

# History & Development of Bowls

CH Dixie & M van den Berg

## 1. The Development of Bowls

Bowls are no longer made of wood, not completely spherical and not weighted. The Oxford dictionary indicates that the word bias originally became a technical term used in the sport of bowls from which all the other uses of the word stem. The introduction of the bias to the spherical design of bowls is reported to have happened by accident. In 1522 the Duke of Suffolk, whose bowl split in two pieces on striking another bowl, removed the spherical knob from the banister post in his castle to provide a replacement. The flat cut caused this substitute bowl to roll with a bias enabling the Duke to curve his bowl around others in the head. [1] He passed on this knowledge to his friends and in the course of time biased bowls came into general use. Later, the bias was intentionally produced by inserting a weight on one side of the bowl. Today, the bias is achieved entirely by the design shape of the bowl, which is that of a sphere, slightly flattened on one side and protuberant on the other, with a low and high shoulder on the running surface.

The extent of the bias was not stipulated prior to 1871 and no testing was required. The bowls were entirely hand turned and finished and it was impossible for bowls turners to make accurately matched bowls. In 1871 Taylor's of Glasgow in Scotland constructed the first bias testing table using three full-sized snooker tables in tandem, because of their rigidity of construction and the accuracy of level that the slate bed achieves. In 1928 the International Bowls Board laid down the criteria for table testing of bowls [2]. World Bowls Ltd currently maintains the rules for the minimum and maximum bias allowed for a set of bowls.

The original bowls were made from stone but after 1409 bowls were made of wood. Initially they were made from Boxwood, Holly, Yew or Oak but after the 16<sup>th</sup> century the exceptionally hard wood *Lignum Vitae* from Santa Domingo in the Caribbean was used to make the *woods*. The sport of bowls grew in popularity and spread throughout the British Empire. This wood which was an ideal material for bowls in cooler climates was not suitable for the conditions in hotter and drier climates as it was prone to warp and crack. A different material was also needed as the supply of good hard-wood was becoming progressively scarcer. [2]

In 1918 in Australia, David Hensell joined forces with the Dunlop Rubber Co., to produce the first vulcanite (hard rubber) bowls [3]. These bowls were used Internationally as they far superseded the handling and accuracy of the wooden bowls, especially in countries like New Zealand and South Africa. However, the search was still on to find a material not susceptible to heat and climatic conditions.

In 1931, Henselite produced the first successful phenol formaldehyde resin compound bowl – the largest solid mass of this material that had ever been produced [3]. The science and art of bowl-manufacturing has progressed since then in many ways, but the same compound is still in use today by all three major manufactures of bowls – *Taylor, Drakes Pride* and *Henselite*.

## 2. Manufacture of Bowls

The black and brown colours are a throwback to wooden bowl days when the quality of the wood was an important consideration. If the wood had a good grain, the finished bowls were lacquered with a clear varnish to highlight the grain but if the

grain was of inferior quality the finished bowls were lacquered with a black varnish to hide the grain [2]. The phenolic compound was used from the 1930s to the 1990s to produce black and brown bowls. The Laws of the Sport of Bowls changed in 1999 permitting the use of coloured bowls. Taylor of Scotland was the first to use a melamine crystal compound rather than the phenol formaldehyde compound to produce coloured bowls as it was found that Ultra Violet rays influenced the colour of bowls that were made by adding the coloured dye to the phenolic compound. Now all three major manufacturers – use a melamine crystal compound to produce coloured bowls, but they still use phenol formaldehyde to produce black bowls.

The bowls players use today go through 8 highly technical steps before they are ready for sale [4, 5]:

- Step 1** The grey phenol formaldehyde or coloured melamine compounds are carefully mixed, adding the dye to the former for black bowls. The melamine crystals are already coloured, which is why the coloured bowls are coloured right through.
- Step 2** *“The raw materials are then weighed very carefully for the various models and sizes. Using a high frequency pre heater, the granules are then melted down to form a putty-like substance, which is then poured into a mould, which resembles the shape of the bowl. Different moulds are used for various models.” [4, 5]*
- Step 3** The material is compressed by a 150 ton press, to squeeze excess gas and liquid out of the mould. Lugs are left on each side of the bowl for use in later tooling processes. The bowl cures for 10 days before it is ultrasonically tested for trapped air (gas) bubbles. If any are found, the bowl is discarded. If a bubble is missed, a hollow sound is heard when the bowl is hit by another. Luckily, the manufacturers replace the entire set!
- Step 4** The bowl is then mounted on a computerised numerical construction lathe with a diamond bit, where the bias of a particular model is cut with extreme precision (see Figure 1).



**Figure 1** Taylor bowl being shaped by a lathe [6]

The manufacturers consult the “world’s best and experienced bowlers” [5] and check local conditions around the world [3] to ensure that bowls sold in a particular area are moulded to suit local conditions.

- Step 5** The bowl is held by suction so that the dimples or rings can be drilled or cut accurately – dimples are drilled all at once.

A highly trained person matches 4 bowls by weight, with a tolerance of 3 grams allowed per set – these 4 bowls are coded and complete their manufacturing journey as a set.

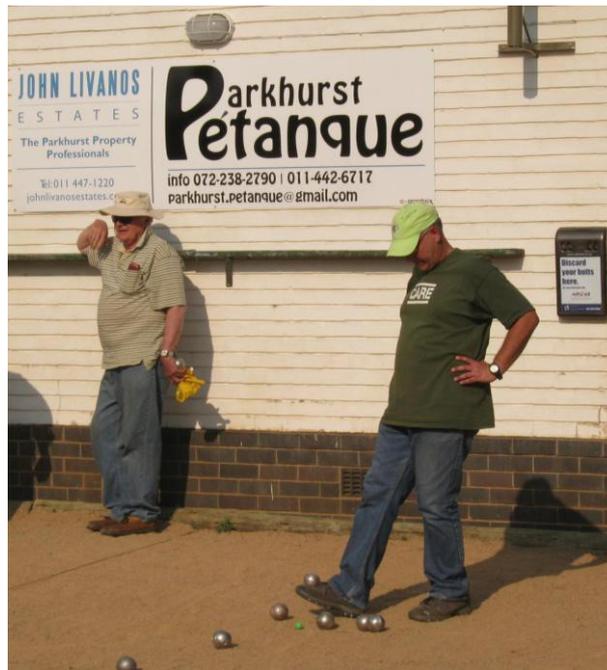
- Step 6* The set of bowls are table-tested to ensure that they conform to the Master bowl approved by World Bowls Ltd. On the rare occurrence, due to the accuracy of the tools used, where bowls are found to be short of or over bias, this is adjusted.
- Step 7* The bowls are placed in a large, gently rotating container filled with silicone chips which polish the bowls to a high gloss finish.
- Step 8* A laser machine is used to engrave all four bowls at once, according to pre-loaded programmes. They are then hand painted before being sent for a final table-test to check the bias against a Master bowl.

Bowls vary in size, weight and degree of bias; and are selected to suit local conditions. Players tend to buy lighter bowls in the United Kingdom with the wet, soft grass, whilst in South Africa, the standard is to buy heavier weight models of smaller size bowls.

### **3. Various Current Forms of the Game**

Over the centuries, various forms of the game have developed [7]. Those akin to lawn bowls, with their own federations, are:

- *Old English Bowling* is still played by a league in South East Hampshire. To score, bowls have to be within four feet of the jack.
- *Crown Green Bowls* features an additional dimension, a “crown” which is slightly higher in the middle. The game is played all over the green and in any direction, adding more variety than the flat-green game.
- *Boules*, also known as *Pétanque* Figure 2, is perhaps the sport that is closest to French hearts. Similar to British lawn bowling or Italian *bocce*, the French version is traditionally played with metallic balls on a dirt surface beneath plane trees, with a glass of pastis at hand. The object of the game is to throw your balls — usually with somewhat of an arched back-spin — so that they land closer to the small object ball (*cochonnet*) than those of your opponent, or strike and drive the object ball toward your other balls and away from your opponent's.



**Figure 2 Petanque at Parkhurst Piste**

- *Bocce* (or *Bocci*, or *Boccie*) is a ball sport belonging to the boules sport family, closely related to bowls and pétanque with a common ancestry from ancient games played in the Roman Empire. Developed into its present form in Italy (where it is called *Bocce*, the plural of the Italian word *boccia* which means bowl), it is played around Europe and also in overseas areas that have received Italian migrants, including Australia, North America and South America (where it is known as *bochas*; *bolas criollas* in Venezuela, *bocha* in Brazil), initially amongst the migrants themselves but slowly becoming more popular with their descendants and the wider community. The sport is also very popular in the former Yugoslavian countries of Slovenia (known as *balinanje*), Croatia (predominantly in the coastal regions; known as *boćanje*), Bosnia and Herzegovina, Serbia, and Montenegro.
- *Curling* is the winter version of lawn bowls and records show it was played on ice from the 1600's. It is popular in the northern hemisphere, particularly in Canada, Scotland and the Netherlands. Stone discs with a handle protruding from the top are used. The game is played with two teams of four players, each using two stones. The target is a circle (Figure 3). Each player has a broom which they use to sweep the ice ahead of the target. This warms the ice which melts slightly. The stone glides across the film of water more easily, deviating the direction or lengthening the distance it must travel to reach the target. Skilful broom work brings success!



**Figure 3**      **Curling**

- *Indoor bowls* is played on the same lines and virtually the same rules as outdoor lawn bowls. It is played on a synthetic green and the rinks are the same length. Although it started in countries where the winters are severe, this version is now played throughout the year in many bowling countries.
- *Short Mat Bowls* Figure 4 is a miniaturised version of the outdoor game and used in pubs, shopping malls, village halls – in fact anywhere where there is sufficient space to roll the mat out. After the game, the short mat is simply rolled up and put away until the next game. Normal-sized bowls may be used but driving is prevented by a block which is placed in the centre of the rink. The head may still be broken up if the correct angle is used. This version of the game is said to have been started by two South Africans who, when working in England, missed the game so much during winter that they started playing in the local church hall. When they moved to Ireland they took the game with them.



**Figure 4**      **Short-Mat Bowls in a Mall**

Bowls SA has given each district a 20m short mat and a set of 16 small bowls (see Figure 5) to use for development opportunities.

- *Carpet Bowls* is the poor relation of bowling – perhaps because the term *carpet* seems to indicate a trivial indoor game for the home. The English Carpet Bowls Association is fairly small but has proved the saving grace in many villages, generating income for the halls used and bringing communities together. The mat is smaller and the rules simpler than Lawn Bowls or Short Mat Bowls. Smaller bowls are used – see the comparison in Figure 5. Many adult lawn bowls players grew up playing bowls on the carpet in their homes with their families.



Figure 5 The Size of Bowls & Jacks (Carpet, Short-Mat, Regular (00 & 4)

- *Table Bowls* is probably the most unusual version of the game. It is played in many pubs throughout the British Isles, using a standard Billiards or Snooker table with miniaturised bowls and jack. If a pool table is not available a green baize cloth may be put on any flat surface. The game probably originated in the latter half of the nineteenth century when the Victorians had a craze for all sorts of parlour games. The game has apparently spread to Australia where youngsters and wheelchair players play on a dedicated specially made table. When players are no longer able to play the outdoor game they turn to Table Bowls.
- *Rolle Bolle* was developed in Belgium centuries ago. Players try to roll the hard rubber *bolle* on hard packed sand to reach the target stake.
- In a concerted effort to develop interest in bowls amongst the youth of South Africa, Bowls SA developed *Bolla-Bol* – a parlour game that can be played on any flat surface, using a target mat as shown in Figure 6. Unfortunately it was discontinued due to manufacturing problems.



Figure 6 Bolla-Bol

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