overseas New Zealand defeated Australia last season and has just returned from its most successful tour of England not losing any games and winning the test rubber. (Neely 1985, Brittenden 1982 and 1983).

Domestically six major Associations now compete each year in a round robin contest for the Shell Cup and Shell Trophy. The plunket Shield (given by Governor General Plunket in 1905) is now contested in every inter-Island match (Neely 1985, Brittenden 1983).



Jeremy Coney, during his innings at Trent Bridge this year



Penny Kinsella of Central Districts

For the Minor Associations the Hawke Cup is competed for on a challenge basis. This cup was given by Lord Hawke in 1910 and is now the U-Bix Cup.

From its humble beginnings, cricket in New Zealand has grown both in popularity and strength some people arguing that New Zealand's cricket team is now second only to the West Indies, and our recent test series victories would help to reinforce this view. Perhaps by next March New Zealand will be the best in the world.

Womens Cricket

Womens cricket originated from the same source as mens cricket, but it seems likely that the women were not encouraged to play the sport because of its so-called "masculine nature". By the same token women have been playing cricket for just as long as the men, and have had quite a profound effect on the game.

The first recorded game took place at Gosdan Common near Guildford, Surrey in 1745. The match was between the Bramley "maidens" and the Hambleton "maids", Each wore coloured ribbons to distinguish them. (Hayhoe Flint & Rheinberg, 1976). For the next half century or more womens cricket games were largely arranged for festive occasions and competitions between villages rather than between clubs as the mens cricket games were at this stage. But most games were treated seriously by both men and women, often with gambling and fighting over the results. (Ibid 1976).

It took a century before womens cricket was finally treated with the seriousness it deserved, for in 1887 the White Heather Club was formed, largely by aristocratic ladies who enjoyed cricket. The White Heather Club continued to function as a club until 1950 when it was decided to fold the club up due to lack of members. Reunions were held each year until the numbers declined and in 1957 it was decided to close the club completely.

The other advance in womens cricket was in 1890 when "the original English lady cricketers" was formed. This was a group of professional women cricketers, who, like William Clarkes "All England Eleven" travelled the country playing against whoever would.

play them and wherever money was offered. Their main aim, though, was to try and foster an interest in womens cricket throughout England. (Ibid 1976). The OELC disbanded two years later, but despite this it certainly made people aware of womens cricket.

Other clubs, such as The Dragon Flies were also beginning to occur in the 19th century and like the White Heather Club and the OELC helped to foster womens cricket throughout England.

On the 4th October 1926 a group of women interested in cricket gathered together to form the Womens Cricket Association. Its aim was to enable women or girls who wished to play cricket the chance to be able to do so. One year later there were 10 clubs, and 23 schools were affiliated, there were two business teams and 3000 members. The same year the WCA started a week long cricket festival where women gather together for a week cricket competition, and except for the war years this has been a regular occurrence ever since. (Ibid 1976).

In 1935 the WCA travelled to Australia and New Zealand. Return tours were arranged and soon these three countries played each other regularly. South Africa was also toured by New Zealand and England, and England has also been to Holland on a number of occasions. More recently New Zealand and Australia have both travelled to India for tours.

In 1958 representatives from New Zealand, Australia, Holland, England and South Africa gathered in the Victorian Cricket Association house for the inaugural meeting of the International Womens Cricket Council. This was formed to administer womens cricket throughout the world and organise tours and test matches. There are now ten members of the International Womens Cricket Council, and but for the Council it is unlikely that womens cricket would have had such a following.

In New Zealand womens cricket was never as strong as the mens, and it was not until 1886 that the first reference to a womans cricket match was made. (Encyclopaedia of NZ 1966, Hayhoe Flint & Rheinberg, 1976). After world war 1 games were played, but ridiculed as being unsuitable for members of the fairer sex. This attitude continued until the England tour of 1935 when it was realised that women really could play cricket and furthermore play it quite well. (Ibid 1976).

The first attempt to organise womens cricket was by Auckland who founded an Association in 1928. Christchurch soon followed along with Otago and Wellington. In 1934 rumours of the approaching England tour forced New Zealand to close ranks and the New Zealand Cricket Council was formed to administer the forthcoming tour. (Ibid 1976).

Each year representatives from Auckland, Canterbury, Wellington, Northshore, Central and Southern districts meet and compete for the Hansells cup. From these teams are chosen the national team for any forthcoming tours.

Womens cricket has never been vastly popular and possibly never will be, unless they can gain more coverage in the national medias of newspapers and television. I believe that they are good enough and deserve this coverage. But they should be given greater publicity not because the powers-that-be feel they have been forced into it, but because of their obvious skill as cricketers.

Women have had a vitally important role to play in crickets evolution. It was a female, one Christina Willes, who was the first to develop over arm bowling, which her brother John Willes tried to introduce to mens cricket. The reason why Christina Willes bowled over arm was because of the flowing dresses worn then, which meant that she couldn't effectively bowl underarm. (Ibid 1976, Wisden 1978, Neely 1985).

Mrs. Martha Grace taught all her sons, including W.G. how to play cricket, and as such is the only woman whose death is included in Wisden's Almanac. W.G. Grace went on to revolutionise cricket and its techniques. (Hayhoe Flint & Rheinberg 1976, Wisden, 1978).

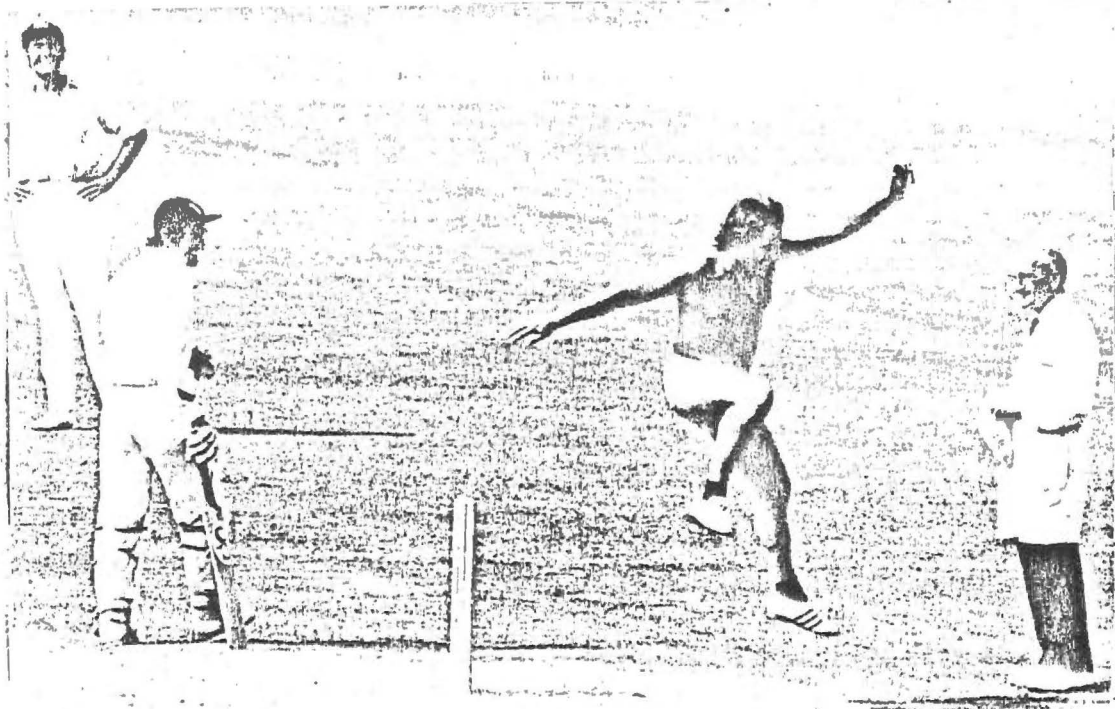
The final area where women lead the way is with the World Cup which the women first staged in 1973 and which led to the men doing the same two years later. (Ibid 1976). The role that women have played and still play should not be forgotten, and for this reason alone they have the right to more media coverage.



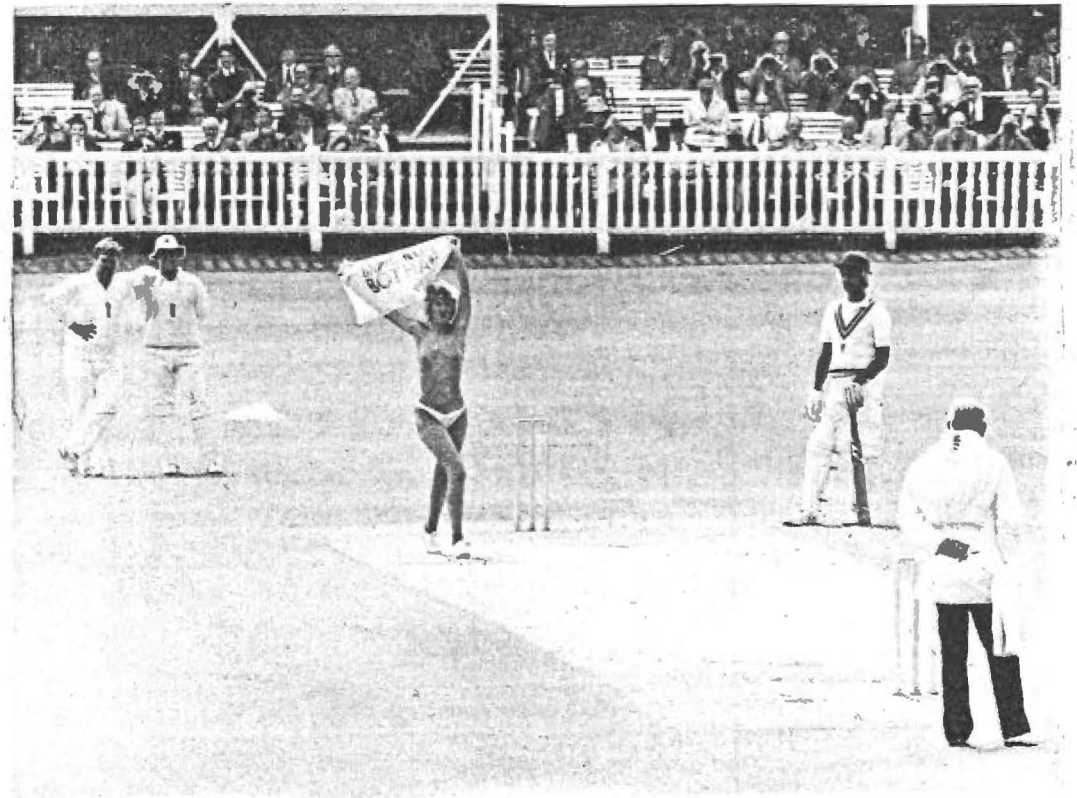
The Grace

CHAPTER TWO

Cricket - the administrative perspective



A male stalker at
Lords



A new breed of stalker
- Lords

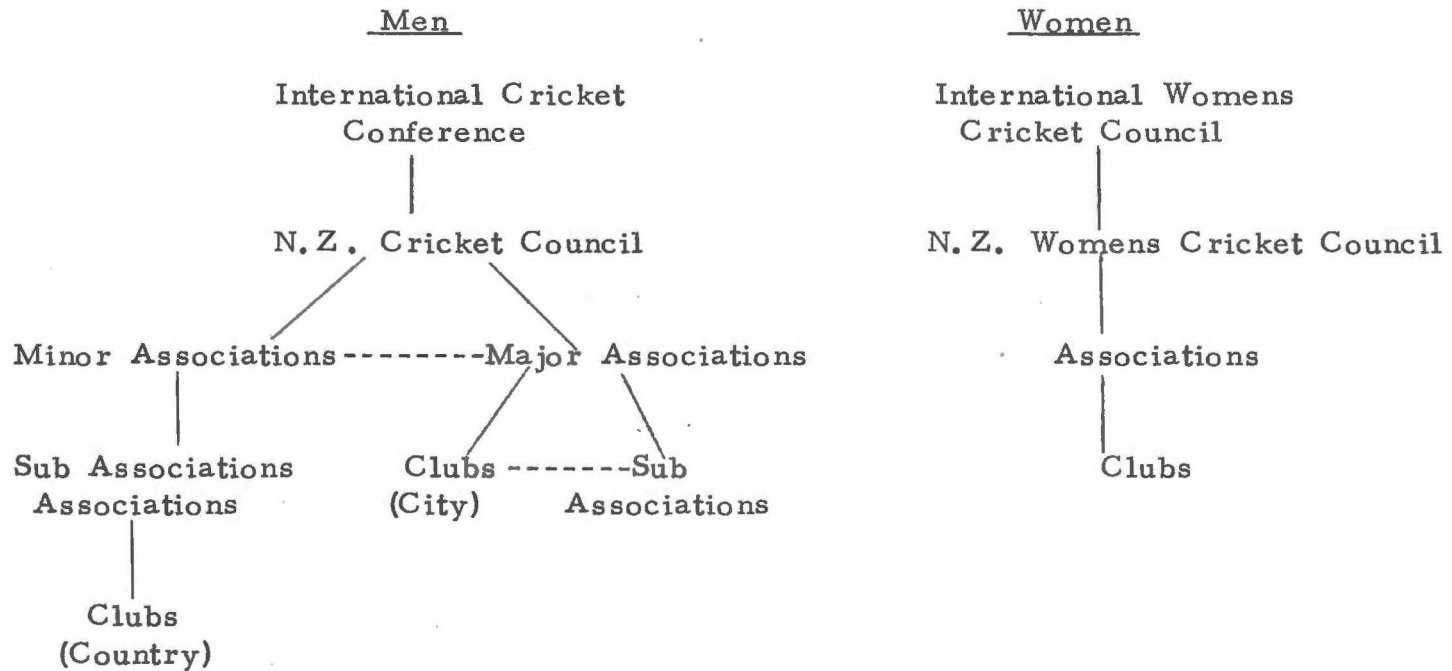
CHAPTER TWO

Administration

As in early Europe, where all roads led to Rome, the same is true of New Zealand's cricket administration, though here they lead to London instead of Rome. For the men "all roads" lead to the New Zealand Cricket Council, then ultimately to London and the International Cricket Conference. For the women, "all roads" lead to the New Zealand Womens Cricket Council, and from there again to London, to the International Womens Cricket Council.



Kiwi cricket



International Cricket Conference

The Cricket Conference was formed in 1909 by Australia, South Africa and the MCC. At that stage it was called the Imperial Cricket Conference and was only open to Commonwealth members. New Zealand, India and the West Indies joined in 1926 and Pakistan in 1953. South Africa withdrew in 1961 and in 1965 it changed its name to International Cricket Conference and countries were now eligible for entry even if they were not a member of the Commonwealth. Australia and England are now recognised as foundation members, giving them extra voting rights, and New Zealand, West Indies India, Pakistan and Sri Lanka are now full members. Other than these there are 17 Associate members, covering most of the globe. Meetings are held at Lords every July and attended by all members. Special meetings can be called by the Chairman or any two foundation or full members of the conference.

The Conference is responsible for:

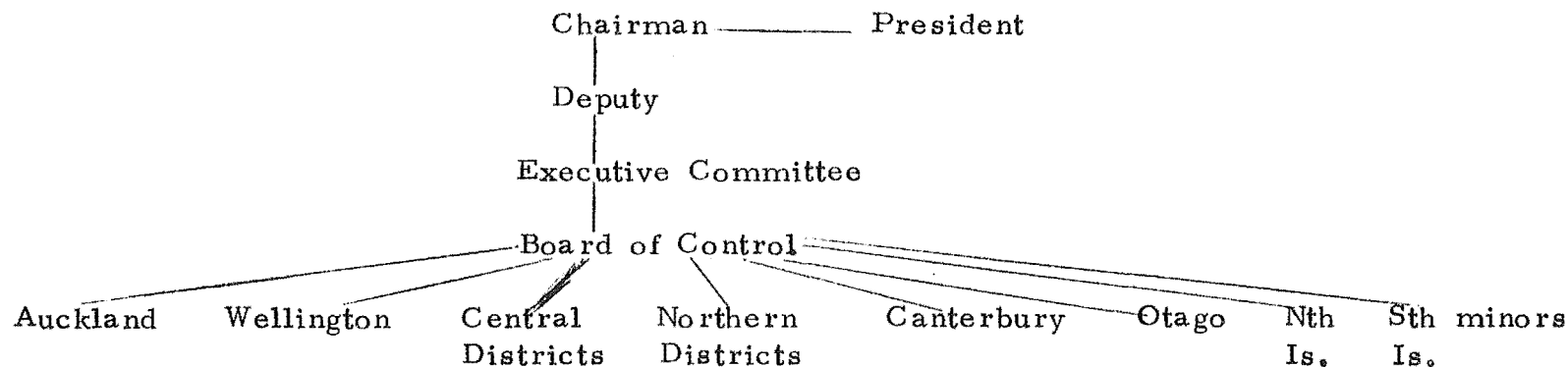
1. The status of test matches (matches between representatives of the foundation or full members.)
2. The confirmation of tours between full or foundation members.
3. Decide on qualification rules for cricketers to be able to play test matches.
4. The classification of first class matches.
5. The establishment and administration of an ICC coaching fund for coaching member countries.
6. To organise, establish promotion and exploitation of competitions and tournaments in any part of the world, between any members of conference (outside test matches and tours).

7. Discuss matters of interest to all members.
8. Alter or add to the rules of the Conference as necessary.
9. Allocate to foundation and full members their spheres of assistance to enable them to help foster cricket throughout the world.

The New Zealand Cricket Council, although a member of the Conference, is an autonomous body, and is responsible for the administration of cricket within New Zealand. Its responsibility to the ICC is only in terms of obeying its rules as a member.

The New Zealand Cricket Council

The NZCC was formed in 1894 in Christchurch, where its office remains to-day. The Council's organisation is as follows:



The President is the titular head of the organisation within New Zealand and is elected every two years. The working body is the Board of Control which has 14 members, one from each major association, plus one representing the North Island minors and one representing the South. Also on the board is the Executive Committee plus the chairman. The Board meets quarterly and discusses matters of common interest to the Association, plus policy and tours etc. The Executive is a 5 member committee consisting of the Executive Director, an honorary treasurer, plus 3 elected members. It is

responsible for the day-to-day running of the Council. They meet regularly, generally in between the Board of Controls meetings.

Also working for the Council is a national director of coaching who is based in Christchurch and is responsible for organising specialist or regional coaching clinics.

A national selection panel is elected each year, with a convenor and travels the country's major Associations looking for possible New Zealand representatives.

Funding of the Council is from four areas:

Tour profits (mainly home series)
National sponsorship
TV and radio rights, and
Investment income.

This pays for administration, promotional and coaching costs.

The Council's objectives are:

1. To control and advance cricket throughout New Zealand.
2. To arrange and control inter-island and inter-association cricket matches.
3. To arrange visits of overseas cricket teams to New Zealand and to manage and control all New Zealand representative cricket teams playing within and outside New Zealand.
4. To settle disputes between Associations or organisations who are members of the Council. Also to adjudicate appeals referred to it by any cricket association or organisation.
5. To establish and promulgate rules, playing conditions and regulations for playing cricket in New Zealand. Also, at its discretion include experimental laws and



Malcolm Marshall
thunders in

rules within these rules, playing conditions and regulations already present in New Zealand.

6. To apply and remain a member of the ICC.
7. To do anything that the Council considers necessary for the attainment of all or any of the above objectives

The Council is responsible for the administration and organisation of cricket throughout New Zealand. Within the country though, as I have already alluded to, there are 6 major associations and 26 minor associations. It is these that administer cricket on a regional basis, compared to the NZCC who administers on a national/international basis.

Major Associations

There are six major associations in New Zealand.

1. Auckland (city)
2. Northern districts, based in Hamilton. Northern districts covers everything above Lake Taupo, excluding Auckland city, and it has seven minor associations within its boundaries.
3. Central districts, based in Levin. Covers everything south of Lake Taupo, excluding Wellington and Hutt Valley, but including Nelson and Marlborough. Central districts has 10 minor associations within its boundaries.
4. Wellington, including the Hutt Valley, which is its only minor association.
5. Canterbury (see below)
6. Otago, based in Dunedin, and covers everything south of the Waitaki River. Otago has the smallest number of minor associations, with only 3 within its boundaries.

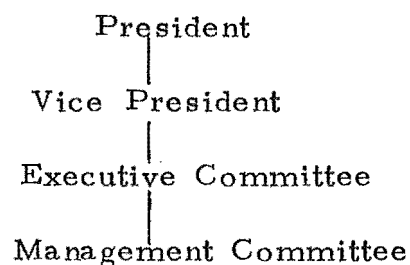
These six bodies compete on a round robin system for the Shell series, which are the Shell cup one day competition and the Shell trophy for the three day fixtures.

Rather than discuss each of these six associations, I am going to discuss one of them, that of Canterbury. Most associations have a similar management arrangement to Canterbury and all of them now employ full time secretaries or Executive Controllers, who deal with the day-to-day management of the particular Association.

Canterbury Cricket Association

Formed in 1878, the Canterbury Cricket Association is based in Christchurch and covers everything south of Nelson and Marlborough and north of the Waitaki river, including the West Coast. Within its boundaries there are 5 minor Associations, all affiliated to them and the NZCC. They are Ashburton, Buller, North Canterbury, South Canterbury and the West Coast, the Christchurch Suburban Cricket Sub-Association which organises representative cricket for clubs within Christchurch, plus ten senior clubs are also affiliated to the Association. The Canterbury Cricket Association is in turn responsible to the NZCC.

The organisation is as follows:



The basic controls are carried out by the Management Committee, which is a 24 member body consisting of:

The Executive, plus one member from each of the 10 clubs.
 one member representing the minor associations,
 one member representing the suburban sub associations



Coney practises his
bowls technique.
Australian tour of NZ,
1982

one member representing the umpires
one member representing the junior cricket board.

They meet once a month and discuss policy matters affecting the affiliated bodies and the Shell series arrangements.

The Executive is an eleven member committee, with the President, Vice President immediate Past President and Chairman of the Management Committee. Also the Secretary and Assistant Secretary plus 4 other elected members. The Executive is responsible for the day-to-day running of the Association, and meets once a fortnight. Selectors are appointed each year, with 3 different committees; one selects the Shell and B teams, one the under 20's and one under 18 teams. Each of the 3 committees consists of 3 members with a convenor.

Funding is provided by affiliation fees and team levies paid by the clubs in the Christchurch area. Also profits from Shell series and international matches, and finally sponsorships. This pays for the general running costs of the Association.

The Association objectives and functions are as follows:

1. To foster, control, promote, advance and encourage cricket throughout the Canterbury cricket district.
2. To arrange and organise matches between Canterbury and other cricket teams and to manage and control all Canterbury representative cricket teams playing within or outside the aforementioned district.
3. To organise and grade inter-club cricket matches within the Christchurch suburban district. And finally,
4. To apply and maintain membership of the NZCC and any other organisation or body in the furtherance of these objectives.

Directly affiliated within the Canterbury Association are 10 clubs, each of which administers competition games within these given areas. Rather than go into more detail about these clubs, I thought it better to discuss a club affiliated to the Minor Associations. In the section on womens cricket I shall go into more detail about one club, in particular St. Albans, which has recently amalgamated its mens and womens administration.

Minor Administration

Within New Zealand there are 26 minor associations, 10 in the South Island and 16 in the North. These associations compete for the Hawke, or U-Bix cup. For ease of administering this competition the country has been divided into five zones as follows:

Zone one (North Island)

- | | |
|------------------|------------------|
| 1. Midlands | 2. Bay of Plenty |
| 3. Hamilton | 4. Counties |
| 5. Thames Valley | 6. Poverty Bay |
| 7. Northlands. | |

All of these are within and affiliated to the Northern Districts Cricket Association.

Zone two (North Island)

- | | |
|---------------|------------------------|
| 1. Hawkes Bay | 2. Southern Hawkes Bay |
| 3. Manawatu | 4. Wairarapa |
| 5. Horowhenua | |

These are all within the Central Districts Cricket Association boundaries.

Zone three (North Island)

- | | |
|-----------------|--------------------------|
| 1. Rangitikei) | |
| 2. Taranaki) | Within Central Districts |
| 3. Wanganui) | |
| 4. Hutt Valley | Within Wellington |

Zone four (South Island)

- | | | |
|----|--------------------|--------------------------|
| 1. | Marlborough) | |
| 2. | Nelson) | Within Central Districts |
| 3. | North Canterbury) | |
| 4. | West Coast) | Within Canterbury |
| 5. | Buller) | |

Zone five

- | | | |
|----|--------------------|-------------------|
| 1. | Ashburton) | |
| 2. | South Canterbury) | Within Canterbury |
| 3. | North Otago) | |
| 4. | Central Otago) | Within Otago |
| 5. | Southland) | |

Each zone has a round robin competition the winner of which goes on to play the current cup holder. At the end of the season the team that still holds the cup is the competition winner.

As with the major associations, I have decided to discuss just one of the minor associations which is the North Canterbury Cricket Association.

North Canterbury

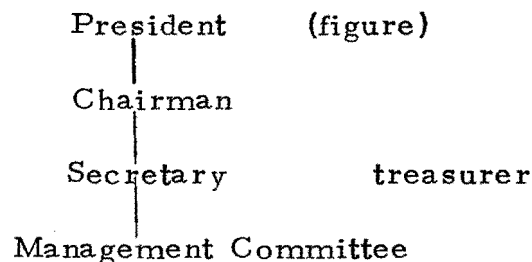
This association covers the area from Kaikora to the Rakaia river, excluding Christchurch city, from the coast to the main divide. Within the association there are 5 sub associations which are:

Hurunui, Ellesmere, Peninsula, Malvern and Ashley.

The selection from North Canterbury is done from these 5 sub associations by a 3 man panel. The grades involved in North Canterbury are 5 seniors, the A team and B team plus 3 colts, also there are various school boy teams. Funds for the association are from 4 areas - affiliation fees from the sub association, fund raising, sponsorship and

profits from Hawke Cup or Shell series matches held at Rangiora.

The association's organisation is as follows:



Once more the main work is done by the management committee, which is a 13 member committee with one member from each of the 5 sub associations, one member representing the umpires, one member representing junior cricket, three members elected from the floor and the officers of the association. This committee meets 6 times a year and discusses matters of policy and other areas important to the affiliated sub associations. The day-to-day organisation is done by the secretary.

The association has two objectives:

1. To win the U-Bix cup competition, and
2. To foster cricket within North Canterbury boundaries.

The North Canterbury Cricket Association administers cricket on a regional basis.

Next we go even smaller, to the sub associations within the district. Here cricket becomes more personally based and a little more relaxed, particularly in the country, than the bodies higher up the administration ladder.

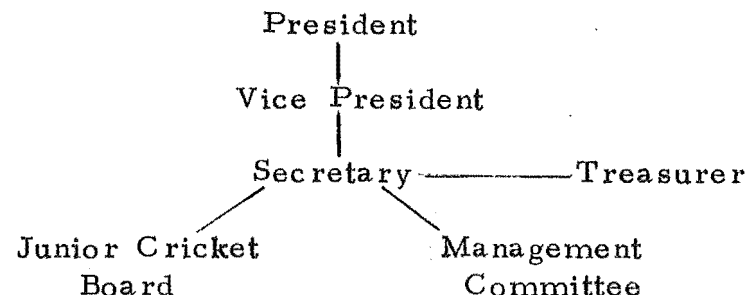
Sub Associations

Within each minor association there are sub associations. It is from these that the minor associations choose their teams. To follow along the chain I am going to look at Ellesmere Sub Association, situated within the North Canterbury Cricket Association boundaries.

Ellesmere Sub Association

This sub association covers the area from Banks Peninsula to Weedons and from the outskirts of Christchurch to the Rakaia River. There are ten clubs affiliated to the sub association - Lincoln, Springston A & B, Tai Tapu, Burnham, Dunsandel, Weedons, Southbridge A & B and Leeston. It is from these that the Ellesmere representative teams are chosen. The selection is carried out by 1 man, though he may ask for assistance if required. The grades are: Seniors, under 23, under 16 and primary school. (These last two are looked after by the Junior Cricket Board).

Funds are provided by affiliation fees from the clubs, and this year Ellesmere County Council has given them a grant. This pays for general administration costs, such as ground hire and afternoon teas etc. Its organisation is as follows:



All the work is done by the committee, which has 16 members - one representative from each club, one representative from the Junior Cricket Board, the selector and the officers of the Sub Association. Meetings are held whenever necessary, with an annual general meeting in August. Most of the work is done at the AGM, but other meetings

are called when necessary. The Junior Board has its own AGM and meetings. It has no specific objectives other than to promote and enjoy the game.

Clubs

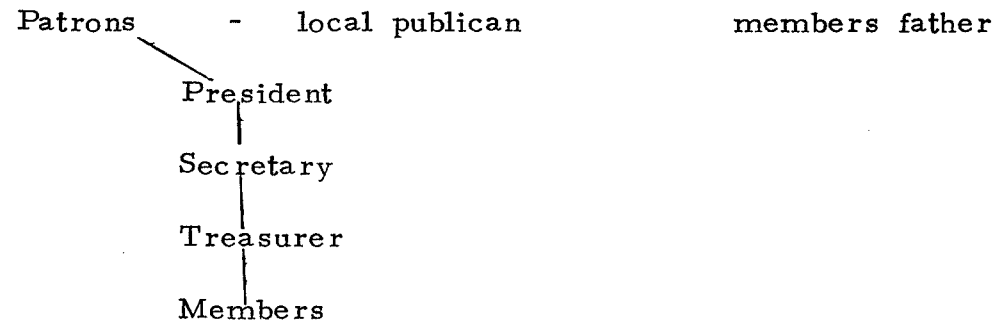
Still using Ellesmere Sub Association as an example, I have chosen to discuss as my case study the Lincoln Senior team which is roughly based around Lincoln township, though most people are welcome to join.

Lincoln Seniors

In the last section we saw the more relaxed nature of the Ellesmere Sub Association. With the Lincoln seniors, the management practices are so relaxed that its a wonder anything is ever done. Lincoln's home ground is Burnham and the club rooms the Lincoln Hotel's public bar. Funds are provided by an annual membership fee and also hay carting for local farmers, which raises quite a bit of money. As well as monetary support, one of the patrons, the local publican, also provides the members with beer at their AGM.

Costs are mainly cricket balls, with a new ball required for each game. Also the club buys a lot of cricket gear that needs replacing. There is no charge for the ground at Burnham.

The organisation is as follows, though it is only enforced once a year at the AGM:



The hazards of fielding in the country

The President is a non-playing member, along with the patrons, and he runs the meeting. The secretary takes the minutes, receives mail, and negotiates with the Ellesmere Sub Association. Generally only about 11 people turn up for the meetings, which are held at the beginning of each season. This is mainly to elect officers such as the captain and vice captain and the patrons. The captain serves for a two year term and arranges the games, who plays in them, etc. Also elected are the people who represent Lincoln at the Sub Association's AGM (2 members) and who represent Lincoln on the Management Committee. Discussed are the club's finances and matters to be brought up at the Sub Association meetings and AGM.

The Club's only objectives are:

1. To win the Ellesmere competition.
2. Play in a sportsman-like manner and to enjoy the game.
3. Help foster cricket within Lincoln.

Lincoln Seniors would be similar to most other country clubs within New Zealand, with its relaxed nature. Within the cities the game is played and organised in a far more competitive manner, possibly from necessity, and as we shall see in the next section, is organised more like the Sub Association and even Minor Associations within the country districts.

Womens Cricket

International Womens Cricket Council

Formed in 1958 to control overseas tours and liaise on various matters between the cricket playing nations. The Council started with 5 test playing countries, which has now risen to 10. These are:

New Zealand, Australia, South Africa (though it no longer plays against the other test countries), England, Holland, India, Jamaica, Barbadoes, Trinidad and Tobago, and Grenada.



A case of cricket chauvinism

Similar to the International Conference the objectives are:

1. To promote and foster womens cricket throughout the world.
2. To assist by coaching countries interested in womens cricket.
3. To arrange regular test matches between member countries.
4. To abide by the laws of cricket as set out by the MCC, and
5. To rule on the status of test and first class matches.

The New Zealand Womens Cricket Council.

Based in Wellington, the Council was formed to organise the impending English tour of New Zealand in 1934. The Council is the main administrative body for womens cricket in New Zealand, its function being to organise and arrange test matches and tours by teams from other IWCC countries. They also organise the national tournament between the major associations. Selection for the national squad by a committee of 3 selectors, is from the Hansell tournament. Late last year the Council revamped its organisation, changing its Executive and introducing a new Board of Control similar to that of the NZCC.

Major Associations

There are six such associations within New Zealand:

- | | |
|-------------------------|-----------------------|
| 1. North shore | 2. Auckland |
| 3. Central Districts | 4. Wellington |
| All in the North Island | |
| 5. Canterbury | 6. Southern Districts |
| All in the South Island | |

These associations compete annually in a tournament for the Hansells cup. This is a round robin contest held at a different location each year and lasting for two weeks. Selection for these representative sides is done from the club teams in the particular association boundary. Because of the low interest in womens cricket most of these associations have voluntary administrative staff, meaning a more "advanced" administration such as with the Canterbury Cricket Association is not necessary.

As well as the senior competitions there is also a second XI competition. This is based more on the minor association arrangements for mens cricket. There are 10 second XI teams, which compete in two pools in a round robin competition. Again this is held at a different location each year. Last year's pools were :-

Pool A

Otago
Taranaki
Manawatu
Hamilton
Auckland

Pool B

Hawkes Bay
North Shore
Wanganui
Canterbury
Wellington

The other grades are school or under age teams.

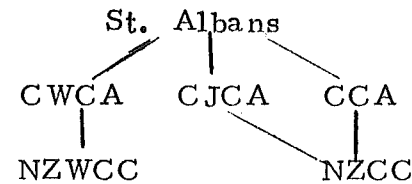
Clubs

Within each association there are a number of clubs. It is from these that the representative sides are chosen, the A team from the seniors and the second XI from any grade. Within Christchurch there are four senior teams, Sydenham, Lancaster Park, St. Albans and Riccarton and six senior B teams, Lancaster Park, Riccarton, Sydenham, Merivale/Papanui, Hornby and New Brighton.

St. Albans

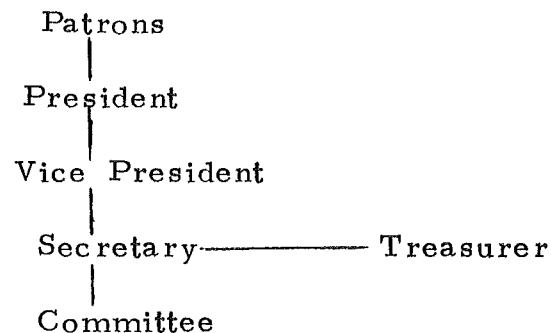
Recently all four senior clubs amalgamated their mens and womens teams so that the administration for these is now done by the one committee. It is here though that the

connection ends, for the men go one way and the women the other, as follows:

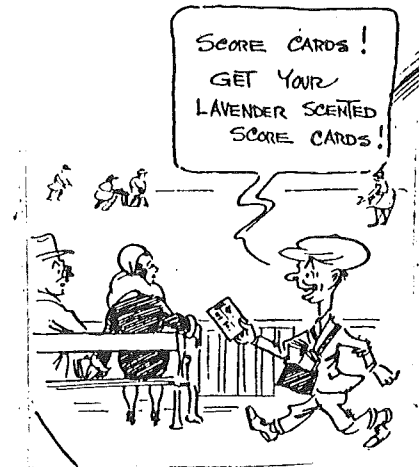


The mens teams compete in the suburban sub association competition, with a senior grade plus 9 others. Selection is done by a 3 man committee and 2 for junior cricket. The women compete in the CWCA competition, with the 4 grades already outlined. As with the men, selection is done by a 3 woman committee.

Funding is from club subscriptions and Local Authority grants. Also the Department of Recreation and Sport provides a grant, and the final area is fund raising. The organisation structure is as follows :



The committee meets every three weeks and has 15 members, of which at least 4 should be men, and 4 women. The committee does all the organisation within the club, both long term, i.e. competition draws and policy matters, as well as the day-to-day matters of fund raising etc. The club has no set objective other than enjoying and fostering cricket within St. Albans.



A case of cricket chauvinism

Summary

The difference between the administration at the top and the bottom of the ladder is quite marked, as is the difference between the mens and womens administration. At the NZCC level it is very businesslike, with a full time administration staff arranging tours Shell cup matches etc. The bottom is quite different though, at the club level, with Lincoln holding one meeting per year and if anything else needs discussing the President tells the team at practises. So as you move down it becomes more "relaxed". But even the difference between the Lincoln club and St. Albans is marked, with St. Albans having a committee which meets every three weeks to discuss matters of importance. From the Minor Associations down the staff is part time, which possibly indicates there is less pressure, with Lincoln only being responsible to itself. The CCA, on the other hand, is responsible for the whole of the Canterbury region and also to the NZCC, so needs a full time staff to cope with all the administration. It is interesting though, that the CCA only recently appointed a permanent Executive Director. This relates, possibly, to the times. The New Zealand cricket team is on a high at present, and everybody wants to play. Thus more staff are required to handle the extra work.

On the womens side, all the way down part time staff are used to administer the game, which means it is possibly less efficient. Yvonne Taylor, a New Zealand selector, suggests the reason for the New Zealand womens team doing so poorly in recent years relates partly to this part time Administration. But the times are-a-changing, for it is interesting to note that the NZWCC is revamping its operations and introducing a Board of Control similar to the NZCC.

Perhaps also, like St. Albans, administration at the top level, i.e. the major associations upwards, could amalgamate to have two Boards of Control coming back to the Executive Committee and President. This would help both men and womens cricket, for it may give the women the opportunity to become more accepted by the public, and may also mean both the men and womens cricket could reach new heights in their administrative practises and policies.

It is a game for
gentle men;
Entirely wrong that
man's spare rib
should learn the
mysteries of spin.

Vernon Scannell

CHAPTER THREE

Cricket - the pitch perspective



Lancaster Park during
the 1932/33 English
tour



Action in the 1984
Pakistan tour - note the
condition of the pitch

CHAPTER THREE

Pitch development

Maintenance

Cricket, as I have outlined, is an extremely intricate game, not just from the point of view of its rules and techniques, which to understand completely you almost need a Ph.D! but also its history and its administration. In this chapter I go into yet another complicated topic within this sport, that of the pitch on which the cricketers play their game.

The perfect wicket, moreover, compels a bowler to beat the batsman in the air rather than on the ground.

A.E. Knight

Cricket is an unusual sport, for it relies just as much on how the pitch is performing (i.e. is it fast or slow) as on how the players are performing. Soccer, for example, requires shortish grass for the ball to play over, but it doesn't matter to the average soccer player whether the bounce is low or high. If on the other hand, a cricket team loses a match, they quite often blame the pitch first. It is well remembered, when England were beaten in 2 days at Lancaster Park, how Bob Willis (the then English Captain) complained about the state of the park's pitch. England, in that match, were bowled out in both innings for under 100, for the first time this century, while New Zealand managed to reach 307. Later Geoff Howarth said:

"I think England feared the wicket more than we did. Obviously we were concerned about it before the match, but I think the Englishmen were a bit more psyched out than we were, plus the fact that we bowled a hell of a lot better than they did and caught our catches a bit better than they did".

(Neely, et al, 1985, p 597)

Lancaster Park's pitch wasn't the best. But what is "the best" and how do we achieve such a pitch?

Pitch Behaviour: A Player's Point of View

Glen Turner recently gave an interview to the New Zealand Turf Management Journal. This is a condensed version of that interview

Test Matches and Provincial Matches

"In the early stages of the game the pitch should give a slight advantage to the bowlers, with a hard surface for pace. Also some green grass, so that the sap of the grass will allow the ball to skid, giving extra pace. The main requirement is an evenness to the surface with the "opportunity to put a bit in, to get a bit out".

Thus the first day and maybe the second morning, should be for the seam bowlers. After that the pitch will begin to dry out somewhat, and by the fourth day the ball will grip the surface a little. (Third for Shell or 3 day first class matches, and second for Club matches). This will allow the spin bowler a chance to beat the batter with flight. At no stage should the ball break through the pitches surface. It is just as useful to the spin bowler if, in fact, the pitch is a hard dry surface, giving the ball more bounce.

One day game

The bat should dominate the ball in this game, with no sideways movement. There should be some bounce so the ball can come onto the bat. The surface should never be unsettled. The pitch should be similar to the ideal for the third day of a test match, the grass browned off a bit and most of the moisture gone, but the bowler still able to "get a bit out if he puts a bit in".

If these criteria make up the perfect pitch for the player, what are the factors that affect the pitches playability?

Pitch Playability

The quality of a cricket pitch relates to the behaviour of the ball once it contacts with the pitch. The components of ball behaviour are bounce, both consistency and height,

For in all places wickets are made for batsmen, and he must be indeed a great bowler who is uniformly successful upon them.

A.E. Knight

of the ball onto the bat and sideways movement. (Murphy 1986, 1985, 1984, Stewart, 1985).

Following on from the lead given by Stewart & Adams in England in the 1960's, Mr. J. Murphy has, for the last few years been testing pitch playability of all of New Zealand's first class pitches. This was done by two tests. First the bounce test developed by Stewart & Adams, which involves dropping a cricket ball from a height of 4 m onto a pitch and measuring the rebound. The higher the bounce the faster the pitch. This determines the pace on a vertical plane. To measure the horizontal plane (the pace of the ball onto the bat) a friction test was developed which measures both pace onto the bat and sideways movement. This involves measuring the force required to move a small sledge (15 x 20 cm) on the surface of the pitch. A series of weights ranging from 3-12 kg were used on the sledge. The higher the friction the greater the resistance of the pitch on the ball, and thus the slower the forward pace. Also the higher the friction the higher the sideways movement of the ball. An overall pace rating was worked out by incorporating the two values into the following equation:

$$\text{pace} = \frac{\text{Ball Bounce}}{\text{friction}}$$

The lower the pace rating the slower the pitch.

Once all the first class pitches were tested the following pace table was developed. The research confirms the idea that New Zealand pitches are slow to easy paced.

Table 1: Pace Rating Scale to Pitch Pace

<u>Pace Rating (cm)</u>	<u>Pitch Pace</u>
0-50	Very slow
50-100	slow
100-300	easy
greater than 300	fast



Didn't even see it coming

Only two pitches in the last season reached the fast category, Lancaster Park (two years previously when tests were made, the bounce was found to be extremely inconsistent), and Napier's McLean Park.

In the light of this research, what does Mr. Murphy suggest are the best types of pitches to play on?

3 day matches

On the first day the bounce should be at least 60 cm and increasing as the pitch gets drier during the game. The friction test on the first day should be about 0.4, meaning the ball has some lateral movement. On the second day it should decrease to 0.2 and on the third, be between 0.2 and 0.3. By this time the pitch should have lost its shine and the spinners can start to operate.

5 day match

Bounce should be 65 cm on day one, again increasing throughout the match. Friction should be 0.4 - 0.5 on day one, dropping to 0.2 - 0.3 on the second day. On the third it again drops, to be no greater than 0.2. By the 4th and 5th days the pitch should become dull with an increase from 0.2 to 0.3 friction.

NB: The pitch should not crumble.

1 day game

The bounce test should be at least 65 cm and friction 0.2.

These figures confirms the comments made by Glen Turner and quoted in the earlier discussion.

Five factors govern the ball behaviour on the pitch; these are:



Lance Gibbs from the
West Indies

1. Soil strength.

In their research on the county cricket in England, Adams & Stewart concluded that soils that break under 45 kg pressure are not suitable for use on a cricket pitch, because the soil cannot be rolled or dried to make it hard. The soil would disintegrate and the pace be very low. Between 45 and 70 kg it is suitable for club pitches, and between 70 and 90 kg it is suitable for first class and international pitches.

It was realised that the greater the soil strength the harder a pitch could become and thus the faster its pace. Ordinary soils won't withstand much pressure, and soils must therefore be used that can withstand this pressure. The best soils were found to contain at least 40% clay. Clay, because of its platy nature, tends to stick together more and it takes a lot to destroy this. The soil strength also relates to the amount of organic matter in the soil, which also helps to hold the soil, and also to the soil moisture content. The drier the pitch the stronger it binds.

2. Soil moisture

The drier the pitch is the more bounce that it has and thus more pace. In New Zealand there are two types of clays used in the pitch.

1. Swelling clay, which tends to have a higher soil moisture content, meaning that if it gets too wet it will become soft without much bounce. It can crack when dry as well.
2. Non-swelling clay, which is a drier clay and tends to be harder, with a lower moisture content.

3. Grass Growth

Grass cover and its root depth is very important to the pitch. The roots help in holding the pitch together, and the grass cover acts as a "drainage system" drying the pitch through evapotranspiration, through the grass leaves.

4. Bulk Density

The bulk density is the mass of oven dried soil and its percentage of pores to soil. In a pitch the bulk density should be about 80% within the top 10 cm and if this is the case it shows an effective rolling regime. This again relates to the soil's strength.

5. Surface Smoothness

This relates to the friction on the pitch, or the speed of the ball onto the bat. The surface smoothness increases in the final days of pitch preparation, with light watering and rolling of the pitch, the object being to reduce the surface friction to a minimum, and increase the bounce to as high as possible (at about bail height off a good length ball, pitching 2 - 2½ m in front of the popping crease) with the friction as low as possible. (Murphy 1986, 1985, 1984, Stewart 1985).

The next section uses Lancaster Park as a case study to discuss how to achieve the perfect pitch as outlined above.

Case Study - Lancaster Park

Lancaster Park is situated in the Christchurch suburb of Waltham, and it is a dual purpose centre, providing for rugby as well as cricket. It started as a cricket ground in the late nineteenth century, but it is the rugby that pulls in the crowds. Although I am discussing a first class pitch, the development outlined can still be used by other grounds that are developing a new pitch.

The problem that was present in Lancaster Park dates back to 1974 when Waikari clay loam was being used. At that stage the pitch was in excellent condition - earlier that year New Zealand had beaten Australia there by five wickets. Soon after this the Waikari soil was in short supply so a new Ward soil was introduced on top of the Waikari. Once the Ward soil had also become scarce a Heathcote soil was dumped on top of the Ward soil. Over the next 10 years the clays began to cleave and form layering, which meant that the pitch could not be worked as well as would have been liked. By the time Russell Wylie took over as groundsman the pitch was at its worst. Twelve months later the English test was played there, which finally convinced the authorities that the pitch did in fact need to be re-developed.

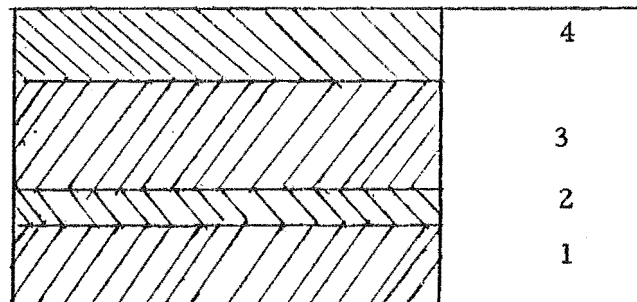
Re-development

On the 8th October 1984 the 8 pitch wicket table was excavated, 4 down to the drainage layer and 4 just had the Heathcote and Ward soil scraped off. (These were worked up with a rotary hoe). What they found was something of a surprise, with football sprigs, pennies, florins, tear tops from cans and bowlers marks still present on the old pitch below. The pitch was then re-laid, leaving the drainage layer alone. The drainage layer consisted of bricks and gravel, covered by sand. With new technology, however, bricks would not be used nowadays, and drains would run to a central drain and down to the field sides. The Waikari clay loam soil was then laid to a depth (at the deepest) of 3.3 cm, and 1.6 cm in others. The Waikari soil came in large clods which required to be crushed before the soil could be laid on the wicket. This extended the job by 2 weeks. The grass, Barry rvegrass, was finally sown just after Christchurch Show weekend, in November.

It was clear that, after an apethetic youth and a hearty middle-age, the wicket was finishing its life in a mood of arthritic crotchety-ness.

Denzil Batchelor

Figure 1 shows a cross section of the wicket table and the phases numbered 1-4 in laying the wicket down.



- Phase 1: drainage layer of gravel (at 1.8 cm) and drains leading off to the main drains 2.4 cm depth.
- Phase 2: layer of pea metal (at 1.25 cm) 1.2 cm depth.
- Phase 3: a 3.2 cm layer of porous, sandy sub soil.
- Phase 4: 1.6 cm of wicket soil - with a clay loam content of 40% or above.

The outfield was re-laid at the same time to get the levels correct once more. Before that was started they developed a new pop-up automatic irrigation system which was laid throughout the park, after which the field was sprayed with roundup and then the grass was scraped off and the field rotary hoed. At this stage the park was re-leveled to the level of the concrete drain along the front of the stands, with a fall from the centre to the outside of 2 ft. Sprinter ryegrass was used for the outfield, and was laid at the same time as the cricket table.

Three months from the time of excavation the first international game between Pakistan and Canterbury was played.

The pitch has now settled down to the extent where normal maintenance techniques can be applied.

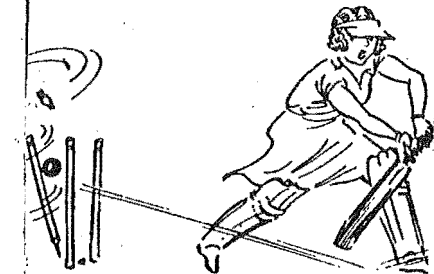
Annual programme

Lancaster Park, as I have said, is a dual purpose ground, with rugby being played there during the winter. Most cricket grounds in New Zealand do have winter usage, so it was decided to discuss the programme that grounds such as Lancaster Park receive.

Spring

During winter the pitch and out-field has received a lot of wear from the rugby players carving up the field with their sprigs (though the sprigs do help to aerate the soil during winter). Thus renovation is needed to bring the pitch up to scratch once more.

Since the development of the pitch the surface had dropped quite a bit during the winter, so surveyors were brought in to find the correct levels. Before the marker pegs were hammered in though, the whole pitch was grooved from corner to corner, the trash removed and the pitch resown. The out-field was harrowed, the trash taken away and the bare patches oversown with grass seed once more.



LATE — AS USUAL

A case of cricket chauvinism



A welcome cartoon for Tom Lowry - "May the ball always bounce nicely for you".

The result of the survey was that 25 m of soil was needed to lift the level of the pitch again. This had to be laid in stages to prevent a thatch problem, which could have occurred had the whole lot been dumped at once. Pegs had been placed around the pitch at the levels required and these were left in for up to 6 weeks while the soil was laid stage by stage over the pitch.

The Waikari soil was first crushed, then laid in front of a hand scree board to level the soil across the pitch. The grass was raked up through the layer of soil and once strong enough a second covering of soil was laid, and so on until the correct levels had once more been reached. Some areas of the pitch were screeled 3 or 4 times until correct.

This year renovation was again necessary, though not quite as much soil was needed this time. Again the pitch was grooved and the out-field harrowed and oversown with seed.

The basic principle is first to remove the trash, then to re-sow and finally, once the grass is established, to fill in the low spots with soil. It is important to use the same soil type as was used in the renovation, or layering will result on the pitch.

The first mow should be done to a height of 25 mm, gradually reducing the height during the season until required for a game.

Summer

This mainly involves the preparation of the pitch for a game, which is discussed in the next section. But essentially during the summer months general maintenance work is required to keep the now renovated pitch up to scratch. Mowing should be done regularly from now on and continue through to winter. Irrigation of the pitch and out-field should also occur.

An important feature at this time of year is repair of the pitch after the game from bowlers and batters marks. This is done by raking the pitch, spreading soil if needed and resowing the bald spots. By moving a whole pitch each game it can help reduce the wear on any one pitch, so generally they are used in a mixed order, moving at least one pitch along the 8 pitch table.

Any grass clippings left on the pitch or out-field must be removed to prevent thatch build-up. This can lead to a layering problem and a bad pitch once more. The pitch is kept as dry as possible, particularly before a game, so covers are used during rain. Should any water get under the covers a motor mop can be used to pull the excess water off. A motor mop was recently bought by Lancaster Park and can suck up 4000 gallons per hour.

Autumn

At the end of the cricket season any damage to the pitches is repaired, low areas filled in and the patches oversown once more. If the grass has died then a groover can be used to renovate the pitch and grass seed oversown. The pitch is then sub-aired to a depth of 1.6 cm, to break up the top compaction caused during the season by the drying out and hardening of the pitch. Once this has softened, a mini mole plough is used going right down to the drainage layer. This is to help with drainage at the beginning of winter.

At Lancaster Park the pitch used to be cored at autumn as well, so that the ground was completely soft for the rugby season. The groundsman no longer does this as the pitch used to collapse too much during winter. Again any trash is swept up and removed.

Winter

Winter is rugby season and the time of year that the cricket pitch takes a back seat. The grass is allowed to grow and is mown to a height of 2.5-3.25 cm. Fertilisers are also applied at this time of the year

If water is allowed onto the pitch during winter it can become a bog. The mole plough will help to reduce water build-up, but once the soil closes up no water can get through and has to be mopped up. The covers are therefore used to keep most of the water off the pitch, but if it does get too wet, then the motor mop can be used to get off the excess. There is no point in trying to keep the pitch perfect during the winter, since one rugby game in the rain means it is back to square one, so just keep the excess water off. The object of this is to prevent a quagmire and thus the death of the grass. With 40-50% grass cover

at the beginning of spring, there is less restoration work to do. Once more debris is removed.

I have outlined here the basic programme followed by Russell Wylie (groundsman, Lancaster Park) throughout his cricket year. The next section outlines the preparation leading up to a cricket match.

Wicket preparation

The preparation of the pitch for a game is perhaps the most difficult aspect of the pitch development. It should be stressed here the importance that experience plays in wicket preparation. Knowledge of the climate and the conditions of the park can only be learnt with first hand experience.

Pitch preparation is all about achieving the best ball bounce and pace possible, which means judging if the five factors that govern ball behaviour outlined in an earlier section, are adequate enough to achieve the correct ball pace. Possibly the most important of these is the soil moisture content. All but one of the other factors relates back to this. Soil strength increases as the pitch dries (thus holding it together better). The grass cover and root depth act as a drying agent, with the evapotranspiration from their leaves drying the pitch below. Bulk density of the soil relates first to rolling and how compact it is, but as this increases there is less room for moisture in the soil. (The other factor, surface smoothness, bears no relationship to soil moisture in the pitch).

Murphy (1986) suggests that 90% of the work involved in pitch preparation is concerned with getting the moisture content correct. To do this involves combining rolling, watering and mowing to just the right degree and it is here that experience comes into the process of pitch preparation.

There are no set rules for pitch preparation, but guidelines can be given and hopefully these will help the inexperienced. First the wickets are thoroughly moistened to a depth of 10 cm, particularly after a game to help in its restoration. At Lancaster Park part of the clay is 3.2 cm deep and this takes 6 weeks to dry adequately. Generally to get this much water into the pitch takes 8 days of irrigation. After the moisture has reached the

required level leave it to slowly dry and thus achieve even drying. One factor is important here, the grass. This acts as a "drying factory" pulling water through and drying off the pitch. The grass therefore should be left quite high until a day before the game.

Also rolling is related. First it is rolled with a light roller and as the pitch dries a heavier roller is used. The rolling helps to make the compaction even throughout the pitch, and often a whole day can be spent just on rolling. It is important not to roll the pitch when it is still damp, as it can cause corrugations on the soil surface, giving an untrue surface.

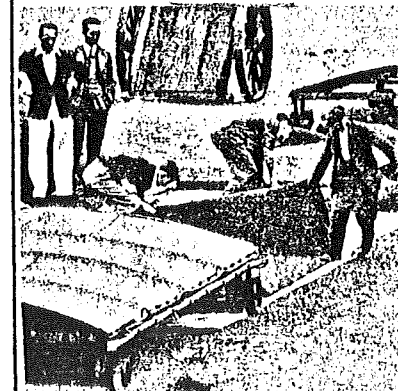
The day before, or the morning of the game the grass is mown to its final height. By this stage the soil should have dried out enough for the game to play on it. Any imperfections are repaired and the markings made at the ends of the wicket.

The final act in preparing the wicket is to "shine" the surface. This is to give adequate friction on the first day for the seam bowlers to use. The surface friction relates to the height and density of grass and the surface smoothness. The grass should be very short by now, a few mm above the soil. The surface smoothness is achieved by giving the pitch a light mist of water (or use early morning dew) and then using a reel mower spin the reel over the surface of the pitch till it shines. This will last for the first hour of play, but gives the seamers something to bowl on to.

The pitch should have green grass at the start of a 3 or 5 day match, but for a 1 day match the pitch should have no green grass at all.

Finally the other consideration is, who does the groundsman prepare the pitch for? The home side, or as a natural pitch that suits both? This is perhaps a question that is best answered by the groundsmen themselves. It becomes particularly important with the forthcoming tour of the West Indies to New Zealand. The suggestion is made that perhaps the pitches will be a bit slower than normal in order to modify the West Indies pace attack. (Murphy, 1986).

In conclusion the factors we are looking for in a good pitch are good ball bounce, good pace of ball onto the bat and lack of sideways movement. These can be tested for, the

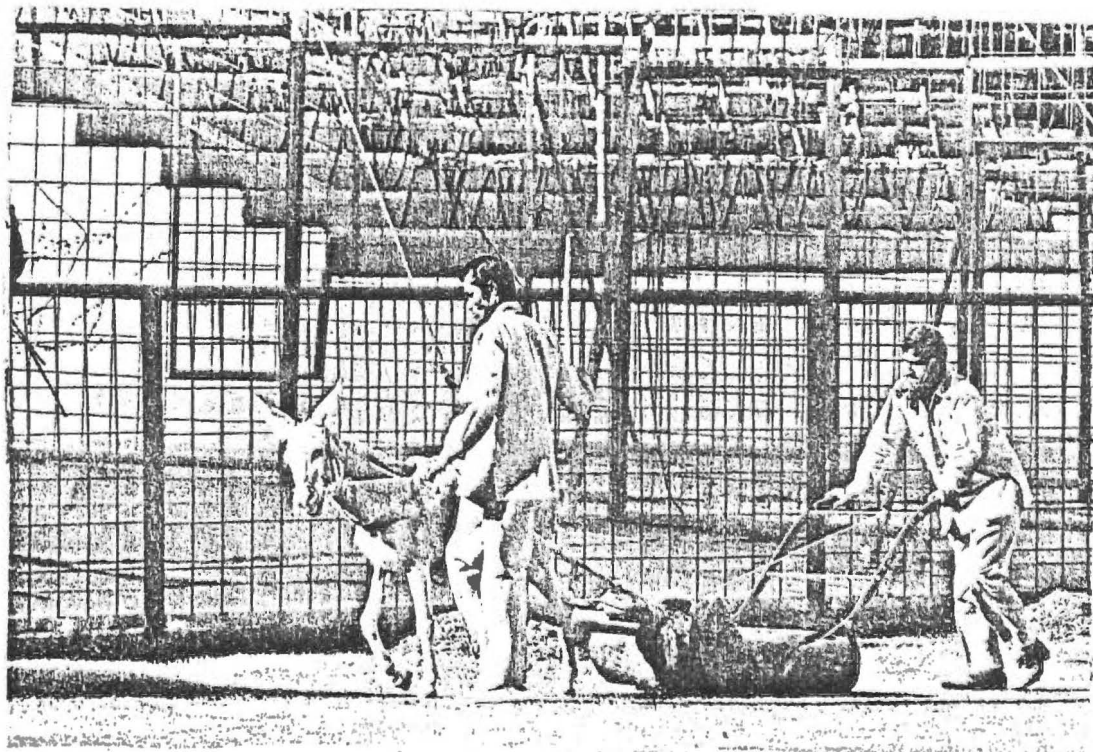


The covers come off at the oval

object being to get as even a bounce and low friction as possible. The two figures are incorporated into an equation, and an overall pace rating is gained. The larger the figure the faster the pitch.

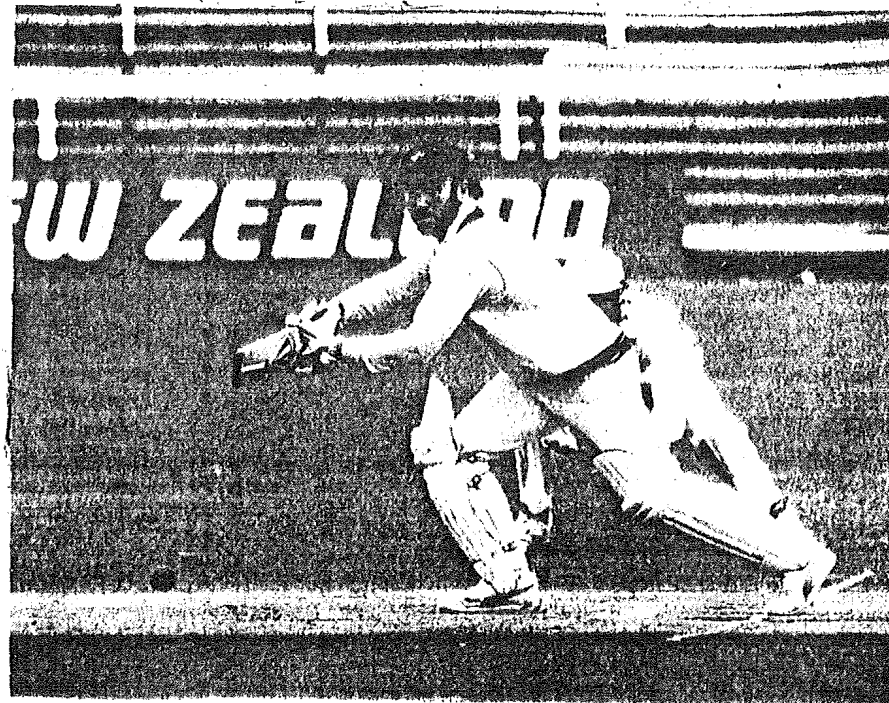
To achieve this figure five things are required to be balanced - soil strength, soil moisture, bulk density, grass cover and root depth and finally surface smoothness. The balance of these factors is achieved in the preparation and annual programme on a cricket ground similar to that carried out at Lancaster Park.

Two years ago, when the Park's wicket was at its worst, a two day test result forced the Administrators hands, and before the year was out a new pitch and out-field had been laid. To-day Lancaster Park is rated as one of the top four grounds in the world, along with Lords, the Oval and the Melbourne Cricket Ground, which is praise indeed, enough to please even the most modest of groundsmen!



A pitch is prepared in
Pakistan

CONCLUSIONS



Border guides the ball
away



Hadlee - can a replacement be found?

CONCLUSION

Cricket is New Zealand's only major summer sport, and with the recent successes of the New Zealand cricket team it continues to attract players and spectators. In the Canterbury Cricket Association region alone, 18 more teams have started in the last year, bringing their total number to 118 teams entered into one competition or another. The success of the mens cricket teams should also have had an effect on womens cricket, with more girls keen to emulate the deeds of their male counterparts. But strangely the numbers in all the Christchurch womens cricket clubs has gone down, apart for one, which has remained the same.

The future of cricket then is fairly secure, and should continue so as long as the New Zealand cricket team continues to be successful in its tours and test matches. The successes of the cricket team has also meant numbers of sponsors are pounding on the Cricket Administrations offices offering money for anything the Administrator cares to name. The Packer affair across the Tasman helped here, when Kerry Packer hit upon the idea of world series cricket. The result - a better marketed game, attracted larger numbers and thus larger dollars. The ripples are still being felt from Kerry Packer's World series cricket everywhere test cricket is played. Even in club cricket sponsors are keen to part with their money, and for the first time some players are wearing sponsors names on their cricket clothes.

The off-shoot of all these people coming up to play cricket, is that new cricket grounds are needed to cope with these numbers. The grounds are generally club grounds, and therefore tend to be looked after by groundsmen who may have all the good intentions in the world, but often little or no knowledge of the intricacies of the cricket pitch. The people with the necessary experience won't work there because the Local Authorities who own the parks can't pay very much for the groundsman, so the experienced person goes elsewhere, and the well intentioned, but unskilled people move in on the grounds. Because of this lack of knowledge the pitch is often slow to easy, with little pace and high friction. Thus fast bowlers are not encouraged by the good performance of the wicket: perhaps one of the reasons why accurate fast bowlers cannot be found to take Richard Hadlee's place when he retires.

The slow pitches in the club scene don't need to be. If groundsmen in charge of small grounds could be sent to workshops and seminars on pitch preparation and maintenance they could have pitches almost as good as Lancaster Park.

This Dissertation is a starting place for groundsmen and women. It isn't expected that they follow this verbatim, but even if it provides a basis in pitch preparation and maintenance that can be followed up with seminars and workshops, then I feel that it has achieved its purpose.



The Pessimists Cricket
Club wins the toss

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Turf Equipment and Terms

1. Bulk density - Refers to a test to find the amount of water present in a volume of soil, measured after it has been oven dried.
2. Corer - an instrument that takes plugs of soil out of the ground and leaves the plugs on the soil surface.
3. Groover - blades of 5 mm cut through the soil surface and helps in aeration and topdressing of seed and soil.
4. Sub Air - similar to the above, but vibrates as it moves through the soil, thus cracking it as well as leaving cuts in it.
5. Thatch - a build-up of dead roots and grass clippings on the surface of the soil. If it gets too dense it can cause difficulties in water and air penetration.

Cricket

1. Batting - the striking of the ball in order to get runs. There are many batting techniques involved here, so see overleaf for the 'Basis of Batting' (from 'All about cricket', B. Johnston, 1972).
2. Bowling - the bowling of the ball to a batsman/woman. Again there are many techniques, so I have included a guide.
3. Seam bowlers - tend to be medium to fast bowlers, who move the ball in the air or off the pitch. (Can be in or out swingers).
4. Spin bowlers - generally slow, who spin the ball so that it may trick the batsman in flight. (See bowling techniques).

5. Fielding - the catching and stopping of the ball to prevent runs being scored. (See techniques sheet and fielding placement chart). A wicket keeper guards the wicket to try and "run out", "stump" or "catch" the batter from his/her position behind the wicket. The wicket keeper also prevents the batsman scoring off byes (balls that the batter doesn't hit but could make runs from).
6. Umpires - are the impartial judges of the game, traditionally provided by the host country. (A guide to their signals is provided).
7. Tables - an 8 wicket block set in a group in the centre of the ground.
8. Stumps - wooden sticks at either end of the pitch, which are 9" wide and 28" high.
9. Pitch or wicket - the strip of land played on (see sheet for measurements, from "Hadlee, the essentials of the game", R. Hadlee, 1982.) The pitch should be orientated to avoid direct glare from sun.

See also diagram sheet showing the pitch of the ball from various types of deliveries.

CROSS-BAT STROKES

REMEMBER

IN ALL STROKES: WATCH THE BALL ALL THE WAY AND NEVER LIFT YOUR HEAD

HANDS LEAD AND RIGHT HAND CLIMBS OVER LEFT TO KEEP BALL DOWN

IN CUTTING MEET THE BALL AT TOP OF RISE

IN HITTING LEG BALLS: AIM IN FRONT OF SQUARE LEG

CUT OFF BACK FOOT

HEAD AND WEIGHT INTO STROKE OVER RIGHT KNEE

HANDS ARE THROWN TOWARDS BALL

BALL MET AT FULL STRETCH OF ARMS OPPOSITE RIGHT HIP

RIGHT FOOT FACES JUST BEHIND POINT

FULL FOLLOW-THROUGH

WEIGHT STILL LEANS INTO STROKE

HITTING THE FULL PITCH TO LEG

HEAD FORWARD WEIGHT ON LEFT FOOT

BALL MET AT FULL STRETCH OF ARMS WITH HANDS LEADING

LEFT FOOT ON TO LINE OF BALL

THE LATE CUT

HEAD AND BODY LEAN INTO LINE OF STROKE

BALL MET LEVEL WITH STUMPS HANDS LEAD THE DOWNWARD 'STROKE' OF BAT

RIGHT FOOT POINTS TO GULLY

HITTING THE LONG HOP TO LEG

WEIGHT ON RIGHT FOOT WITH BALANCE FORWARD HEAD ON LINE OF BALL

BALL MET AT FULL STRETCH OF ARMS WITH HANDS LEADING

RIGHT FOOT WELL BACK AND JUST OUTSIDE LINE OF BALL

RIGHT TOE POINTS DOWN PITCH

LEFT FOOT CARRIED AWAY TO OPEN UP BODY

BALL HIT JUST IN FRONT OF SQUARE LEG

RIGHT WRIST TURNS OVER TO KEEP BALL DOWN

WEIGHT NOW ON LEFT FOOT

BOWLING

THE BASIC ACTION

LEFT HAND STRETCHING UP
HEAD STEADY AND LOOKING FULL DOWN WICKET FROM BEHIND LEFT ARM
RIGHT HAND NEAR FACE
BODY TURNING SIDEWAYS

LEFT ARM STRETCHING WELL UP
LEFT SHOULDER POINTING AT BATSMAN
RIGHT ARM BEGINNING DELIVERY SWING
BACK SLIGHTLY ARCHED

RIGHT FOOT CLOSE BEHIND AND PARALLEL TO CREASE
RIGHT ARM HIGH

THE LEG BREAK



FROM THE REAR

TOP JOINT OF THUMB AND FIRST TWO FINGERS ARE SPACED WIDE NATURALLY AS THEY GO INTO THE BALL. THUMB AND FIRST FINGER CURVE BALL AND LINE ALONGS SEAM TO IMPART THE LEG SWING.

WEIGHT IS SET FORWARD AND ONLY FIFTH FINGER AS BALL IS DELIVERED. THIRD AND FOURTH FINGERS PLACE UPWARDS AND FORWARD, WHILE THUMB AND FIRST FINGER CUTS DOWNWARDS.

AFTER DELIVERY HAND FINISHES PALM DOWNWARD.



FROM THE FRONT

THE OFF BREAK



FROM THE REAR



FROM THE FRONT

TOP JOINT OF FIRST FINGER, CURVED ACROSS SEAM, IS BARELY SPACED. ALSO CURVED ACROSS SEAM. THUMB LINE IS FULLY ALONG SEAM.

AS THE BALL IS BOWLED, THE SEAM IS DOWN AND FINGER DRAGGED SLIGHTLY DOWNWARD AND THUMB PLUNGED UPWARD.

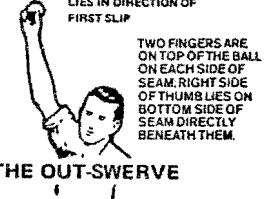
LEFT SIDE BRACED
WEIGHT NOW ON LEFT FOOT WHICH POINTS TO FINE LEG AND IS IN LINE WITH RIGHT FOOT

LEFT ARM SWINGS WELL UP AND BACK
HEAD STILL BALANCED AND LEADING DOWN LINE OF DELIVERY

BODY PIVOT BRINGS RIGHT SHOULDER TO POINT AT BATSMAN
RIGHT ARM SWINGS DOWN ACROSS BRACED

REMEMBER CONTROL OF LENGTH AND DIRECTION IS VITAL
KEEP SIDEWAYS AS LONG AS POSSIBLE
KEEP HEAD STILL AND THINK AND LOOK WHERE YOU WANT THE BALL TO PITCH

SEAM OF BALL IS SLIGHTLY 'CANTED' SO THAT AT MOMENT OF DELIVERY IT LIES IN DIRECTION OF FIRST SLIP

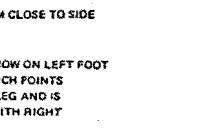


THE OUT-SWERVE

TWO FINGERS ARE ON TOP OF THE BALL ON EACH SIDE OF SEAM. RIGHT SIDE OF THUMB LIES ON BOTTOM SIDE OF SEAM DIRECTLY BENEATH THEM.

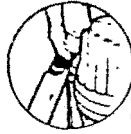
SEAM OF THE BALL IS 'CANTED' SLIGHTLY TOWARDS FINE LEG. SECOND FINGER LIES ALONG SIDE OF SEAM WITH FIRST FINGER ALONGSIDE; BALL OF THUMB IS ON BOTTOM OF SEAM DIRECTLY BENEATH THEM.

THE IN-SWERVE



THE BASIS OF BATTING

REMEMBER
BE VIGILANT BUT
RELAXED
YOUR HEAD IS A CAMERA:
KEEP IT STILL
LEFT HAND MUST
CONTROL ALL STRAIGHT
BAT STROKES



THE GRIP

FINGERS AND THUMB
ROUND HANDLE
THE 'Y' FORMED BY
THUMB AND FOREFINGER
IN LINE WITH EACH OTHER



HANDS CLOSE TOGETHER
RESTING COMFORTABLE
AGAINST LEFT THIGH

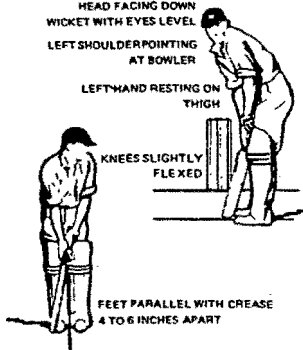
STANCE

HEAD FACING DOWN
WICKET WITH EYES LEVEL
LEFT SHOULDER POINTING
AT BOWLER

LEFT HAND RESTING ON
THIGH

KNEES SLIGHTLY
FLEXED

FEET PARALLEL WITH CREASE
4 TO 6 INCHES APART

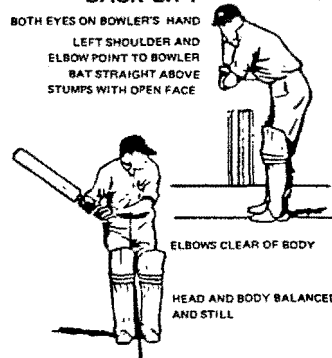


BACK LIFT

BOTH EYES ON BOWLER'S HAND
LEFT SHOULDER AND
ELBOW POINT TO BOWLER
BAT STRAIGHT ABOVE
STUMPS WITH OPEN FACE

ELBOWS CLEAR OF BODY

HEAD AND BODY BALANCED
AND STILL



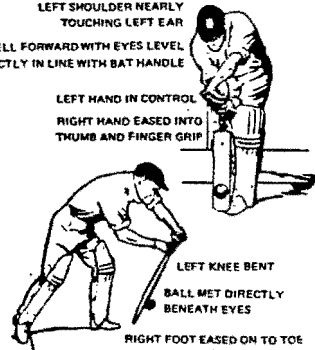
FORWARD DEFENCE

LEFT SHOULDER NEARLY
TOUCHING LEFT EAR
HEAD WELL FORWARD WITH EYES LEVEL
DIRECTLY IN LINE WITH BAT HANDLE

LEFT HAND IN CONTROL
RIGHT HAND EASED INTO
THUMB AND FINGER GRIP

LEFT KNEE BENT
BALL MET DIRECTLY
BENEATH EYES

RIGHT FOOT EASED ON TO TOE

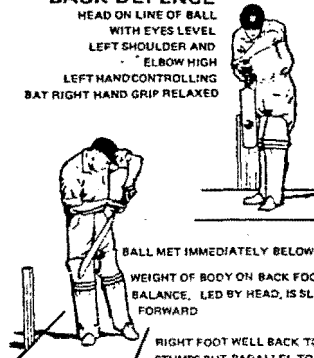


BACK DEFENCE

HEAD ON LINE OF BALL
WITH EYES LEVEL
LEFT SHOULDER AND
ELBOW HIGH
LEFT HAND CONTROLLING
BAT RIGHT HAND GRIP RELAXED

BALL MET IMMEDIATELY BELOW EYES
WEIGHT OF BODY ON BACK FOOT BUT
BALANCE, LED BY HEAD, IS SLIGHTLY
FORWARD

RIGHT FOOT WELL BACK TOWARDS
STUMPS BUT PARALLEL TO CREASE

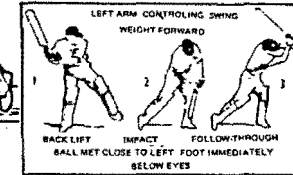


THE DRIVES

REMEMBER:
GET TO THE FITCH OF THE BALL
KEEP ARC OF BAT LONG AND FLAT
QUICKNESS, NOT STRENGTH GIVES THE POWER

OFF-DRIVE

FULL BACK LIFT: BAT FACE OPENED
HEAD AND LEFT
SHOULDER LEAD
IN DIRECTION
OF STROKE
HANDS LEAD
FOLLOW-THROUGH
IN DIRECTION OF STROKE
WEIGHT FULLY ON LEFT
FOOT WHICH POINTS TO
EXTRA COVER



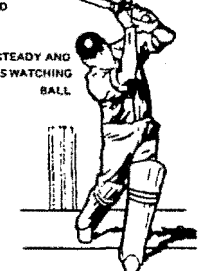
ON-DRIVE

LEFT FOOT AND SHOULDER
OPENING SLIGHTLY TO
ALLOW HEAD TO LEAD ON
TO LINE OF STROKE

LEFT SHOULDER
SLIGHTLY DIPPED

HEAD STEADY AND
EYES WATCHING
BALL

HANDS HAVE LED A
LONG FLAT SWING



BALL HAS BEEN HIT PAST MID ON

MOVING OUT TO DRIVE

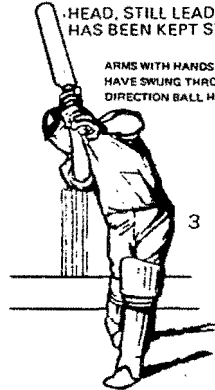
HIGH BAT LIFT
HEAD AND LEFT
SHOULDER LEADING
LEFT ARM
IN CONTROL
WEIGHT MOVING FORWARD
ON TO LEFT FOOT



RIGHT FOOT HAS GLIDED
UP BEHIND LEFT HEEL
THUS KEEPING BOOT
SIDWAYS

HEAD, STILL LEADING,
HAS BEEN KEPT STEADY.

ARMS WITH HANDS LEADING
HAVE SWUNG THROUGH IN
DIRECTION BALL HAS GONE



LEFT TOE POINTING TOWARDS MID-OFF

FIELDING

REMEMBER

GIVEN KEENNESS AND PRACTICE, EVERY CRICKETER CAN FIELD WELL

NEVER RELAX: EXPECT EVERY BALL TO COME TO YOU

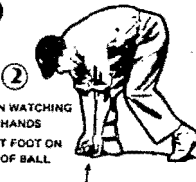
POSITION OF READINESS; CLOSE-IN FIELD

HEAD STILL MIND CONCENTRATED ON BALL
KNEES AND HIPS WELL BENT
AS RELAXED AND READY
FEET COMFORTABLY APART WEIGHT EVENLY DISTRIBUTED

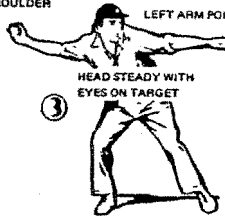


IN ATTACK

THE FIELDER MOVES QUICKLY IN AND OUT TO LINE OF BALL, GETTING DOWN AS HE APPROACHES IT AND TURNING SIDWAYS.



RIGHT ARM TRAVELS STRAIGHT BACK BEHIND RIGHT SHOULDER



LEFT ARM POINTS AT TARGET

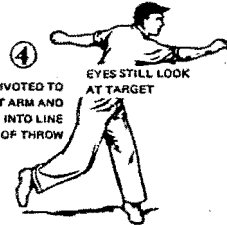
HEAD STEADY WITH EYES ON TARGET

CATCHING

HEAD STILL
EYES WATCHING BALL
HANDS LEVEL WITH EYES
FINGERS SLIGHTLY SPREAD BUT NOT TENSED
HANDS HAVE 'GIVEN' WITH BALL - WHICH IS CAUGHT CLOSE TO CHEST
ELBOWS WELL AWAY FROM SIDES



BODY HAS PIVOTED TO BRING RIGHT ARM AND SHOULDER INTO LINE OF THROW



EYES STILL LOOK AT TARGET

WATCH THE BALL RIGHT INTO YOUR HANDS

IN DEFENCE (1)

HEAD DOWN WATCHING BALL INTO HANDS



FINGERS POINTING DOWNWARDS

HEELS TOGETHER, TOES APART

IN DEFENCE (2)

RIGHT FOOT AND LEFT LEG FORM BARRIER AT RIGHT ANGLES TO LINE OF BALL



HEAD DOWN AND ON LINE OF BALL

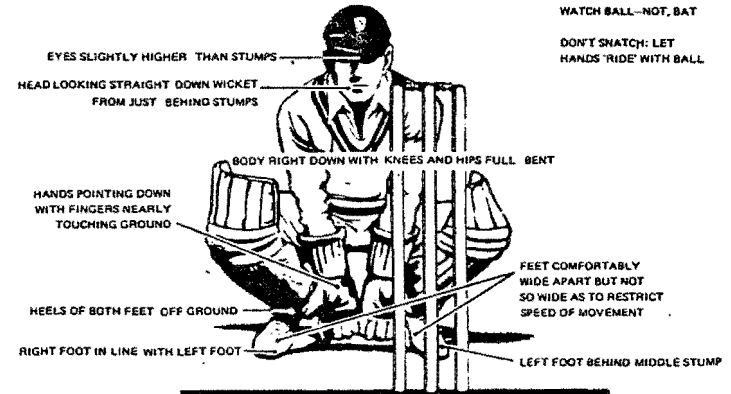
WICKET KEEPING

REMEMBER:
RIGHT UP TO THE WICKET OR RIGHT BACK;
NEVER HALF-WAY.

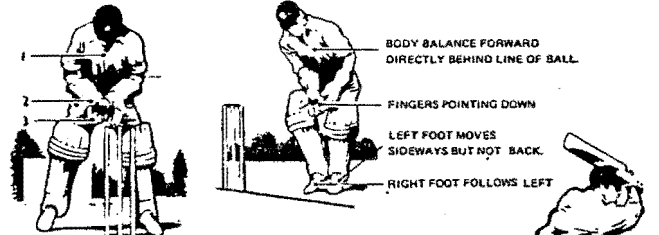
KEEP DOWN

WATCH BALL - NOT, BAT

DON'T SNATCH: LET HANDS 'RIDE' WITH BALL



TAKING A LEG BALL

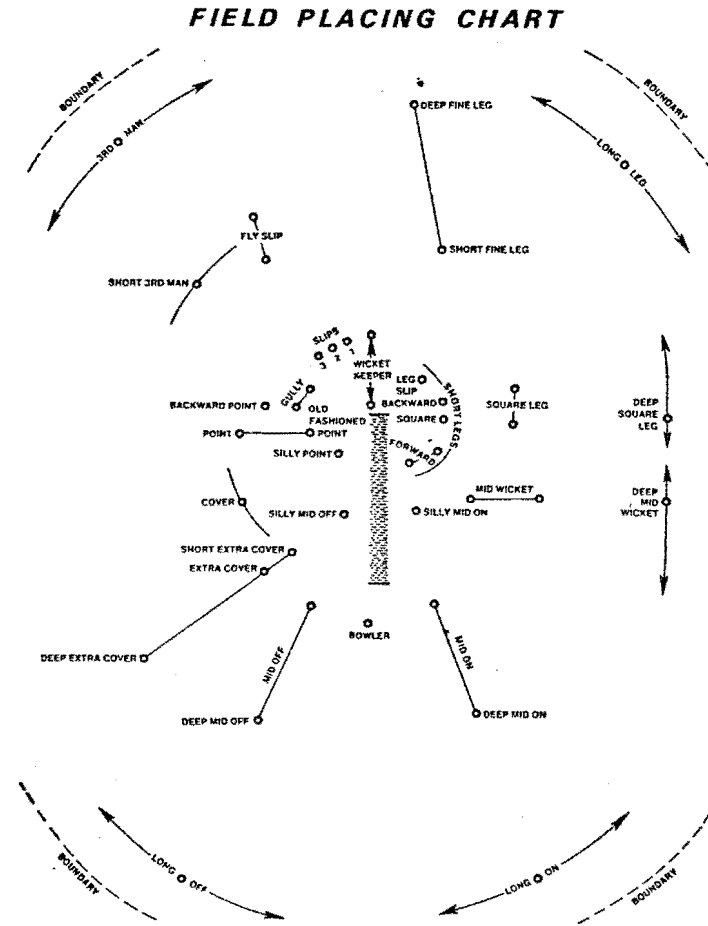


TAKING A RISING BALL OUTSIDE THE OFF STUMP

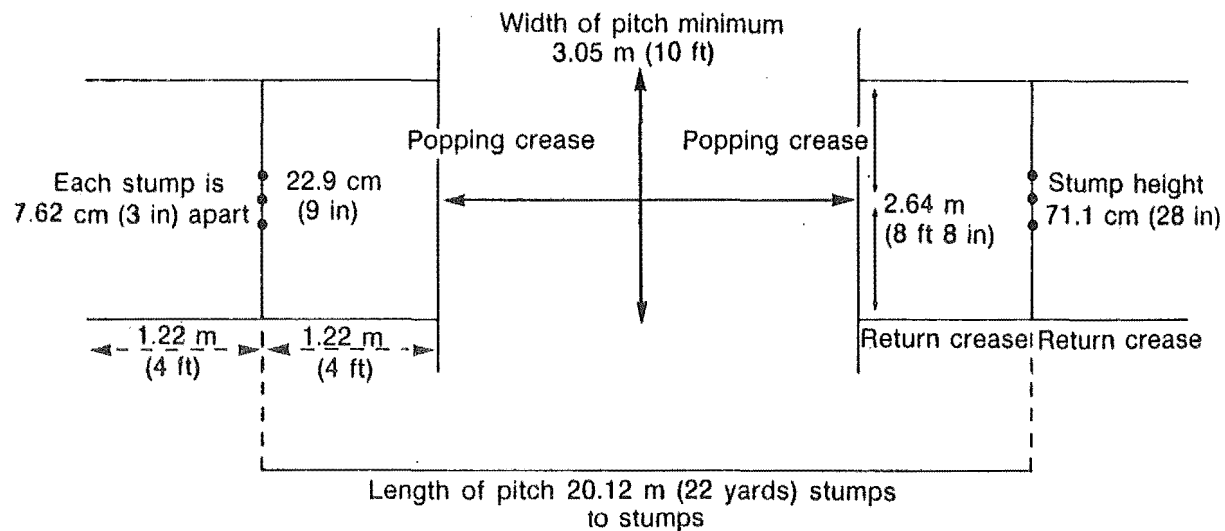
- 1 HEAD AND BODY DIRECTLY BEHIND LINE OF BALL
- 2 HANDS TAKE BALL CLOSE TO WICKET AND DIRECTLY BELOW EYES
- 3 FINGERS POINTING DOWN



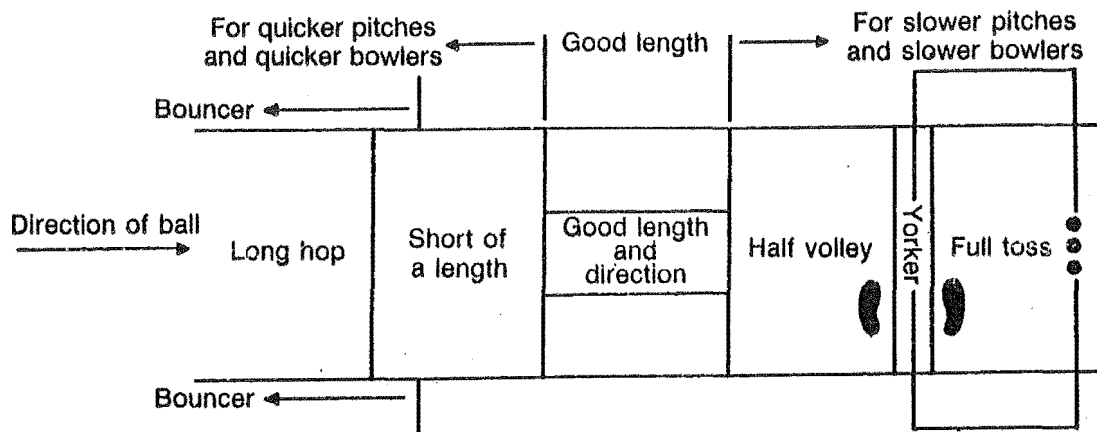
KEEPING DOWN



pitch dimensions



ball delivery positions



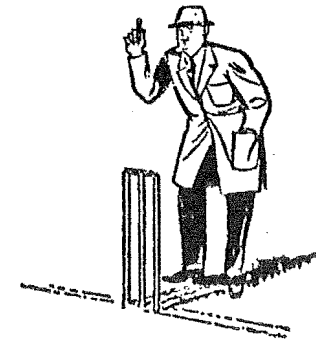


Byes

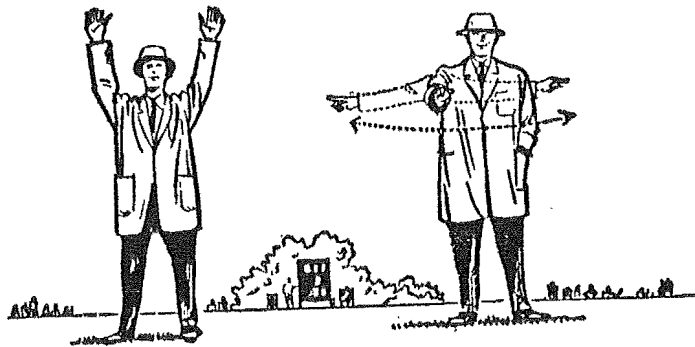
Leg byes



No ball!

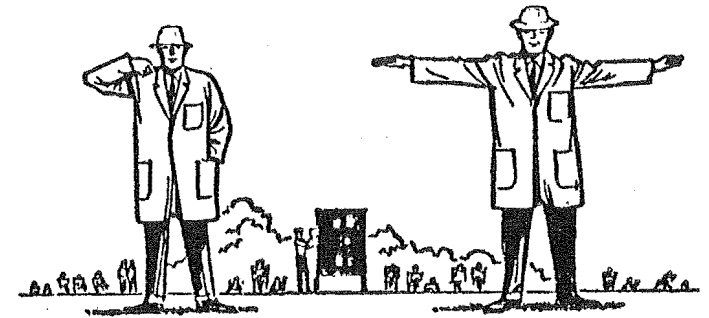


Out



Six runs

Four runs



One short (indication to ignore that ball)

wide

BIBLIOGRAPHY

BIBLIOGRAPHYPublished books.

- Adams D., 1982: Life, the Universe and Everything. Pan Books, London.
- Brittenden, D. & Cameron, D. 1982: Test Series '82, The Australian tour of New Zealand. Reed, Wellington.
- Heyhoe Flint & Rheinberg, 1976: Fair play. The Story of Womens Cricket. Argus & Robertson, London.
- Foth, H. 1949: Fundamentals of Soil Science. John Wiley & Son, New York.
- Johnston, B. 1972: All About Cricket. Carousel Books, London.
- Lemon, H. (Ed.) 1982: Wisden's Book of Cricket Quotations. Queen Anne Press, McDonald & Co., London.
- Local Government Training Board, 1981: Cricket Wicket Preparation and Maintenance. Local Body Training Board, Wellington.
- MacLintoek, A. (Ed.) 1966: Encyclopaedia of N.Z. Government Printer, Wellington.
- McKintosh, E. (Ed.) 1951: Oxford Concise Dictionary. Oxford Printer, Oxford.
- Neely, D, King, R. & Payne, F. 1985. Men in White. History of International Cricket. Moa Publications, Auckland.
- Preston, N. (Ed.) 1978: Wisden Cricketers Almanack, 1978. Sporting Handbooks, Ltd., London.
- Shatter, G., 1974: Great Days of Lancaster Park. Whitcombe & Tomb, Christchurch.

N.Z. Institute of Turf Culture: Turf Culture, Simon Printing & Co, Palmerston North.

Walmsey, W.H.: Cricket Wicket Preparation, The N.Z. Institute of Turf Culture, Palmerston North.

Periodicals

Brittenden, D.: Wylie has point to prove. The N.Z. Cricket Play, November 1985.

Elphinstone, P.: Cricket - A Battle of the Bittle. Christchurch Shoppers Guide, March 1985.

Murphy, J.: Standards for First Class Cricket Pitch in N.Z. N.Z. Turf Management, October 1986.

Murphy, J.: Cricket pitch playability in N.Z. Proceedings of: The Third N.Z. Sports Turf Conference, August 1985.

Murphy, J.: Cricket Wicket Research. Proceedings of: The First National Groundsmens Conference, 1984.

Stewart, V.I.: The pitch of perfection. Proceedings of: The Third N.Z. Sports Turf Conference: August 1985.

Turner, G: How the cricket pitch should behave. An Interview with Glen Turner. N.Z. Turf Management Journal, October 1986.

Vincent, L.: Chance for Revenge. N.Z. Cricket Player, November 1985.

Vincent, L.: Womens Cricket. N.Z. Cricket Player, October 1986.

Vincent, L.: "Minority" Tag Must Go - Yvonne Taylor, N.Z. Cricket Player, October 1985.

UnpublishedManuscripts

- Brittenden, D. Cricket in N.Z. for NZCC
- Canterbury Cricket Association: The Rules of the Canterbury Cricket Association Inc. July 1976
- Canterbury Cricket Association: Official Handbook, 1985/86.
- Canterbury Cricket Association: 109th Annual Report & Balance Sheet, 1985-86.
- International Cricket Conference: Official Rules of the International Cricket Conference, 1985.
- New Zealand Cricket Council; The Rules of the New Zealand Cricket Council Incorporated, 1982.

Personal Communication

- Allan, M. (Mr.) Lincoln Seniors, Cricket Team member.
- Dowling, G. (Mr.) NZCC Executive Controller
- Eathorne, B. (Mr.) CCA Executive Controller
- Legg, B. (Ms) St. Albans, Canterbury Womans Cricket member
- Murphy, J. (Mr.) Tussock Grasslands, DSIR, Palmerston North
- Westerby, S. (Mr.) Secretary, Ellesmere Sub Associations
- Williams, P. (Mr.) Secretary, North Canterbury Cricket Association
- Wylie, R. (Mr.) Groundsman, Lancaster Park

Photos from Books

Brittenden, D. and Cameron, D. 1982: Test Series '82. The Australian Tour of N.Z. Reed, Wellington. page 16, photo by Peter Bush

Eager, P. Arlott, J. 1979: An Eye for Cricket. Hodder & Stoughton, London. Back of contents page and pp 1, 9, 40, by Patrick Eager.

Heyhoe Flint & Rheinberg, 1976: Fair Play. The Story of Womens Cricket. pp 22, 25 and 35. By Norman Comaros, Angus & Robertson, London.

Hadlee, R. 1982: Hadlee on Cricket. The Essentials of the Game. The Glossary. Reed Wellington.

Jenkins, C.M. 1983: The Cricketers Book of Cricket Disasters & Bizarre Records, Century Publishing, London. pp 21 and 30, by S. McMartry.

Johnston, B. 1972: All About Cricket. Carousel Books, London. p 3 and Techniques in Glossary.

Neely, D., King, R. & Payne, F. Men in White, History of N.Z. International Cricket. Moa Publications, Auckland. pp 27, 36 and 39. All NZCC Collection.

Photos from Periodicals

p 5 from October 1986 N.Z. Cricket Player

pp 6, 10 and 42, from January 1986 N.Z. Cricket Player

p 41, from April/May 1986 N.Z. Cricket Player

p 32, from March/April 1985 N.Z. Cricket Player

p 27, from January/February 1985 N.Z. Cricket Player

pp 8 and 9, from July 1986 Wisden Cricket Monthly

pp 13 and 43, By Punch, from May 1986 Wisden Cricket Monthly