FUN AT THE LATHE

R. C. BELL

Contents

Introduction 7

Part One – Between Centres 11

1 Carpet Skittles 12

2 Table Quoits 16

3 Squails 20

4 Dice Cup 24

5 Cup and Ball 27

6 Muslim Chess Set 33

Part Two – Faceplate Turning 37

7 Sz' Kwa 38

8 Modern Seega 43

9 Bagha Chal (Leaping Tigers) 47

10 Alquerque 50

11 Mu-Torere 53

12 Hala-Tafl (Fox and Geese) and Solitaire 57

13 Nyout 62

14 Plug the Leaks 66

15 Mhn (The Snake Game) 70

16 Gyan Chaupar 73

17 Circular Chess 77

18 Ringo 82

19 Crown and Anchor 85

20 Pentalpha and Kaooa 89

21 North Star Solitaire 93

22 Spinning Jenny 97

23 Wild Oats 101

24 Jactus 105

Part Three – Bowl Turning 109

25 Pahkasakimac 110

26 Round Mancala Board 113

27 Hoca 117

28 Pope Joan 122

29 Go Bowls 127

30 Liar Dice and Cribbage Tray 131

Further Reading 136

Index 137

Introduction

I have been interested for many years in the world's vast store of board and table games, extending back several millennia and involving greatly differing civilizations. *Fun at the Lathe* is based on 30 articles appearing in *Woodturning* magazine between July 1992 and December 1995. It is now possible to give fuller descriptions of the games, and alternative games to be played on particular boards, than was possible in a series of short articles in a specialized magazine. The order of presentation has also been changed, to provide a systematic progression from simple to more complex projects as your confidence grows.

I am not a professional woodturner, and therefore all the items described in this volume are well within the capabilities of the average owner of a lathe. I use a Myford ML8B, some 30 years old. Many readers will have more modern equipment with improved facilities, making some of the procedures described unnecessary. There is also often more than one way of solving a problem. The methods described have proved successful, but you may be able to think of better alternatives.

A lathe provides two different facilities: holding revolving wood between two centres (spindle turning) and holding it against a revolving disc (faceplate work). The width of the turned object is limited by the distance between the centres and the bed of the lathe in the former, but is theoretically limited in the latter only by the distance between the centre and the floor, though in practice it is unwise to try to turn too large or too heavy a piece of wood on a faceplate: the vibration set up can be considerable, causing damage to the lathe, and if the wood tears free a dangerous and possibly lethal accident could occur.

Use a mask!

Turning creates dust, especially scraping or using glasspaper, and you must take precautions against inhaling harmful minute particles of wood, particularly from some of the exotic tropical timbers. Many complex masks are now available, but they tend to be expensive. Several varieties are described in advertisements in *Woodturning* and other woodworking magazines.

I have used cotton surgical masks for many years, changing to a new one after about three hours' work. These can easily be recycled after use by washing them in a washing machine and allowing them to dry.

Sharp tools

These are essential for good work, and the maxim 'little and often' pays dividends. A few strokes on an oil stone at frequent intervals will retain a sharp edge. When regrinding on a wheel is necessary, use light pressure on the grinder to avoid overheating the tool and 'burning' the edge, which will spoil its temper.

Choice of tools

Today this is almost limitless and can be confusing to the beginner. Start with a few basic shapes, learn how to use them, and then invest by degrees in specialized tools for special problems. By that time you will know what you require. Smaller tools are very helpful for turning gaming pieces; I have a set of six scrapers, a skew chisel 5/16in (8mm) wide, and a 1/4in (6mm) gouge with round section.

Recently, I added a ring tool to my collection and find it useful when hollowing out end grain. Detailed instructions are provided with the tool.

Lathes

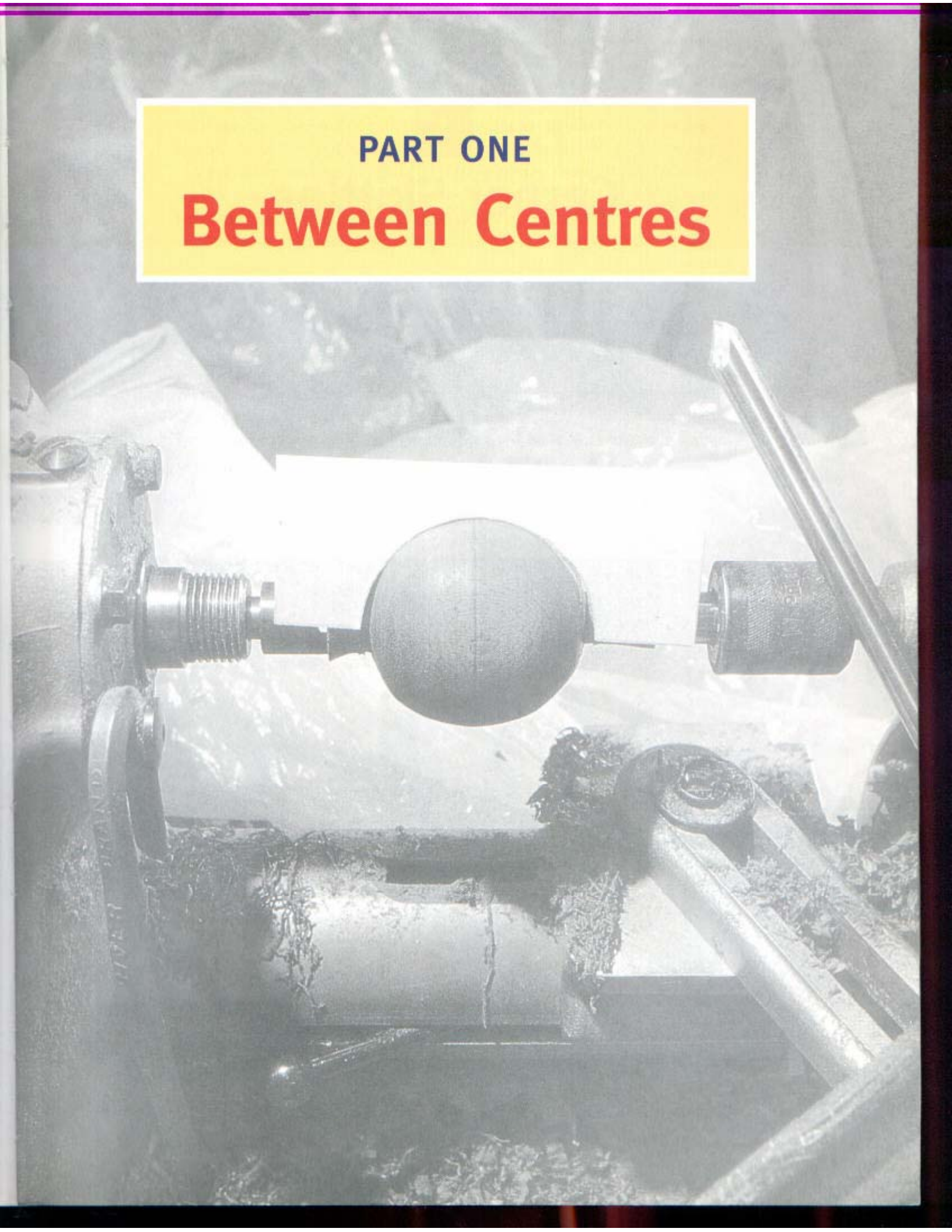
My first lathe was an old treadle machine, made about 1880, bearing no maker's name, and purchased from a second-hand furniture dealer for £4 in 1952. There are advantages in providing the power yourself: you soon become aware of the difference between light and heavy cutting, and the stresses imposed on the tool, the lathe, and the wood. Excessively heavy cutting brings the process to a stop when your leg muscles give up! Furthermore, the high speeds possible with power-driven machines (fine when all is going well, but not so good if a 'dig in' occurs) are not available. I tend to use low speeds rather than high, doing my turning at 700 rpm, spindle turning of pieces over 2in (51mm) in diameter the same, and smaller diameters at 1140 rpm.

The old adage 'There are more ways of killing a cat than drowning it in buttermilk' is particularly true of woodturning. Several methods are frequently possible, you may have different tools, and have had different training.

Upgrading your skill is important, and this may be achieved through reading or attending courses. Many are advertised in the woodworking journals, and some are very good. I spent two weekends with Peter Child at his home in Essex, and found it increased my confidence and introduced me to new ideas. If a short course is not possible, attending occasional demonstrations organized by tool companies can be stimulating. I have found that such sessions at Keensleyside in Bedlington Station, and North Eastern Tools in Newcastle, have always resulted in learning something new, and also provide a chance to see recent additions to the range of available tools.

RESEARCH

Many board games have survived, often recorded as graffiti, from the ancient world. No rules have survived to tell us how they were played, and making a reproduction board may be the first step in recovering a long lost fun-maker; not perhaps in the same way that it was originally played, but probably somewhere near, and fun anyhow. You should also remember that, because a particular game is played on a particular board in a particular part of the world, or at a particular period in history, this does not mean that the same game was played on it elsewhere, or in a different age. The chequered 8 x 8 board is a good example: it has been used for chess, Maharajah, draughts, losing draughts, diagonal draughts, reversi; (Othelo) Ming Mang, and the Russian Bashne, to name but a few.



PART ONE

Between Centres

1

Carpet Skittles

Skittles belongs to the same family of games as bowling, and you may enjoy this extract from the introduction to the section on bowling in Richard Seymour's *The Compleat Gamester*, published in 1754.

Bowling is a game of recreation which if moderately used is very healthy for the body, and would be much more commendable than it is were it not for these swarms of rooks which so pester bowling-greens, bares and bowling-alleys, where any such places are to be found, some making so small a spot of ground yield them more annually than fifty acres of land shall do elsewhere about the city; and this done by cunning, betting, crafty matching, and base playing booty.

In bowling there is a great art in choosing out the ground, and preventing the windings, hanging, and many advantages of the same, whether it be in open wide places, as bares and bowling-greens, or in close bowling-alleys. Where note that in bowling, the choosing of the bowl is the greatest cunning. Flat bowls are best for close alleys; round biased bowls for open grounds of advantage, and bowls round as a ball for green swarths that are plain and level.

There are not any instructions can be given to bowl, practice must be your best tutor, which must advise you the rising, falling, and all the several advantages that are to be had in divers greens and bowling-alleys; all that I shall say, have a care you are not in the first place rooked out of your money; and in the next place, you go not to these places of pleasure unseasonably; that is, when your more weighty business and concerns require your being at home, or somewhere else.

Construction

A few years ago a beech tree blew down in a storm in my neighbourhood, and I obtained a few slices of the trunk. While seasoning, splits appeared which prevented their use for bowls. However, I converted them into billets with a wedge and sledgehammer, and trimmed off a few loose shakes with a hatchet. The wood was then ready for turning into small objects – ideal for making game pieces.

Fig 1.1 A billet of beech was reduced to a cylinder 2¼in (57mm) in diameter, with key measurements marked in pencil – the top and bottom of the skittle, the maximum diameter and the minimum diameter. The roughing gouge I used to shape the cylinder is shown on the right.

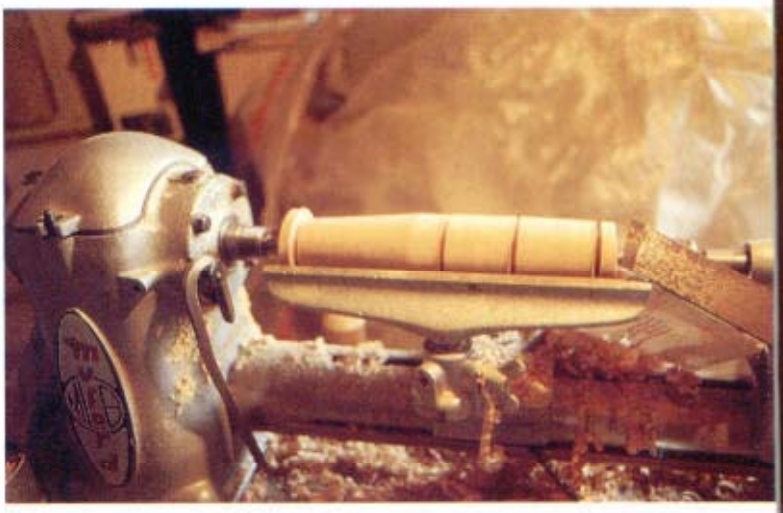


Fig 1.2 The lower part of the skittle was shaped with the skew chisel seen on the right. Critical diameters along the skittle's length were marked with a parting tool and calipers.

Fig 1.3 The lower half of the skittle shaped.

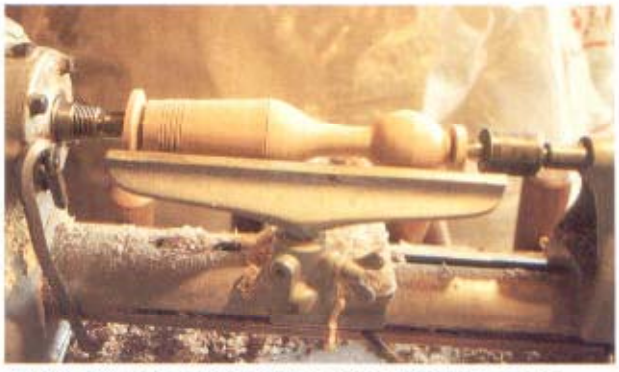


Fig 1.4 The neck shaped. Cutting decorative rings with a small skew chisel.

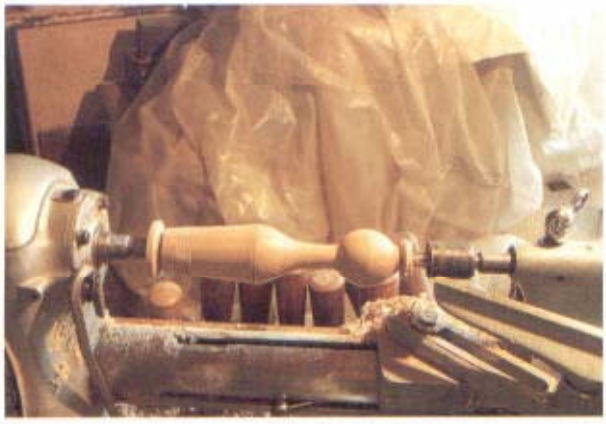


Fig 1.5 Glasspapering complete. The skittle is now ready for the removal of excess wood from the head and tail of the skittle with a saw.

Fig 1.6 The completed skittle.

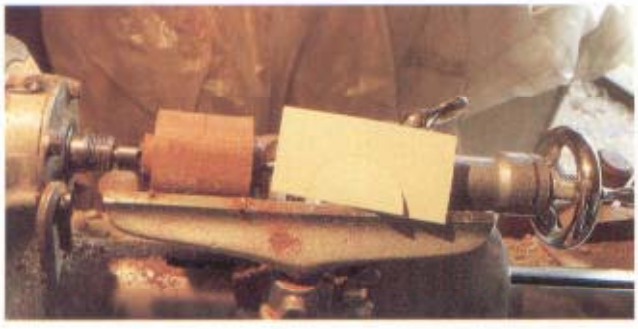


Fig 1.7 A scrap block of utile was used for two of the balls, 3 x 4 x 7in (76 x 102 x 178mm) reduced to two pieces 3 x 3 x 3½in (76 x 76 x 89mm) with a bandsaw. This was turned into a cylinder 2½in (64mm) diameter and 3½in (89mm) long. Note the centre line marked in pencil. Alongside is a cardboard template of half the required sphere.

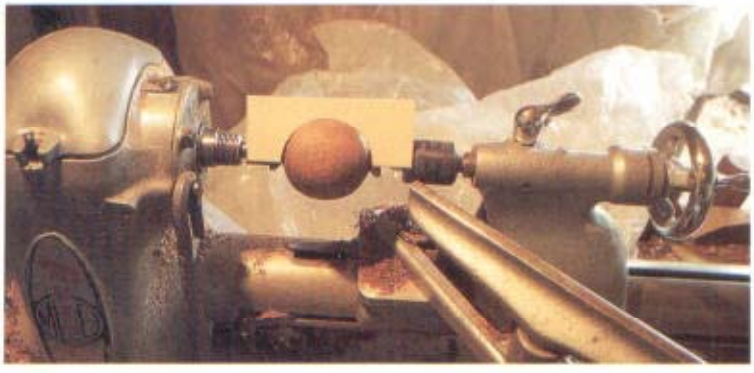


Fig 1.8 Checking the sphere with the template. The ball is now ready for removal from the lathe; the spigots will be trimmed with a saw.

THE RULES

1 The nine skittles are arranged in three rows of three, with the square so formed (known as a frame) turned to 45° to the direction of play (see Fig 1.12).
2 From an agreed distance each player in turn rolls the three balls towards the frame, and scores a point for each pin knocked over.
3 If a player knocks all the pins down, 15 points are scored instead of 9 (known as a 'Fifteen').
4 If all nine pins are knocked down with two balls, a spare is scored, worth 15 points. The pins are set up again and the third ball is bowled, scoring a point for any skittles knocked over, or a second 15 points if they are all knocked down.
5 If the player knocks down all the pins with the first ball, a strike is scored, worth 15 points; the skittles are put up again and the second ball is set on its way. If again all the skittles are knocked down a spare is scored with the second ball, worth 15 points, and the pins are reset. If on the third ball they are again all knocked down, another 15 points are scored, making a total of 45 points, the maximum score for a turn. The lowest possible score is 0 when all the pins are standing after the roll of the third ball.
6 The winner is the first player to reach an agreed total, often 100 points.

Fig 1.9 A ball in the vice ready for the removal of the rest of the spigot. When sawing, leave a little over for final trimming with a rasp. A surplus can always be removed, a deficiency is not redeemable.

Fig 1.10 After rasping. The rasp is shown on the right.

Fig 1.11 The beech had a few woodworm holes. Each skittle was soaked in Rentokil for 24 hours. The bath was made out of a plastic milk bottle (the removed portion of the bottle is in front of the bath). A second skittle on the right waits its turn for treatment.

Fig 1.12 Skittles and balls ready for a game. The latter vary slightly in size and none is truly spherical, giving them a will of their own and adding to the fun of the game.

2

Table Quoits

This game is derived from the outdoor game of quoits; the following description is taken from *Sports and Games* by Donald Walker and published by Thomas Hurst, St Paul's Churchyard, in 1837.

An iron pin, called a hob, *is driven into the ground within a few inches of the top, and at a distance of 18 to 20 yards, the exact length being optional. A second pin is made fast in the same manner. The players, two or more, are divided into equal teams, and stand at one of the iron marks and throw equal numbers of quoits at the other, the nearest quoit to the hob counting one point towards game. If a quoit belonging to A lies nearest to the hob, and a quoit belonging to B is*

second, A can only claim 1 point towards game, though all his other quoits lie nearer to the mark than those of B, because one quoit of B being second to the hob 'cuts out', as it is called, all behind it; if no such quoit had intervened A would have scored one point for each of his quoits ahead of the first of his opponent's.

If a player achieves a 'ringer', that is, dropping a quoit on to the hob which passes through the hole in the quoit, he scores 2 points. After casting all their quoits, the players walk to the hob to determine the score of the winning player or team, they then gather up the quoits and throw them back at the starting hob; continuing to cast from alternate ends until the winning score, usually 21 points, is reached.

I have a set of four quoits, probably once belonging to a County Durham miner. Their external diameter is 7⅜in (189mm) and internal diameter is 4⅞in (124mm), and each weighs just under 3lb 6oz (1.8kg). Considerable strength and dexterity is needed to cast these 18 yards (16m) with any accuracy.

Construction

I used scraps of ½in (13mm) thick mahogany for the quoits. A pair of compasses was used to inscribe a circle on one surface, and the blank roughly cut out with a bandsaw. (A coping or bow saw is equally effective, though slower.) Then, I screwed a faceplate on to a block of wood, and turned the block into a truncated cone, with its small diameter less than the internal circumference of the quoit. I used liquid glue to fasten a piece of brown paper to the small end of the cone, and glued the mahogany blank to the paper. This was then left for a few hours for firm adhesion. The edge of the blank was rounded with a gouge and scraper and finished with fine glasspaper.

The handrest was then swung across the bed of the lathe, and a parting tool used

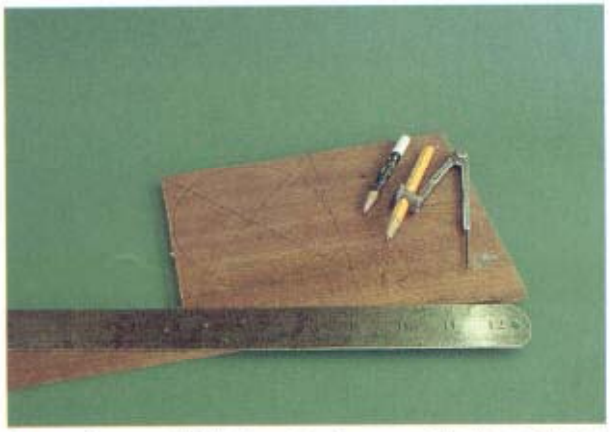


Fig 2.1 A scrap of ½in (13mm) mahogany with the periphery of the future quoit marked.

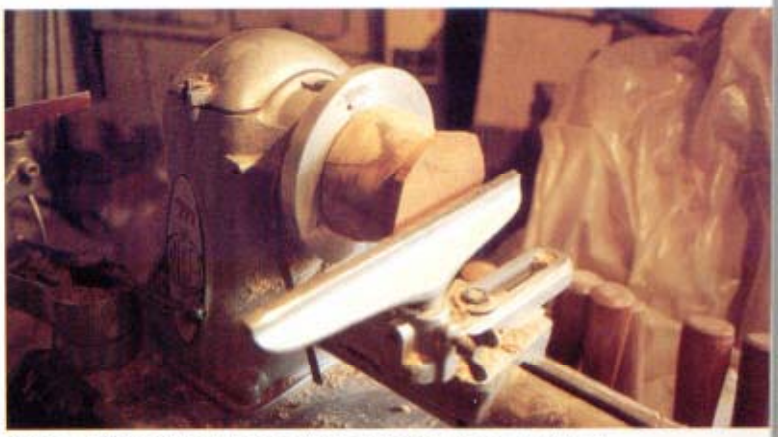


Fig 2.2 The blank with the corners removed with a bandsaw, glued to the cone with the brown paper intervening.

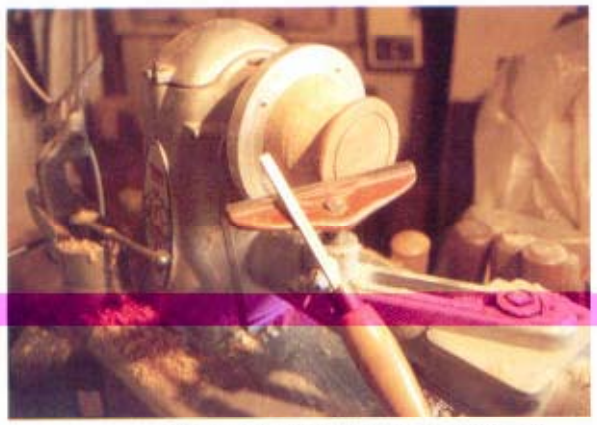


Fig 2.3 The outer edge of the ring was rounded with a small scraper, and the inner edge defined with a parting tool.

Fig 2.4 The inner edge of the under-surface was defined with a parting tool. Here, shaping is about to begin with the small skew chisel, as shown.

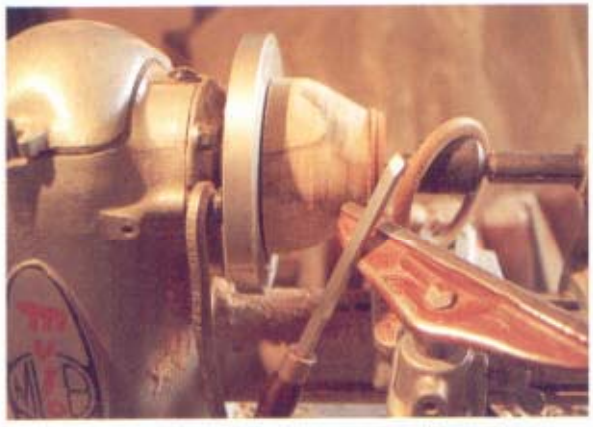


Fig 2.5 The quoit separated from the coaster. The brown paper is just visible between the cone and the coaster.

to cut a groove about ½in (13mm) from the edge of the blank to the middle of the thickness of the wood. A similar groove was cut on the side nearest the headstock, and rounding off of the inside of the quoit begun with a small skew chisel. The parting tool cut was deepened until the quoit was separated from the rest of the blank. The inside of the quoit was smoothed with a fine rasp and glasspaper. The central piece of the blank still on the lathe was then turned into a coaster, thus making two items from the blank and reducing wood wastage.

I made the stem of the hob from laburnum, and the heavy base from mahogany, giving stability to the hob when struck by a quoit. The maximum diameter of the base of the hob was 4¾in (120mm), and the length of the stem 5in (127mm). The outside diameter of the quoits was 3¾in (95mm), and the inside diameter 3in (76mm).

Fig 2.6 The edge of the coaster was trimmed with a small skew chisel.

THE RULES

In table quoits there is only one hob and each player has four quoits. The players in turn cast all their quoits, ringers counting 1 point. Nothing else scores. The game is usually played to 15 or 25 points.

Fig 2.7 Completing the rounding of the inner edge of the quoit with a fine round rasp.

Fig 2.8 Hob with eight quoits ready for a game.

3

Squails

I have a diary written in 1862 by a passenger on the clipper ship *Orient* sailing from Portsmouth to Adelaide, Australia:

> *Sat. June 14th . . . being so long without change, our amusements grow stale and insipid: though the never failing cards, chess, backgammon and draughts serve to while away many a weary hour. Squails, in which the ladies join and are becoming dangerous rivals for the gentlemen, has a large patronage.*

Gentlemen, you have been warned!

Construction

A cylinder of holly was turned to the correct diameter, and marked with ½in (13mm) bands with a pencil while revolving. It was then partially separated with a narrow ⅛in (3mm) parting tool, the central core being 1in (25mm) in diameter. The cambers were cut with a narrow skew chisel down to the central core, and the squails separated from each other with a bandsaw. When I made the game, the last three squails presented a problem in holding the wood safely so near the blade; I solved this by gluing the column of three squails to a waste block of wood.

After smoothing the cut surfaces with glasspaper, the centres were coloured with acrylic paints: yellow, red, green and blue, four of each colour. I squeezed the paint on to an old plate and used it undiluted. Be sure to keep the brush in water between pauses, and wash it in clean water immediately after use, as acrylic paint becomes water insoluble when it dries and your brush could be ruined. Use two

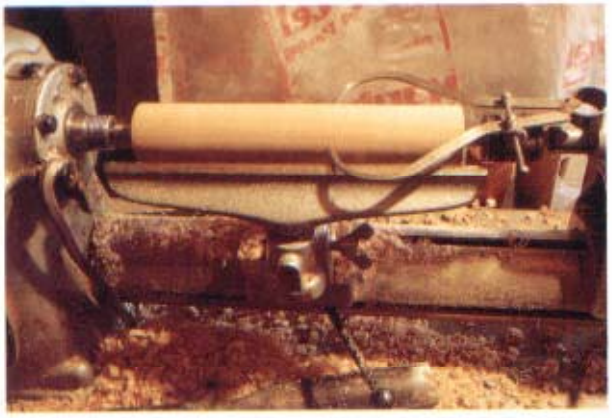


Fig 3.1 The cylinder of holly 1⅝in (41mm) in diameter, checked with calipers.

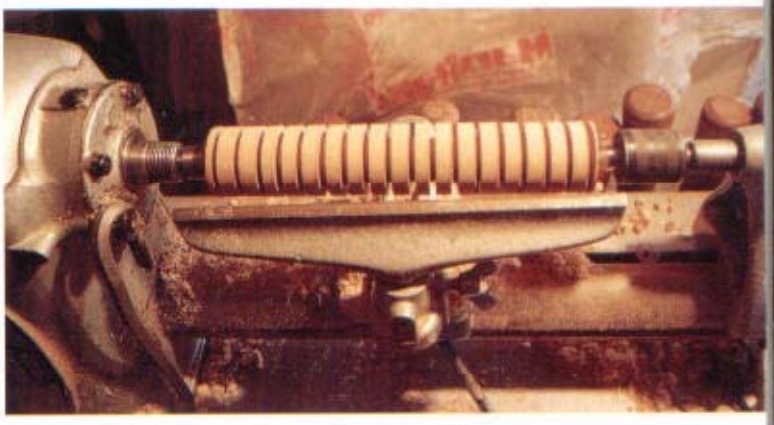


Fig 3.2 After marking the revolving cylinder with a pencil into ½in (13mm) sections, divisions were cut with a ⅛in (3mm) parting tool, leaving a core of 1in (25mm) diameter, checked with calipers.

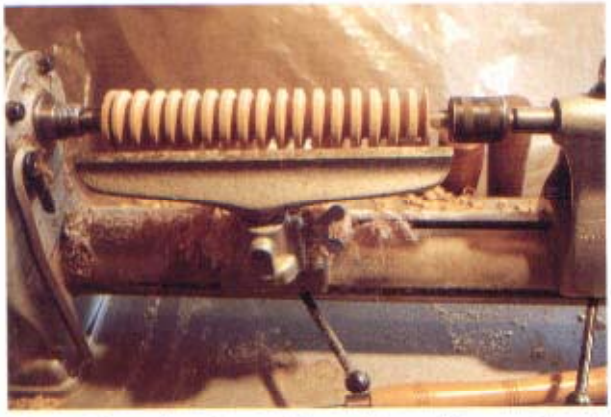


Fig 3.3 The camber between the periphery of the squail and the central projection was cut with a narrow skew chisel.

Fig 3.4 The column of the last three squails was glued to a scrap piece of wood, which provides a safe handle for holding while separating them with a bandsaw.

jars of water, the larger for the main cleaning; when clean, place the brush in the smaller jar of fresh water until you need it again. Dry the brush on a rag before using it for the next colour. You may find a pair of pliers useful in removing resistant caps from tubes. After colouring the squails were left for an hour or two to dry and then a coat of clear gloss varnish applied to finish them.

Fig 3.8 shows the end of a round on a square 42in (107cm) table. Use a tape measure to settle controversial distances from the target, though a piece of string will do. Within reason, the larger the table the better the game, and a round table is marginally better than a square one.

Fig 3.5 The pile of squails after glasspapering.

Fig 3.6 Painting the centres of the squails with acrylic paint direct from the tube. The yellow and red pieces are drying, the green and blue wait their turn. Note the brush must be kept in water when not in use. Also seen are the pliers for easy removal of tube caps, and the cloth for drying the brush between colours.

Fig 3.7 All the squails have been painted.

THE RULES

The early Victorian game of squails was a successful marriage of bowls and shove-halfpenny. Each player has four wooden discs of the same colour, and a small heavy target is placed in the centre of the table. The players in turn place a squail projecting over the edge of the table and strike it with the flat of the hand towards the target. The object is to leave it as near to the target as possible, or to knock an opposing piece out of a good position. With four playing, when all 16 pieces have been propelled, the one furthest away from the target scores 1 point, and the nearest 16. The player with the highest score wins the round, or, if two are playing as partners, the team with most points. The winning number of rounds is decided before starting, often the best of five rounds.

If any piece falls off the table the player responsible has five points deducted from his score, be it his own piece or another player's. If the target is struck and moved more than 6in (152mm) it is returned to its original position; if it is moved less than that it remains in its new site.

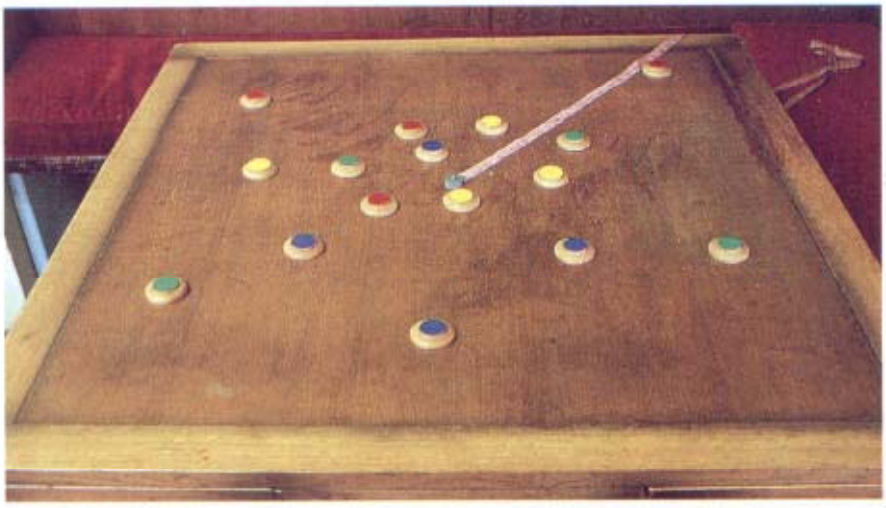
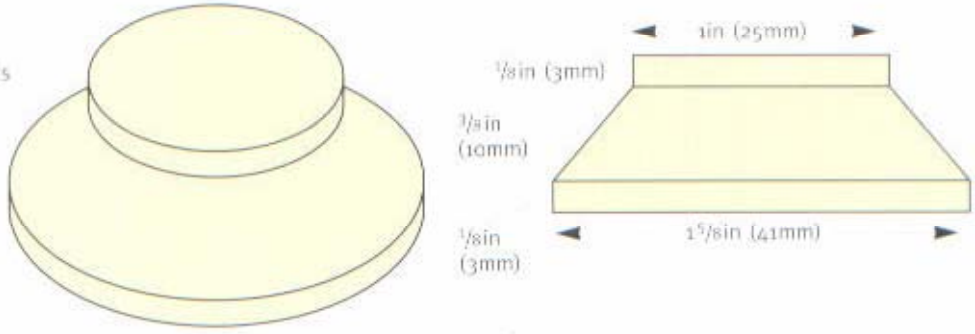


Fig 3.8 The end of a round. Use a tape measure to help in controversial decisions. The target is made of lead.

Fig 3.9 The shape and measurements of a squail.

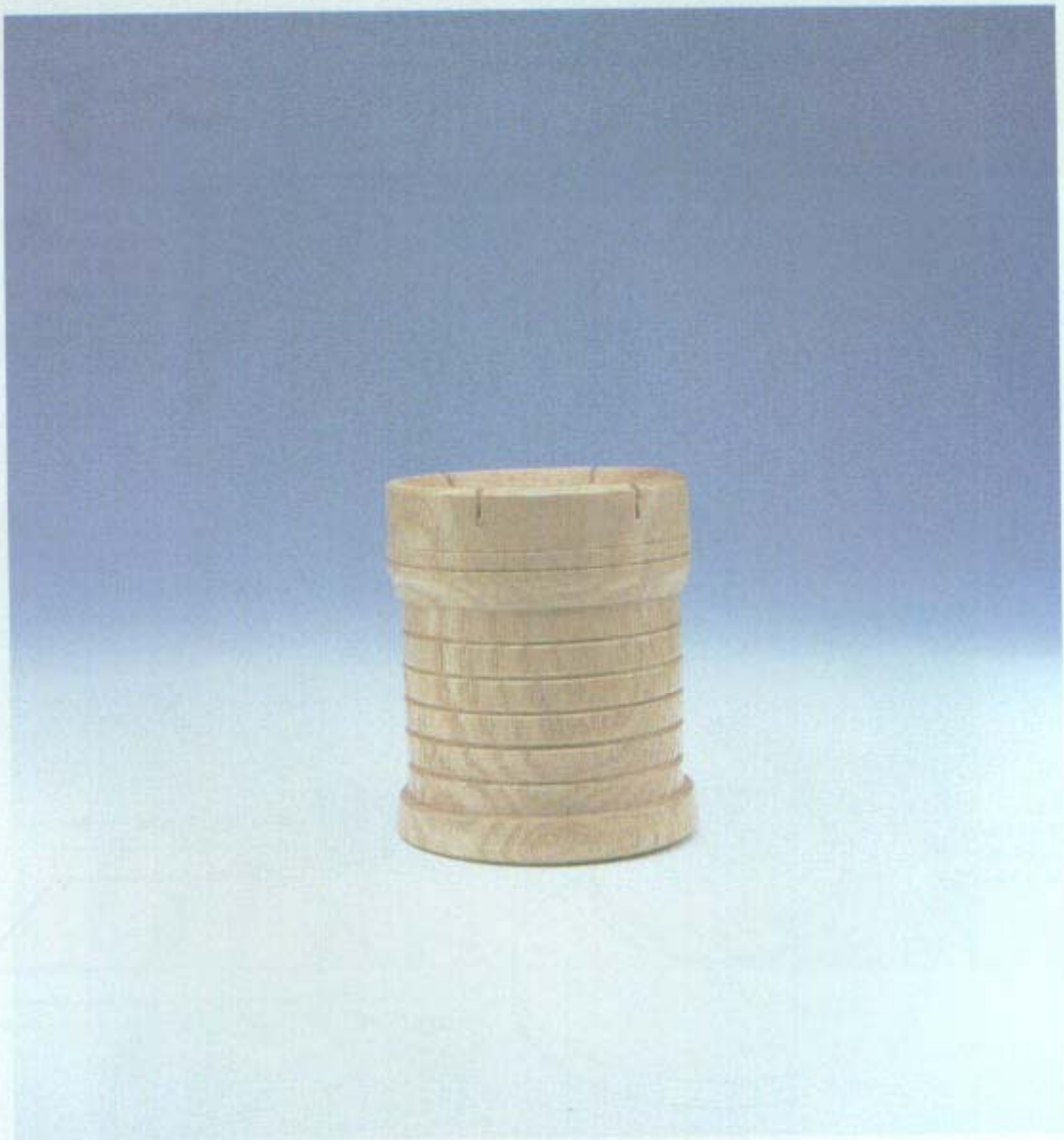


4

Dice Cup

Many games use dice, but plastic and cardboard cups are usually most unattractive. Why not make your own?

I used an eighteenth-century dice cup shaped like a castle tower as a pattern when making a cup for a friend.



Construction

Several years ago a barren pear tree was cut down in my garden and the wood stored; the piece shown in Fig 4.1 I had rough turned and put away. Note the upside-down inscription in pencil, 'Pear, rough turned 8. 2. 81'; labelling turning blanks is always advisable, as memory can play strange tricks over even short periods.

I trued the ends of the blank with a parting tool, and completed with a bandsaw. I then fastened one end securely to a faceplate with four screws. Some shrinkage had occurred during the years of storage and the cylinder was not quite round, so I corrected this and then shaped and polished the outside of the 'Tower', using a ½in (13mm) skew chisel. The hollowing out I started with a ¾in (19mm) Forstner bit driven into the centre of the top of the cylinder, the hole being made in stages. Always withdraw the bit after each advance of about ¾in (19mm) to clear the shavings and to allow the bit to cool. If the full depth is attempted in one cutting

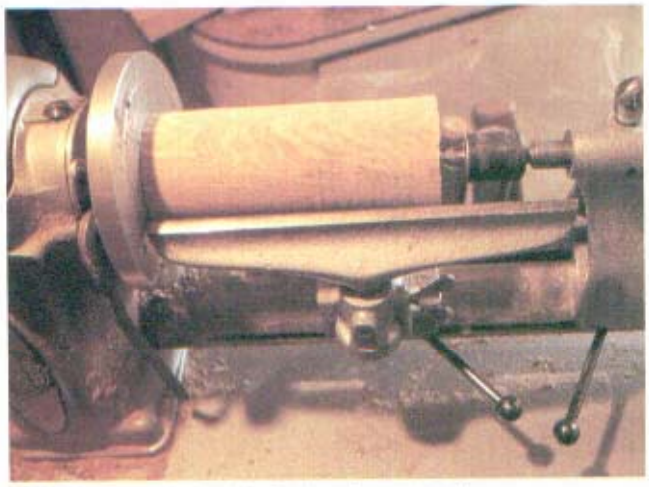


Fig 4.1 The rough-turned cylinder of pear wood.

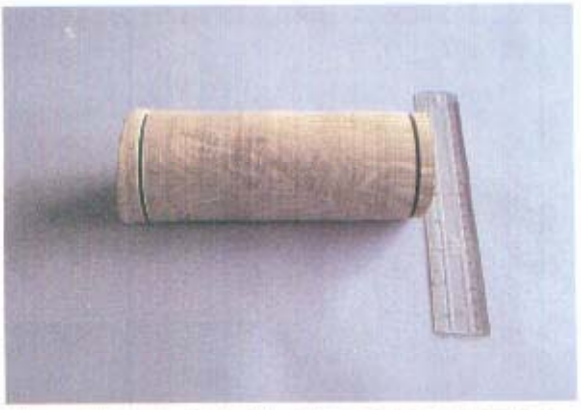


Fig 4.2 The ends of the blank being squared up with a parting tool, and completed with a bandsaw.

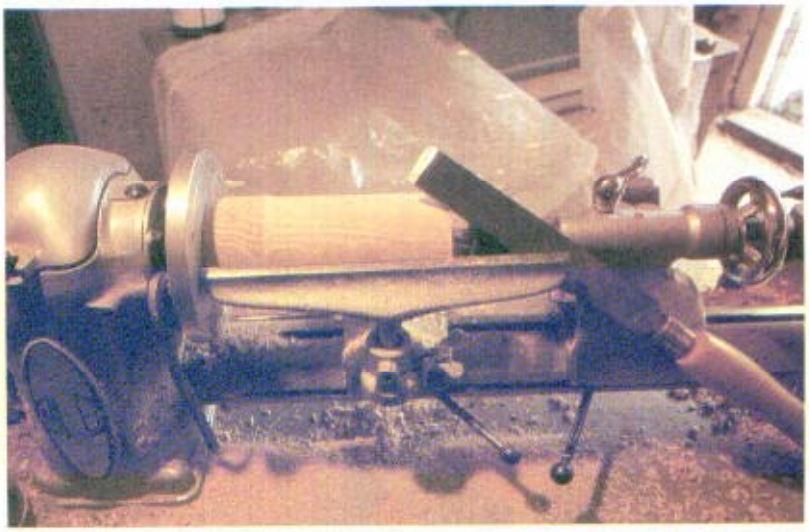


Fig 4.3 Here, one end of the blank has been fastened to a faceplate with four screws, and the required diameter obtained with a straight chisel.

the wood may burn and discolour, and the bit also damaged by overheating. If the bit is working properly a long continuous snake-like shaving forms (see Fig 4.4).

The hollowing out was completed using two scrapers, a curved one for the bottom and an angled one for the sides.

The finished 'Tower' seemed too tall, so I removed the lower one-quarter with the bandsaw. I also made three bandsaw cuts in the upper edge of the cup to create six arrow-slits in the battlement. I completed the cup with two coats of clear varnish, which enhanced the wild grain of the pear wood and also simulated sandstone stained after long exposure to wind and rain.

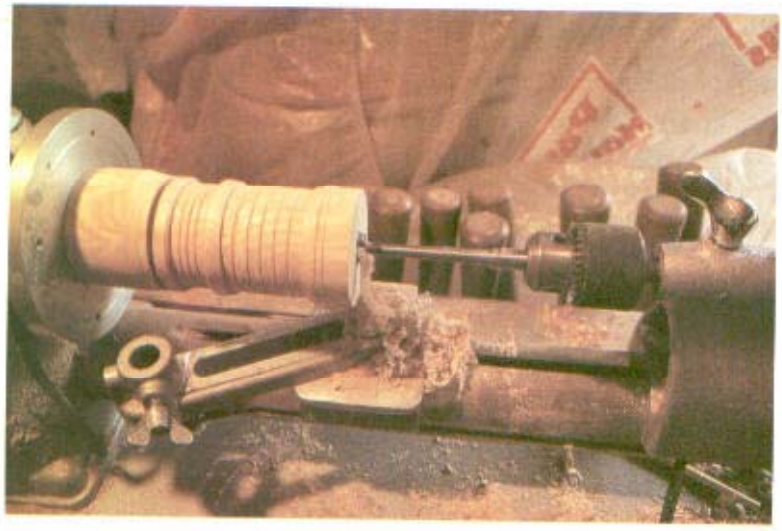


Fig 4.4 The outside of the 'Tower' was shaped with a ½in (13mm) skew chisel. The centre of the cup is here being drilled with a ¾in (19mm) Forstner bit.

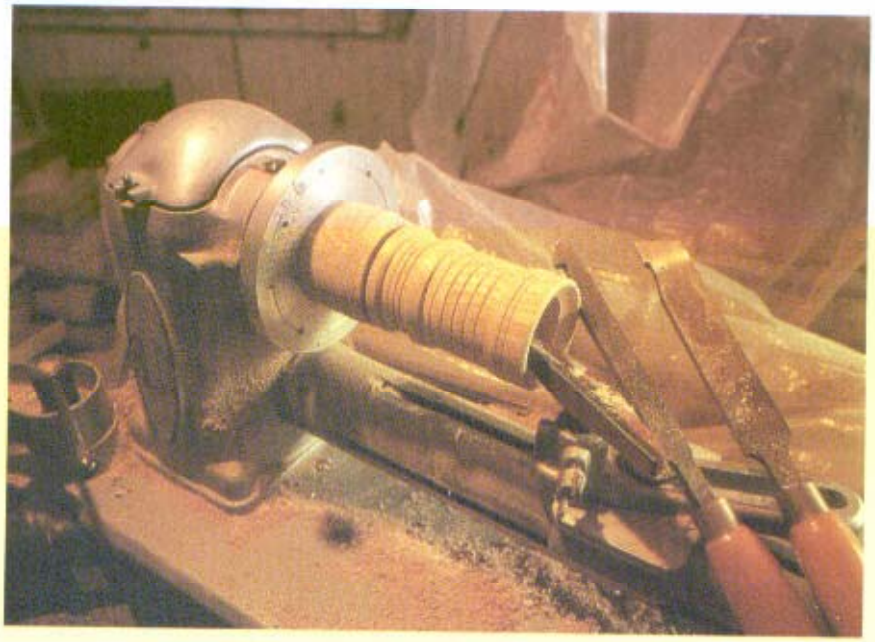


Fig 4.5 Hollowing out the cup was completed with two scrapers, the curved one for the bottom and the angled one for the sides.

5

Cup and Ball

Cup and ball is one of several games depending upon co-ordination between eyes and muscles. Fig 5.1 (overleaf) shows a selection of these games in my collection from several parts of the world.

1 The carving of morse ivory represents a polar bear, used in the Inuit (Eskimo) game of Ajegaung, popular with them in winter for gambling. The piece of ivory is thrown up and caught ten times on the stick in any of the holes. Then, beginning with the hole in front (the mouth), those in the mid-line must be caught. Three holes in the neck are double, one crossing vertically, the other backwards, but both ending in a hole in the neck. After the mouth has been pierced, the vertical hole in the neck is next, then the oblique one, and continuing down the mid-line of the animal's body. If in the first part of the game the player misses twice, he must give up the target and spear to his opponent who starts his turn.

In the second part of the game the player is allowed to play on as long as he catches in any hole, even if not the right one, but when he misses he must give up.

After having caught one hole he proceeds to the next. The first player to pierce all the holes wins the game and the wager.

The bar and spear in the illustration are replicas that I made many years ago of an exhibit in the United States National Museum.

2 An Inuit spear and target game that I bought in the shop of the Museum of Anthropology, University of British Columbia. The 'string' is a piece of catgut, probably from seal.

3 Ayoca. This toss and catch game from Coppermine, North West Territories, Canada, is an Inuit game, and was bought in one of the Provincial pavilions at Expo '86 in Vancouver. The target is probably a piece of humerus from a polar bear, the spear is seal bone, and the string is catgut.

4 The cup and stem of this cup and ball game has been made from a Lancashire cotton mill spindle, and was bought in a Cumbrian market-place a few years ago.

5 A cup and ball made in Japan and bought in 1991 in a craft shop in Steveston at the mouth of the Fraser River in British Columbia.

6 A more elaborate cup and ball, also from Japan, and bought in the same shop the following year; it is the subject of this project. With four alternative targets for the ball, the game is approaching the complexity of Ajegaung. Could they have a common origin?

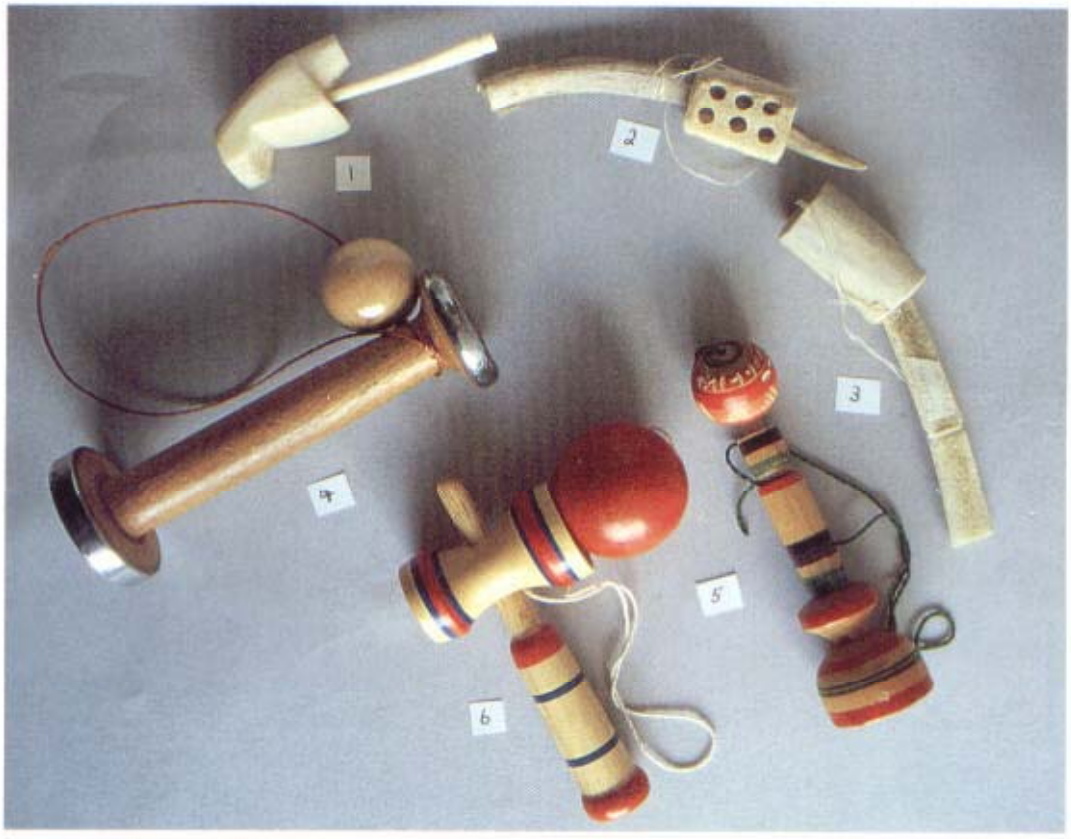


Fig 5.1 Various games of the cup and ball type.

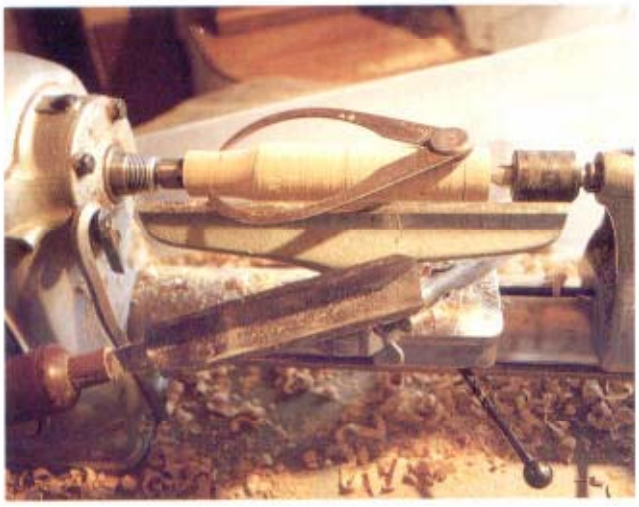


Fig 5.2 Beginning to turn the holly into the central shaft. The calipers are for checking the diameter, and a roughing-out gouge is in the foreground. Note the traces of woodworm.

Fig 5.3 Shaping the handle of the shaft with the narrow skew chisel shown on the left. A roughing-out gouge is on the right.

Fig 5.4 The spear is slightly tapered, having an average diameter ½in (13mm).

Fig 5.5 The shaft was reversed and mounted on a screw chuck, and the cup at the handle end started with a ⅜in (10mm) twist drill.

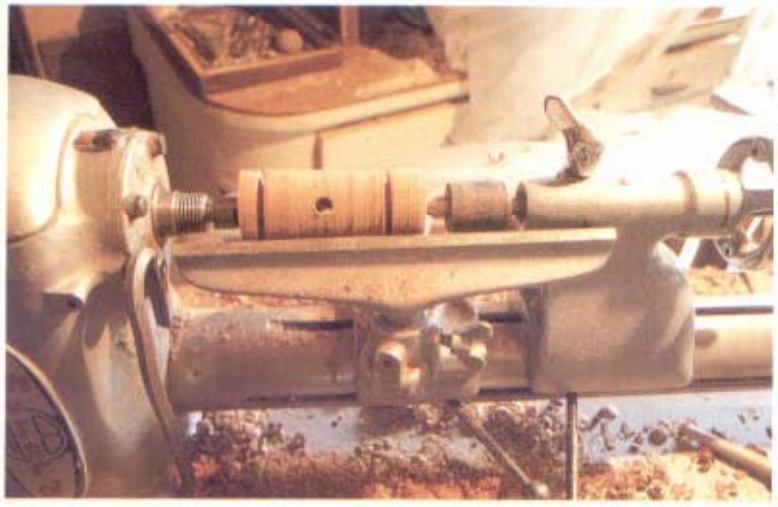


Fig 5.6 The hole was drilled through the crosspiece before turning began. The piece was rough turned to 1¾in (44mm) diameter and the length defined with a parting tool.

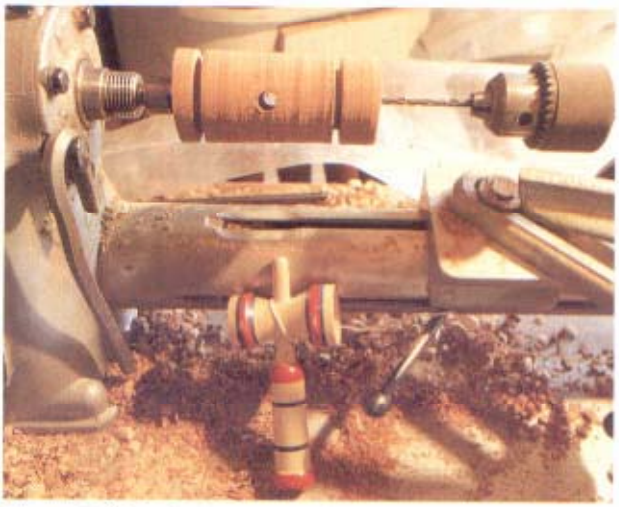
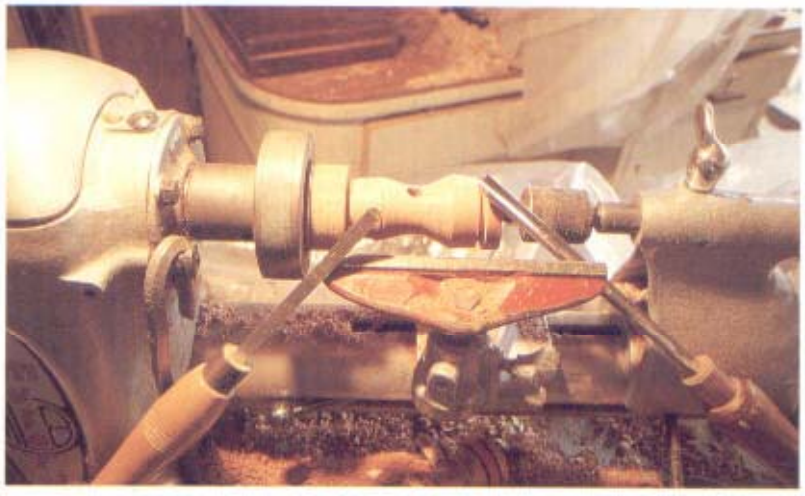


Fig 5.7 Drilling a hole to accept the screw of a screw chuck. Note that the drill depth to be used is marked with sticky tape. The Japanese model is in the foreground.

Fig 5.8 Screw chuck mounted and external shaping of the crosspiece complete. The ½in (13mm) gouge and narrow curved scraper used are shown.



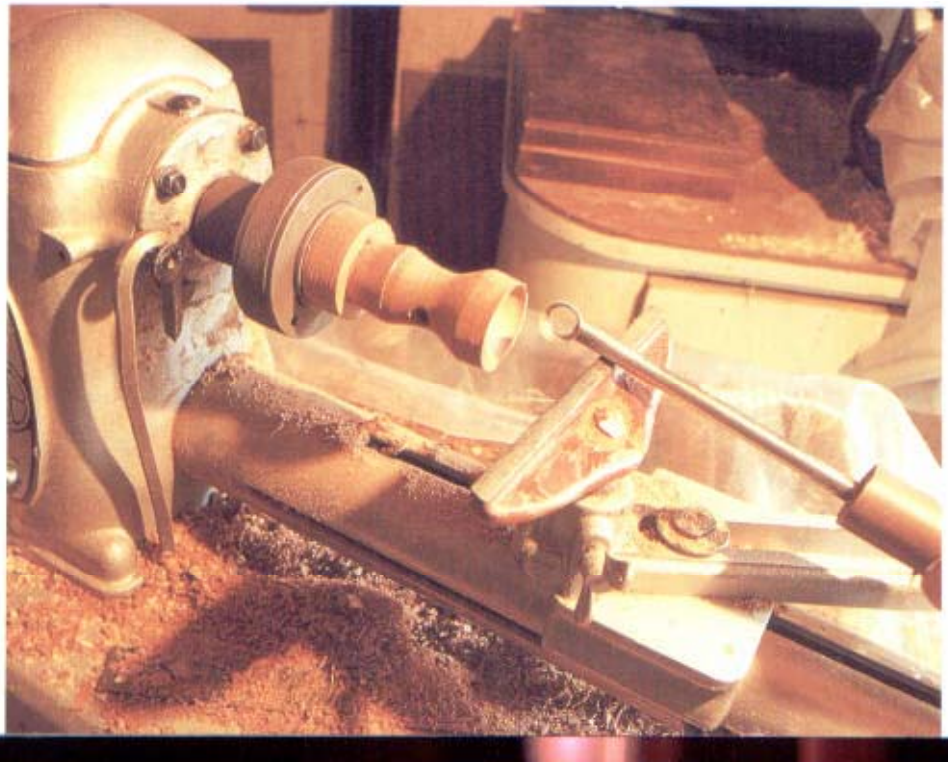


Fig 5.9 Hollowing out the cup in the larger arm with the ring tool shown on the right.

Fig 5.10 A cup chuck was made from waste wood to hold the wider end of the crosspiece in order to hollow out the narrower end. A waste piece of wood was attached to a faceplate with screws and a reception hole cut in the waste wood.

Fig 5.11 The crosspiece firmly wedged in the cup chuck, and ready for a ring tool to hollow out the smaller cup.

Fig 5.12 Drilling the 'mouth' in the future ball.

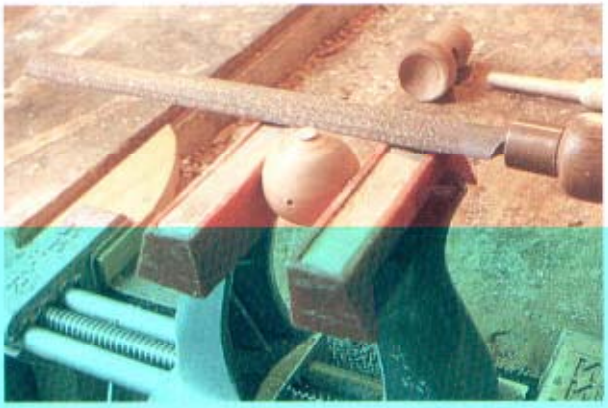


Fig 5.13 After enlarging the mouth in the ball and turning it, the waste was rasped off. Note the small hole in the ball opposite the 'mouth' for the string. The crosspiece and the spear are seen in the background.

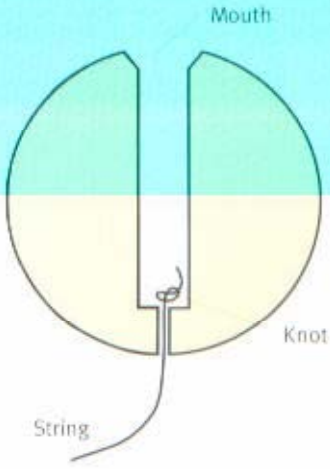


Fig 5.14 Cross-section of the ball, showing the mouth, the spear hole, and the hole for attaching the string.

The Rules

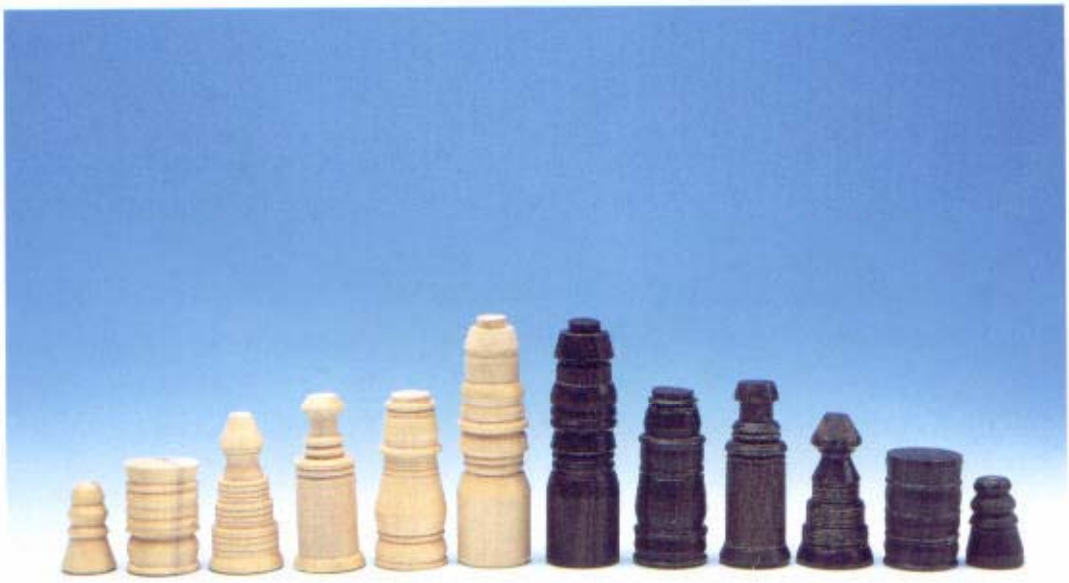
Rules of play were not provided, but probably the player starts with the largest and easiest cup, and finishes with 'spearing' the ball; or, if any cup can be used for catching, the largest would count 1 point, the second 2 points, the smallest 3 points, with spearing 5 points. On failing to catch the ball the turn passes to the opponent. The first to reach an agreed total is the winner.

6

Muslim Chess Set

Having wanted a Muslim chess set for many years, and failing to buy one during three visits to Turkey, three to Egypt, one to Morocco, and one to Tunisia, I decided to make my own. While about it, I felt it might as well be something special. The idea came to make a replica of the earliest Muslim set known, discovered by A.F. Bellasis during excavations in 1856 at the ruined city of Bambra-ka-thul, 47 miles north-east of Hyderabad, India. This was originally the Muslim town of Mansura which flourished in the thirteenth century AD, having been severely damaged by an earthquake in the eleventh century, a little before the time of the chess master Al-Beruni.

The chessmen date from the early eleventh century and are now in the British Museum. They were made of ivory, one side white and the other stained black, but



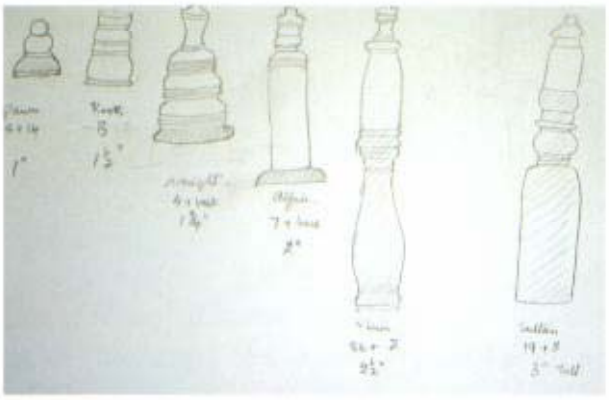


Fig 6.1 A sketch of my proposed shapes for the pieces from the outlines in Murray's *History of Chess*.

the pieces are very decayed and resemble chalk. There are 37 fragments, many ending in either pegs or holes, suggesting that they were turned in sections and assembled together. H.J.R. Murray, in his monumental *History of Chess* (1913), shows 20 of these fragments on which the present replicas are based. I made a rough sketch and joined some of the outlines together to create reasonable shapes.

The rules of Muslim chess differ from those of the familiar International form, but are too long to detail here. Those interested will find a description in my *Board and Table Games from Many Civilizations*, pages 58–60, further details of which appear in the Further Reading section on page 136.

Construction

I chose ebony for the black pieces, and boxwood for the white. The squared boxwood proved to be of poor quality, and I used the larger round chunk after cutting it lengthwise with a bandsaw along the line of the split, and then cutting

Fig 6.2 Pieces of ebony and boxwood; the squared pieces of the latter in the foreground were of poor quality and discarded.

Fig 6.3 A block of boxwood and scrap wood guide of the correct size to avoid wasting expensive wood in marking out the saw cuts.

again into suitable widths to be turned into cylinders of the required diameters. It is easier to judge this by using a prepared cylinder of waste wood as a guide: mistakes in costly ebony and boxwood come expensive!

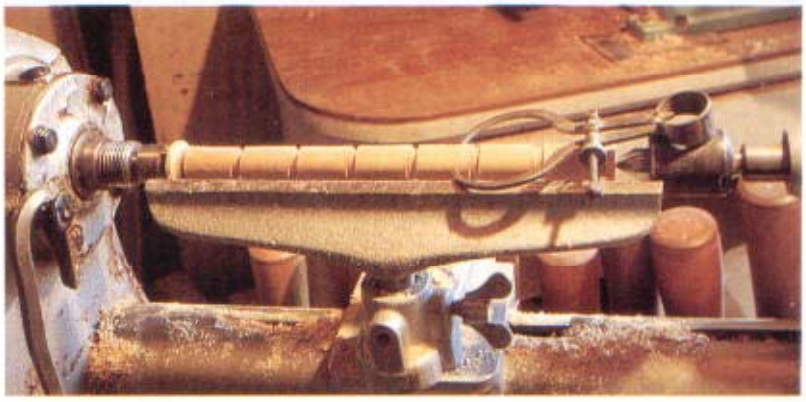
The two centres at the ends of the billets were marked with an awl and soft hammer, and I made two saw cuts at right angles through the mark at the head end. The awl hole was then deepened with a 1/8in (3mm) drill to accept the four-pronged chuck into the saw grooves without the risk of splitting the wood.

When the cylinders had been turned to the correct diameters, I marked off the separate lengths of the chessmen with the parting tool. Several pawns were turned from their cylinders before being separated with the bandsaw. The bottoms of the pieces were polished with a sanding disc in an electric drill held horizontally in a

Fig 6.4 The chuck driven into prepared cuts in the boxwood blank.

Fig 6.5 Tools used for shaping the pieces. From back to front: 3/16in (5mm) small round-section gouge, 5/16in (8mm) skew chisel, 5/16in (8mm) round-nosed scraper, 1/8in (3mm) Peter Child parting tool, calipers, and a penny piece to show the scale.

Fig 6.6 The cylinder for the pawns was checked for maximum diameter with calipers.



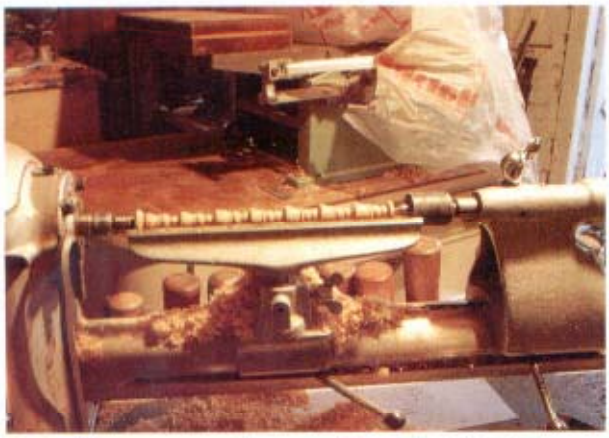
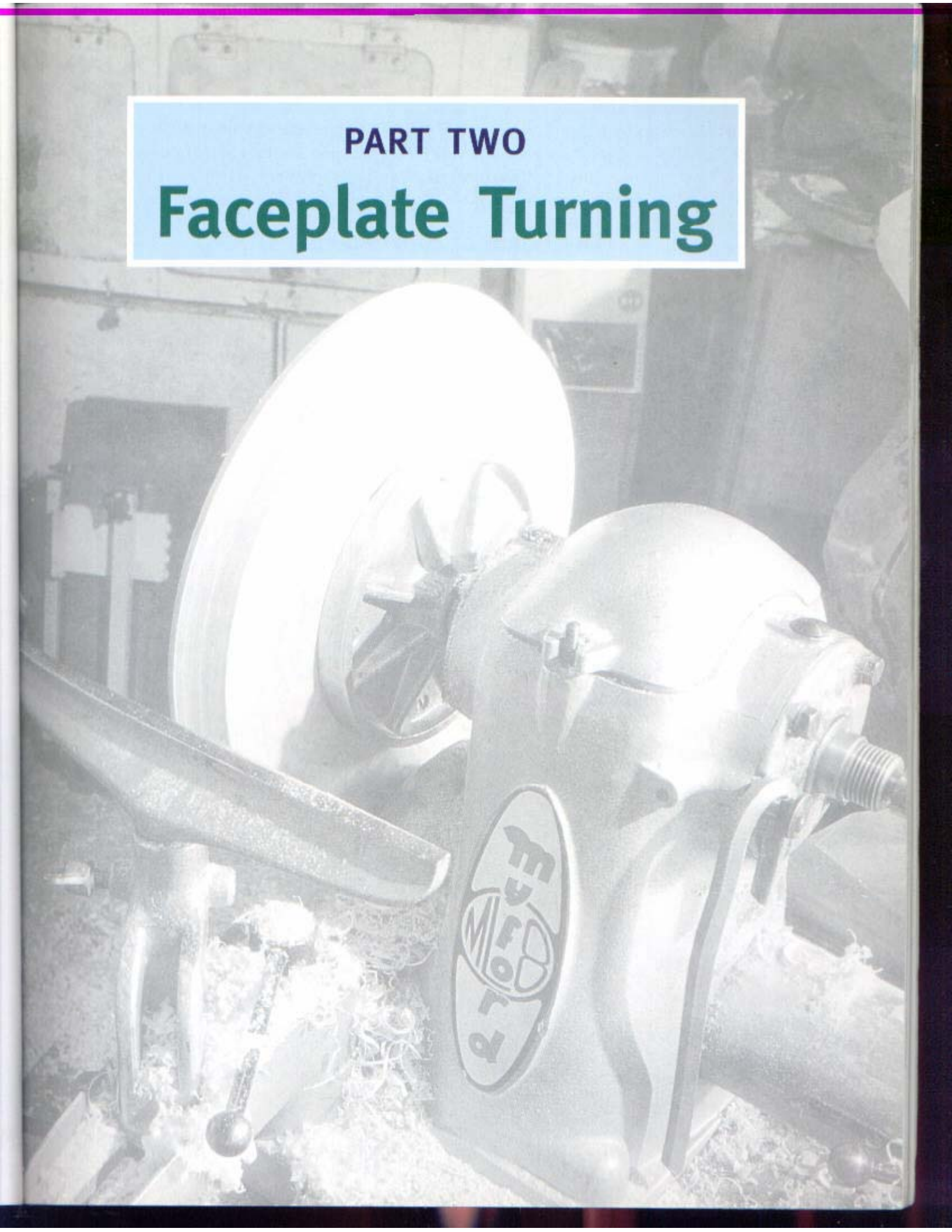


Fig 6.7 The pawns ready for separation with a bandsaw.

Zyliss vice. I rounded off the flat heads of the pawns from the bandsaw with a penknife and a sheet of glasspaper.

Lacking the skill of a professional turner, my pawns all vary slightly, but this does not matter – after all, the originals are not identical either. The completed set is shown on a Syrian marquetry board bought for me several years ago by my son in Saudi Arabia – a Muslim board for Muslim pieces.

Fig 6.8 The pieces arranged on a Syrian marquetry chessboard bought in Saudi Arabia, ready for the start of a game.



PART TWO
Faceplate Turning

7

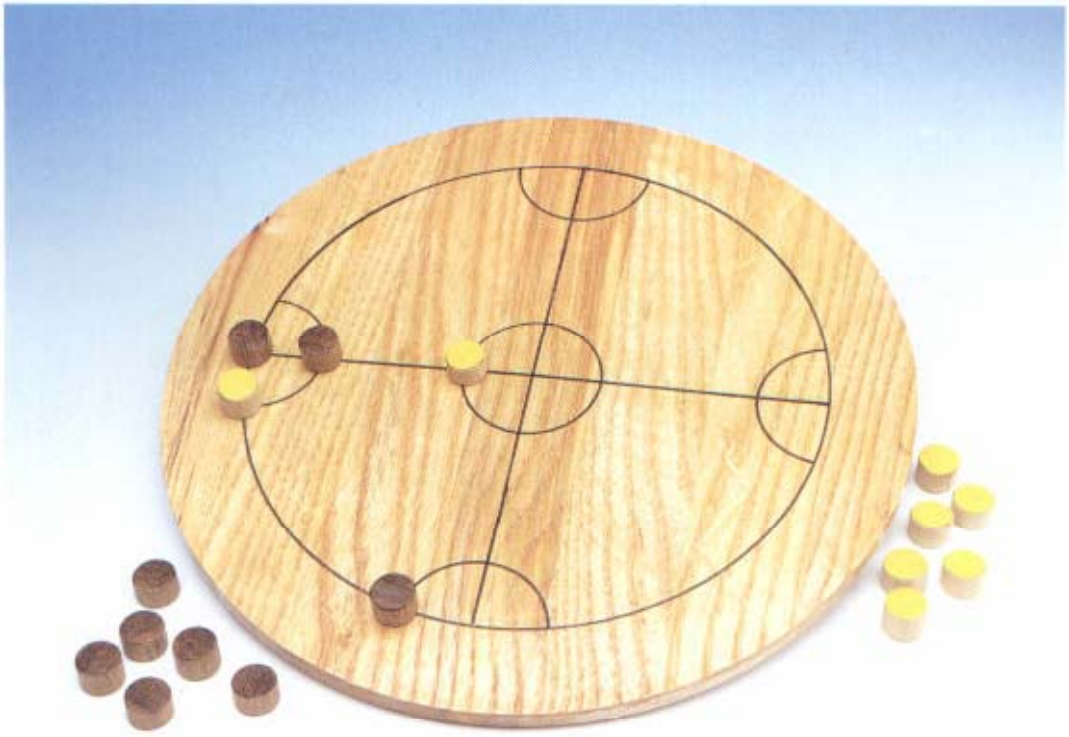
Sz' Kwa

(The Game of Four Directions)

I have a decorated plate by Kee Fung Ng showing two children playing this game in the dust of a country road, and using stones as pieces. The children are from Heng-Chuan, an old village in South Taiwan, mostly populated some 200 years ago by emigrants from Fukien and Canton in South China. The game is traditional and is passed on from one generation of youngsters to the next.

Games enthusiasts will notice similarities between Sz' Kwa and the more complex Wei Ch'i (Go). They may have had a common origin, now lost.

This can be a game of rapidly changing fortune, when a large formation of pieces may suddenly be faced with capture on being cut off from contact with any vacant intersection. During a game with a neighbour a repetitive position arose (see Fig



7.13 on page 41). If Black places a piece on 3, the white piece on 17 is captured; but if White replies by placing on 17, the black piece on 3 would be captured. This process could continue until one player had no pieces left.

Alternatively, the rules applying to a *ko* or repeating position in Go (Wei Ch'i) may be used. After Black moving on to 3 captures the white piece on 17, White cannot play back on to 17 until he has made one play elsewhere. The Chinese description of the Game of Four Directions that I have makes no mention of this repeating position, but the *ko* solution seems satisfactory.

Fig 7.1 Cutting out a board made up of glued strips of American ash.

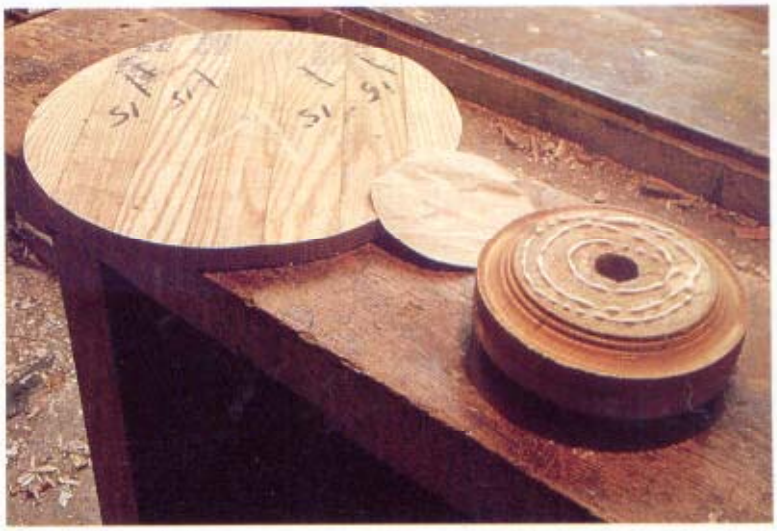


Fig 7.2 Gluing the board to scrap wood on a faceplate, with paper intervening.

Fig 7.3 A hole cut in the paper to see the centre of the board, and glue on the board ready for spreading evenly in the area to be fastened to the paper.

Fig 7.4 Gluing the board to scrap wood with paper intervening. Note the old iron being used as a weight to give adhesion under light pressure.

Fig 7.5 The board mounted on the lathe ready for trueing the face with a large square scraper, and shaping the edge.

Fig 7.6 The upper surface smoothed, and the edge smoothed and chamfered.

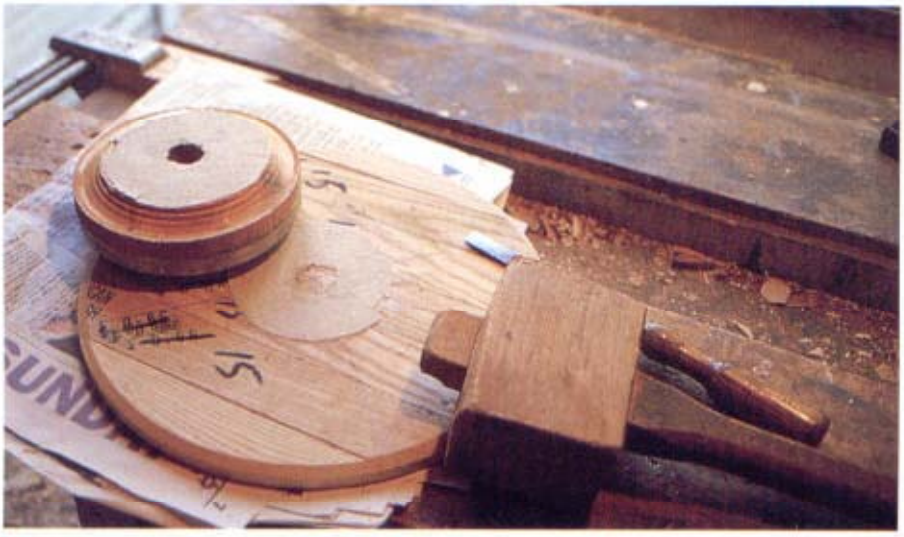


Fig 7.7 The board separated from the waste wood with a chisel and mallet. Only light taps are needed to tear the paper.

Fig 7.8 Using a felt-tipped pen, a tracing was made round a plate for the large circle, the diameters being drawn with a steel rule and protractor, and the small circle and arcs with the bottom of a small can.

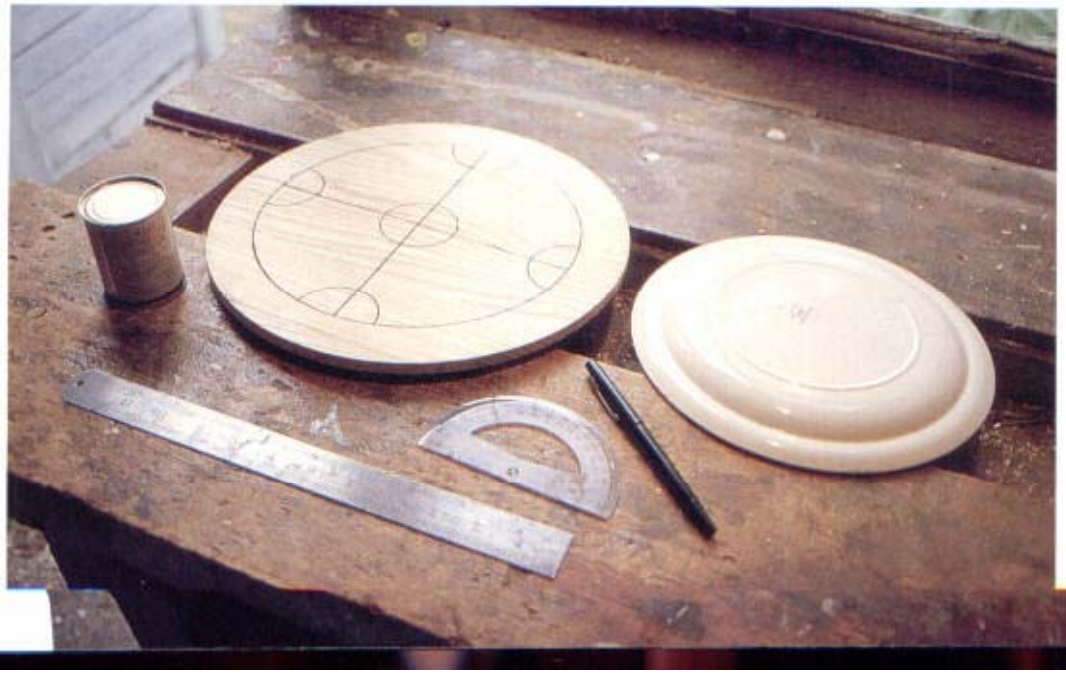


Fig 7.9 The teak cut with a bandsaw and ready for turning between centres.

Fig 7.10 The teak converted into a cylinder ½in (13mm) diameter. The cylinder divided into ½in (13mm) sections with a pencil, and then the tops of the pieces chamfered with a small skew chisel. Two pencil divisions are still present on the extreme right.

Fig 7.11 Separating the pieces with a gent's saw.

Fig 7.12 Glasspapering the tops and bottoms of the pieces.

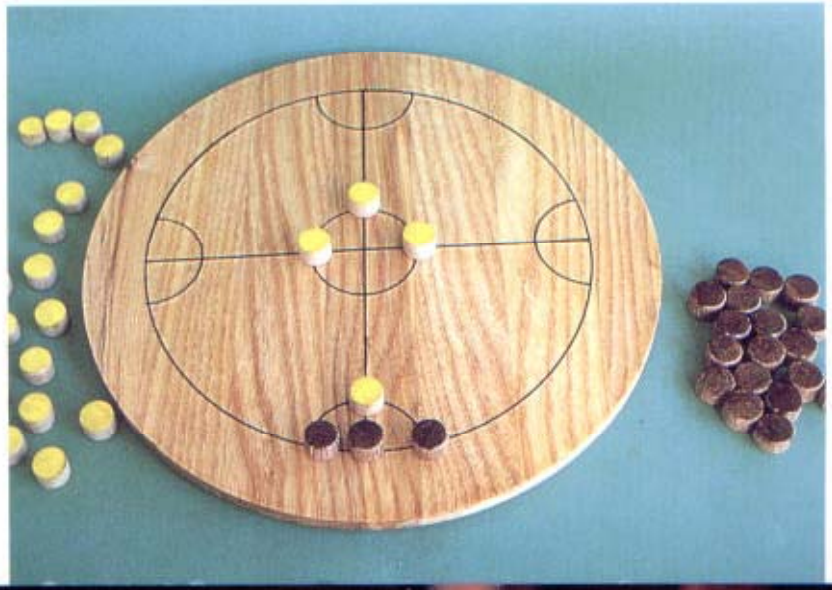


Fig 7.13 The repeating or *ko* position. Note that the tops of the holly pieces have been painted yellow with acrylic paint and varnished, and the tops of the teak pieces varnished.

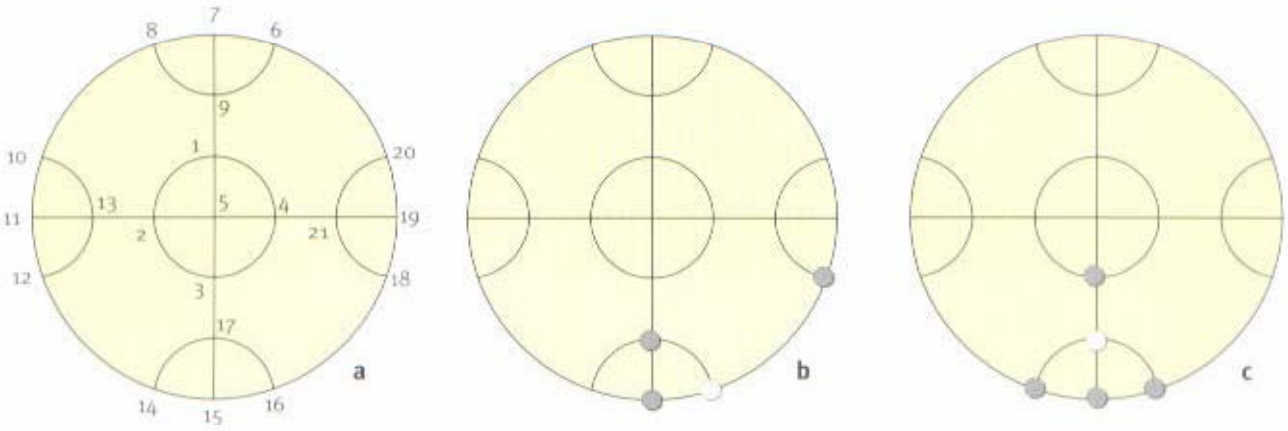


Fig 7.14 The sections of the board (a), and basic capture moves (b, c).

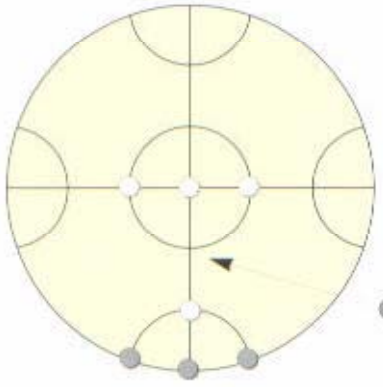


Fig 7.15 A repetitive position.

● To capture white on 17. The black piece can then itself be captured by *white* placing a piece on 17.

THE RULES

1 Each player in this game for two starts with 20 counters of contrasting colours. At the start the board is empty.
2 Each player in turn places a counter on any of the intersections on the board, numbered 1 to 21 in Fig 7.14a.
3 The players try to capture as many of the opponent's pieces as they can, by cutting off opposing pieces from contact with an empty intersection (see Fig 7.14b, c). Captured pieces are removed from the board.
4 Pieces do not move once they are on the board.
5 The game ends when a player has no counters left to place on the board, or when there is no intersection free on which a piece is not immediately captured. The player holding most captives at the end of the game is the winner.

I am indebted to Miss E-Chu, a student in the Department of Oriental Studies, University of Durham, for her translation of a Chinese text giving the rules of the game.

8

Modern Seega

This game is played by younger Egyptians in the market-place of Luxor in Upper Egypt. Their parents play the classical game with five rows of five holes, but the youngsters use a board with three rows of three holes. Each player has three pieces of distinctive colour or shape. The board is often merely nine depressions in the sand, and the pieces differently coloured pebbles or pieces of broken pot.

Construction

The board was made from a plank of sycamore, 9 x 1 x 24in (229 x 25 x 610mm). After marking out a square with 9in (229mm) sides I drew the diagonals, and then a circle with 4½in (114mm) diagonals inside it, using a pair of compasses. This was followed by marking out points on the diagonals 3½in (89mm) from the centre,

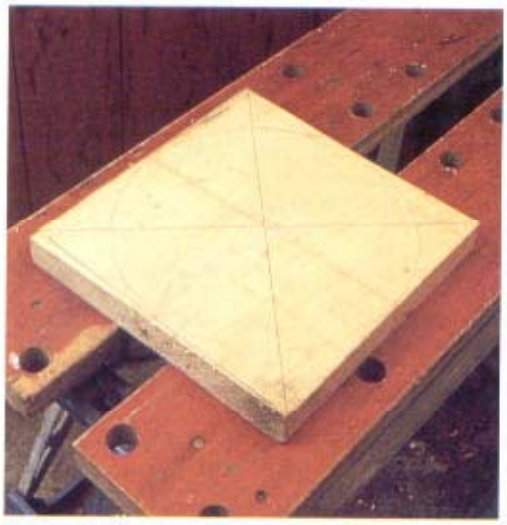


Fig 8.1 9in (229mm) of wood was cut from one end of the plank, and the sides were trued with a set square, the diagonals marked, and a circle just under 4½in (114mm) diameter drawn.

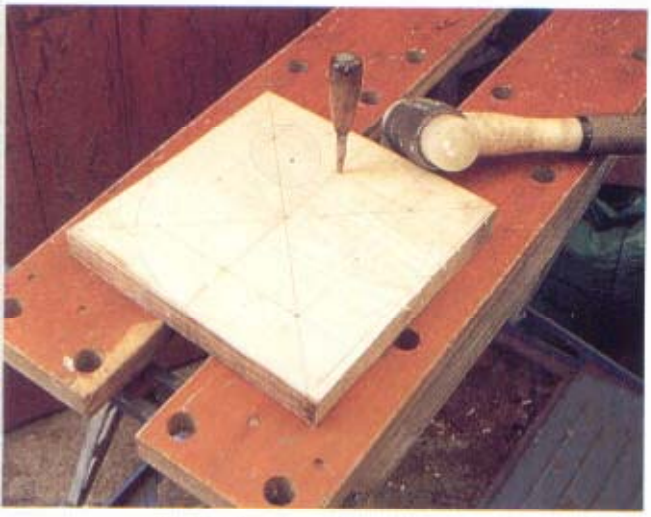


Fig 8.2 The nine intersections were then marked with an awl.

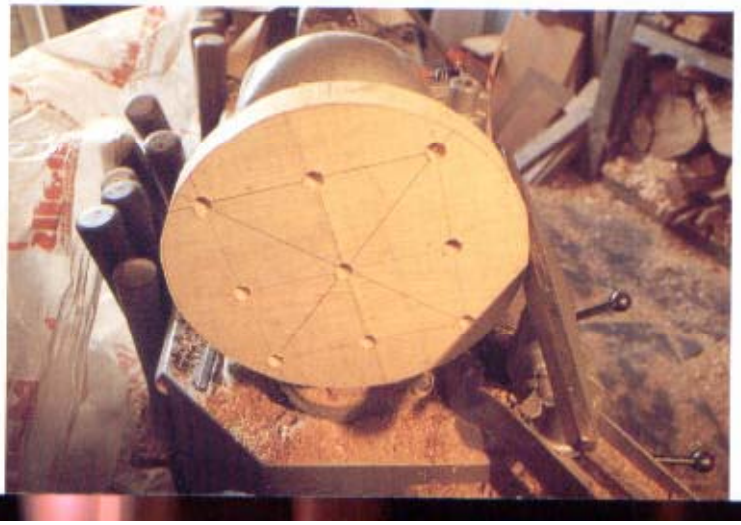
joining these together to form a square, and then punching small holes with an awl at the intersections of the square with the diagonals and cardinal lines, making nine holes in all. I enlarged these with a drill to ⅜in (10mm) diameter and ¾in (19mm) deep.

I removed unwanted wood outside the circle with a bandsaw, and then fastened the undersurface of the future board to a faceplate with four screws, and shaped the periphery of the board on the lathe. After removing the faceplate, I filled the screw holes with plastic wood and covered the undersurface with green baize.

The pieces, each with a little spigot to fit into the holes on the board, I made from holly and mahogany, and shaped them as 'lighthouses' and 'cotton reels' in the tradition of Egyptian shapes extending back at least to the time of the New Kingdom, 1570–1070 BC or even earlier.

Fig 8.3 Holes ⅜in (10mm) in diameter were bored ¾in (19mm) deep, centred on the awl marks. I then cut just outside the circle with a bandsaw.

Fig 8.4 The future board mounted on a faceplate to shape the edge.



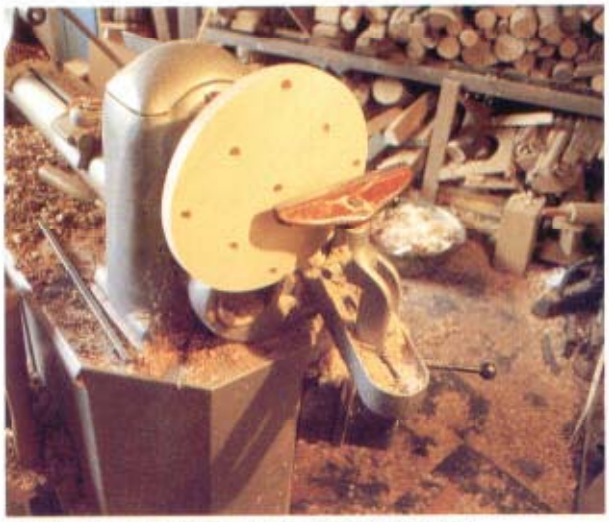


Fig 8.5 The edge finished and the face flattened.

Fig 8.6 Tools used for the edge: left, long, strong narrow gouge; centre, wide square scraper; right, curved scraper.

Fig 8.7 The screw holes on the reverse side were plugged with plastic wood, ready for applying the green baize. On either side of the board you can see the sawdust and glue used to make the plastic wood.

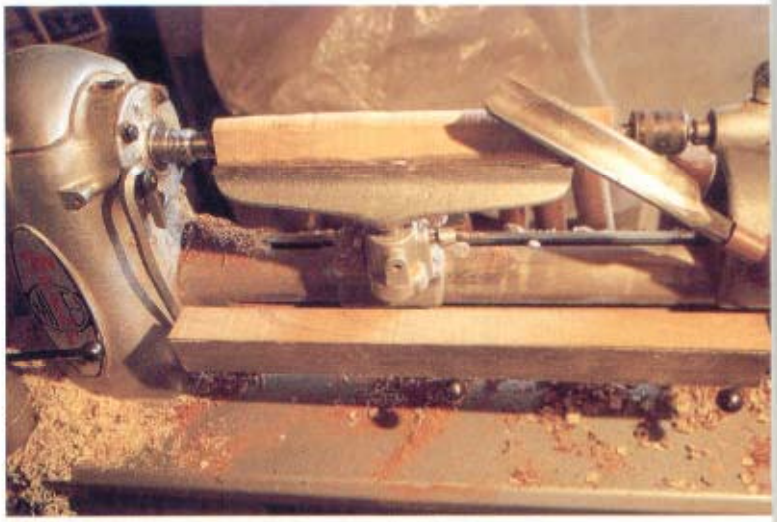


Fig 8.8 A piece of holly was then mounted between the centres, with a piece of mahogany below. A roughing gouge was then used to reduce them to cylinders.

Fig 8.9 Turning the holly 'lighthouse' pieces. Note the spigots. A fluted parting tool is on the left.

Fig 8.10 Separating the pieces with a Japanese-style cutter saw, which cuts on the pull, not the push.

Fig 8.11 Turning the 'cotton reel' pieces.

THE RULES

The game starts with each player's pieces in the three holes on their side of the board. The players move alternately, dark first, and pieces can move one or two holes in any direction. They are not allowed to change direction during a turn, nor to jump over another piece of either colour. The winner is the first player to arrange his pieces in a straight line, orthogonally or diagonally, except along their starting position, his own back line.

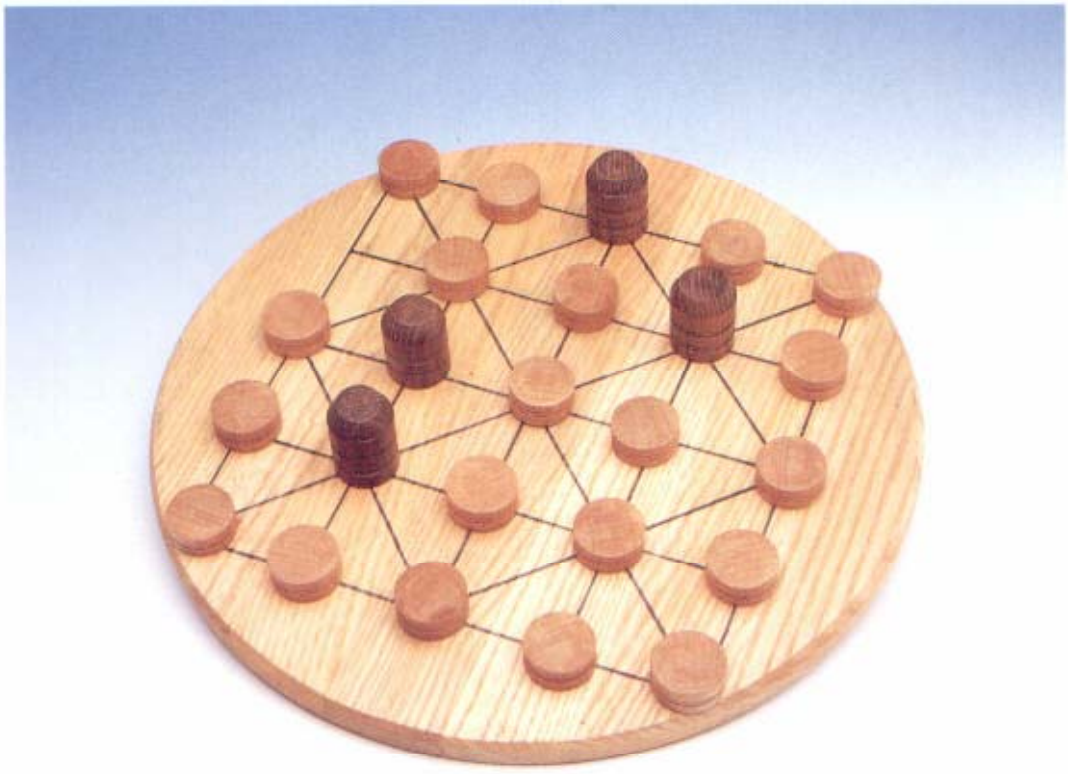
9

Bagha Chal
(Leaping Tigers)

This game is regarded in Nepal as the national game, and Fig 9.1 shows a modern Nepalese brass board and pieces of traditional form, with 4 tigers and 20 goats. The set was bought for me by my son-in-law during a recent visit to the country.

Construction

Professional woodworkers usually use new wood, carefully chosen for a particular purpose. The amateur often 'makes do' with what is at hand. A search through a timber merchant's bargain box revealed offcuts of American ash some 12in (305mm) long, 2in (51mm) wide, and ¾in (19mm) thick. I selected seven matching



pieces and glued them together in a cramping frame using three sash cramps. The direction of the grain was indicated on each piece in chalk to help in gluing them together correctly. After gluing I marked the board, cut it roughly to shape, and finished it on the lathe in a similar manner to the Sz' Kwa board (see Chapter 7).

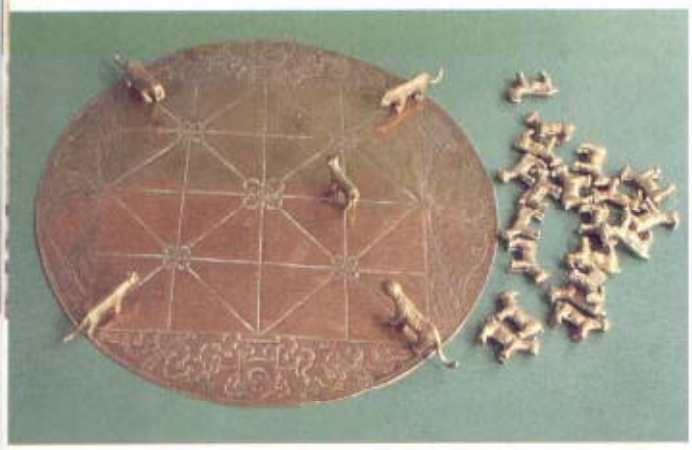


Fig 9.1 A modern Bagha Chal board and pieces in brass from Nepal.

Fig 9.2 Seven strips of ash were glued and cramped to make the board. The excess glue was removed with a damp cloth before it set. The diameter of the board was 12in (305mm), the sides of the square within it 8in (203mm), and the little squares 2in (51mm).

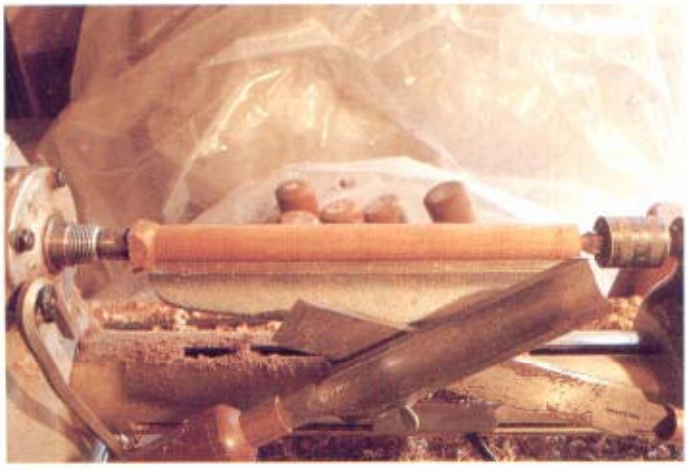


Fig 9.3 The wood was reduced to a cylinder 1in (25mm) in diameter. Six pieces were marked off (two surplus), and 1/8in (3mm) rings marked for the parting tool cuts. The roughing gouge and skew chisel used are shown. The height of the tigers was 1 1/4in (32mm), and the height of the goats 1/2in (13mm).

Fig 9.4 Starting to separate the pieces with the fluted parting tool shown in the photograph.

Fig 9.5 Starting to shape the tigers.

Fig 9.6 Separating the tigers with a gent's saw.

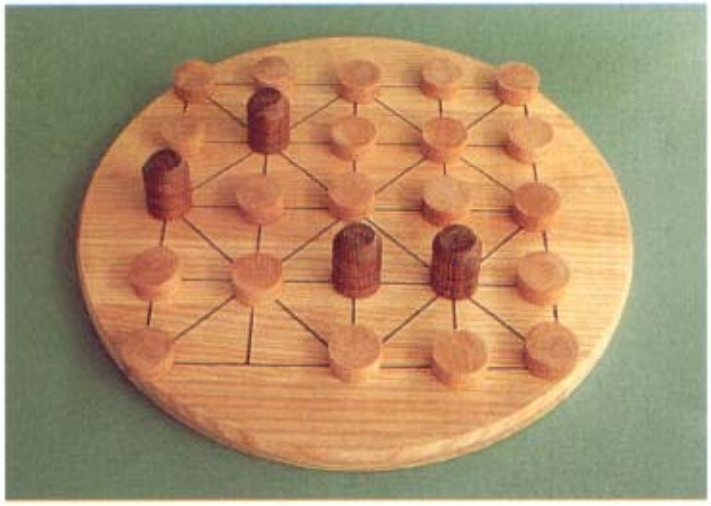


Fig 9.7 The board and pieces in play – victory for the goats who have trapped the tigers without loss to themselves. How is it done?

THE RULES

1 At the beginning of the game the four tigers are placed on the four corners of the board. All the goats remain off.
2 First move. The goat player places a goat on any empty point on the board.
3 Second move. The tiger player moves one of his tigers one point in any direction.
4 Another goat is then placed on any empty point, followed by a move by a tiger.
5 A tiger next to a goat with an empty point beyond can jump over it and remove it from the board. A tiger may capture two or more goats in a single turn of play by a series of short leaps, and may change direction in his jumps.
6 No goat is allowed to move on the board until all the goats have been entered. Then they can move one point in any direction, but they cannot jump or capture, and a goat can only move to a point and back again once; on the third turn of play some other goat must move, or the same goat move on to a different point (a rule lessening the chances of a stalemate).
7 The goats try to crowd the tigers and make it impossible for them to move. If they succeed the goat player wins.
8 If the tigers capture five goats the tiger player wins.

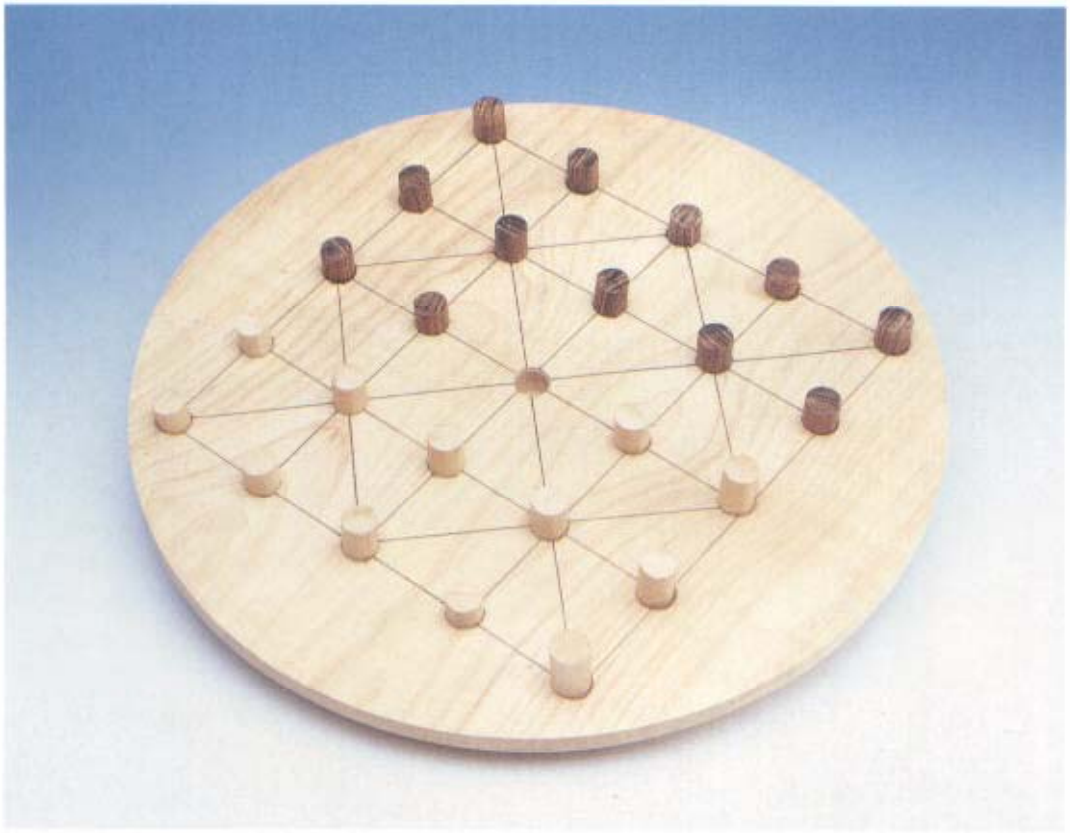
10

Alquerque

The oldest known Alquerque board was cut into a roofing slab at the Ancient Egyptian temple at Kurna, in about 1400 BC, and was unfinished, probably abandoned through a mistake in cutting a diagonal line.

An Arab work, the *Kitab-al-Aghani*, written more than two thousand years later, mentions a game called Quirkat. When the Moors invaded Spain in the early part of the eighth century they took El-quirkat with them, and under its Spanish name of Alquerque it is illustrated and described in Alfonso X's great work on games, *Libro de Juegos* (Book of Games), of AD 1282. Fig 10.1 shows a Quirkat board photographed recently by a friend on steps leading to a tomb in Ainat, Hadhramout, southern Yemen. Its age is unknown, but it is not recent. The Yemeni players' pieces were probably coloured pebbles, fragments of pottery, or even dried camel dung.

Games experts suggest that draughts is a hybrid creation using the moves of Alquerque, the pieces of backgammon, and the board of chess.



Construction

I cut out two pieces of figured sycamore 12½in (318mm) long and just over 6in (152mm) wide and glued them together, and cut out a circular disc 12¼in (311mm) in diameter with a bandsaw. The disc was mounted on a faceplate, the upper surface made smooth with a wide flat scraper, and then the underside of the edge hollowed out with a curved scraper. After removal from the lathe I drew an 8in (203mm) square on the upper surface in pencil, and divided it into 16 smaller squares. The diagonals, and a diamond formed by joining the mid-points of the sides of the large square, completed the pencil work.

The points of intersection of the lines were marked with an awl. The awl holes serve to centre a ½in (13mm) twist bit which was used to make the 25 holes at the intersections. Four cylinders of ½in (13mm) diameter were turned, two in holly and two in contrasting sepetier, and cut into 1in (25mm) lengths to form the pieces. I then waxed the board, varnished the pieces, and covered the underside of the board with green baize.

Fig 10.1 An ancient Quirkat board, Yemen. (I am indebted to Miss Jenny Geard for the photograph).

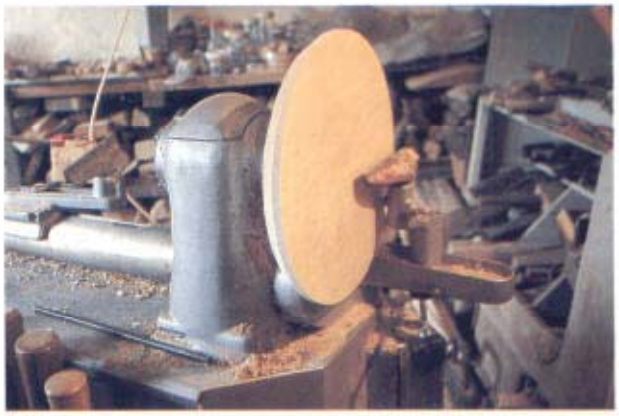


Fig 10.2 The upper surface of the board was first planed with a wide flat scraper.

Fig 10.3 A cove was then cut with a curved scraper at the edge of the underside of the board to give a lighter and more elegant appearance.

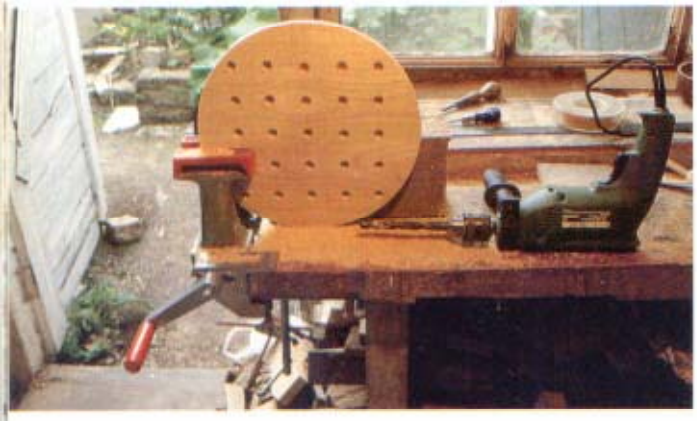


Fig 10.4 An 8in (203mm) square was marked out in pencil and divided into 16 smaller squares. The long and short diagonals were also drawn, and punch holes made with an awl at the intersections. 25 ½in (13mm) drill holes were made with a twist bit centred on the punch marks, and then the small squares and diagonals were marked with a felt-tipped pen.

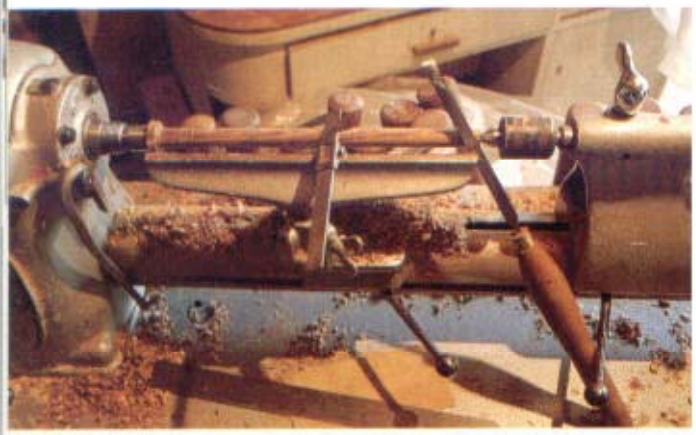


Fig 10.5 A cylinder of sepetier ½in (13mm) in diameter was then divided into eight sections of 1in (25mm). The calipers and skew chisel used are also shown. The pieces were separated with a bandsaw.

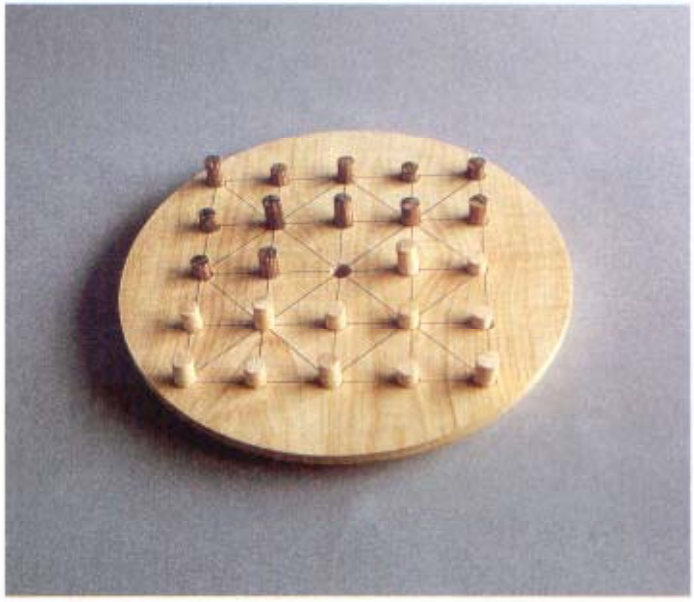


Fig 10.6 The board and pieces ready to start a game.

THE RULES

1. Each player has twelve pieces of one colour. At the start of the game every hole except the central one is occupied.
2. The pieces move from any hole to any adjacent vacant hole along a marked line.
3. If the adjacent hole is occupied by an enemy piece and the next hole beyond it on the line is vacant, the player's piece can make a short leap over the hostile piece and remove it from the board.
4. If another piece is then exposed to capture (*en prise*) it is taken in the same move by a second short leap, a change in direction being permitted.
5. Two or more pieces can be captured in one move, and if a piece can make a capture it must do so, otherwise it is *huffed* and is itself removed from the board.
6. The game is won when one of the players has lost all their pieces.
7. If a player cannot move any of their pieces when it is their turn to play, the game is drawn.

11

Mu-Torere

Mu-Torere is probably the only indigenous Maori board game, and is played mainly by the Ngati Parew tribe on the east coast of the North Island of New Zealand. The board consists of an eight-sided star with the centre marked, making nine resting places for the eight pieces.

Construction

Having failed to find a suitable board in stock, I sawed a length of afrormosia 29 x 3¼ x 2½ in (737 x 82 x 64mm) lengthways with a bandsaw to make two pieces about 1⅛in (28mm) thick. These were reduced in a thicknesser planer (a hand plane is equally effective though slower) to 1in (25mm). The two dressed pieces were then cut to make four pieces 12½in (317mm) long, and glued together to form

Fig 11.1 The plank was formed from four strips of afrormosia glued together, and a 12in (305mm) diameter circle marked with eight radii at 45° angles in pencil.

Fig 11.2 The edge of the board was then trued, and a chamfer cut on its undersurface.

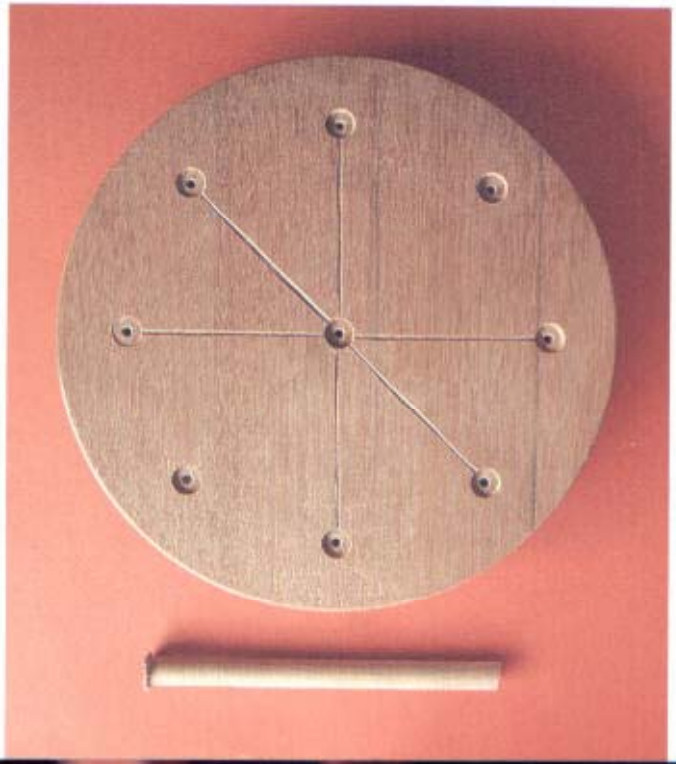
Fig 11.3 Punch holes were made with an awl and hammer 1¼in (32mm) from the edge of the board.

a plank a fraction over 12in (305mm) square. The centre was found by joining the diagonals, and then a 12in (305mm) circle inscribed with a compass. I then drew four more radii at 45° to the diagonals, using a protractor and ruler. Surplus wood was removed with a bandsaw just outside the circle (a coping saw is an alternative), and then a faceplate was screwed to the undersurface. The edge of the board was made smooth on the lathe with a long, strong gouge, followed by a wide scraper, and a chamfer cut in the underside, approaching from the back.

Guide holes were then punched with an awl and soft metal mallet on the radii 1¼in (32mm) from the periphery. These steadied the central spur of a ¾in (19mm) flat bit in an electric drill while the central and perpherial holes were drilled to receive inlays of holly. Next, I grooved the radii between the central and peripheral holes with a V tool. I cut the inlays from a dowel of holly ¾in (19mm) in diameter, cut to ¼in (6mm) slices. These were glued into the nine circular depressions, and then levelled with a sanding disc in a power drill.

The pieces were made of boxwood and teak, and turned between centres.

Fig 11.4 Nine drill holes 5/16in (8mm) in diameter and 1/16in (5mm) deep, were centred on the awl marks. In front you can see a 5/16in (8mm) cylinder of holly, used to provide the inlays.



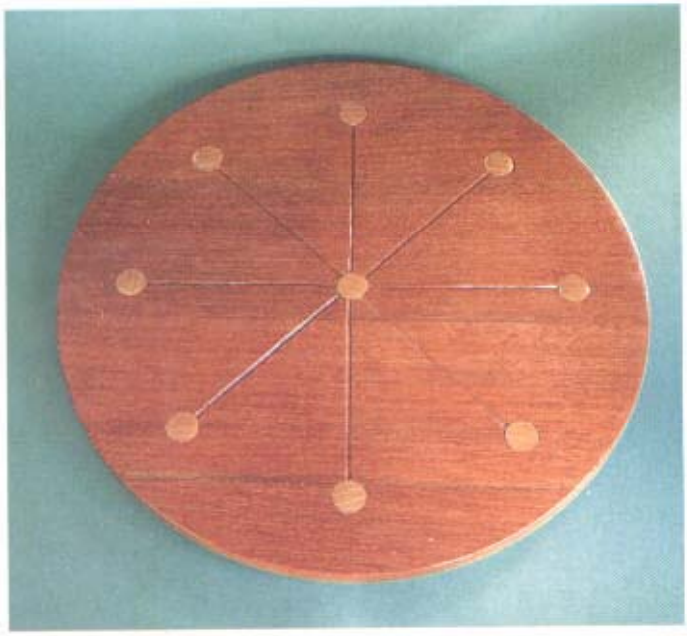


Fig 11.5 The finished board after varnishing.

Fig 11.6 Rough-turning the boxwood.

Fig 11.7 Checking the diameter: it should be $1\frac{3}{16}$in (30mm).

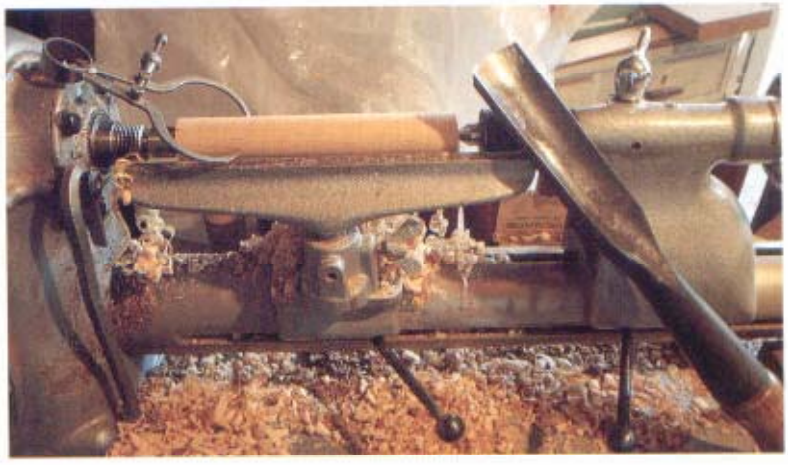


Fig 11.8 Three 2in (51mm) lengths were then marked off with a narrow skew chisel, ready for separation with a saw or a parting tool. Note the finished pieces in the background, to ensure matching sizes.

The Rules

1 Each player has four markers of a single colour which are placed on four adjacent points of the star.
2 The players change colours at the end of every game.
3 Black always begins, and the players move their pieces alternately to an adjacent point.
4 The central point is known as the *putahi*. There are three possible moves:
   (a) From one of the points to the *putahi*, provided that one of the adjacent points is occupied by an enemy piece. *This rule is crucial.*
   (b) From a point of the star to an adjacent empty point.
   (c) From the *putahi* to an empty point.
5 Only one piece can stand on a point or the *putahi*.
6 Jumping over a piece is not allowed.
7 The player blocking his opponent and preventing him from moving wins the game.

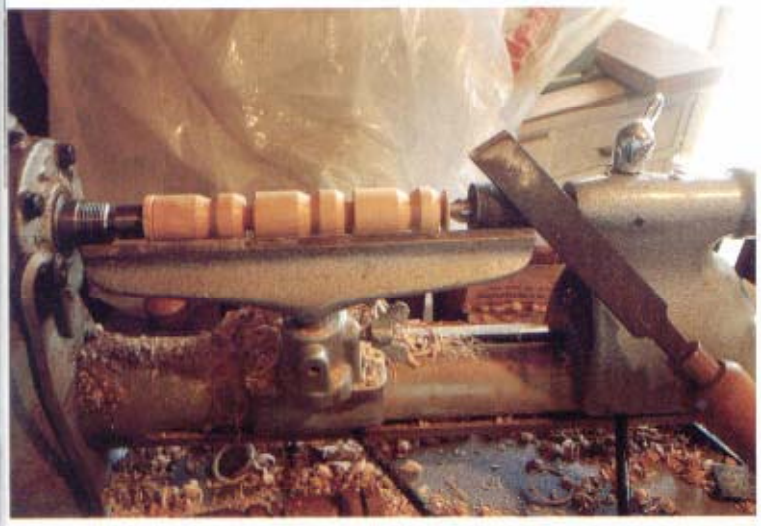


Fig 11.9 The pieces shaped, ready for cutting free.

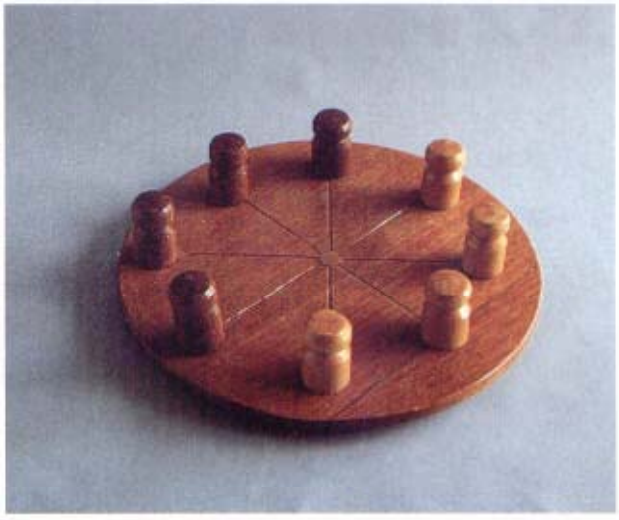


Fig 11.10 The board and pieces ready to start a game.

12

Hala-Tafl
(Fox and Geese)
and Solitaire

Hala-Tafl, the Fox Game, is mentioned in the *Grettis Saga*, written in the fourteenth century by an anonymous priest who lived in the north of Iceland. It is one of several 'hunt' games popular among the early Scandinavian peoples, in which two players with unequal numbers of pieces confront each other in a struggle for survival. The smaller force has some compensatory power denied to the larger force.

Construction

The choice of which board to make is up to the reader, but with the intention of using it for playing both Fox and Geese, and Solitaire, I made a simplified version of the lovely French ivory board seen in Fig 12.3, with 37 holes instead of the 33 holes in the English boards. The playing surface was made from a short length of spalted alder and the stem from a small billet of holly.

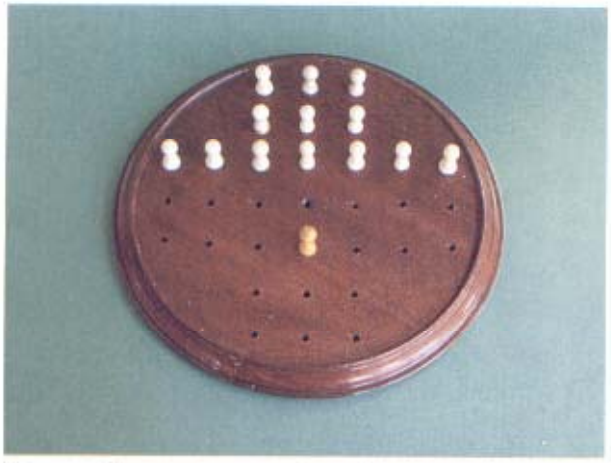


Fig 12.1 A nineteenth-century Fox and Geese board of mahogany and pieces of bone.

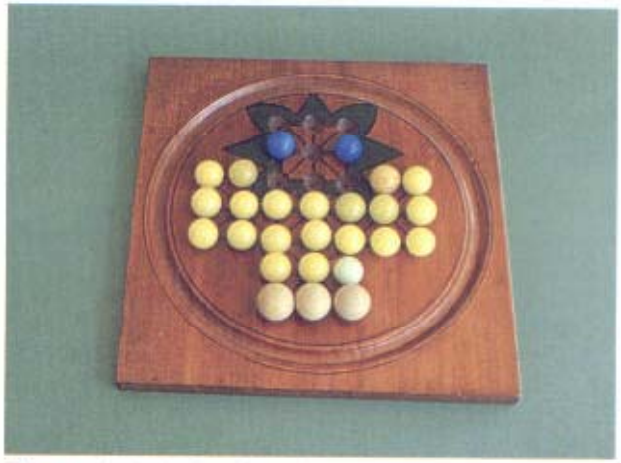


Fig 12.2 An Asolto board, probably made in nineteenth-century England, and using marbles as pieces. Note the gutter surrounding the board to hold the captures.

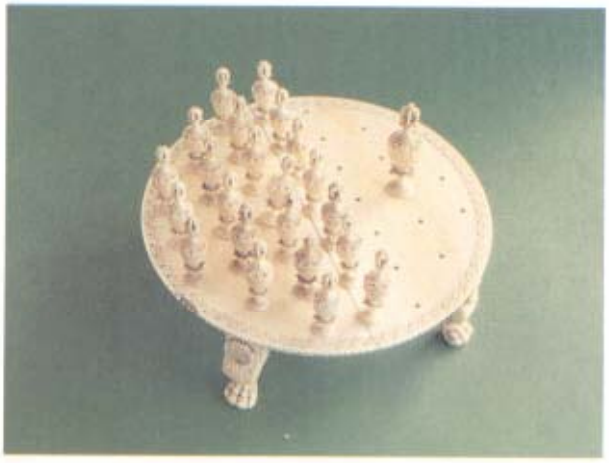


Fig 12.3 A French eighteenth-century Fox and Geese board made from ivory.

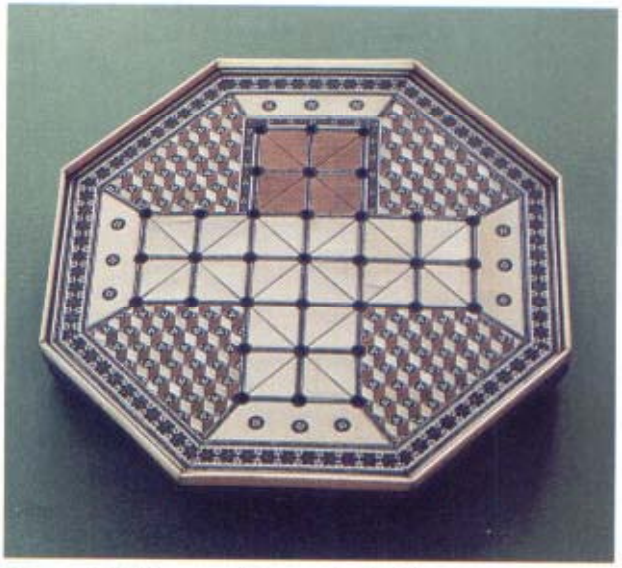


Fig 12.4 An Officers and Sepoys (Asolto) board made in India in the nineteenth century. The pieces are unfortunately missing.

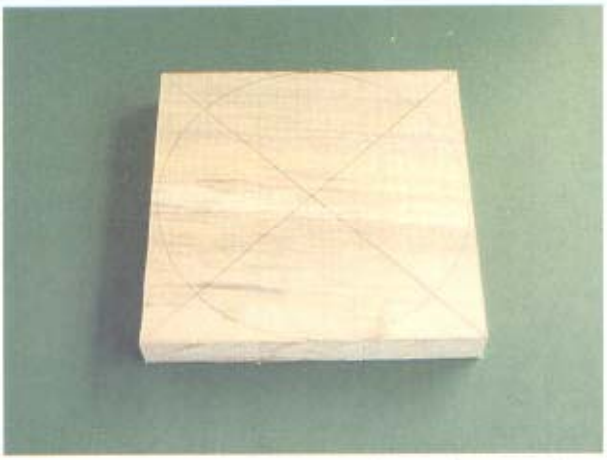


Fig 12.5 A piece of spalted alder, 7in (178mm) square and 1in (25mm) thick with the periphery and diagonals marked out for the top of the Fox and Geese (and also solitaire) board.

Fig 12.6 The circumference cut out with a bandsaw.

Fig 12.7 Scrap wood fastened to a faceplate with screws.

Fig 12.8 The top surface of the alder blank glued to the scrap wood with brown paper intervening.

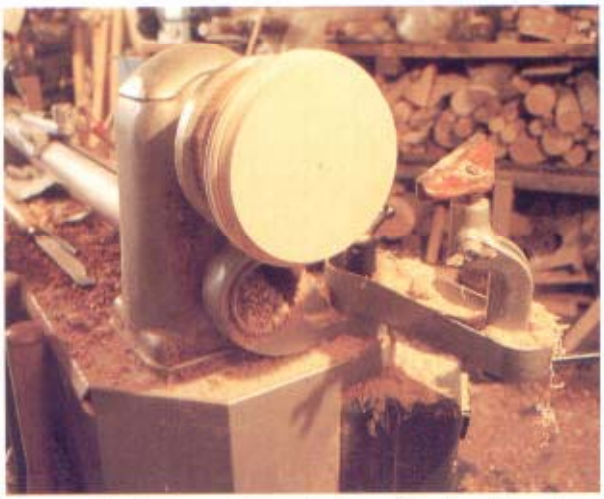


Fig 12.9 The bottom surface and edge of the board has been turned.

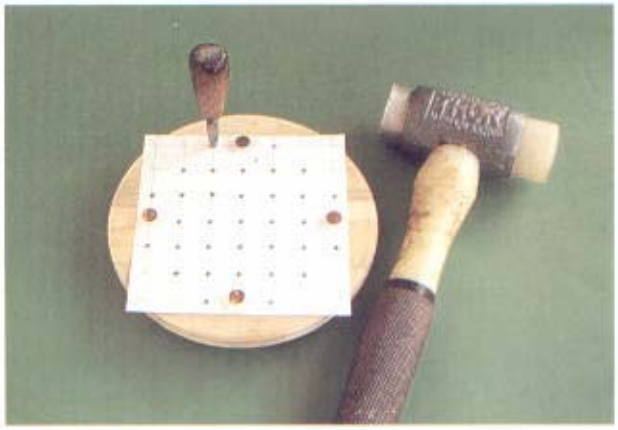


Fig 12.10 A 6in (152mm) square was marked out on paper and a grid of 7 x 7 lines drawn 3/4in (19mm) apart. This was then fastened to the face of the board with four drawing pins and the peg holes marked out with an awl and mallet. The marks (including the four made with the drawing pins) were drilled with a 1/4in (6mm) twist bit to a depth of 5/8in (16mm).

Fig 12.11 The central pedestal of the board was turned from a piece of holly using a fingernail profiled spindle gouge and a fluted parting tool.

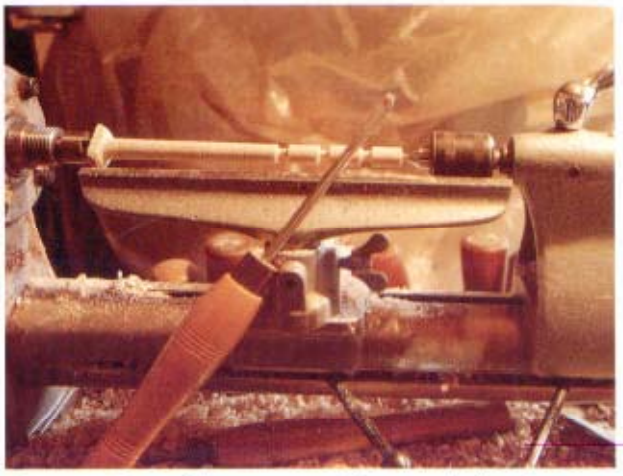


Fig 12.12 Three of the pegs turned from a cylinder of sycamore 1/4in (6mm) in diameter.

Fig 12.13 The pegs in position to play solitaire, though the board needs to be fixed to the base and varnished. Note the spigot in the base which fits into a 1/2in (13mm) drill hole in the bottom of the board.

Fig 12.14 The board and pedestal glued together, varnished and set for a game of Fox and Geese. The fox is 5/8in (16mm) in diameter and 1 1/4in (32mm) tall, with a chamfered top and tipped with yellow. The geese are 1/2in (13mm) in diameter and 1in (25mm) tall, and uncoloured.

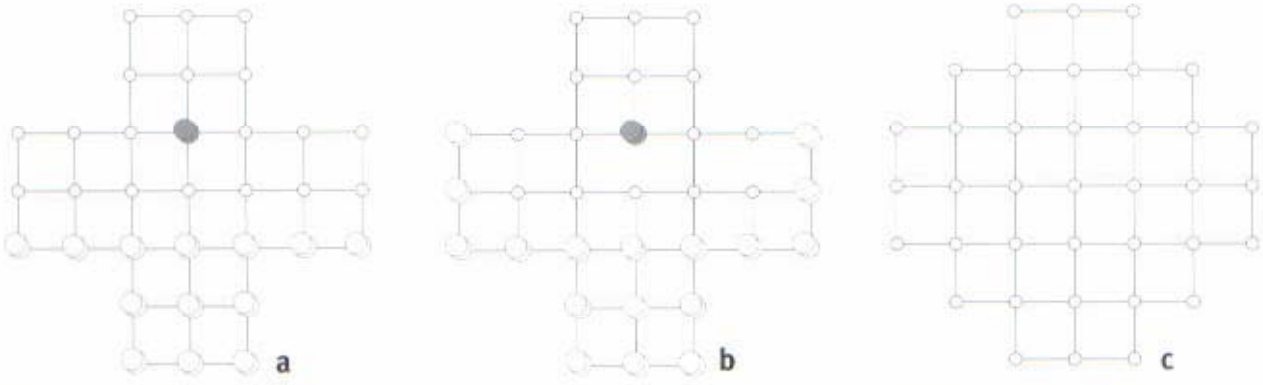


Fig 12.15 The development of the Fox and Geese board: (a) the original board catering for 13 geese; (b) a later version, for 17 geese; (c) a French adaptation, the holes being increased from 33 to 37.

THE RULES

In the early form of the game 13 geese confronted a single fox (see Fig 12.15a), and all the pieces could move in any direction along a line to the next point. The fox had the additional power of jumping over a goose, to land on an empty point immediately beyond, and when this happened the goose was killed and removed from the board. Two or more geese could be destroyed by a series of short leaps in a single turn of play, and a change in direction was permitted. The geese could not jump over the fox, but tried to crowd him into a corner, or surround him and prevent him from being able to move, when the geese won. Correctly played, the geese should always win.

In later forms of the game the geese were increased to seventeen, but could not move backwards (see Fig 12.15b). Later the French modified the original Norse board of 33 holes, increasing it to 37 (see Fig 12.15c). There is a legend that during the French Revolution a nobleman in prison in solitary confinement invented a new game, solitaire, for one player on a Fox and Geese board. Pieces are placed on every point except the central one. The player then 'jumps' a piece to land on this vacant point, removing the passed piece, and continues to make a series of short leaps, removing a piece each time. To win the game the player must finish with only one piece left on the board, preferably occupying the central point.

About the time of the Indian Mutiny (1857–8) a new variety of the game appeared called Asolto or Officers and Sepoys. Diagonals were added to the board, and one of the large squares was outlined in some way, often with a double line. This marked square became a fortress occupied by two officers placed on any of the points within it. All pieces move one point along any marked line, but the sepoys, occupying every point outside the fort, must always move towards it. The officers capture by a short leap, and are liable to be 'huffed' (removed from the board) if they fail to capture when this is possible. The sepoys win if they occupy every point in the fort, or if they immobilize the officers anywhere on the board, but if they become too depleted to do so then the officers win. Fig 12.4 shows a nineteenth-century Officers and Sepoys board.

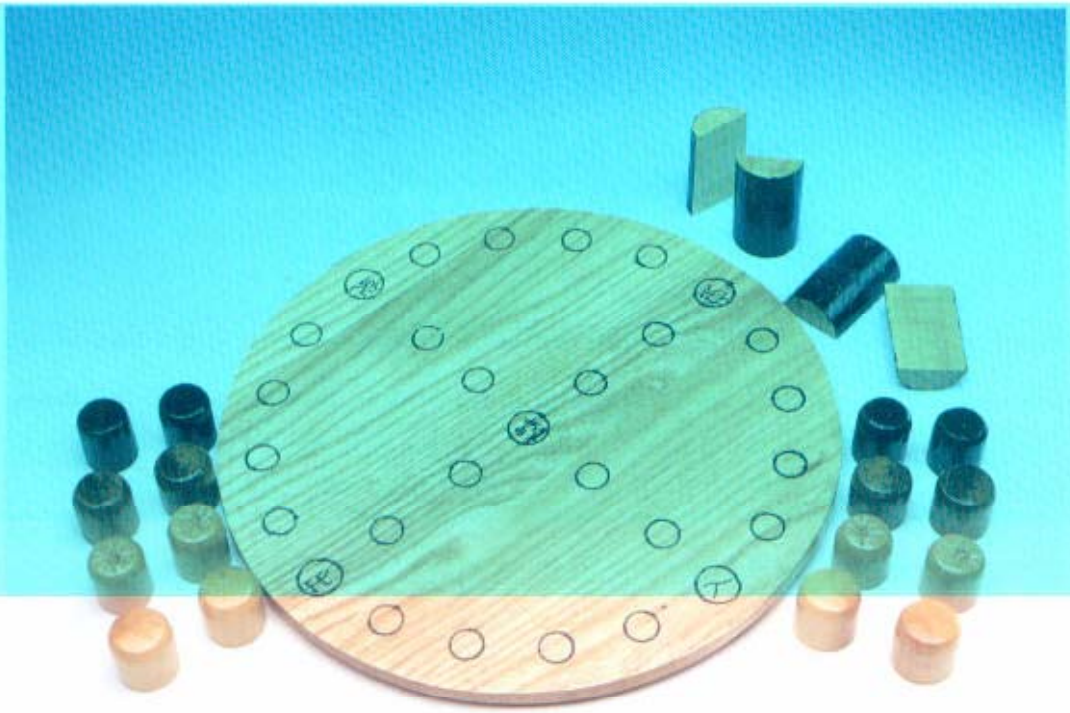
Reference: Fiske, W., *Chess in Iceland and in Icelandic Literature with Historical Notes on other Table Games*, Florence, 1905, pp. 146–56.

13

Nyout

Nyout is an early form of the Cross and Circle group of games with a history thought to extend back beyond 10,000 BC. It is played in Korea and in NE Asia, and similar games are played by the Amerindians along the western seaboard of North America (archaeologists believe the ancestors of the Native Americans crossed the Bering Straits some 15,000 years ago). Derivatives of Nyout also spread westwards to India as Pachisi, and eventually to England in 1896 as Ludo.

The Nyout board consists of 29 marks, often drawn on a piece of paper, or in the dust of a roadside. The mark at the top, *Ch'ut* means 'exit'. Up to four players take part, each having pieces called *mal* or horses, made of wood, stone or nuts, and are moved according to the throws of four *pam-nyout* (dice). These are small lengths of stick, flat on one side and curved on the other. The flat side may be painted white, and the curved black.



Construction

I glued together seven narrow pieces of American white ash to make a short plank, and inscribed a circle 11½in (292mm) in diameter upon it, using a pencil and a pair of compasses. The board was cut to shape with a bandsaw, fastened to a faceplate, and the edge trued and polished on the lathe (see Chapter 7).

I then marked the circular board in pencil using a steel rule, a transparent plastic protractor, a compass and a stencil with a variety of sizes of circles. There are 20 circles around the periphery of the board, so each formed an angle of 18° with its neighbour at the centre. A diameter was drawn across the board and an angle of 18° measured at the centre and this radius drawn. I used the compass to measure the distance on the circumference between the two points and, using this measurement, 20 small arcs were made around the circular track. A suitably sized circle was chosen on the stencil for the five larger spaces and marked in with a felt-tipped pen, followed by 24 smaller circles around the peripheral track and along the two diagonals. The ink was left to dry for an hour and then the pencil marks removed with a rubber eraser. A coat of clear varnish completed the board.

I made the pieces from short lengths of contrasting woods – ebony, boxwood, holly and laburnum – turned to 1in (25mm) diameter, 1⅛in (28mm) in height, with a small chamfer at the top, and then varnished them.

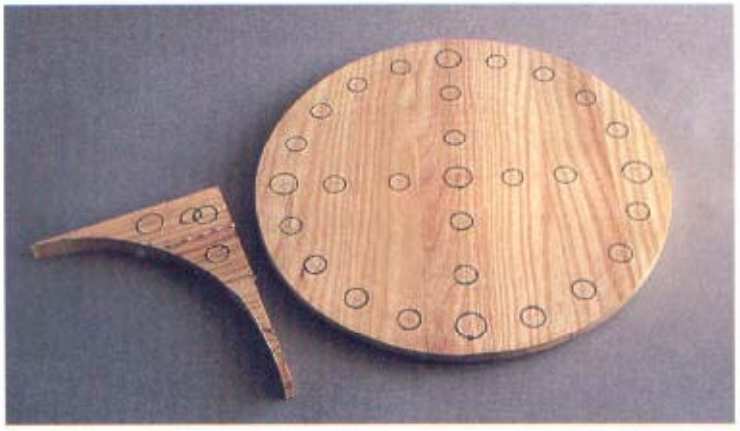


Fig 13.1 The board marked out. Note a scrap of wood cut away by the bandsaw and used as a test piece for the stencil sizes. The board was made from strips of American white ash.

Fig 13.2 Cutting a star into the top of the holly horses, which were made from 1in (25mm) diameter cylinders. Each horse was 1⅛in (38mm) tall, chamfered at the top. Note the rigid holding device described in the text.

The *pam-nyout* I made from a 6in (152mm) cylinder of sycamore 1⅜in (35mm) in diameter, which was cut in half lengthwise on a bandsaw. Each piece was then cut in half, each measuring 2¼in (57mm) long. After smoothing with glasspaper the curved surfaces were painted black, the flat surfaces left natural, and then both surfaces varnished.

The difference in colour of the boxwood (yellow) and the holly (white) proved too little for easy recognition, so I cut an eight-rayed star into the top of the holly pieces. Holding a small round object firmly for carving can be difficult, but by drilling a hole slightly smaller than the piece in a waste block of wood and then splitting it with a saw enables a vice to grip the cylinder firmly without damage. The star was cut with a V tool.

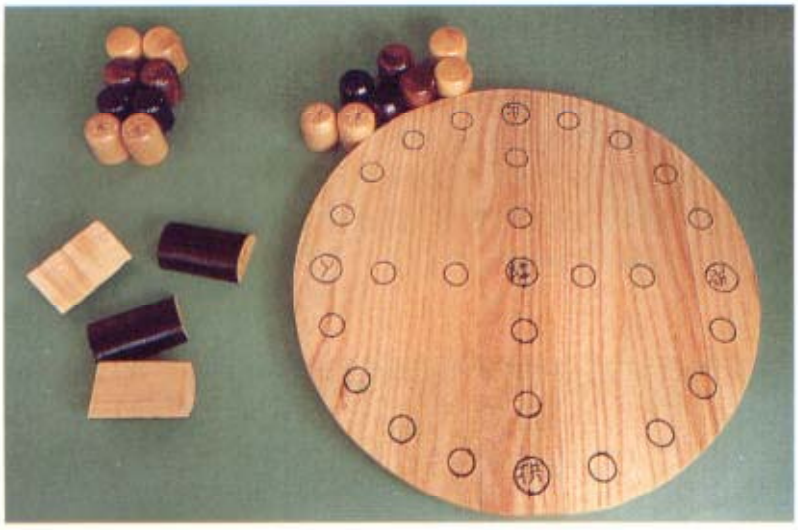


Fig 13.3 The board and pieces ready for the start of a game with four players, made in laburnum, ebony, holly and boxwood. The *pam-nyout* show a score of 2.

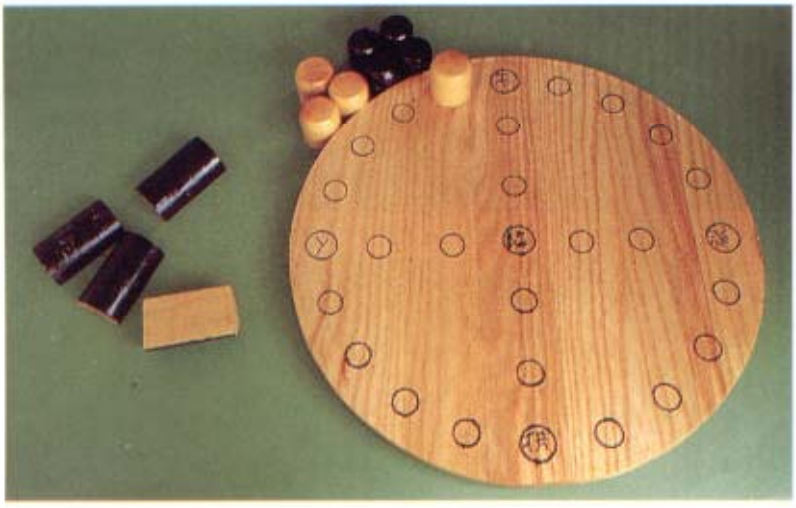


Fig 13.4 The beginning of a game with two players. Boxwood has thrown a score of 1 and his first piece is starting on its journey. Movement is anticlockwise around the board.

THE RULES

1 All the players throw the *pam-nyout* in turn, the highest scorer becoming the leader, and the others follow in the order of their throws.
2 The players enter their horses on the mark to the left of that indicating 'exit' (see Fig 13.4), and move anticlockwise according to their scores. If a horse lands on one of the cardinal marks it leaves the circular track and travels along the limb of the cross, a shorter route.
3 With two players, each has four horses: with three players, three horses. If four play, each has two horses, and the players sitting opposite each other are partners.
4 If a player's horse catches up with another of his own they become a team and move on as one piece.
5 If a player's horse moves on to a mark occupied by an opponent's horse the latter is sent back to start again, and the successful player has another turn.
6 When a player throws a 5 or a 4 and has a second throw, he may divide these throws between two of his horses.
7 When playing in partnership, a player may move his partner's horses instead of his own.
8 When a horse is about to go on to the board, a throw of 5 takes it to the first cardinal point. Its bonus throw will then move it along the limb of the cross towards the centre, and then to the exit, a shorter route than around the circle (except at three o'clock, when it is longer).
9 The first player (or partnership) to get all their horses off the board wins the game.

Scoring

4 curved sides up	5	} and the player has another throw.
4 flat sides up	4	
3 flat sides up	3	
2 flat sides up	2	
1 flat side up	1	

14

Plug the Leaks

Also known as 'Shut the Box', this game has been popular with the Normandy fishing fleet for more than 200 years.

Plug the Leaks can be played as a patience game, with the player trying to close the holes in less than a chosen number of turns. It is also a good board game for Christmas-time with any number being able to play, though four or five seems best.

Fig 14.1 A 3in (76mm) central recess was made in a board of American ash, 11½in (292mm) in diameter. The first cut was made with a parting tool, followed by a gouge and a scraper.

Fig 14.2 A concentric circle 1¼in (32mm) from the edge of the board was drawn in pencil, and along this nine short arcs are marked off 1⅞in (47mm) apart with a pair of compasses. At the intersections, stab holes are made with an awl to receive the point of a 1in (25mm) flat drill. Also shown is a rough-turned cylinder of birch.

Fig 14.3 The faceplate in position.

Fig 14.4 The outside of the dice cup turned to the shape of a capstan.

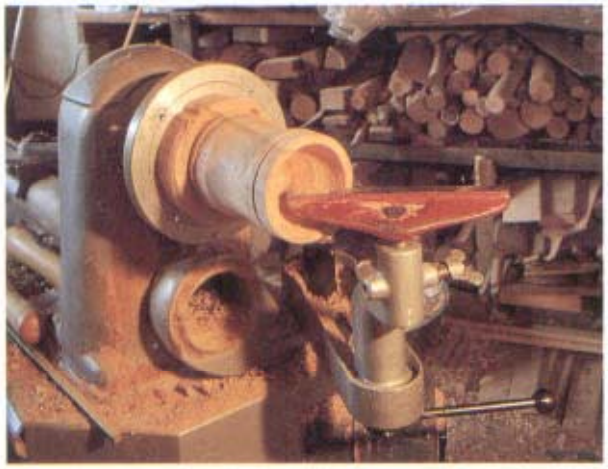


Fig 14.5 Turning the inside of the cup.

Fig 14.6 Making sure the dice cup (capstan) fits exactly into the central recess on the board.

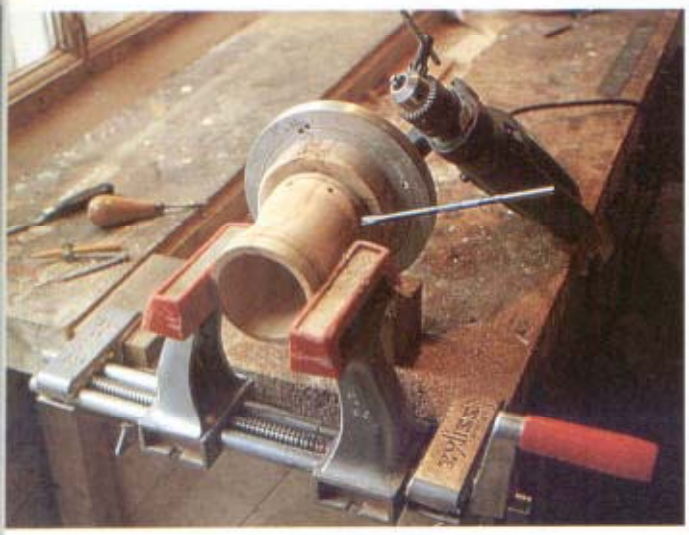


Fig 14.7 Drilling holes in the 'capstan' for capstan bars.

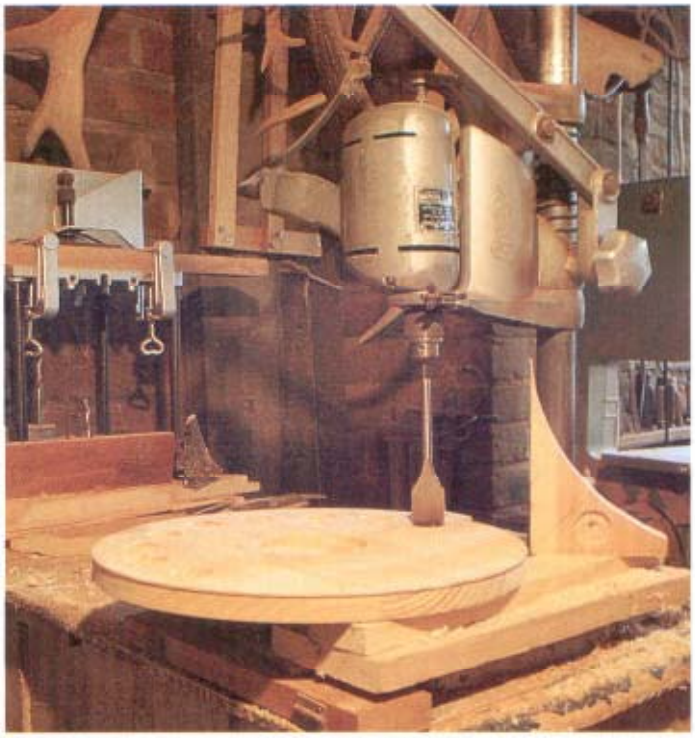


Fig 14.8 Drilling nine 'leaks' with a 1in (25mm) flat bit in an electric drill.

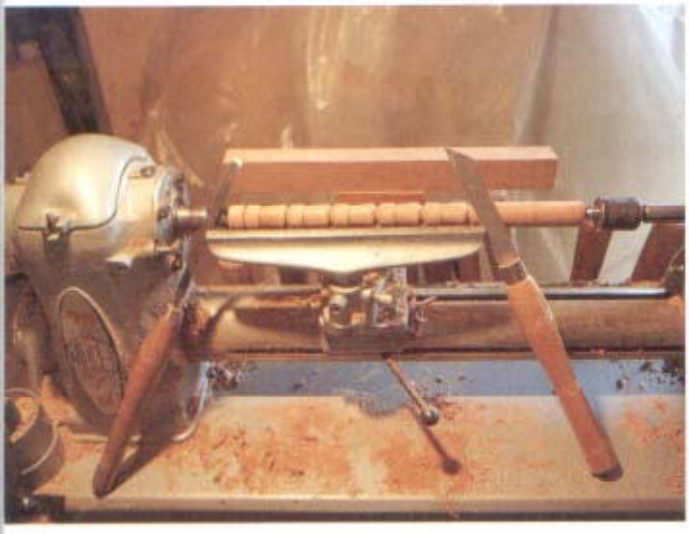


Fig 14.9 Five 'bungs', 1in (25mm) in diameter, ready for separation with the bandsaw. Also shown are the skew chisel and parting tool used in shaping them.

Fig 14.10 Separating the 'bungs' (now elevated to the dignity of being 'bollards') on the bandsaw. Note the pusher for safety.

Fig 14.11 Using the dice cup as a pattern, a circle was drawn with chalk on a piece of green baize. A piece for the bottom of the board was also marked out, using the board itself as the pattern.

Fig 14.12 The central recess was lined with baize, and the larger piece for the bottom of the board cut out.

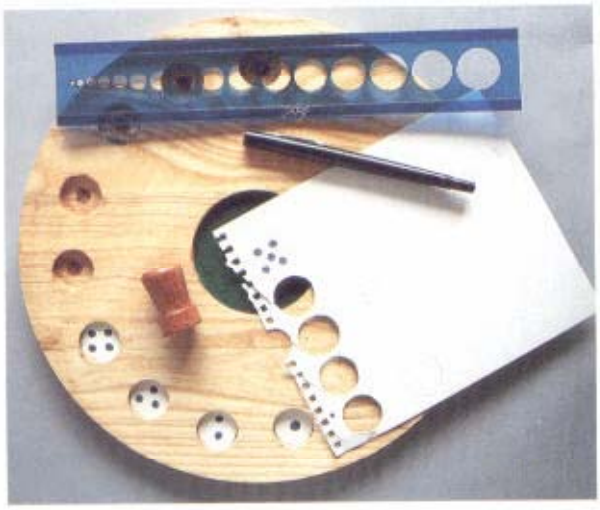


Fig 14.13 The central spike holes of the drill were filled with plastic wood (white glue and sawdust mixed together), and discs of white card (using a bollard for size) marked with dice dots from 1 to 9. A plastic stencil and a felt-tipped pen were used for the spots.

Fig 14.14 The board, bollards and capstan (dice cup) complete.

THE RULES

1 At the beginning of a player's turn the nine holes are open.
2 The player rolls two dice into the central pit, and the individual numbers thrown, or their sum, permit the player to plug these leaks: e.g. if a 3 and a 4 were thrown, he could close leaks 3 and 4, or leak 7.
3 When the sum of the leaks still open is six or less, the player only throws one dice, until he has closed all the leaks or throws an unusable number.
4 A turn finishes when a player cannot plug a leak on a throw.
5 When the turn finishes the sum of the leaks still open is added to the player's score.
6 When a player reaches 45 he is out of the game.
7 The last player in the game wins.

15

Mhn

(The Snake Game)

In the Ancient Egyptian language, *mhn* meant a coiled snake. The game was popular during many dynasties, and several boards survive, now preserved in museums around the world. The number of spaces along the snake vary from 29 to 500 – the more spaces there are, the longer the games last.

Construction

My replica board, a copy of one in alabaster in the Fitzwilliam Museum, Cambridge, was made from a piece of mahogany 19 x 4½ x 2in (483 x 114 x 51mm), cut in half and glued to form a block 9½ x 9 x 2in (242 x 229 x 51mm). From this I turned the round playing surface, just under 9in (229mm) in diameter. The

pedestal, made from a billet of sycamore destined to be firewood, started as a cylinder 7 x 3½in (178 x 89mm). After shaping, I inserted a dowel 1in (25mm) in diameter into its upper surface and into a recess drilled into the underside of the board.

The body of the snake, with 140 sections, was made by pencilling in the spiral by eye, and then cutting the grooves with a mixture of V tool, chisel and mallet.

The pieces were turned as a cylinder 5/8in (16mm) in diameter, shaped, and separated with a gent's saw. I polished the cut surfaces with a sanding disc in an electric drill, and then coloured them with acrylic paint: green, red, yellow, blue, silver and the last left its natural colour, nearly white. The cheap clay marbles, very similar to the ancient originals, are sold in bulk in toyshops.

Fig 15.1 The underside of the board, showing the pedestal of sycamore.

Fig 15.2 An alternative method of applying the baize. The glue was placed on the wood, spread evenly, the baize applied, and the board placed right way up. The light pressure helps adhesion.

Fig 15.3 The baize ready for trimming with scissors along the crease mark.

Fig 15.4 Application of the baize completed.

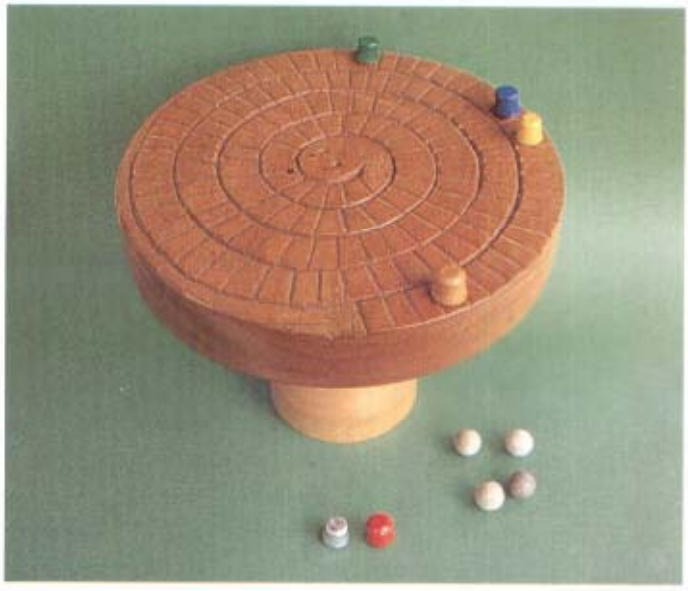


Fig 15.5 A game for six players in progress. Green is well in the lead; uncoloured has only just begun; while silver and red are still to start.

A similar game, Li'b el Merafib or the Hyena Game, is still played by the Baggara Arabs of the Sudan, the board being drawn as a spiral groove in the sand with a random number of holes along its course, and each player has his own distinctive marker. Instead of guessing the number of marbles, the players throw dicing sticks made of three pieces of split stick about 6in (152mm) long; the scoring depends upon the number of flat or rounded sides falling uppermost. This game may well be a survival of Mhn from the days of predynastic Egypt.

THE RULES

1 Each player has a differently coloured marker.
2 One player takes the four marbles, puts them behind his back, and then holds a closed fist forward with one, two, three or four marbles in it.
3 One of the other players guesses how many marbles are in the hand. If correct the player's turn ceases, and the marbles are passed to the successful guesser.
4 If the guess is wrong the player advances his piece by the number of spaces there were marbles in his hand, and then offers a new closed fist to the next player. His turn continues until someone guesses correctly, when this player becomes the new holder of the marbles.
5 If a marker lands on a space already occupied, it passes on to the next empty space beyond.
6 The owner of the first piece to reach the snake's head in the centre of the board wins the game.

16

Gyan Chaupar
(Snakes and Ladders)

In northern and western India Gyan Chaupar, 'The Game of Knowledge', was popular in the eighteenth and nineteenth centuries. The boards were made of cloth or paper and were easily damaged. No dated examples earlier than the eighteenth century survive, but the game would seem to be much earlier than this. A 72-square Gyan Caupad board (a variety of Gyan Chaupar) from Lucknow of about 1780–2, and now in the library of the India Office, London included eight snakes, two scorpions, and ten ladders. Besides the Hindi boards, there are Vaisnava, Jain and Muslim versions with 81, 100, 124, 342, and 360 spaces. All seem to have undergone long periods of development.

In all the variations the players set out on a journey, the movements of their

markers being controlled by the throw of dice or cowrie shells, and their pieces advance, from the lower spaces inscribed with earthly vices, to higher realms, eventually attaining Nirvana and liberation. During the journey, rapid promotion up a ladder may be followed by a fall from grace through the bite of a snake. Native boards are also often embellished with figures of popular gods, and are of considerable interest to students of local religious variations.

The children's game of 'Snakes and Ladders' is derived from Gyan Chaupar, the earliest English example being a circular board with a spiral track of 100 spaces, registered by F. H. Ayres in October 1892 (see Fig 16.1).

CONSTRUCTION

The board was made from an odd length of figured sycamore. A circle 9in (229mm) in diameter was inscribed, and cut out with a bandsaw. I then glued the circular board, with an intervening sheet of paper, to a scrap piece of wood, itself screwed to a faceplate.

The upper surface of the board was turned, and a slight recess cut to receive the paper playing surface. I drew the latter with concentric circles instead of the more difficult spiral of Ayres' original board. The radius of the inner circle was 1in

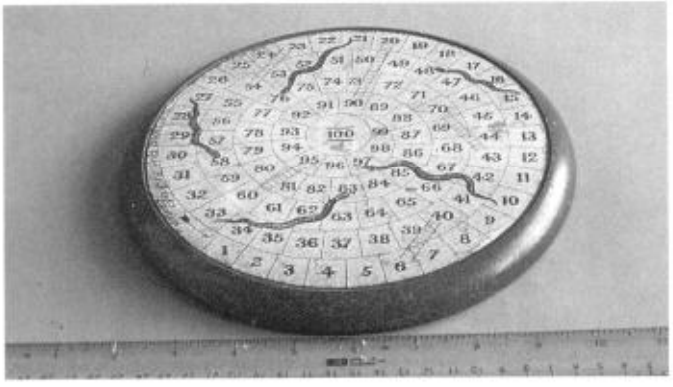


Fig 16.1 F.H. Ayres' circular board, registered in October 1892.

Fig 16.2 A short plank of sycamore with a 4½in (112mm) radius circle marked out.

(25mm), and the concentric circles were ¾in (19mm) apart, i.e. at 1¾in (44mm), 2½in (64mm), 3¼in (95mm), and 4in (102mm) from the centre. The space lengths were ⅝in (16mm), but modified at the junction of one circle with the next.

The pieces were turned from a ¾in (19mm) diameter cylinder of holly, and were designed to represent women. For ease of handling, I painted their dresses yellow, red, green, blue, white, and black with acrylic paint before they were separated with a bandsaw. After separation, I completed the shaping of the heads with a penknife and glasspaper, and applied a coat of clear varnish. The pieces were 1⅛in (28mm) tall with a maximum diameter of ¾in (19mm).

Figure 16.5 shows Ayres' original board alongside my copy.

Fig 16.3 Gluing the circular board, separated by brown paper, to a disc of scrap wood, itself screwed to a faceplate. Note the old smoothing iron used as a weight.

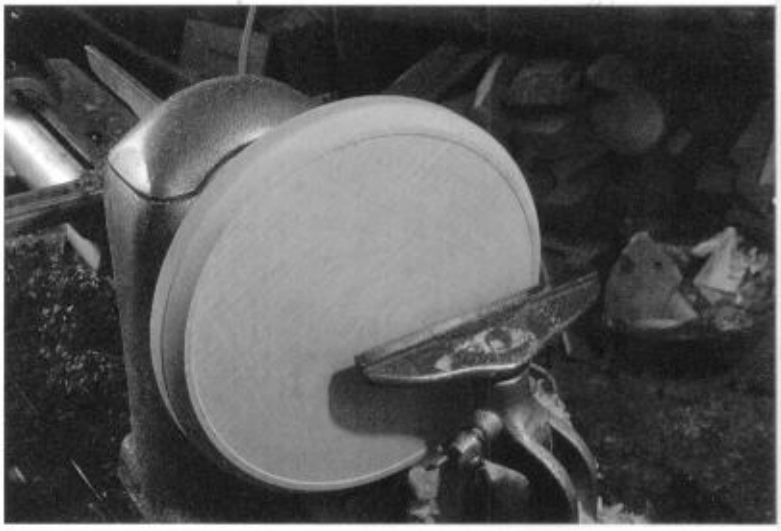


Fig 16.4 The edge and upper surface of the board turned, the latter with a slight recess to receive the paper playing surface.

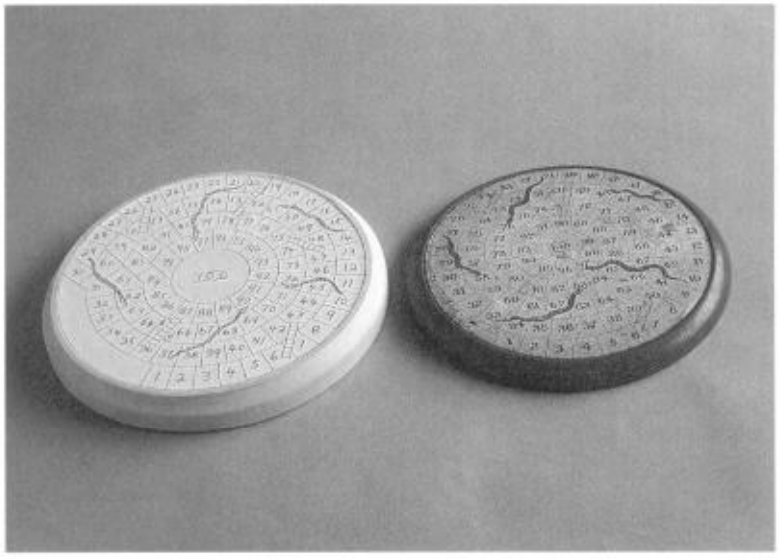


Fig 16.5 Ayres' board and my replica shown together.

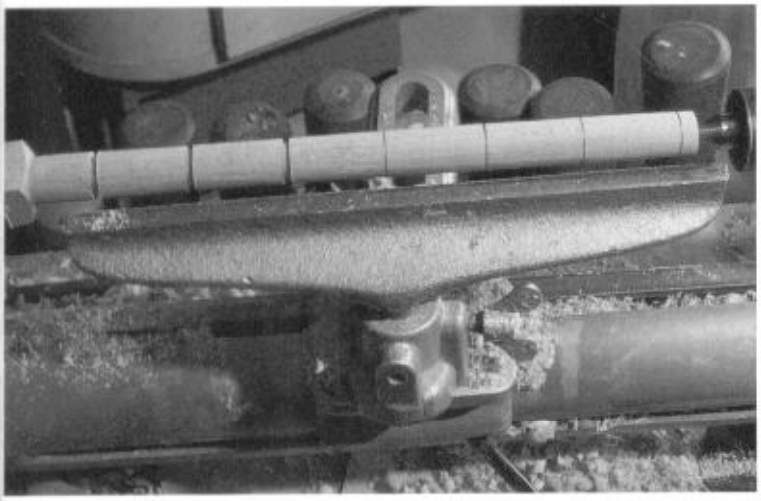


Fig 16.6 Starting to turn the little ladies from a 3/4in (19mm) diameter cylinder of holly.

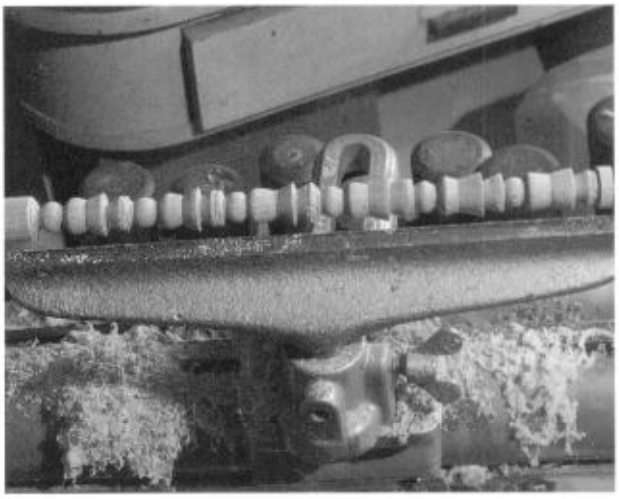


Fig 16.7 The turning completed.

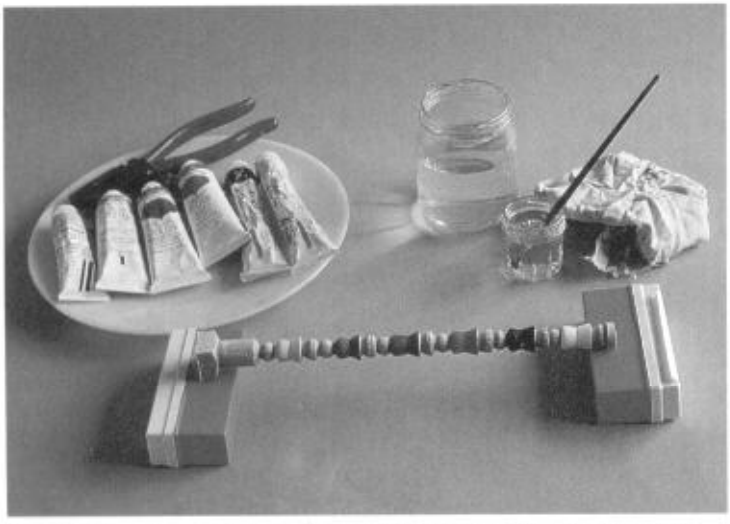


Fig 16.8 The pieces painted with undiluted acrylic paints. Always keep your brushes in water when you are not using them. A few minutes of drying out can ruin an expensive brush.

Fig 16.9 A win for White on 95 with a throw of 5. An exact score is needed to go out.

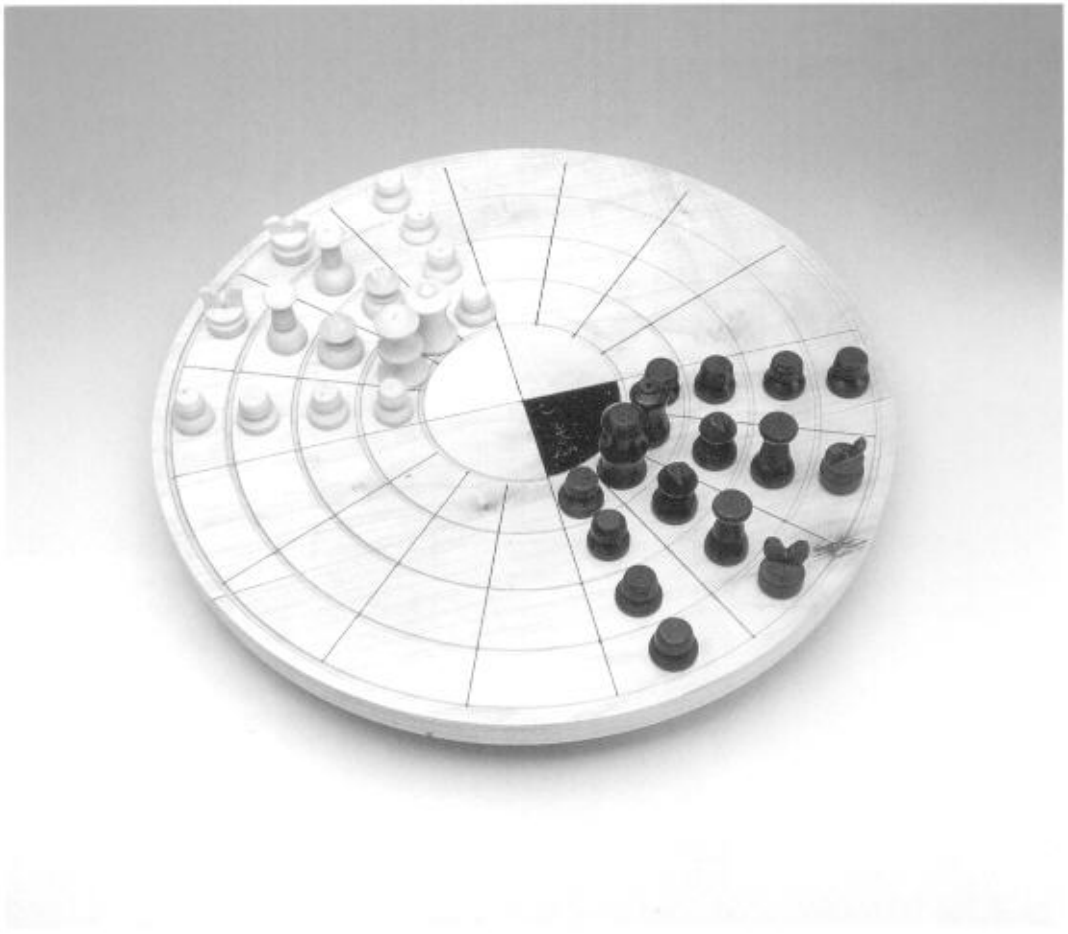
17

Circular Chess

In the fourteenth century, circular chess was popular in places as far apart as the castles of England and the court of Tamerlane in the Middle East. Readers may like to make their own board and try out this interesting variant.

The board

The circular board has 64 unchequered spaces (for convenience I refer to them as 'squares' though obviously they are not) arranged within five concentric rings. The central space is divided into four quadrants: two are plain, one is coloured white and the other black.



THE PIECES

Any modern chess set can be used, but some of the moves of the pieces are different and are described below. Each player has 16 pieces. To avoid confusion, today's names of the pieces are used, not the medieval.

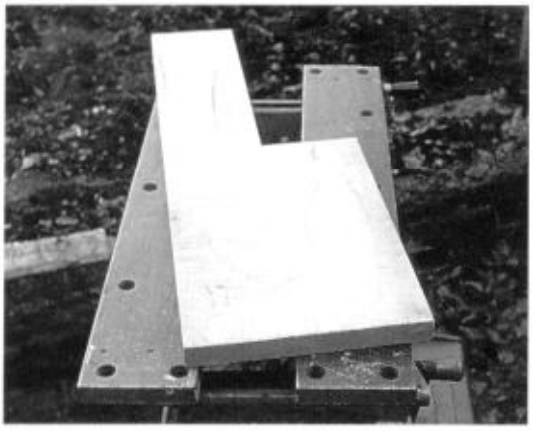


Fig 17.1 The best matching wood was chosen from a plank of sycamore. The total length was 32in (813mm), and the width at the widest part 11in (279mm), and at the narrowest part 5in (127mm).

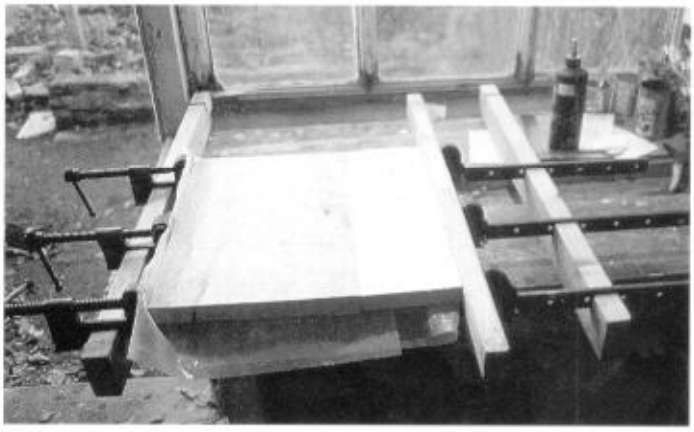


Fig 17.2 The two parts were glued together to make a square of 16in (406mm). The plastic container of the glue used is in the background.

Fig 17.3 A 15in (381mm) circle was inscribed on the square board. The centre was found by drawing in the diagonals.

Fig 17.4 A disc of over 15in (381mm) was cut with a bandsaw (a coping saw, though slower, is equally effective). Beyond is the metal faceplate screwed to a circular disc of waste wood.

Fig 17.5 The future games board and waste wood disc glued together, but separated by a layer of brown paper to facilitate eventual separation.

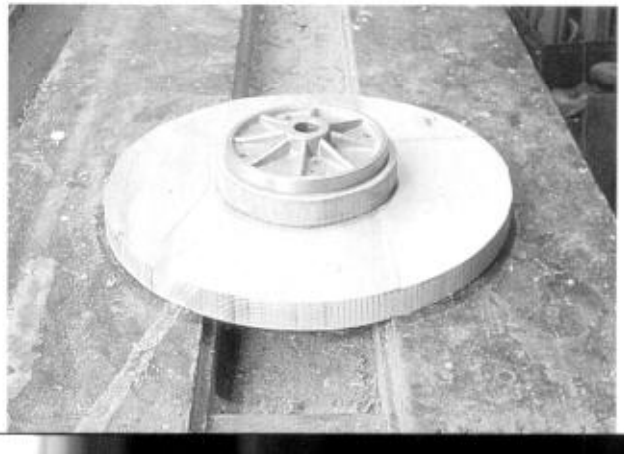


Fig 17.6 The board was turned on the lathe, and five grooves cut with a narrow parting tool. When marking out the concentric circles in pencil with a compass, the radius of the central space was 2in (51mm), and the concentric rings were $1\frac{1}{4}$in (32mm) apart.

Fig 17.7 Using a protractor, two diameters at right angles were drawn, and the intervening radii were marked at $22\frac{1}{2}°$, 45°, and $67\frac{1}{2}°$. The lines were drawn with a felt-tipped pen and a ruler.

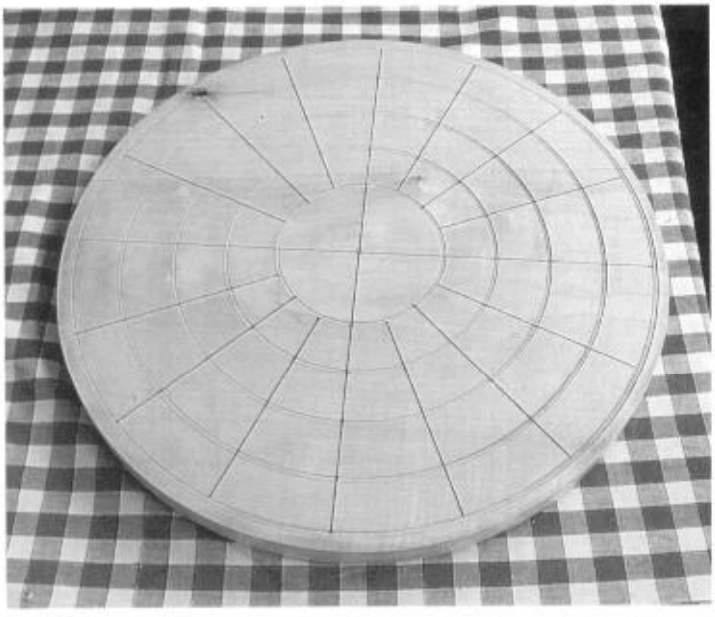


Fig 17.8 The board after the application of clear varnish.

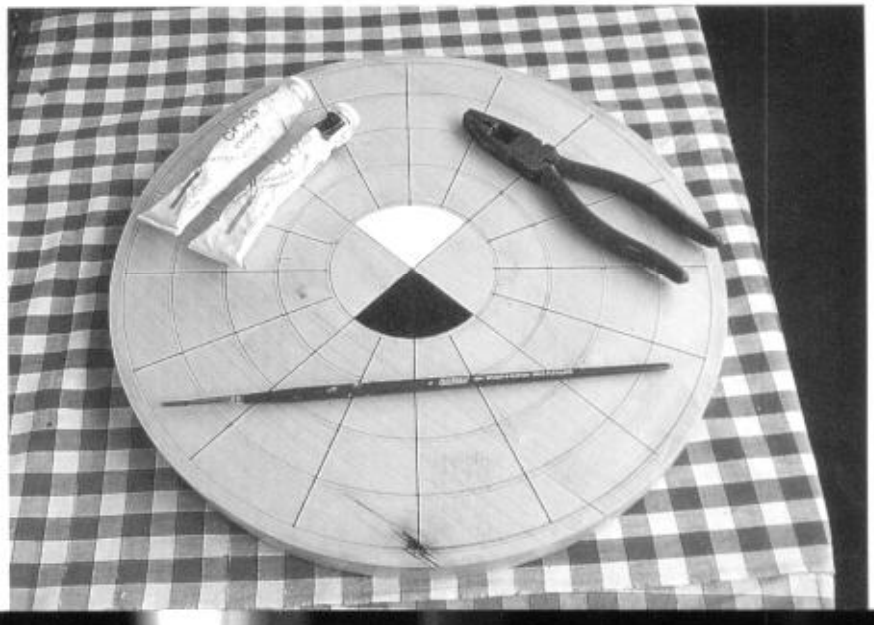


Fig 17.9 Two opposing central quadrants were painted, one black and the other white, with acrylic paints.

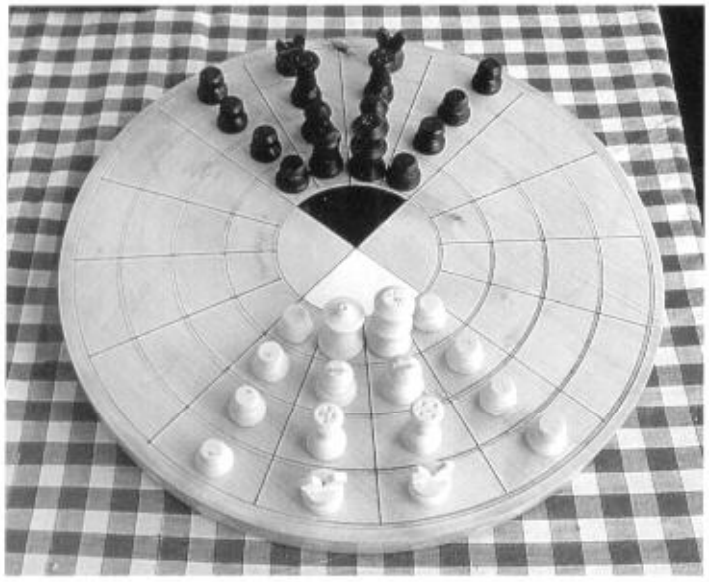


Fig 17.10 The board set for the start of a game. I made the reproduction medieval chess pieces many years ago, the ivory pieces from old billiard balls and the ebony from discarded lawyers' rulers.

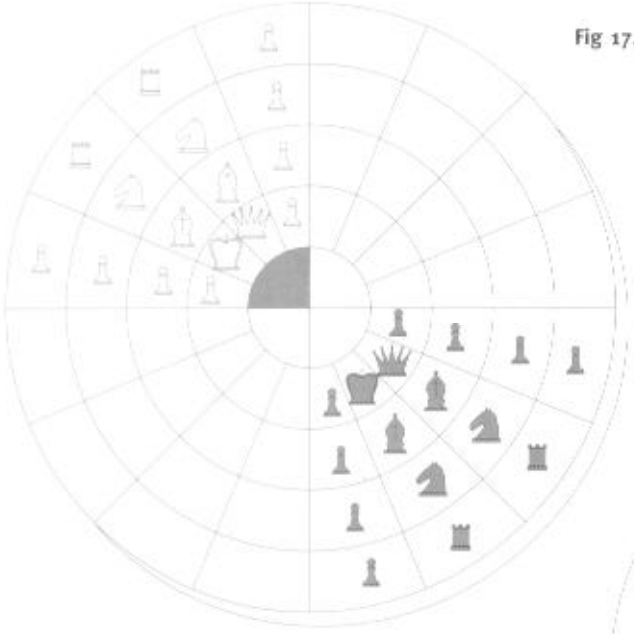


Fig 17.11 The opening position described by Strutt.

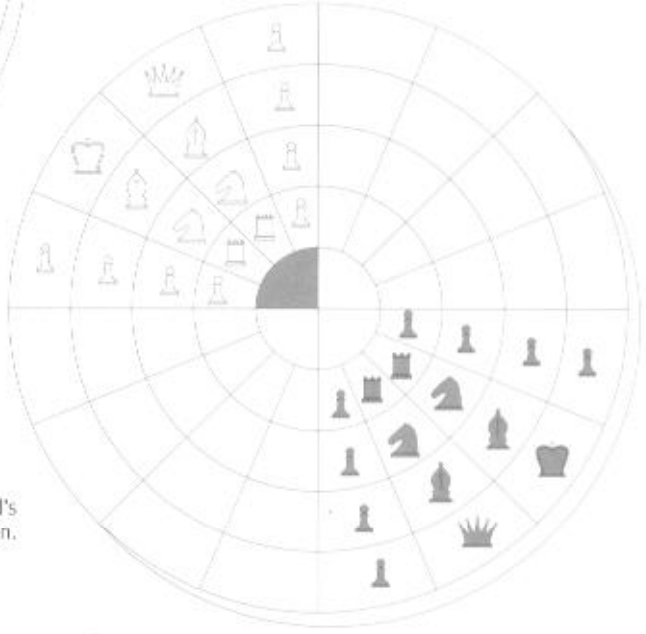


Fig 17.12 Bland's opening position.

THE RULES

Piece	*Number*	*Moves*
King	1	The same as today. One square in any direction.
Queen	1	One square diagonally forwards or backwards (this piece is much weaker than her modern counterpart).
Bishops	2	Two squares diagonally backwards or forwards, and can jump over an intervening piece of either colour.
Knights	2	Two squares orthogonally in one direction, and one square at right angles. The knight is able to jump over an intervening piece (as in modern chess).
Rooks	2	Any number of vacant squares orthogonally backwards, forwards, or sideways. They cannot jump over pieces.
Pawns	8	One square forwards, and capture by moving one square diagonally. There is no eighth rank, as in modern chess, and therefore no promotion. If two pawns of the same colour meet each other having travelled around the board, the opponent removes them both before making his own next move.

Pieces capture by moving onto the square occupied by the opposing piece, which is then removed from the board. The king cannot be captured, but if he is threatened (checked) and cannot move away from the attack, he suffers checkmate and the game is lost.

Special to circular chess, however, is the possibility of a threatened king moving into sanctuary, black moving onto the white central quadrant, or the white king onto the black quadrant. This move can only be made when the king is under check and within a legal move of the sanctuary.

Two different opening positions of the pieces have been described, one as shown in Fig 17.11 (Cotton manuscript in the British Museum, quoted by Strutt) and the other as in Fig 17.12 (from Oriental sources quoted by Bland – see Further Reading on page 136).

18
Ringo

The origin of this interesting version of 'Cops and Robbers' is uncertain – one authority attributes it to Germany. The robbers try to break into the vault in the centre; if two pieces succeed in this, the game is over and the thieves have won. If the guards reduce the robbers to one piece, they are the winners.

One of the eight segments of the board is distinctly coloured and is a neutral zone where captures are not allowed.

Construction

The board was 12in (305mm) in diameter, and the vault 1½in (38mm) in diameter, and ⅛in deep. I suggest you make a rough preparatory sketch of the board layout before marking anything on the wood, as you are then not likely to make mistakes on the board itself. The pieces were made in the same way as those in Chapter 7 (see page 38).

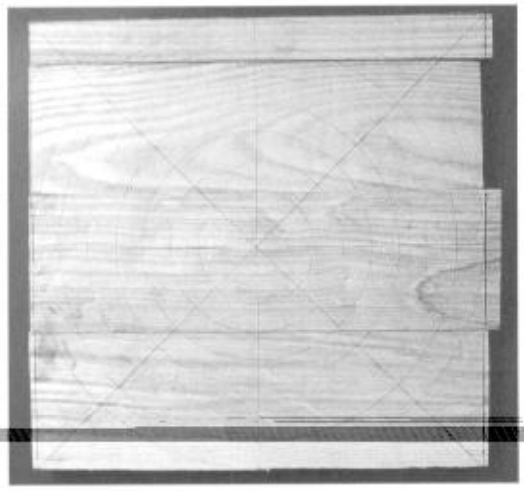


Fig 18.1 Four pieces of American ash were glued together to make a board a little over 12in (305mm) square, with eight concentric circles drawn 3/4in (19mm) apart, and eight radii at 45° to each other, drawn using a ruler, protractor and felt-tipped pen.

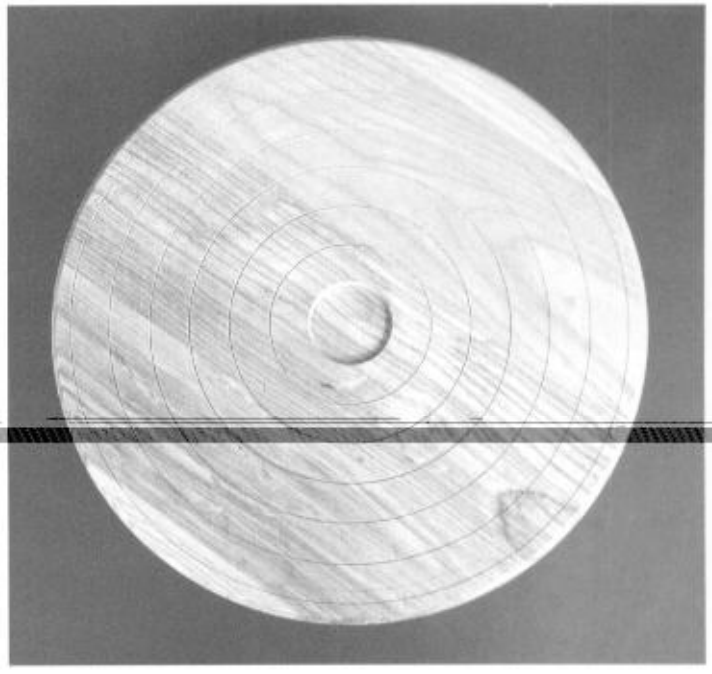


Fig 18.2 The surface of the board was then trued, and the central recess, 1½in (38mm) in diameter turned out. The board was then made round, and the edge chamfered. Six circular cuts 3/4in (19mm) apart were inscribed between the vault and the edge of the board with a narrow skew chisel. During these procedures the pencilled radii were lost and had to be re-drawn.

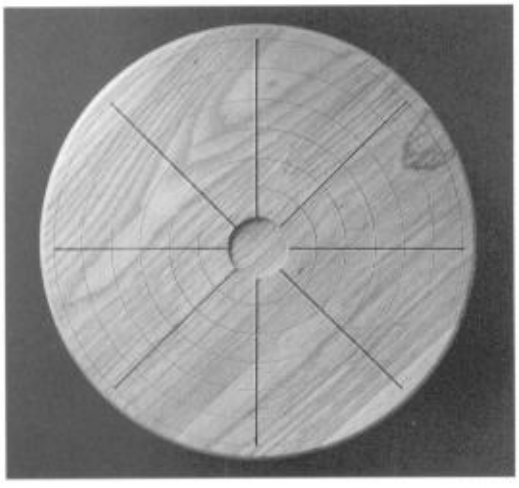


Fig 18.3 The board with the six circles inscribed, and the eight radii drawn. Note the chamfer on the edge of the board.

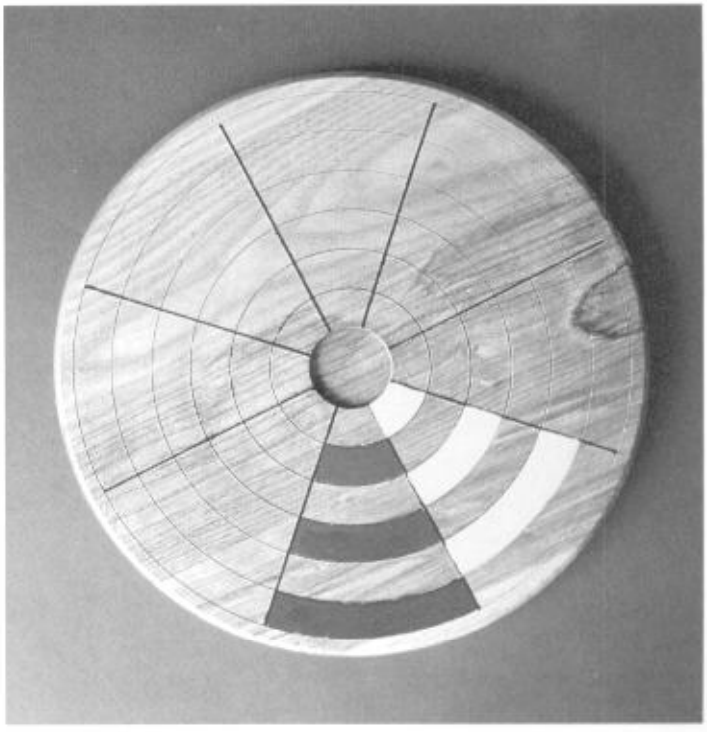


Fig 18.4 Three spaces of the neutral zone have been painted yellow, and three alternating spaces of an adjacent zone in blue. Humbrol enamel was used for the colouring.

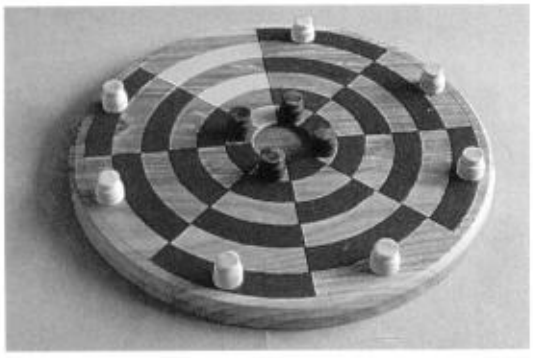


Fig 18.5 The finished board with seven yellow boxwood robbers, and four dark-brown ebony guards in position to begin a game. The neutral zone is empty. The robbers have first move.

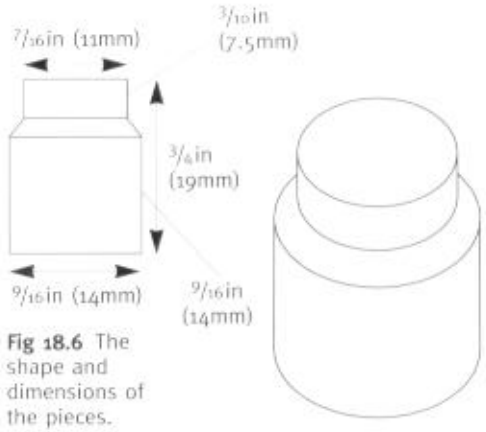


Fig 18.6 The shape and dimensions of the pieces.

THE RULES

1 One player starts with seven robbers on the open spaces of the outermost ring. There are no pieces in the neutral zone at the beginning.

2 The other player has four guards arranged around the vault (see Fig 18.5). Only one piece may occupy a space, except for the vault at the moment of a robbers' victory (see rule 11 below).

3 The attacking player tries to get two of his pieces into the vault, while the defender must capture six of the opposing pieces.

4 Robbers can only move one space towards the centre of the board, or one space sideways around a ring. They cannot move backwards.

5 Guards can move one space backwards, as well as the sideways and forward moves of the robbers. Some players also permit a guard to move any number of vacant spaces around a ring, but not to cross the neutral zone in the 'long move'. This rule is optional.

6 Pieces capture by jumping over an opposing piece in an adjacent space on to an empty space immediately beyond. Only one piece can be captured in any turn of play; capturing is not compulsory, and there is no huffing.

7 Robbers have the first move, and thereafter the players move one piece alternately.

8 A guard cannot enter the vault, but may jump over it if there is a robber in it, and the space immediately opposite is empty. On making such a jump the robber within is captured and removed from the board. A guard in the neutral zone is not permitted to capture a robber in the vault, but must move into an ordinary space first.

9 A capture can be made by a piece jumping over an opposing piece to land on an empty space in the neutral zone, but not by jumping from the neutral zone over a piece in an adjacent zone. No leaps or captures can be made within the neutral zone itself.

10 Pieces can move freely into or out of the neutral zone, and are safe from attack within it, but there may only be as many robbers in the neutral zone as there are guards left on the board. A robber can move from the neutral zone into the vault.

11 Victory for the attack is when two robbers are in the vault. Victory for the defence is when only one robber is left on the board.

19

Crown and Anchor

This game is an old favourite in the Royal Navy and the fishing fleet, using a cloth or board with six segments, each bearing a single symbol: a spade, club, diamond, heart, crown, and anchor. Three special dice are used, each face bearing one of these symbols.

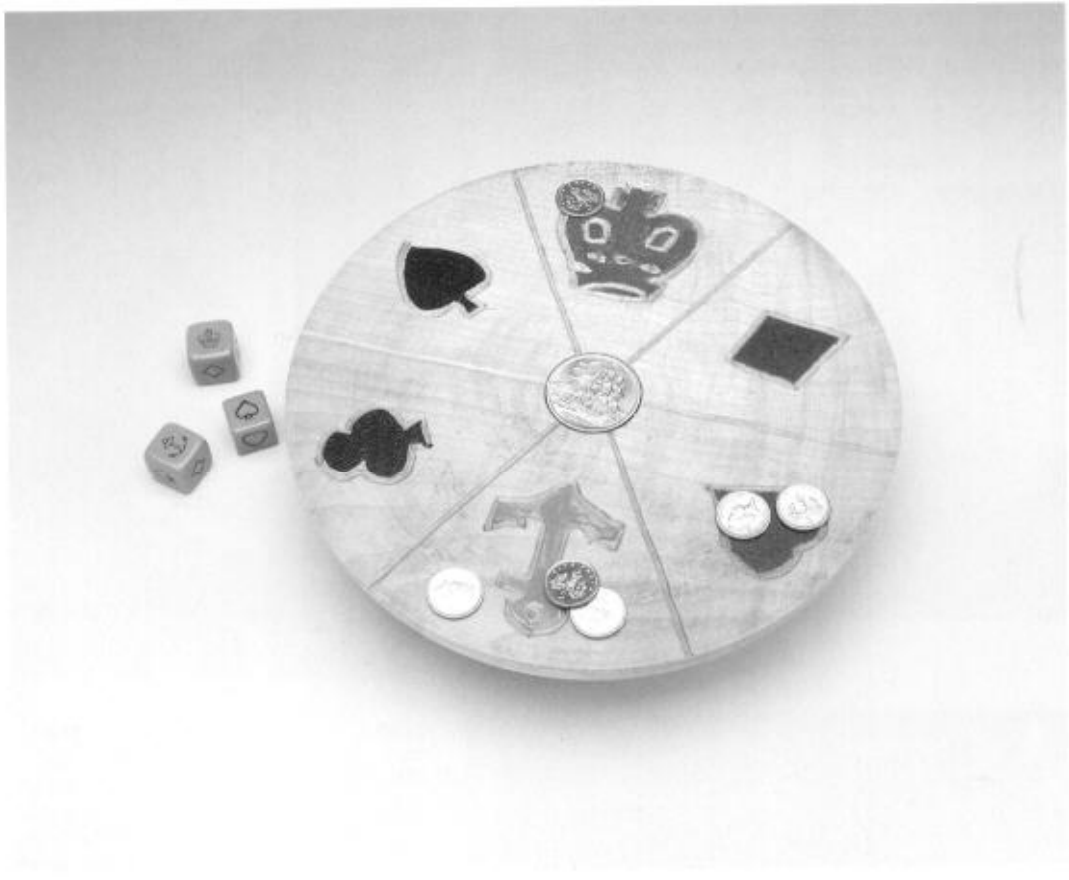


Fig 19.1 A blank of sycamore some 8½in (216mm) in diameter and 1in (25mm) thick was used for the board. Because of the defect seen upper right, I made this the underside. Defects can often be minimized in this way. The eventual upper surface of the board was glued to a waste scrap of wood with brown paper intervening, and the scrap screwed to a faceplate.

Fig 19.2 The circumference of the expanding chuck jaws was marked on the undersurface of the board. Note that much of the original defect in the blank has been removed in the chamfering.

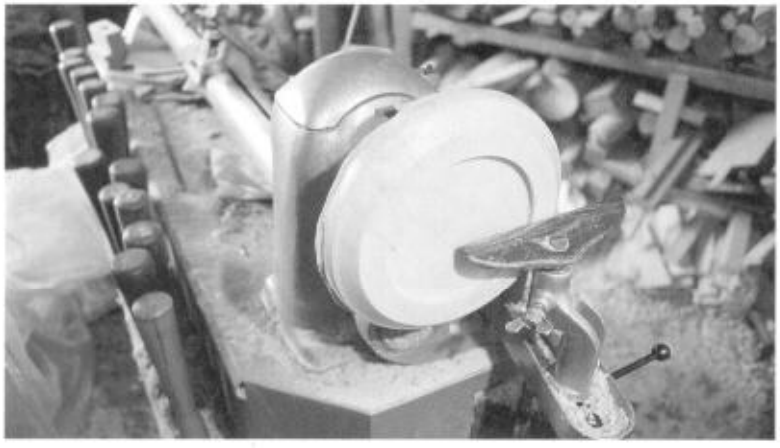


Fig 19.3 The recess in the undersurface ready to receive the expanding chuck.

Fig 19.4 With the blank mounted in the chuck, the glue from the paper joint was removed from the upper surface of the board with a scraper, and the surface finished with glasspaper and a handful of wood shavings.

Fig 19.5 The six radii forming the compartments were cut with a carvers' V tool and a Stanley knife. A protractor was used to mark out the 60° angles in pencil at the centre of the board.

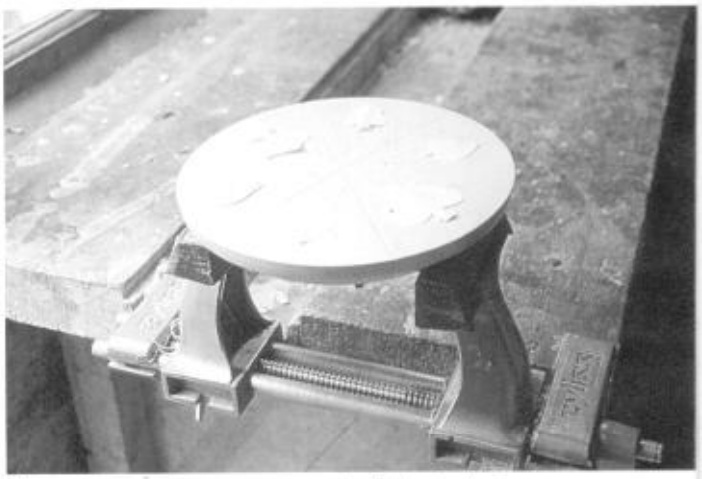


Fig 19.6 Paper patterns were made of the six devices and placed in position in the compartments, and their outlines marked out with a pencil.

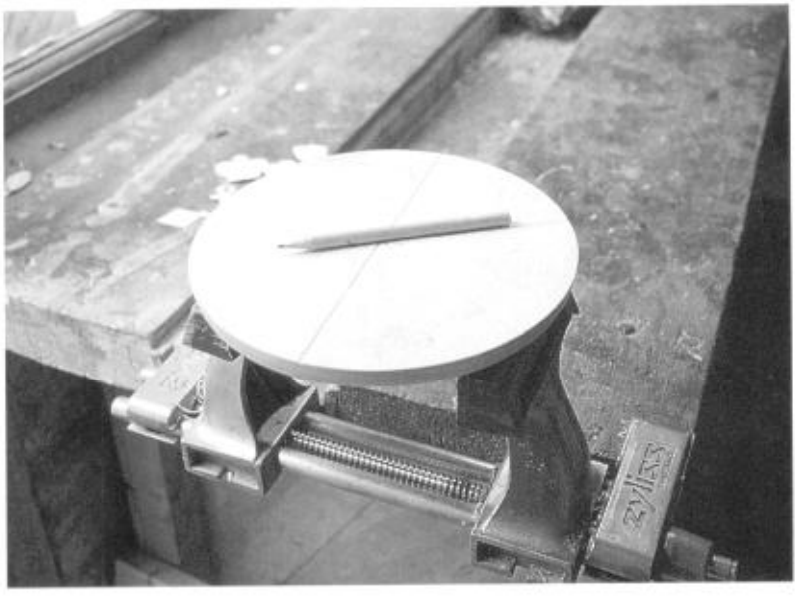


Fig 19.7 The pencil outlines were faint, but some can just be seen in the photograph.

Fig 19.8 The six devices have been outlined with a V tool. The paper patterns are on the bench on the right.

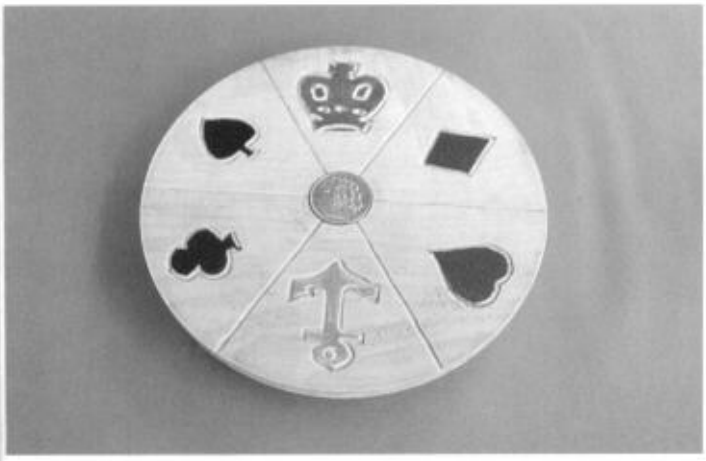


Fig 19.9 The devices were painted with acrylic paints and, to give a seafaring touch, a New Zealand 50¢ piece showing Captain Cook's full-rigged ship, *Endeavour*, was set into the centre. If you can't get hold of one, a pre-decimal UK halfpenny would do just as well, as they show Drake's *Golden Hind* on the reverse.

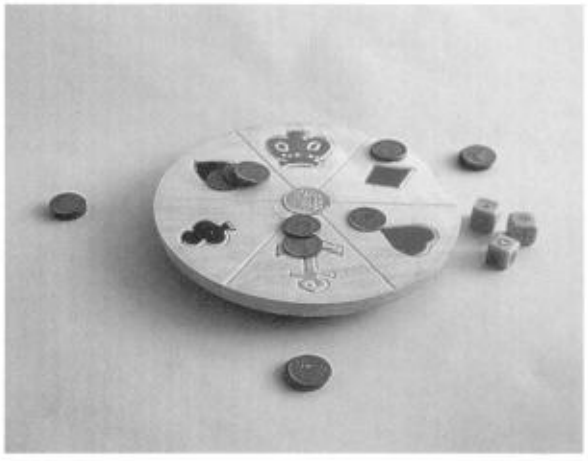


Fig 19.10 A game in progress with bets on spades, diamonds, hearts and anchor. The dice are showing a spade, a crown and an anchor. The banker will pay on these, and take money on any of the other compartments. After each settlement new bets are made, and the dice cast again.

THE RULES

The players sit round a table and place their bets on the compartments of their fancy. The banker throws the three dice from a cup, and pays even money on singles, two-to-one on pairs, and three-to-one on three of a kind. The other stakes become the banker's property.

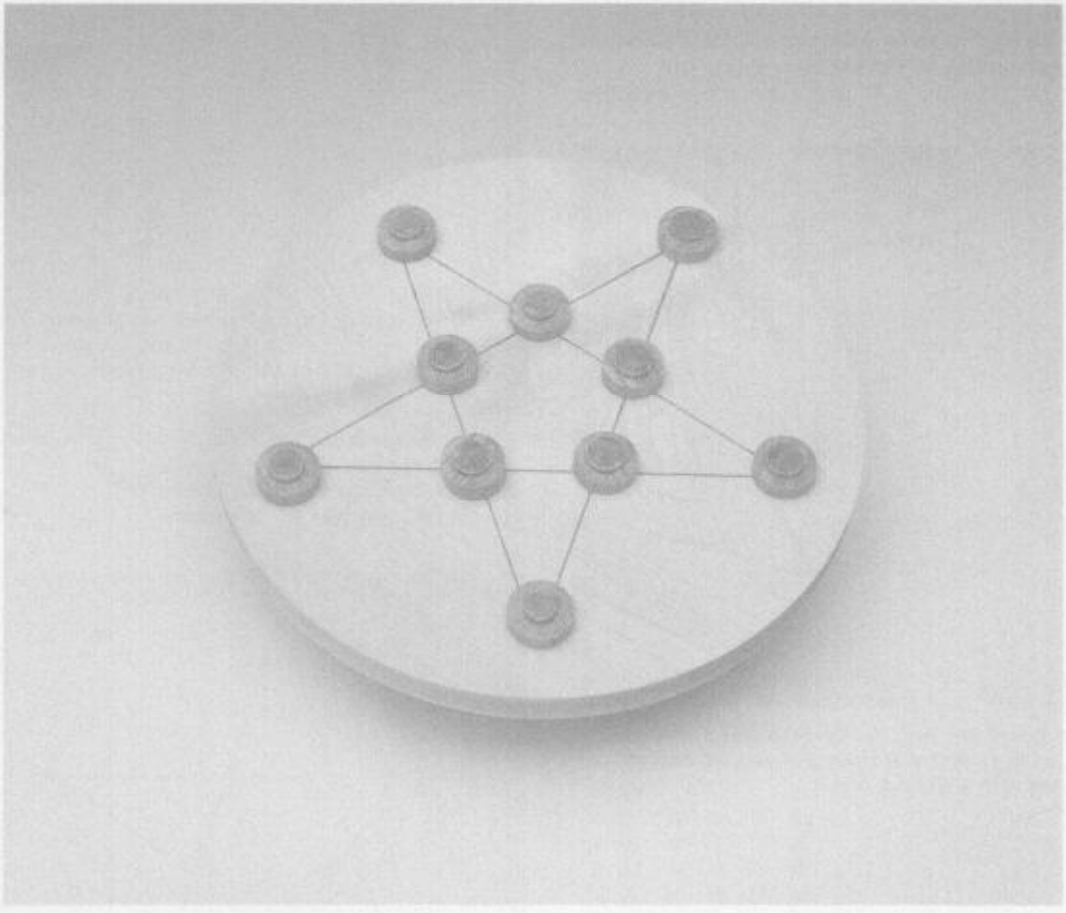
Mathematicians have calculated that the banker's advantage is 7.87%: eventually these odds will make certain that the banker is well in pocket, so each player should be banker in turn.

References:
Scarne, J. and Rawson, C., *Scarne on Dice*, 2nd revised edn, Military Services Publishing Co., Harrisburg, 1946, p.337.

20

Pentalpha and Kaooa

One of the great roofing slabs of the temple at Kurna on the western bank of the Nile at Thebes is inscribed with a five-pointed star. The building was started by Ramses I and completed by his son Seti I at the turn of the fourteenth and thirteenth centuries BC. The pentagram was probably cut by one of the masons shaping the slab in a quarry before it was transported to its final position, and may have been used as a gaming board to while away the hours in the noonday heat.



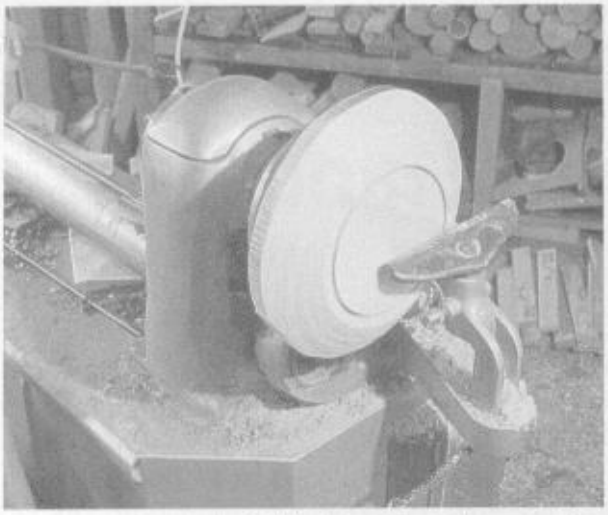


Fig 20.1 I used a piece of 1½in (38mm) figured sycamore for the board, drawing the circular bottom of the board on the underside. This had a diameter of 5in (127mm). The top surface was drawn on the other side, with a diameter of 8¼in (209mm). The marked blank was then sawn off and made circular using a bandsaw. The bottom of the board was then turned to remove unwanted bark, and a recess cut 1in (25mm) deep to receive an expanding chuck. This recess would later form a store for the pieces.

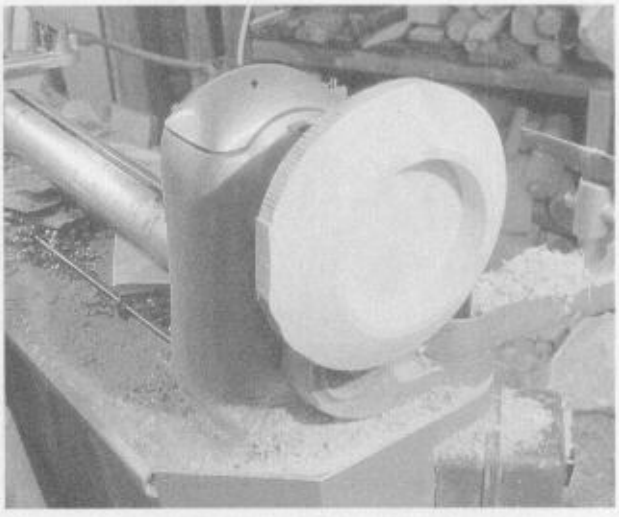


Fig 20.2 The recess completed.

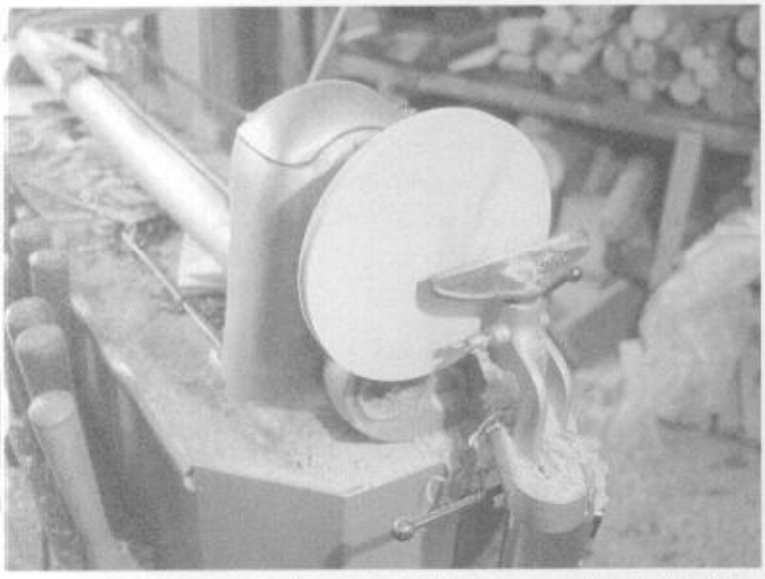


Fig 20.4 The board was held by the expanding chuck while the upper playing surface was trued and sanded, and the edge decorated with a shallow cove.

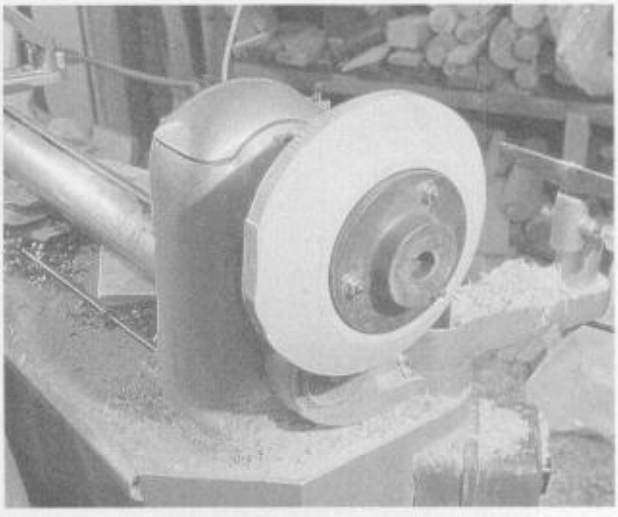


Fig 20.3 The expanding chuck in the recess.

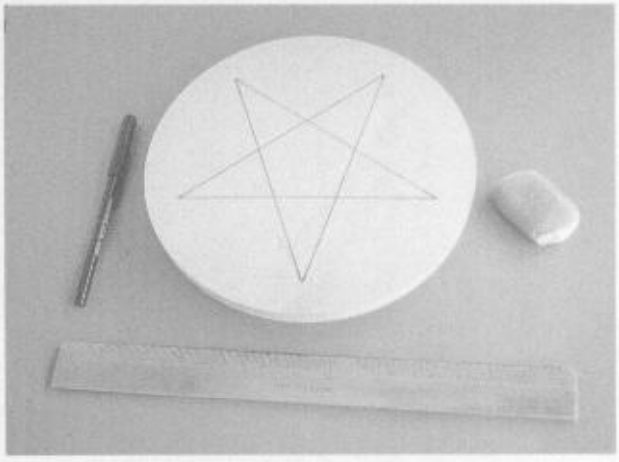


Fig 20.5 The pentagram was first drawn in pencil using a pair of compasses, a steel rule, and a protractor. Each point forms an angle of 72° with the next at the centre. It was then outlined in ink with a felt-tipped pen.

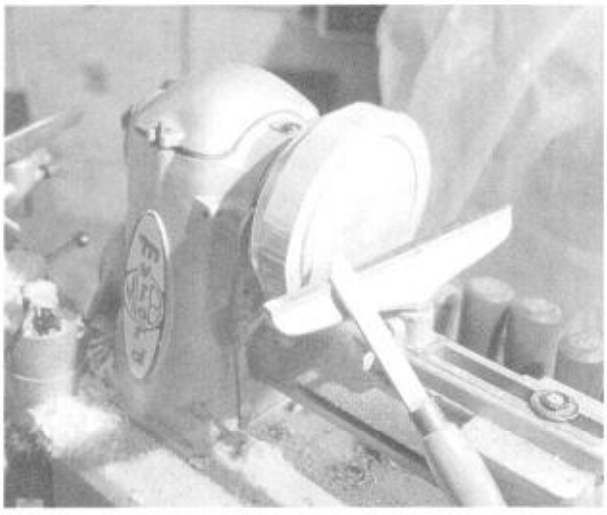


Fig 20.6 The blank, 6¾in (171mm) in diameter and 1in (25mm) thick, which will form the base of the board. The blank was then screwed on to a faceplate while being shaped. The bottom was 6½in (165mm) in diameter, the top 5in (127mm) in diameter, and the step ¼in (6mm). The top fits into the recess on the underside of the playing surface, the space between being used to store the pieces when not in use. The screw holes were filled with plastic wood and the whole surface covered with green baize.

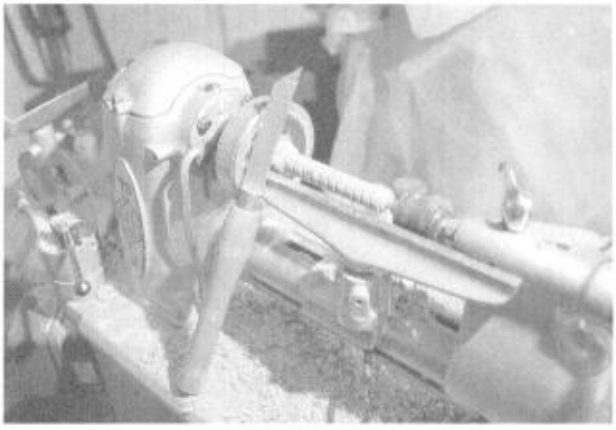


Fig 20.7 The pieces were turned between centres, and then separated with a gent's saw.

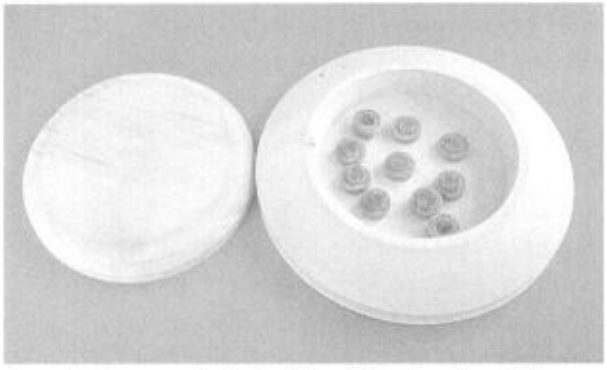


Fig 20.8 The recess in the bottom of the board containing ten pieces, one painted blue for the tiger. Alongside is the base section of the board which forms a lid for the cavity holding the pieces when they are not in use.

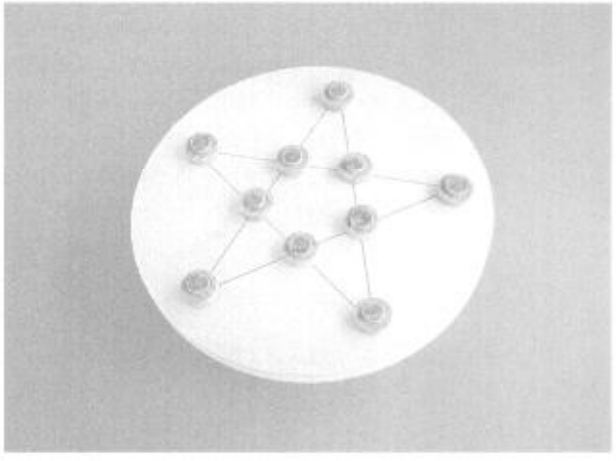


Fig 20.9 Ten pieces on the playing surface before one was painted blue. Nine plain pieces are used in Pentalpha, seven and the blue piece for Kaooa.

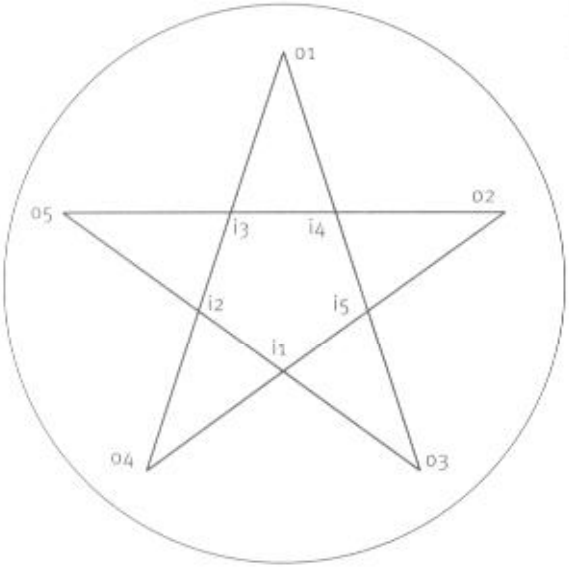


Fig 20.10 Pentalpha solution.

Move

1 i2 to i1 to 03
2 01 to i3 to i2
3 05 to i3 to i4
4 i5 to i4 to 01
5 04 to i1 to i5
6 i3 to i2 to 04
7 02 to i4 to i3
8 i1 to i5 to 02
9 i1 to i2 to 05 leaving i1 empty.

THE RULES

Today in Crete a similar board is used for a solitaire game, Pentalpha. The Pentalpha player starts with the board empty, and nine pebbles. He places one of these on any unoccupied point, saying 'One', moves it over another point, 'Two', whether the point is occupied or not, and then to a third point, 'Three', which must be empty and where the pebble remains. The three points must be in a straight line. The one-two-three move is repeated with each of the nine pebbles to win the game. The solution is given in Fig 20.10.

The same game is played in the States of Sikkim and Assam in India, where it is called Lam Turki, and in the Karwi division of the United Provinces as Kawwa Dand.

The pentagram is also used in the Central Provinces of India for a hunt game, Kaooa. In this game one of the pebbles is a different colour and represents a tiger, while seven other pebbles are kaooas.

The game begins by the tiger being placed on any point on the empty board, followed by a kaooa. In alternate turns of play the tiger moves to any nearest point, followed by another kaooa being placed on the board. Only when all the kaooas are on the board can a kaooa move at each turn of play. They cannot jump. The kaooas win if they trap the tiger and prevent him being able to move. The tiger can capture a kaooa by jumping over it on to a vacant point immediately beyond, the kaooa then being removed from the board. After a capture the tiger can continue or change direction to make another leap capturing a second, or even a third or more kaooas, in the same turn of play. He cannot, however, jump over two pieces in the same leap. If the tiger makes enough captures to ensure that his immobilization is impossible, the tiger wins the game.

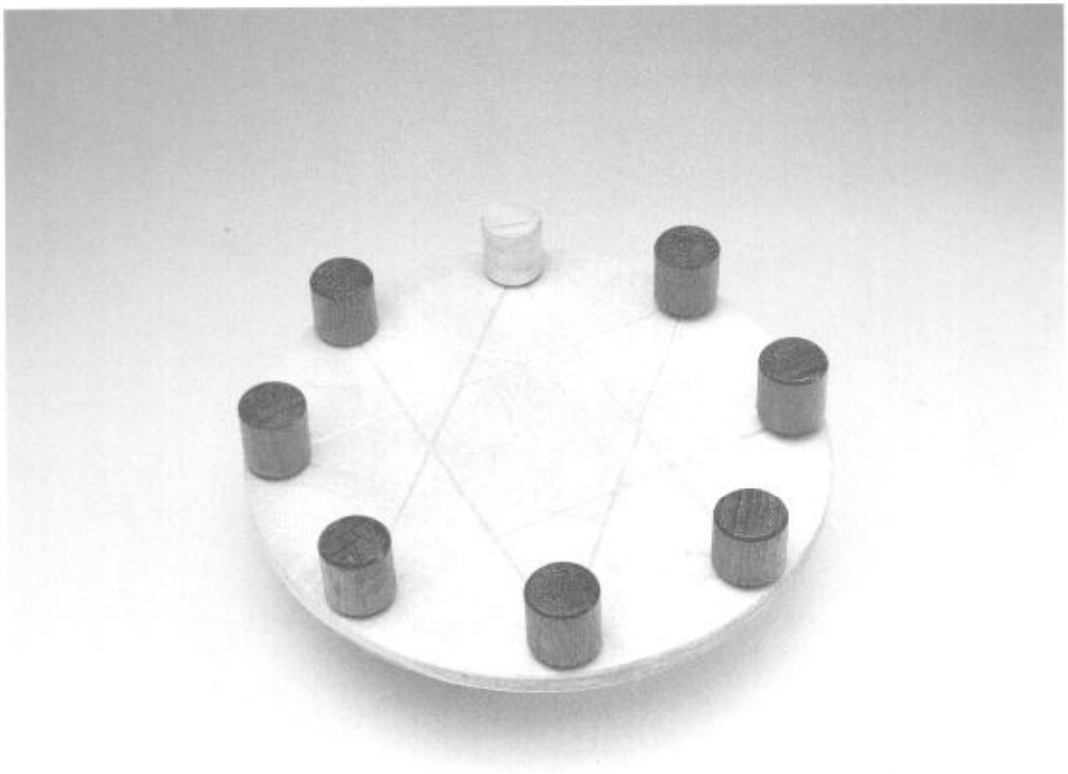
We do not know how the Ancient Egyptians used the board as no description of their playing it has been found; it could have been for Pentalpha, Kaooa, or perhaps some other game that has not survived.

Reference: Murray, H.J.R., *A History of Board Games other than Chess*, Clarendon Press, Oxford, 1952, pp. 18, 28, 112.

21

North Star Solitaire

This sailor's game for one is from the days of sail, and is based on the eight major points of the compass. The seven dark pieces represent lesser stars, and the light piece the North Star.



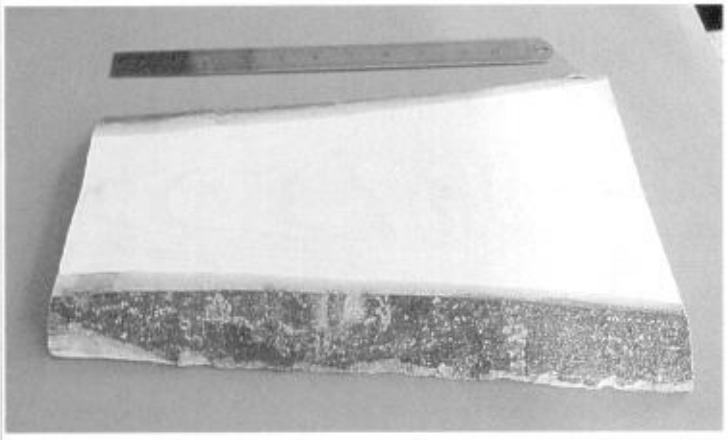


Fig 21.1 Sycamore planking 15in (381mm) long and 7 to 10in (178 to 254mm) wide with bark edges was used to make the board.

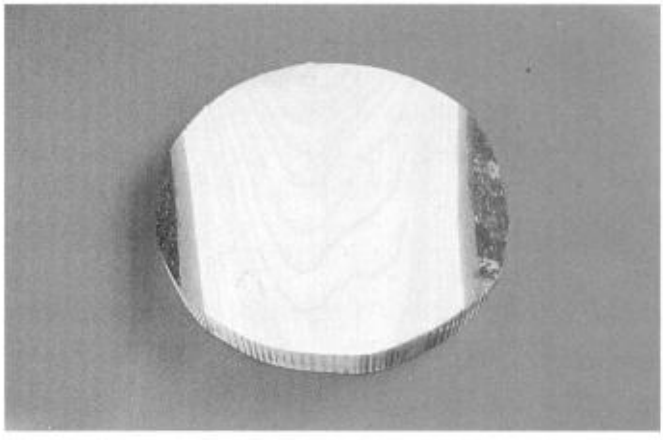


Fig 21.2 The plank was cut into a circular disc with a bandsaw.

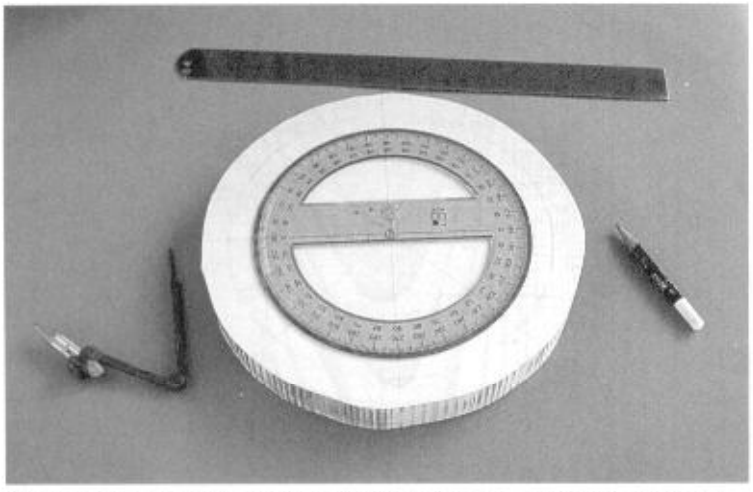


Fig 21.3 The board was marked out with a compass, protractor, steel rule and pencil.

Fig 21.4 The bark from the underside of the board was then removed on the lathe.

Fig 21.5 The board was then separated from the scrap wood screwed to a faceplate.

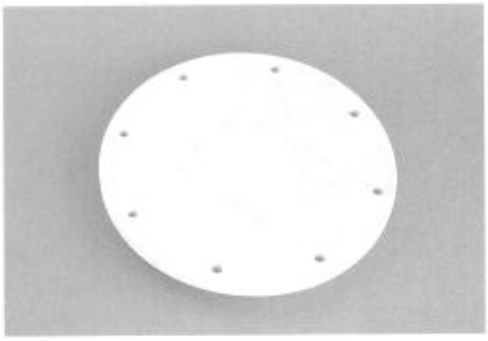


Fig 21.6 Peg holes were drilled into the upper surface of the board.

Fig 21.7 Cutting the connecting lines with a carvers' V tool.

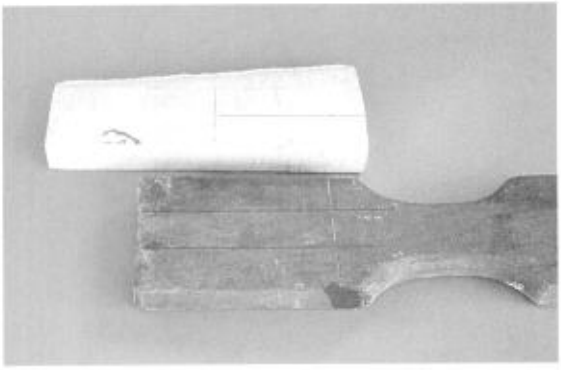


Fig 21.8 Waste pieces of teak and sycamore ready for cutting into strips to be turned into cylinders 7/8in (22mm) in diameter.

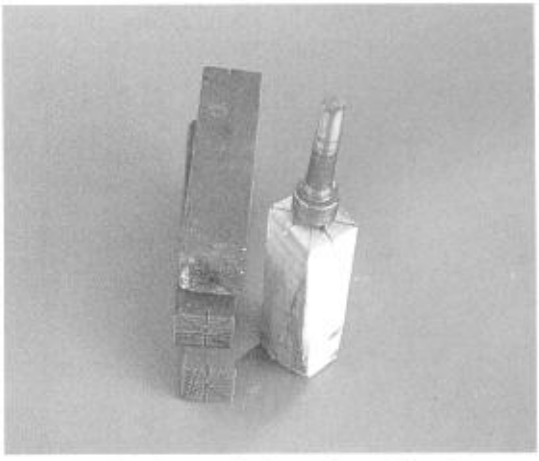


Fig 21.9 The strips ready for turning, with a four-pronged chuck in the sycamore strip.

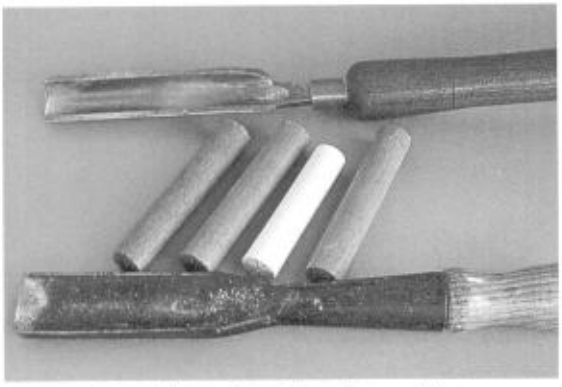


Fig 21.10 The cylinders from the strips, and the roughing and smoothing gouges used.

Fig 21.11 Turning three teak pieces from the cylinder. The calipers, skew chisel and parting tool used are also shown.

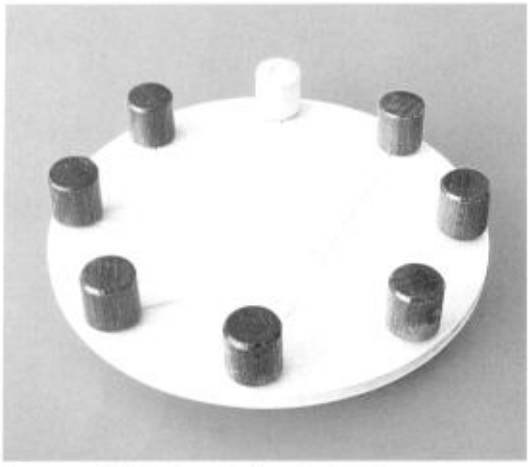


Fig 21.12 All the stars in place in the heavens.

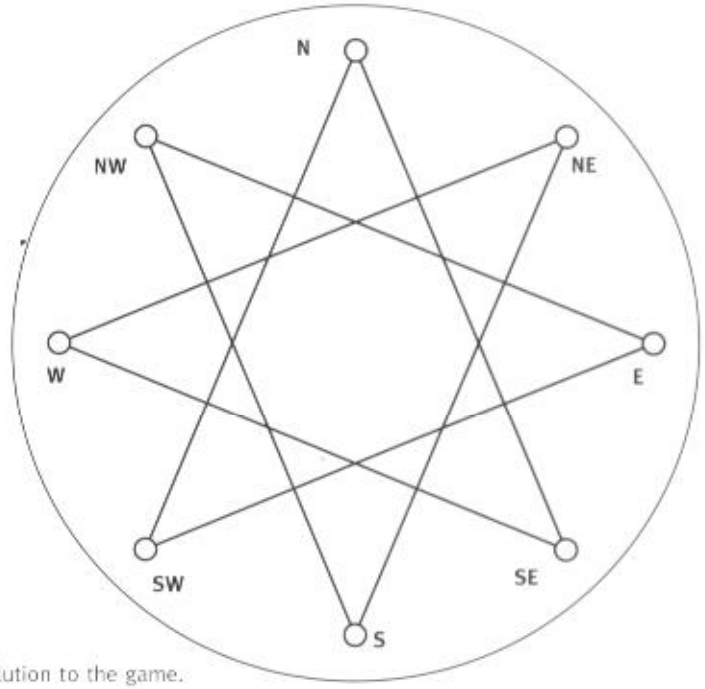


Fig 21.13 The solution to the game.
E–NW, NE–S, SW–E, W–NE, SE–W, N–SW, N–SE, and the North Star moves on to N.

THE RULES

With the board empty, the player places a dark peg into any hole on the board, and moves it along one of the lines connecting it to another hole, where the peg comes to rest. This process is continued with all seven dark pegs, leaving the light peg to be placed in the last hole at the North. Thus all the stars move except the North Star, which remains stationary.

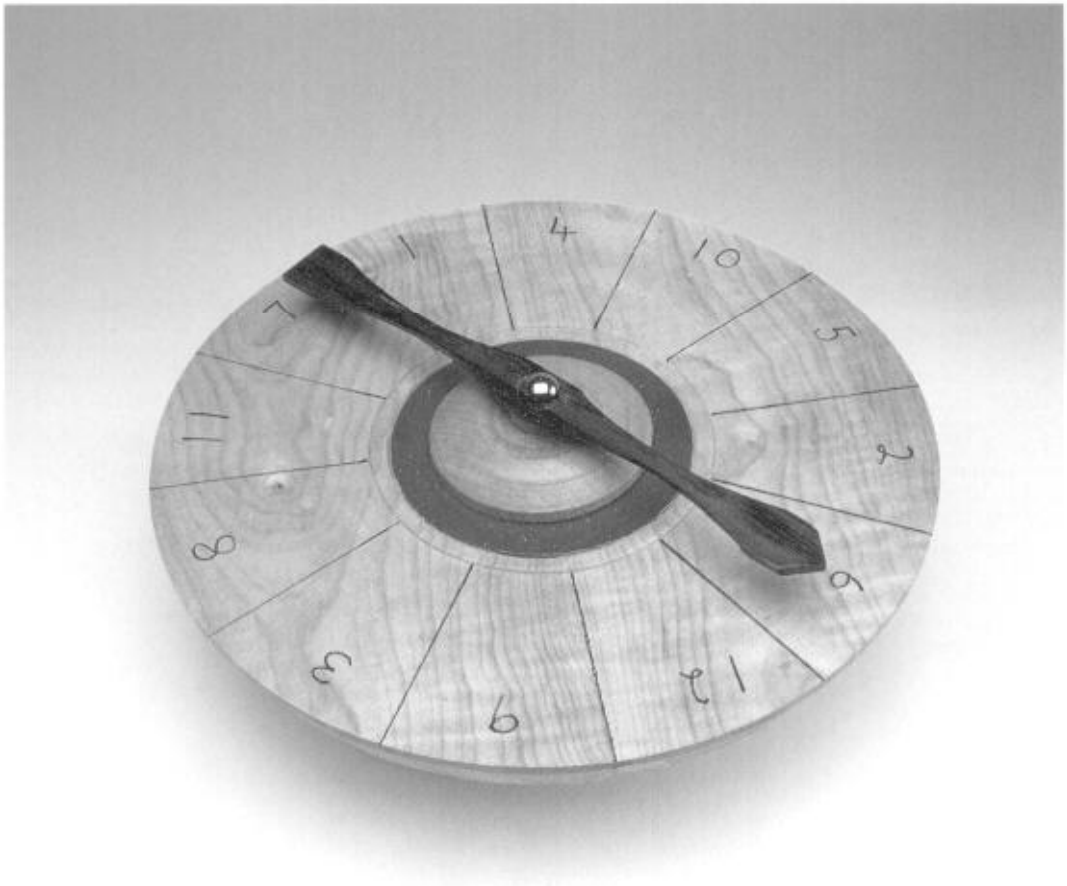
Like many games of this type, interest wanes once the player knows the solution, but the answer is given in Fig 21.13.

22

Spinning Jenny

A hundred years ago in the low-ceilinged pubs of Norfolk a common sight was a large arrow known as a 'twister' suspended beneath a circle divided into twelve segments, each marked with a number from 1 to 12, arranged in random order. When glasses were running low each patron swung the arrow, and the lowest scorer paid for the next round of drinks.

Similar in concept, though not in size, was the Kentish Spinning Jenny, a wooden disc with an arrow poised over its centre that stood on the bar counter. Few remain, which seems a pity.



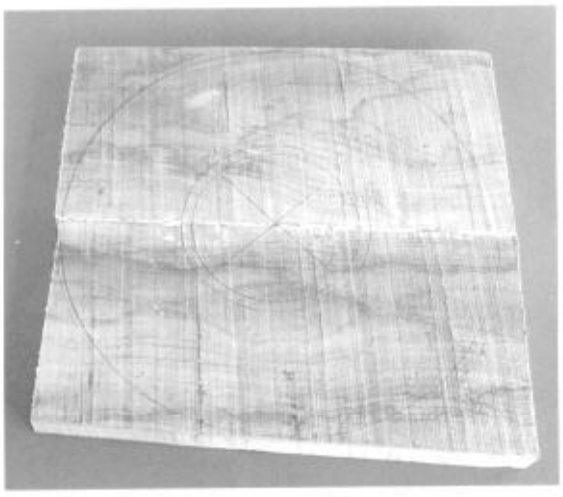


Fig 22.1 Two pieces of figured sycamore 12 x 6 x 1in (305 x 152 x 25mm) were glued together, the diagonals drawn, and three circles marked out at 2in (51mm), 2¼in (57mm), and 5½in (140mm) from the centre.

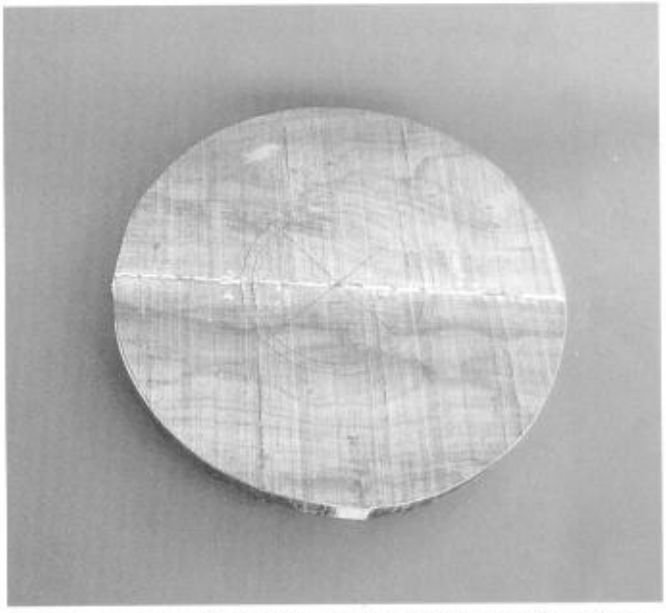


Fig 22.2 The square board was converted with a bandsaw into a round blank just larger than the largest circle. A faceplate was then screwed to the underside of the blank with the screw holes positioned to support the join during turning (see Fig 22.11).

Fig 22.3 The edge and underside of the board have been turned.

Fig 22.4 The inner circles were cut on the upper surface of the board with a small skew chisel, and then the rough surface was planed with a flat scraper and finished with fine glasspaper and woodshavings.

Fig 22.5 A scrap piece of beech 3¼in (82mm) in diameter was held with a screw chuck ready for turning into the central boss of the Jenny.

Fig 22.6 The boss with its stem ready for separation. The skew chisel used in shaping, and the calipers for measuring the stem, are shown at the right.

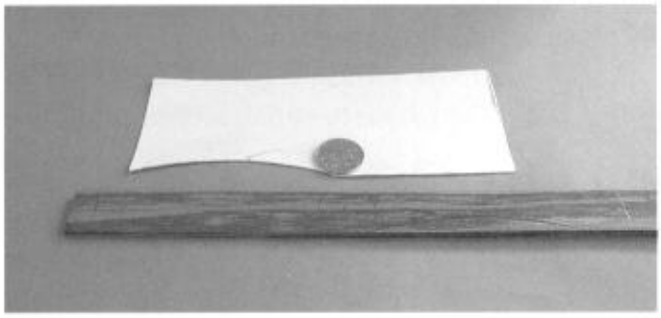


Fig 22.7 The arrow was made from a thin strip of sepetier 7/8in (22mm) wide and more than 10in (254mm) long. The centre of the future arrow was marked with an awl 5in (127mm) from one end, and 7/16in (11mm) from the sides. A circle was drawn round the awl mark with compasses and a pencil, to the size of a 10p piece. Then the head and tail of the arrow were marked out, and the curves for the sides drawn on a piece of cardboard using the circumference of the board as a template.

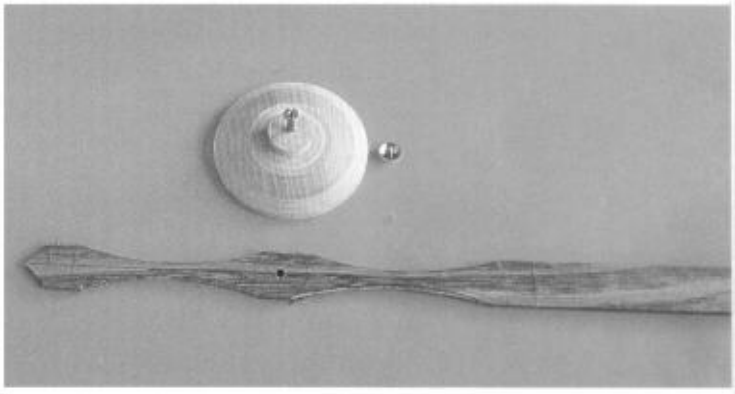


Fig 22.8 The central boss and stem complete, together with a chromium-plated mirror-head screw, No. 8 x 1½in (38mm). Here, the waste wood is still to be cut from the arrow. The arrow I cut out with a bandsaw, and made the curves smooth with a small spokeshave and curved file. Using the awl mark in the centre of the arrow as a guide, a 3/16in (5mm) diameter hole was drilled, the arrow cut away from the waste wood, and a penknife placed under the centre of the hole and wood whittled away from the head until the two halves of the arrow were in exact balance, essential for proper rotation.

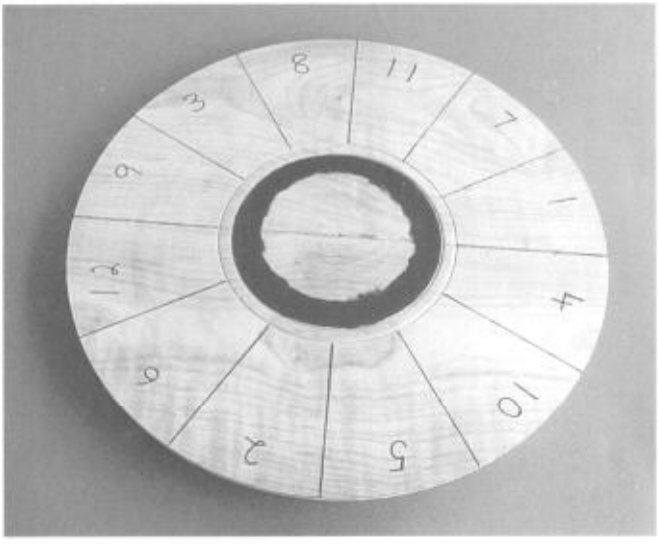


Fig 22.9 The segments were then marked on the upper surface of the board with a felt-tipped pen. Each bears a number, and opposing pairs of compartments add up to 13. Red Humbrol enamel was applied within the inner circle and under the position of the boss.

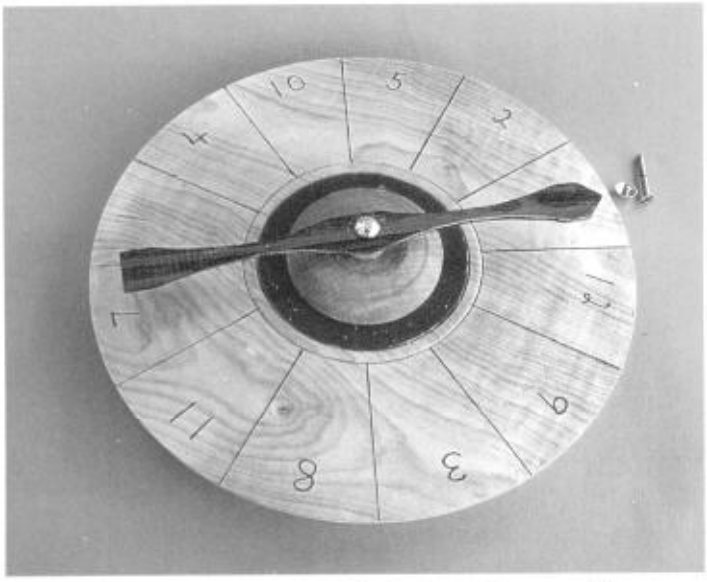


Fig 22.10 The Spinning Jenny varnished and ready for use, with a spare chromium-plated mirror-head screw alongside.

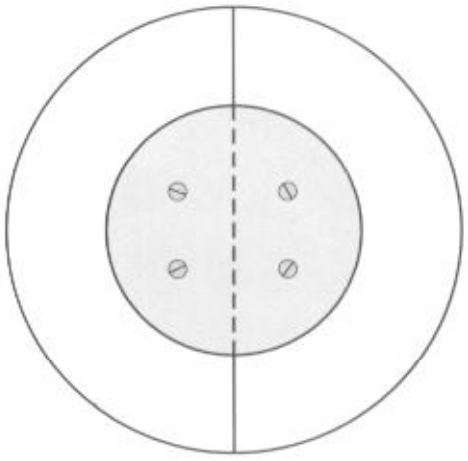


Fig 22.11 The position of the faceplate screws in order to support the join.

THE RULES

The Spinning Jenny can be used for playing any race game replacing dice, or for the game of Thirty six. In this, any number of players take part, each putting a stake into a pool and then spinning the arrow to determine the order of play, the lowest scorer starting, and the highest player playing last, a useful advantage.

Each player spins in turn, adding his score to his previous total, the object being to reach 36, or as near to it as possible without passing it. A player going 'over the top' is out of the game. The player with 36, or the nearest to it, wins the pool, and if there is a tie the winners share the prize.

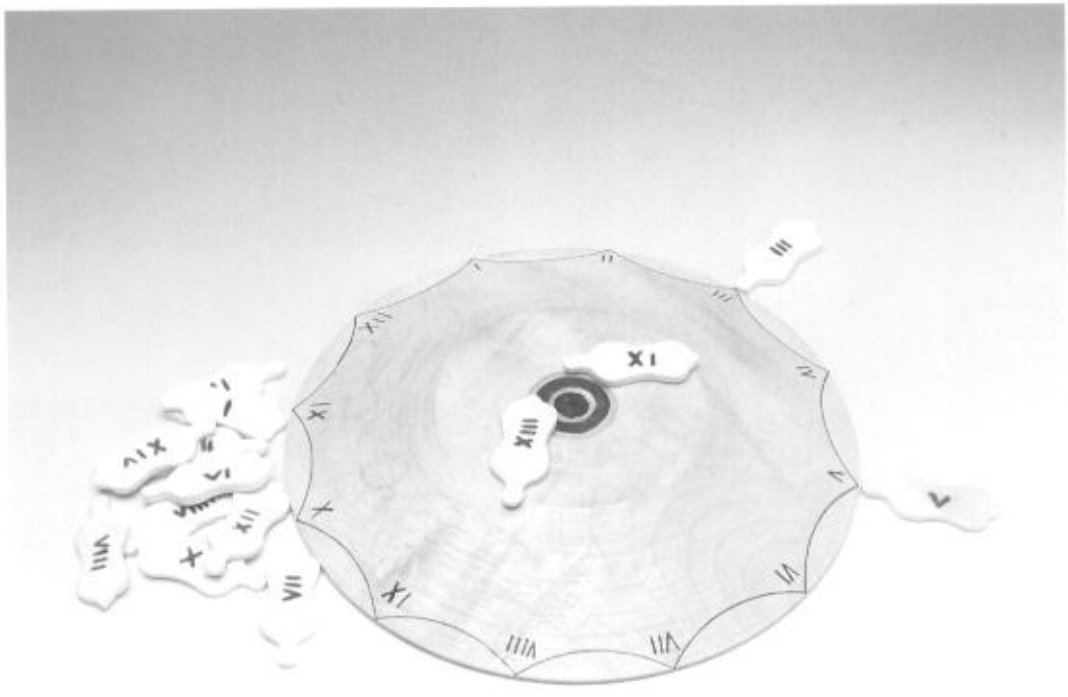
Reference: Taylor, A.R., *The Guinness Book of Traditional Pub Games*, Guinness Publishing Ltd, London, 1992, pp. 152–3.

23

Wild Oats

Excavations in Athens in 1880 unearthed a silver gaming board with a scalloped circular design of 12 points, and an incomplete set of bone pieces resembling Cycladean fertility statuettes. Each piece was clearly marked on one side with a Roman numeral.

Two similar incomplete sets have been found at Pompeii, once a Greek city. These pieces were marked from 1 to 14, although some pieces were missing. A comparable set of numbered pieces shaped like little boars was found in a wooden box in a house in Herculaneum, victim of the same volcanic eruption of Vesuvius that destroyed Pompeii on 24 August, AD 79. These four incomplete sets of pieces suggest that a full set would have consisted of 14 pieces, requiring satisfaction at the twelve points of the board.



Construction

A handy size for the board is 12in (305mm) in diameter and 1in (25mm) thick, with the pieces 2¼in (57mm) long by 1in (25mm) wide at the widest part, made from bone or plywood. On one side the pieces are marked as a goddess and with a number, the other is left plain. No rules of play have been found, but those below create an interesting and original game.

Fig 23.1 First, the blank was trued up before shaping the board.

Fig 23.2 The board was shaped with two central concentric circles of ⅜in (10mm) and ¾in (19mm) radius, and a long sloping edge.

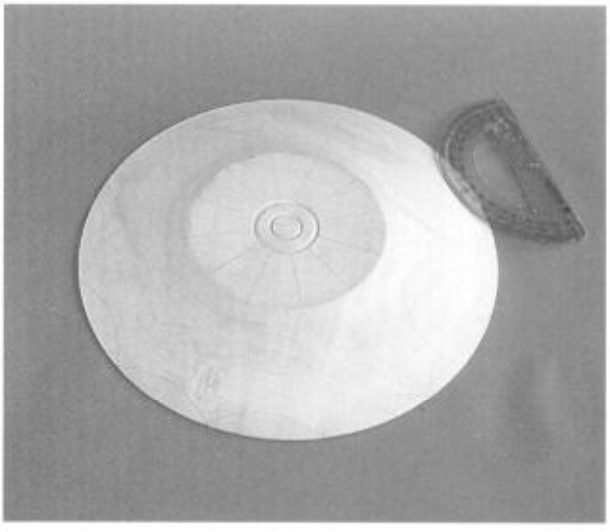


Fig 23.3 The twelve segments and the arcs were then marked out, using a clear plastic protractor.

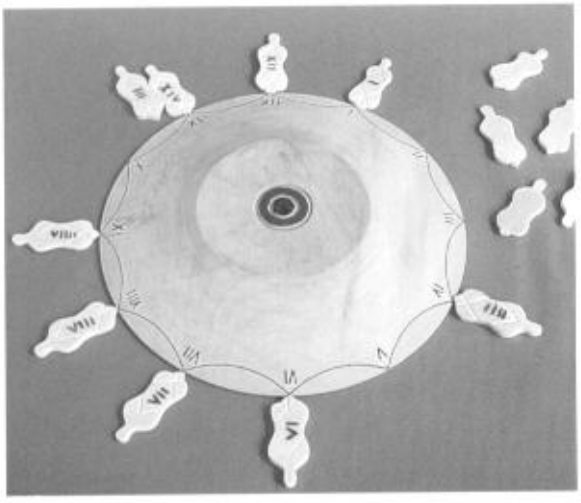


Fig 23.4 The board complete with its acrylic colourings and Roman numerals drawn with a felt-tipped pen, and varnished. After two throws, five dice are left and are re-cast.

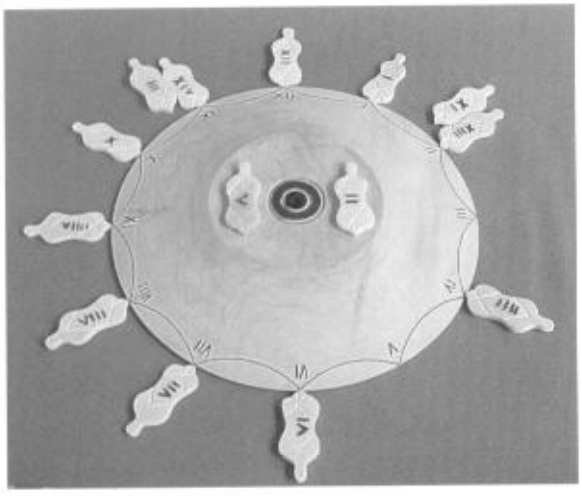


Fig 23.6 Reckoning up the score.

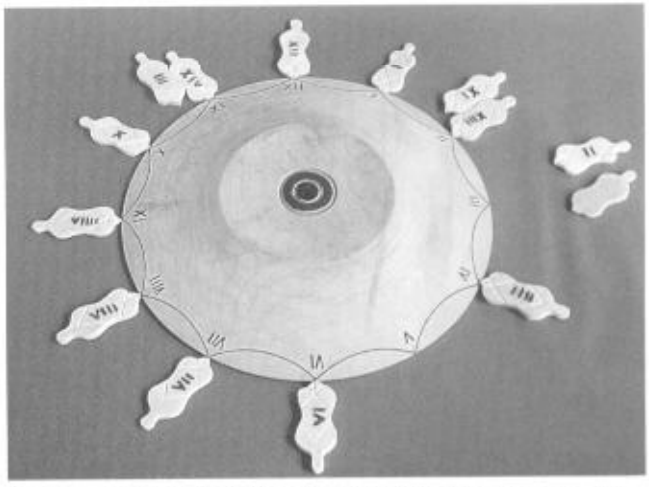


Fig 23.5 The turn finished. The player is left with 3 + 5 on the board, and 2 + 5 with the dice = 15.

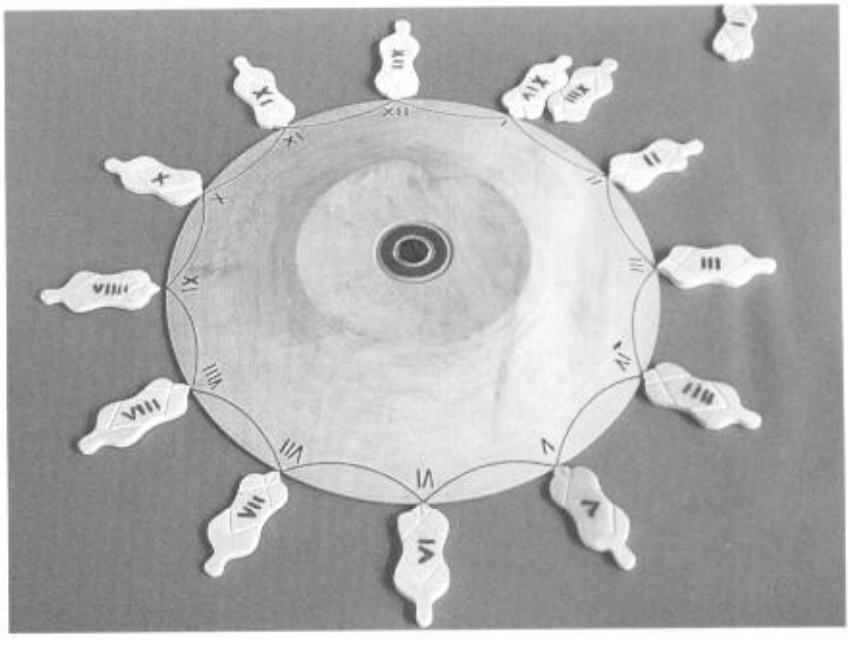


Fig 23.7 The highest possible score, +1?

THE RULES

1 Any number of players may take part, though more than four becomes cumbersome.

2 The pieces are placed on the table number side down, shuffled, and each player in turn turns over a piece of his choice. The players then arrange themselves around the table in order of their scores, the highest starting the game, and the lowest having the last turn.

3 The opening player picks up the pieces, shakes them in his cupped hands, and casts them on to the table. Those displaying numbers are positioned around the board as follows:

(a) The number of a piece must correspond with a point on the board, e.g. piece VIII must be placed opposite VIII on the board if used as a singleton.

(b) Two pieces may be 'coupled' to form the point number, by addition or subtraction – e.g. point X could be satisfied by XII – II (subtraction) or by IV + VI (addition).

(c) If all the numbered pieces are placed, the player picks up the blanks and throws them again; if all the pieces are blanks on a throw, the turn ceases, but if any of them display numbers, the player attempts to link them with vacant points on the board. If unable to do so, his turn finishes, but if successful, he picks up the remaining blanks and casts again. This process continues until he has been left with a piece or pieces that he cannot place as the points are already satisfied.

(d) The turn then ends, and any vacant points on the board, and any unused pieces, count against him. Say point X and point III on the board were not linked, and pieces I, V, and VIII were left unused, he would lose 13 points from the board, and 14 from the pieces, making an adverse score of 27.

4 Each player casts the pieces in turn, and tries to keep the score as low as possible. The worst score would be if, on his first throw, every piece was a blank, accumulating a deficit of 78 + 105 = 183 points! If a player managed to use all the pieces, and satisfied all the points on the board, his score would be zero. (Is this possible?)

5 A game may consist of one round only, or any number of rounds, as agreed at the beginning of the session.

6 The player ending with the lowest score wins the game.

Wild Oats has several novel features:

(a) The 'counters' are also the 'dice'.

(b) Judgement in coupling pieces is important, and skill plays more part than in many games of chance.

(c) A perfect score of 0 seems to be unachievable, 1 being the best that I have discovered. Can you do any better?

(d) The shape of the 'dice' suggests that stakes other than money could have been at risk – perhaps a precursor of strip poker, or sowing wild oats?

References:
Royal Academy of Arts Exhibition Catalogue (1976) 'Pompeii AD 79', item 235.
Lurent, M., *Tessères en os du Musée d'Athènes*, Le Musée Belge, 1903.

24

Jactus

This simple game was played on feast days by the Roman populace. Cubic Etruscan dice date back to at least the tenth century BC, and in Roman times six-sided dice were known as tesserae. Five were used in the game of Jactus (Casting). The highest score of five sixes was known as Venereus (Venus) and was worth 3 points, the lowest was five ones known as Canis (Dog) and worth 1 point, and five fours was known as Caesar (Prince) and was worth 2 points. No other combination scored.

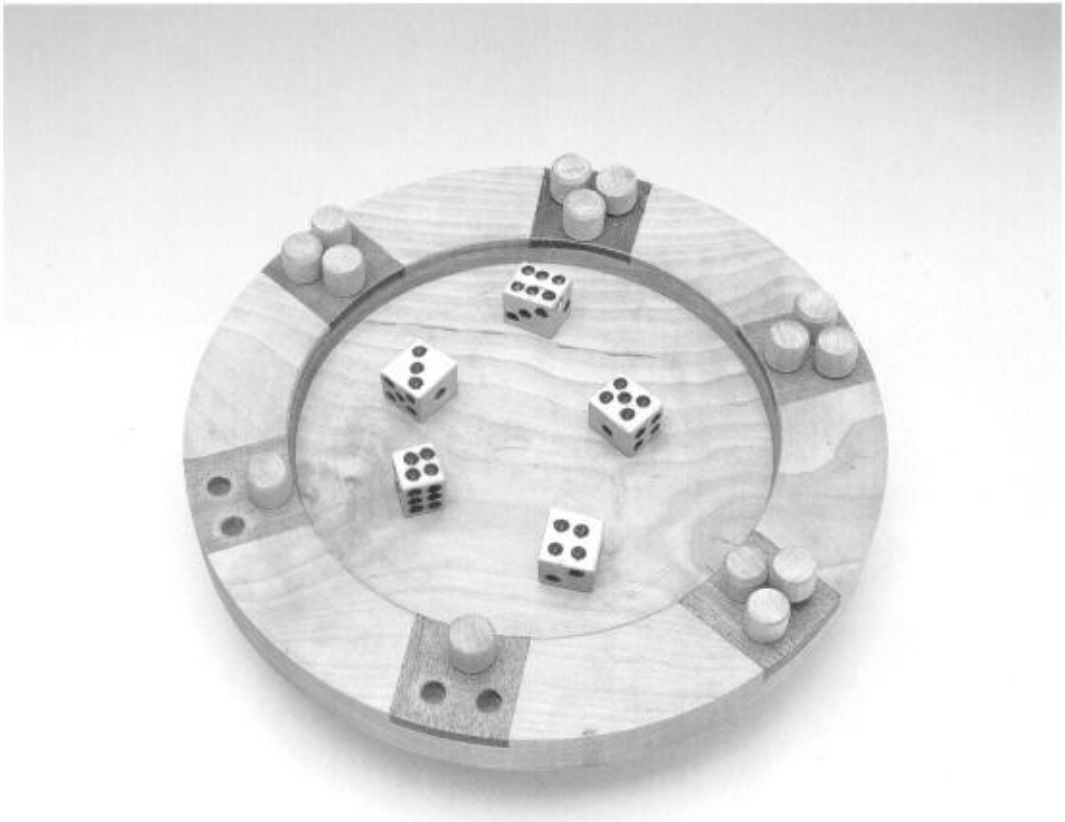


Fig 24.1 The board was cut from a short plank of alder 9½in (242mm) wide and 1in (25mm) thick. A square was marked out at one end and the diagonals drawn to find the centre. A 9½in (242mm) diameter circle was then drawn with a compass, and the circle cut out on a bandsaw or with a coping saw (though this is slower). The measurements are not critical.

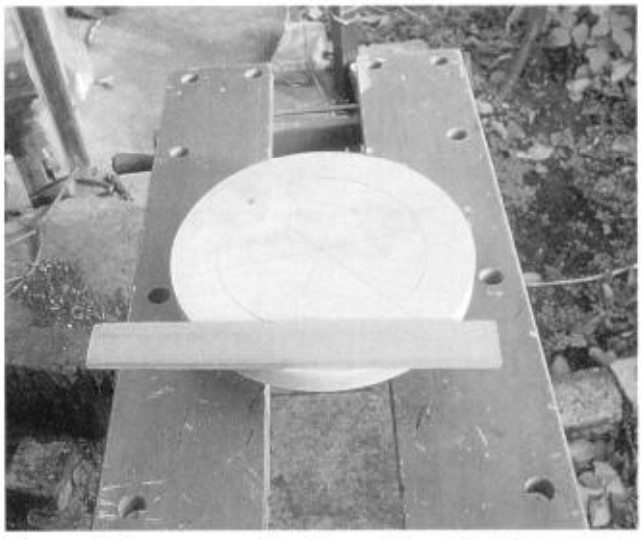
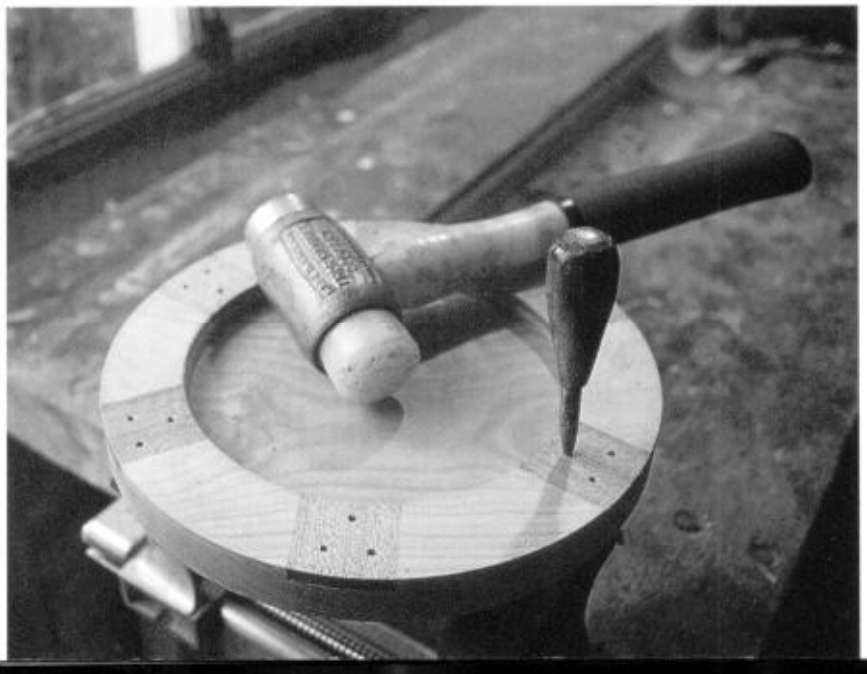


Fig 24.2 An inner concentric circle and six radii at 60° angles to each other were then drawn. In the foreground you can see a piece of 5/16in (5mm) thick and 1in (25mm) wide mahogany used for inlaying into the rim of the board.

Fig 24.3 A recess was made in the centre of the board on the lathe and, using a gent's saw and a chisel, the rim was cut to receive the mahogany inlays.The board was then returned to the lathe to remove the surplus wood.

Fig 24.4 The positions of the peg holes were marked out with an awl and mallet. The holes were then drilled using a pillar drill.



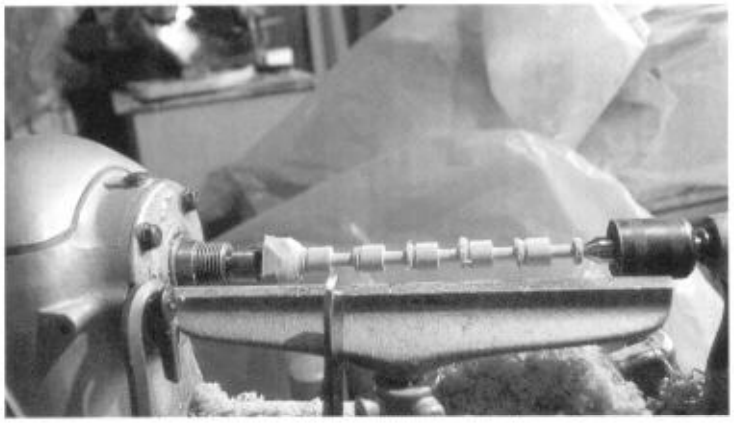


Fig 24.5 The pegs (made of holly) were turned between centres. The maximum needed in a game for six players is 13; I turned 14, so that I would have a spare.

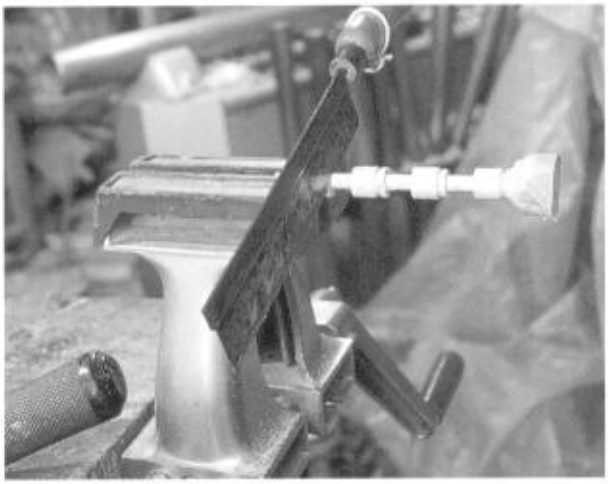


Fig 24.6 The pegs were cut from the turned cylinder with a gent's saw.

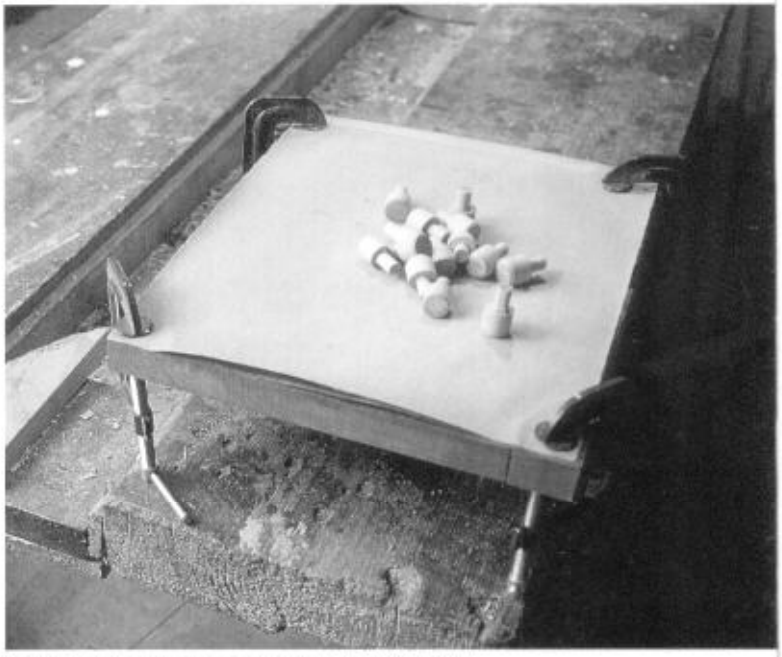


Fig 24.7 The pegs were glasspapered. Note the sheet of glasspaper held flat with four clamps. This makes abrasion easier.

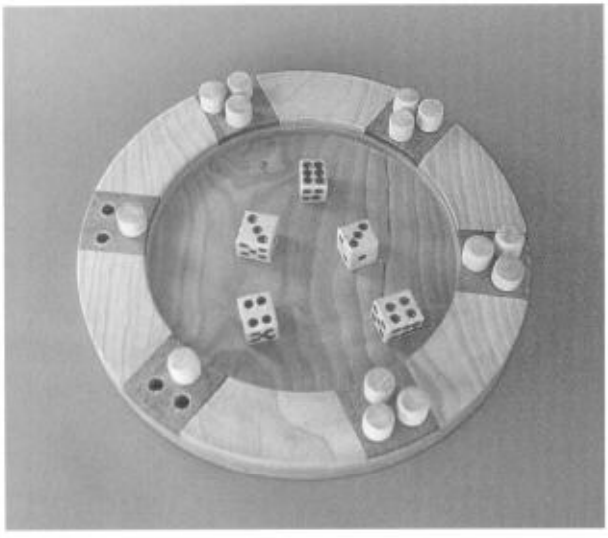


Fig 24.8 The completed board and pegs. The five dice were made several years ago with a hacksaw from old billiard balls. The dots were drilled with a twist bit and coloured with red Humbrol enamel, which is sold in conveniently small tins.

THE RULES

The first player picks up and rolls the five dice, hoping for a scoring combination. If he fails the next player can pick up any or all the dice and cast again in an attempt to obtain a score. If the second player fails, the third player takes over, and can roll any or all the dice again.

Once a player obtains one of the scoring combinations, he places a peg in the appropriate hole in his inlay: Venus on the left, Caesar in the centre, and Canis on the right. He then gathers up all the dice and throws again to start the next round. The first player to fill the three holes in his inlay representing ones, fours, and sixes wins the game.

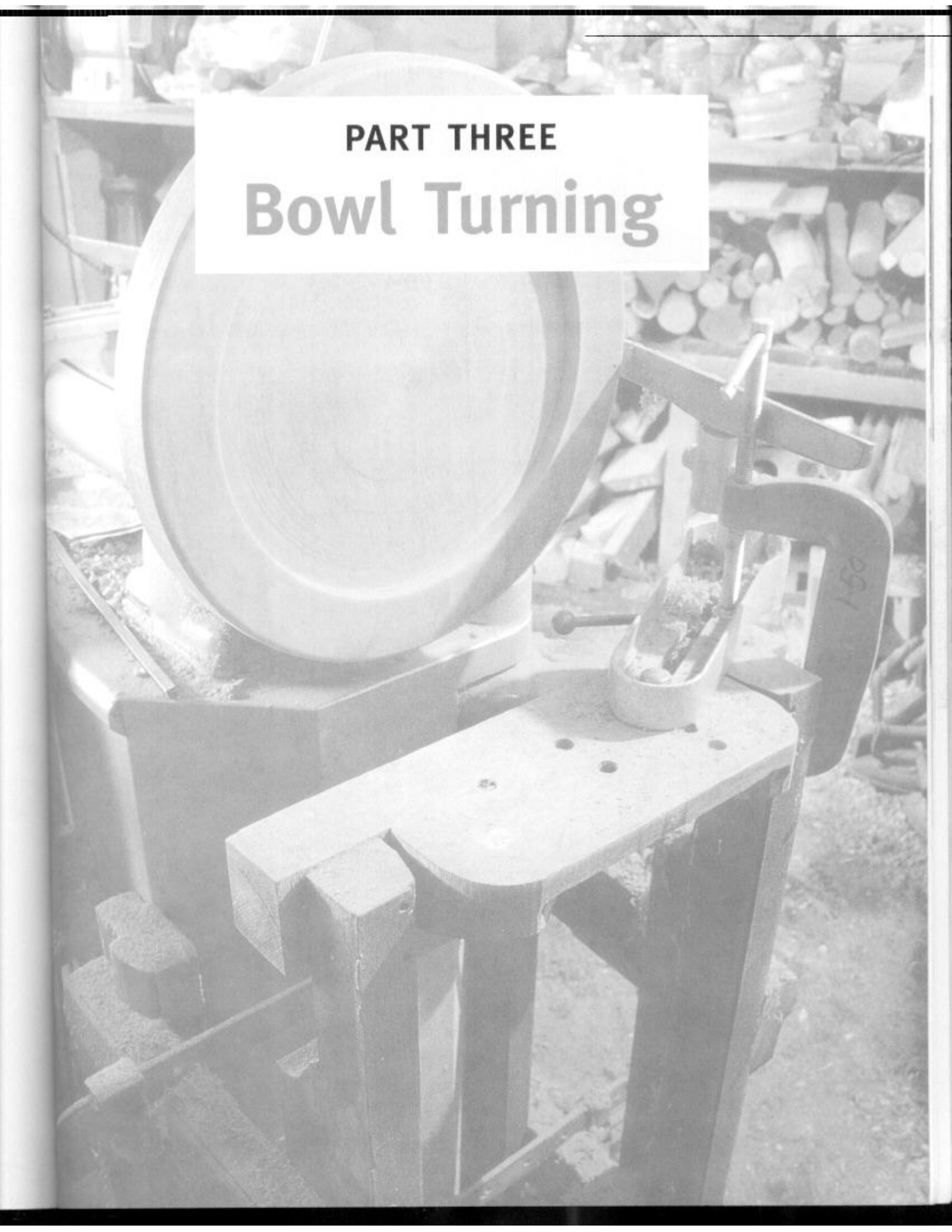
Placing bets

There are two ways of playing for stakes:

(a) The winner takes all.

(b) Each player puts six coins into a pool. The winner takes six coins out, and the other players take out coins equivalent to the pegs in their inlay. When all have claimed their winnings from the pool, what is left belongs to the winner.

This game can be played by any number, though four is probably best; with more than six it may become tedious.



PART THREE
Bowl Turning

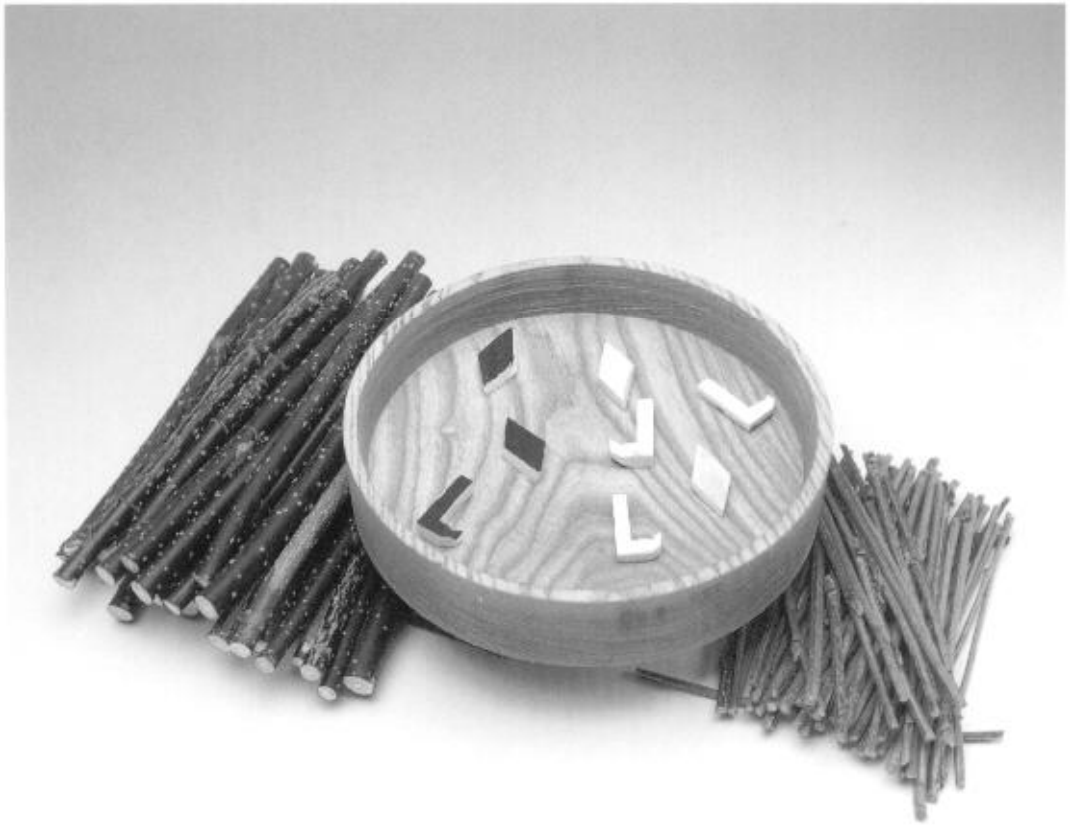
25

Pahkasakimac

This is a game of the Cree Indians in Saskatchewan, typical of many bowl games played by Native American tribes in Canada and the United States.

The original set is in the Field Columbian Museum, and consists of:

1 A wooden bowl 8½in (216mm) in diameter with a flat bottom and vertical sides.
2 A set of eight dice consisting of four small diamonds of bone and four L-shaped hooks representing bear claws. The dice are bi-faced, black on one side and white on the other, and stored in a small bag of red flannel decorated with beads.
3 A set of counting sticks (see Fig 25.1).



Construction

The turning of the bowl is straightforward, using a blank about 9in (229mm) in diameter and 2in (51mm) thick. The bottom, inside and out, is flat, and the sides vertical. (This is an interesting change from the usual curved sides and interior bottom.)

You may make the dice out of bone or 3-ply. Either is effective, but the purist will prefer bone. Remember that bone must *always* be boiled and cleaned before use. The claws should be thick enough to stand on edge.

My tallies were made from prunings of a dogwood, but willow shoots, and apple or lilac suckers, are satisfactory.

Fig 25.1 The completed bowl of American ash, dice and tallies ready for play. The bone set of dice is in the bowl, and a set made of 3-ply outside. The latter need painting on both surfaces, the bone only one (black). Note that one claw in the bowl is on its edge.

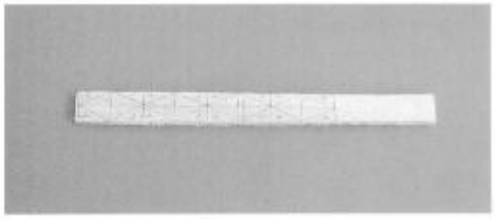


Fig 25.2 Wooden diamond-shaped dice marked out on a strip of plywood.

Fig 25.3 Three sides of the diamonds were cut with a bandsaw, but for safety I cut the fourth side with a dovetail saw.

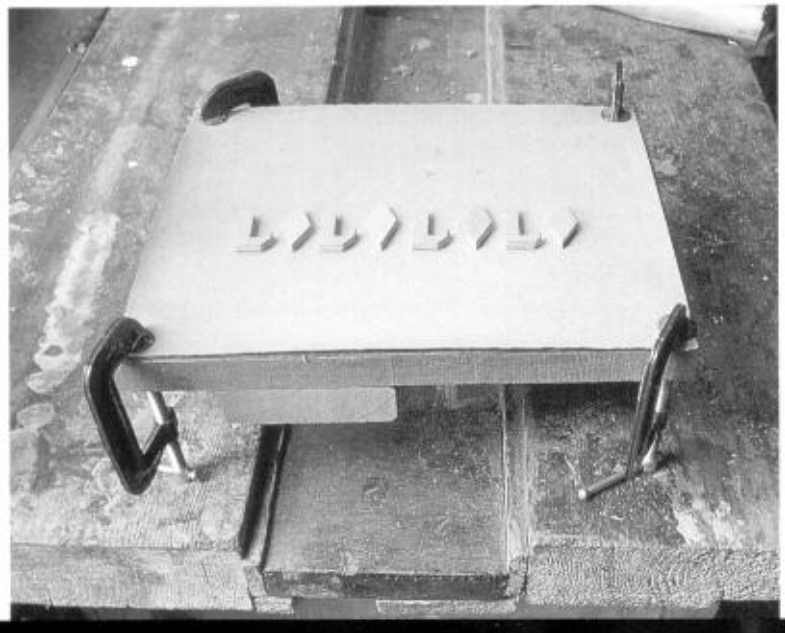


Fig 25.4 Eight plywood dice being sanded with fine glasspaper which is held with clamps to a wooden board.

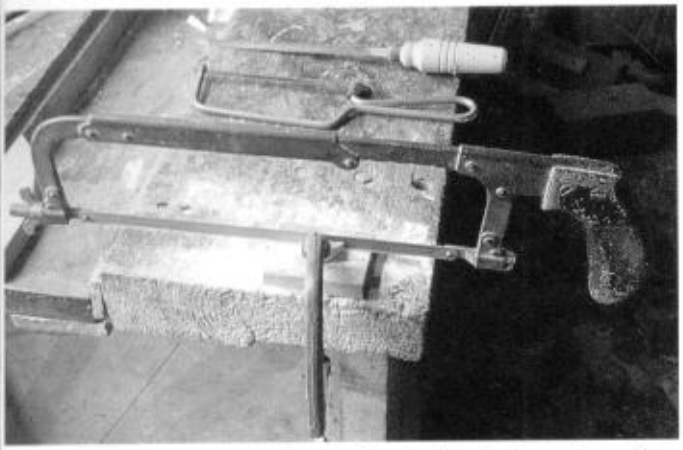


Fig 25.5 Cutting the fourth side of a bone claw with a hacksaw. The hooks of the claws were cut with a coping saw and a fine blade.

Fig 25.6 Painting the two sets of dice with acrylic paints. A test piece of wood, and another of bone, are seen to the left of the plate.

THE RULES

1 Any number of players can take part, either separately or as partners or teams.
2 The dice are placed in the bowl which is then passed to the opening player who bumps it smartly on the ground, causing the dice to jump into the air. The score is determined by the upper surface of the dice.

All white sides up counts	100
All black sides up	80
7 white and 1 black	30
4 white claws and 1 white diamond	10
4 black claws and 1 black diamond	8
4 white diamonds and 1 white claw	6
4 black diamonds and 1 black claw	4
Any claw on edge	2

No other combination scores and the turn passes to the next player.

If a dice jumps out of the bowl the score does not count, and after returning the dice to the bowl the turn passes to the next player. If the player scores, he has another turn. A game consists of 100 points.

The Cree used sets of tallies to record scores, small sticks counting one point, and large twenty, five large tallies recording victory. Europeans may find pen and paper easier.

Reference: Culin, S., *Games of the North American Indians*, Dover Publications, 1975, p.69.

26

Round Mancala Board

Throughout Africa many games are played using pebbles, nuts, seeds or shells as pieces, and a board made of rows of holes in the ground or cut into a piece of wood. Collectively known as mancala games after the Egyptian game of Mankalah, most boards are rectangular with two, three or four rows of holes, but a few are oval or round

Fig 26.1 I used a blank of olive ripple ash, diameter 10½in (267mm). Two diameters at right angles were drawn for accurate positioning of the faceplate.

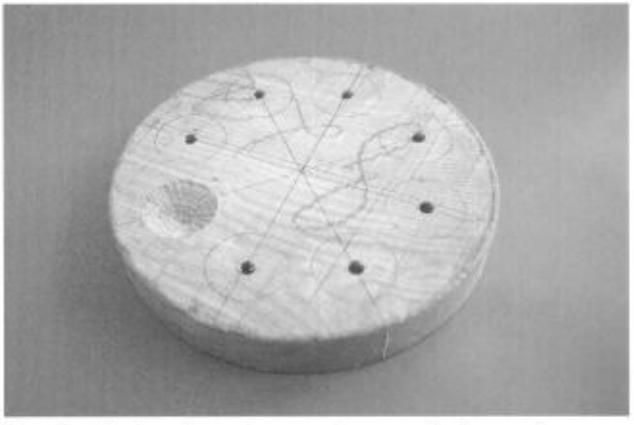


Fig 26.2 Similar diagonals were drawn on the top surface, with two more added at 45° angles at the centre. On each radius a distance of 3½in (89mm) was measured from the centre, and marked with an awl. Eight circles were made 2in (51mm) in diameter centred on the awl marks. Seven holes 2in (51mm) deep were then made with a ⅜in (10mm) diameter twist bit. The cup on the left has been hollowed out.

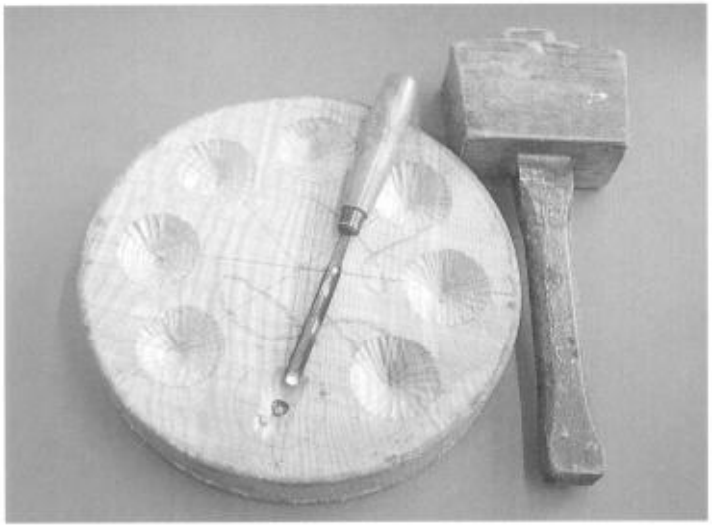


Fig 26.3 A carver's gouge and mallet were used to make the cups. Here, seven cups are completed and the eighth is nearly finished.

Fig 26.4 The board was mounted on a faceplate on the lathe, ready for finishing the upper surface and truing the edge.

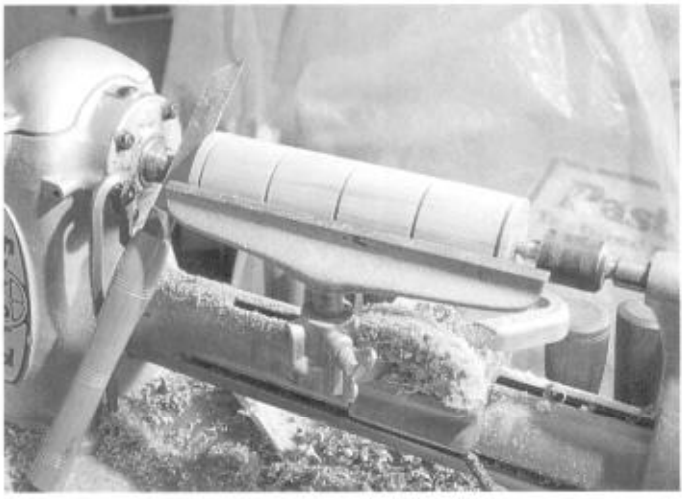


Fig 26.5 Marking off the legs. Each leg was 2in (51mm) long and 2½in (64mm) in diameter.

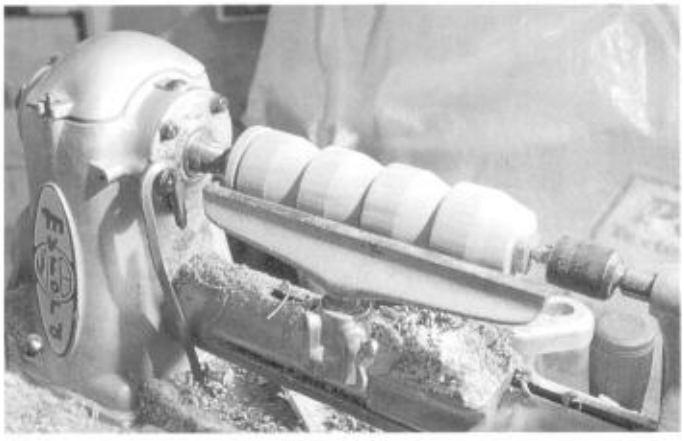


Fig 26.6 The shaping of the legs completed. Only three were used, the fourth being a spare.

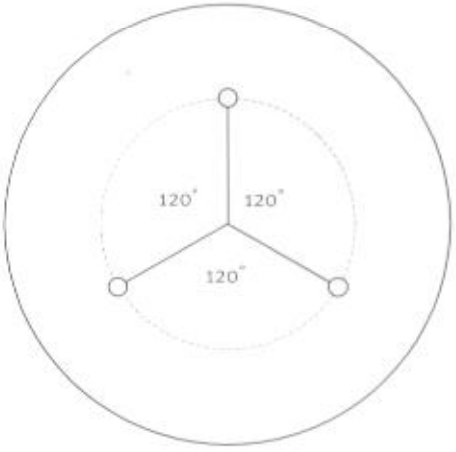
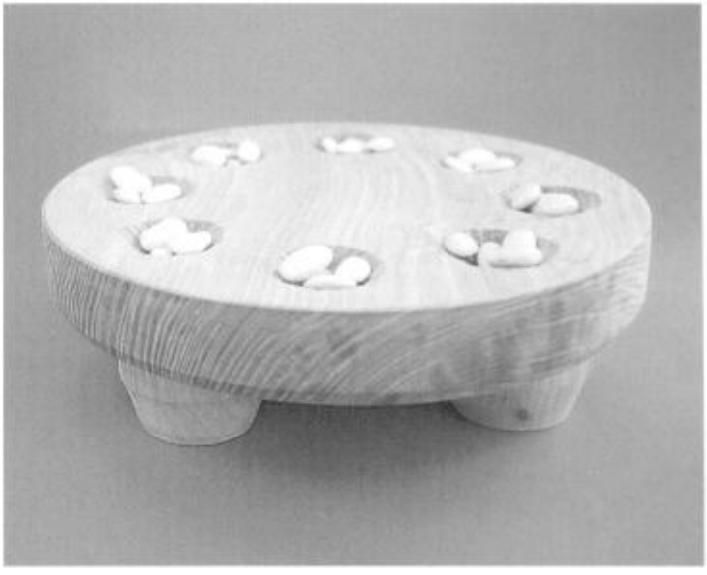


Fig 26.7 On the underside of the board a circle with a radius 3in (76mm) from the centre was drawn, and ½in (13mm) diameter holes drilled where three radii at 120° met the circle. Similar holes were drilled in the centre of the tops of the legs, dowels inserted, and the legs glued to the board.

Fig 26.8 The finished tripod board, with four beans in each hole ready to begin either game.



THE RULES

Koro (*for two players*)

Koro is played by boys of the Dogon tribe in former French West Africa. Each player owns the four holes nearest to him, and his right-hand hole is his store (hogon). The game starts with four beans in each hole, and the players try to accumulate 14 beans in their hogon. The first to do so is the winner. Lifts begin from any of the player's holes except his hogon, and the beans are sown, one into each hole in an anti-clockwise direction (see Fig 26.9). The players lift and sow alternately. Singletons may not be lifted, and if a player has only singletons, he loses his turn. If during a sowing a player sows beans into some of his opponent's holes, making two or three beans in a hole, these are captured and added to the player's hogon.

If both players have only singletons left and cannot move, each adds the pieces remaining on his side of the board to his store, and the player holding the larger number is the winner.

The Devil's Game (Li'bat Iblis)

This is a puzzle rather than a game, and comes from the Sudan. Each player starts with four beans in each hole. Play is anticlockwise.

Player p removes two beans from hole A (see Fig 26.9) and player P takes the remaining two beans in A. This is repeated with holes B, C, D, a, b and c. Player p then takes either one or three beans from d, and player P takes the remaining three or one bean.

The players then put back the beans, P beginning by placing four beans in A, and p puts four into B. This replacement is repeated with holes C, D, a, b and c. When the players come to put the beans in hole d, they find that the number of beans they hold has been reversed from the number each originally took from d. The Devil has been at work! How did he do it?

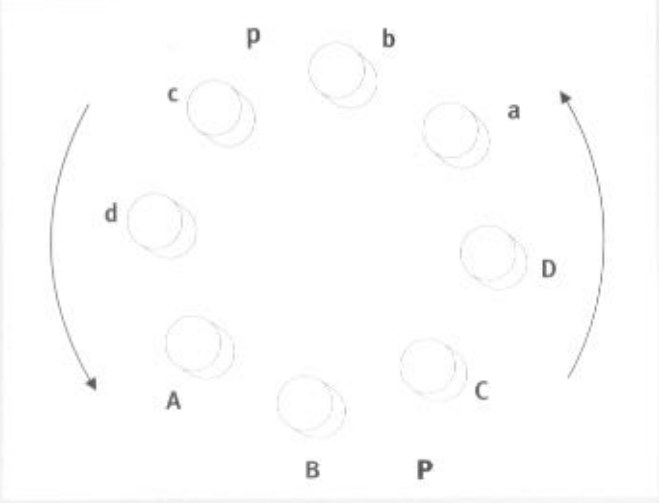


Fig 26.9 The direction of play and the notation of the cups.

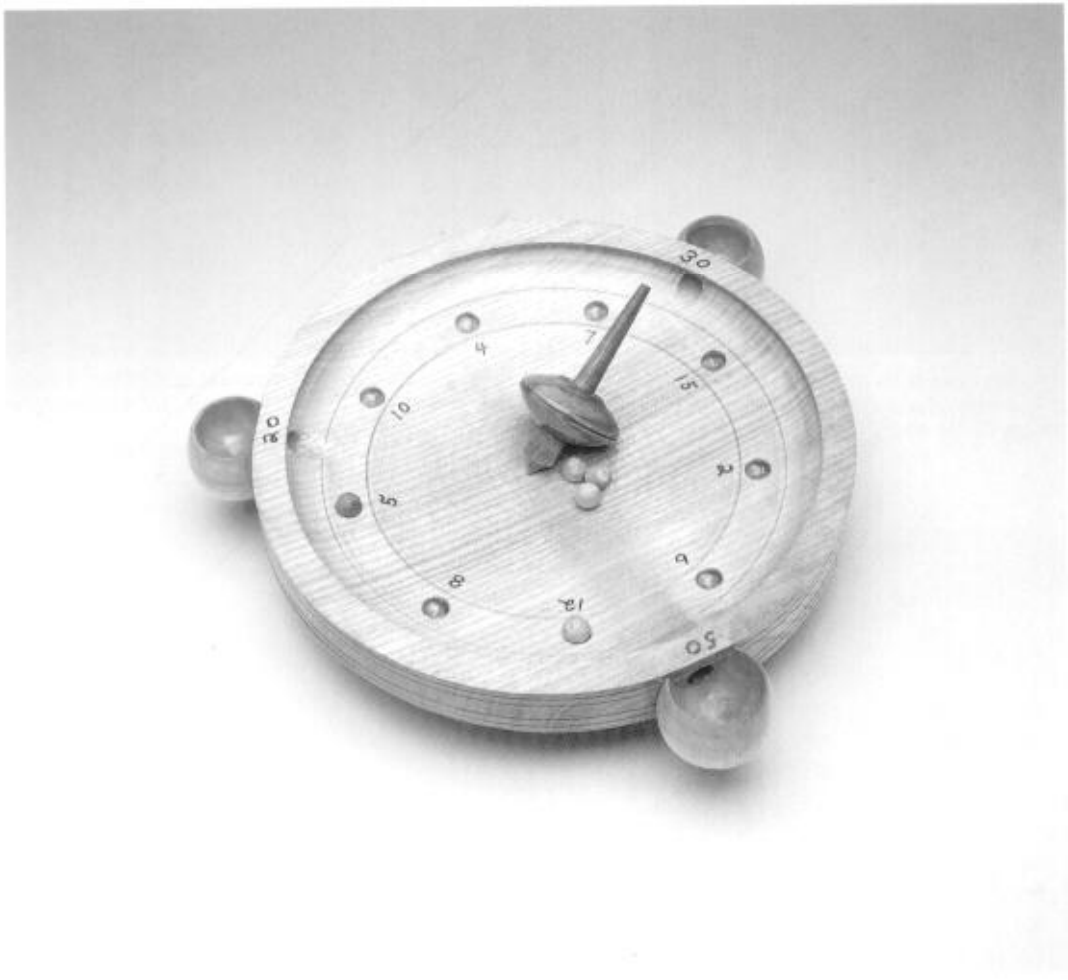
Reference: Murray, H.J.R., *A History of Board Games other than Chess*, Clarendon Press, Oxford, 1952.

27

Hoca

When Cardinal Mazarin died in 1661 the French government was astonished at his huge private fortune, mostly acquired from a network of hoca houses throughout the kingdom. Indeed, so worried was the government by this extraction of the country's wealth that it made the running of hoca houses a capital offence. Hoca was the precursor of roulette.

When travelling through the Alps in 1971 I bought a rustic hoca board from a wayside stall. Such boards are made by the locals during the winter evenings for sale to tourists in the summer. The game is still a pastime of the villagers in the Dolomites, any number being able to take part in a session.



The bowl, pockets, top and balls are made of hardwood, usually beech. I used English ash for the replica. The pockets were glued to the side of the bowl after a hole had been drilled through the wall. The spinning top has a six-sided stem, its sides being unequal to increase the element of luck.

CONSTRUCTION

As the bottom of the bowl is thin, you cannot fix the blank to a faceplate with screws. Instead, you must screw the faceplate to a scrap piece of wood, and glue this to the blank with an intervening sheet of brown paper.

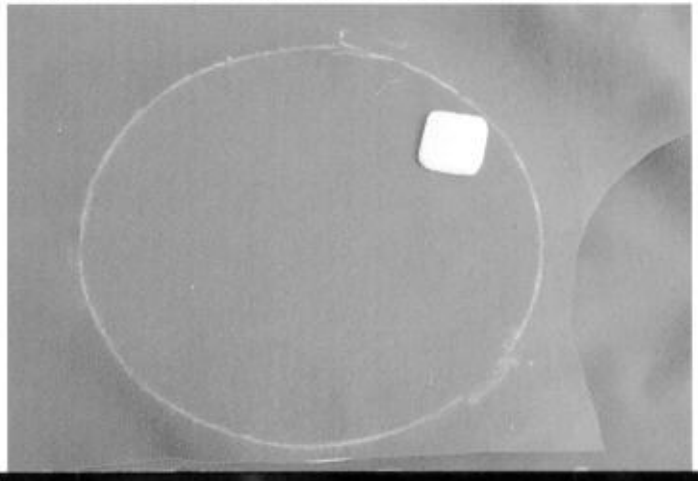
The centre of the bowl should be at least ¼in (6mm) below the periphery, the slope encouraging a quick return if the balls do not find a pit or a pocket, to be sent on their way again by the spinning top. The inner side of the wall should overhang to lessen the chance of balls flying over the top (see Fig 27.15).

Fig 27.1 Turning the hoca bowl from a piece of ash 10in (254mm) in diameter and 1⅛in (28mm) thick. Note the two rings inside which the pits will be drilled.

Fig 27.2 Drilling the entrance to a pocket using the lathe as a horizontal drill. The holes form an angle of 120° with each other at the centre of the board.

Fig 27.3 Drilling the pits with a pillar drill in a stand. They form an angle of 40° with each other at the centre.

Fig 27.4 With the bowl beneath the green baize, its edge was outlined with tailor's chalk as a guide to cutting the cloth.



The wall of the board is drilled horizontally with a 5/8in (16mm) bit in three places *before* the pockets are fixed in position. Then the pits are formed by drilling vertically with a 1/2in (13mm) twist bit. One side of each of the pockets is cut and glued to a small flattening of the periphery of the board at right angles to the drill holes in the wall.

When cutting the baize for the bottom of the board, crease the cloth over the edge, draw on the edge with tailor's chalk and, using scissors, cut slightly inside the white line. Apply adhesive to the wood and smooth the cloth disc on to it from the centre outwards. This should achieve accurate and creaseless coverage.

The measurements of the board are not critical, but the blank used for the replica was 10in (254mm) in diameter and 1 1/8in (28mm) thick. Externally, the cups were 1 3/4in (44mm) in diameter at their widest part, and internally 1 1/8in (28mm).

The light balls were turned from a cylinder of sycamore slightly under 1/2in (13mm) diameter, while the dark ball was turned from a similar cylinder of teak. The top was turned in laburnum, with a finished height of 4in (102mm) and a diameter of 1 7/8in (47mm).

The numbers were written with a felt-tipped pen, and then the board was finished with two coats of clear varnish.

Fig 27.5 Turning three pockets, allowing fixation waste for each pocket. The parting tool used is seen in the foreground.

Fig 27.6 The waste wood for fixing to a screw chuck was marked with an X to avoid possible confusion.

Fig 27.7 Drilling into the waste wood of the first cup to accept a screw chuck. The drill was held in a three-jawed chuck in the tailstock.

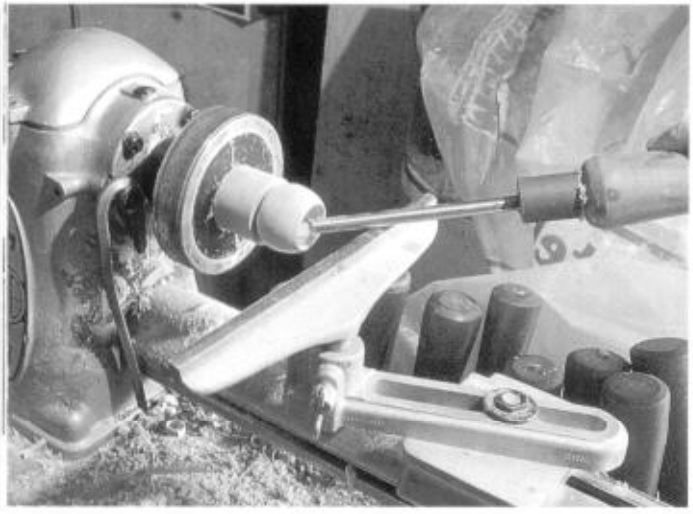


Fig 27.8 A cup mounted with a screw chuck into the waste wood. Here, I had started to hollow out the cup with a ring tool.

Fig 27.9 Three cups turned and hollowed out. The waste wood was retained so that I could hold it safely while cutting one side with a bandsaw. The centre cup has part of the side removed.

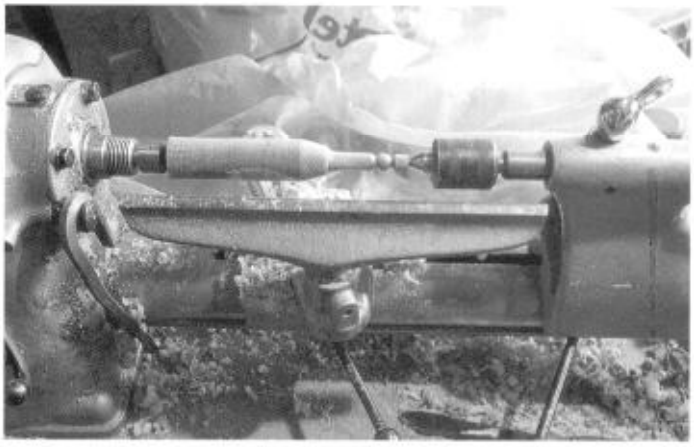


Fig 27.10 Starting to turn the light balls.

Fig 27.11 The first light ball about to be released. Note the markings for the other three balls, and the skew chisel used.

Fig 27.12 The dark ball of teak about to be released with a junior hacksaw. The cut surface was then rounded with glasspaper.

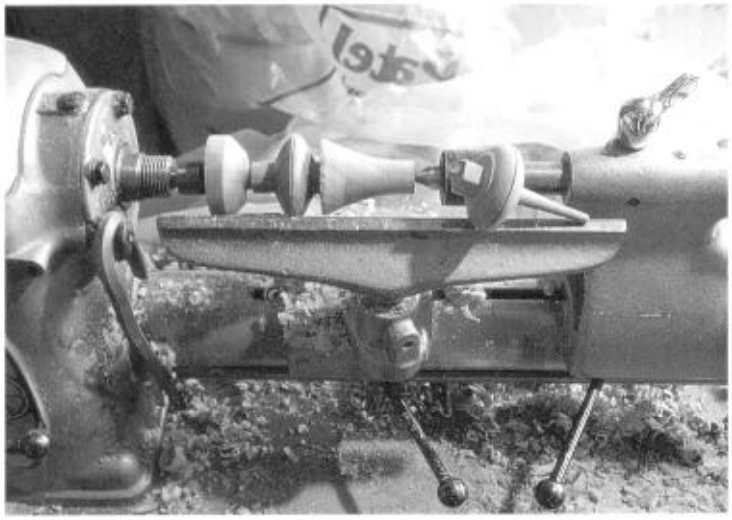


Fig 27.13 Turning the spinning top, with the original top alongside as a pattern.

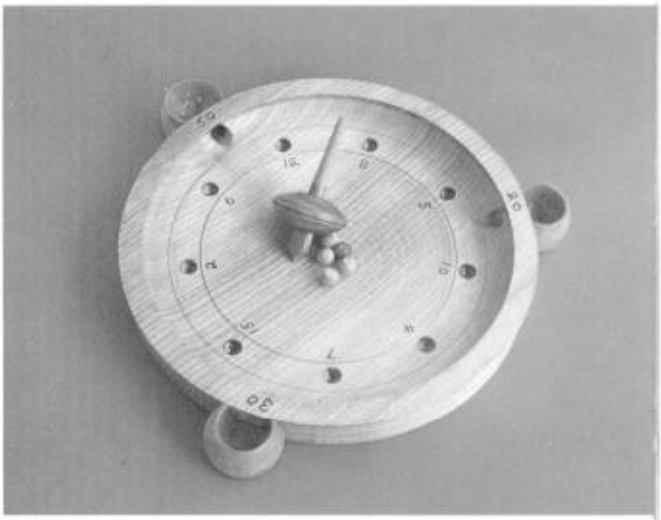


Fig 27.14 The finished hoca board, balls and top, ready for play.

Fig 27.15 Cross-section of the bowl, showing the overhanging inner side.

THE RULES

1 Before starting a game the players decide on the winning total, usually 301.
2 Before each player's turn, the five balls, one dark and four light, are placed in the centre of the board. The player then spins the top between his palms.
3 The flat sides of the spinning top hit the balls and knock them peripherally into the numbered pits or into the higher-scoring pockets. If they strike the wall of the bowl they are returned to the centre to be struck again by the top. When the top stops spinning the player's score is totalled; any score by the dark ball is tripled.
4 If a ball jumps out of the bowl it may be returned as long as the top is still spinning.

Although the way the balls meet the top is pure luck, skill in spinning the top will produce higher scores during a prolonged period of play.

28

Pope Joan

This fascinating eighteenth-century game was known in Germany as Poch, and in France as Le Nain Jaune. Popular well into the nineteenth century, it is virtually unknown today. It is an excellent family game and deserves revival, and also provides the home turner with an interesting challenge. The few antique boards remaining fetch up to £80, or even more!

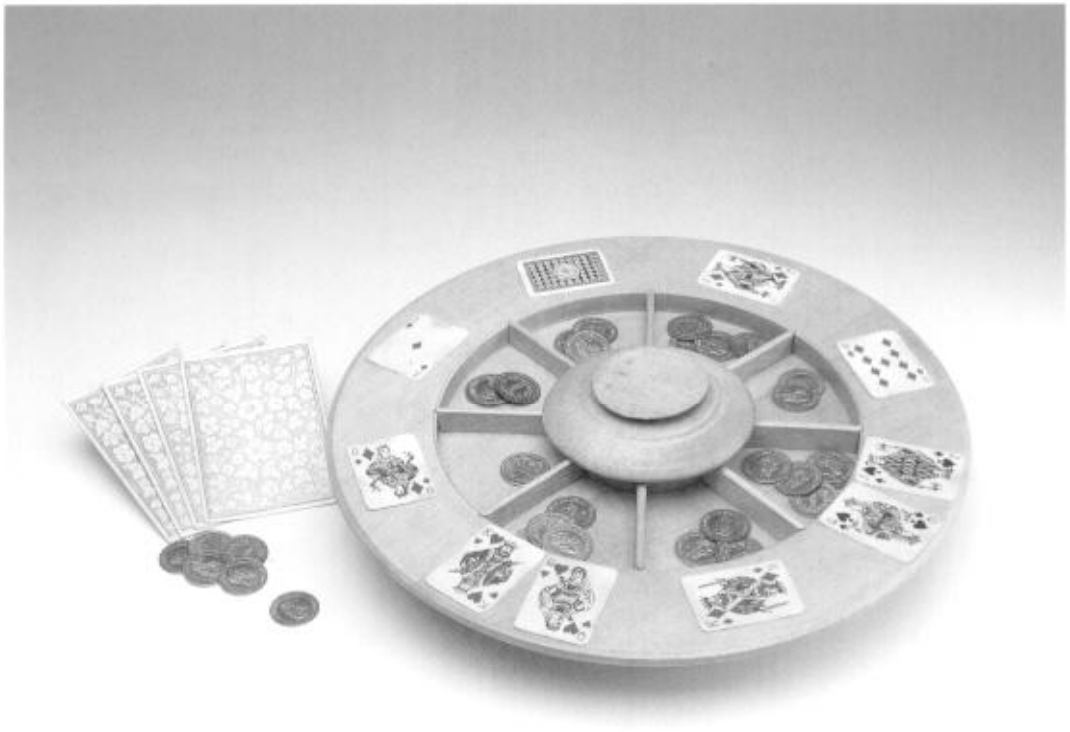


Fig 28.1 A Regency Pope Joan board in my collection, and a 1in (25mm) thick plank of sycamore, which I used to make my board.

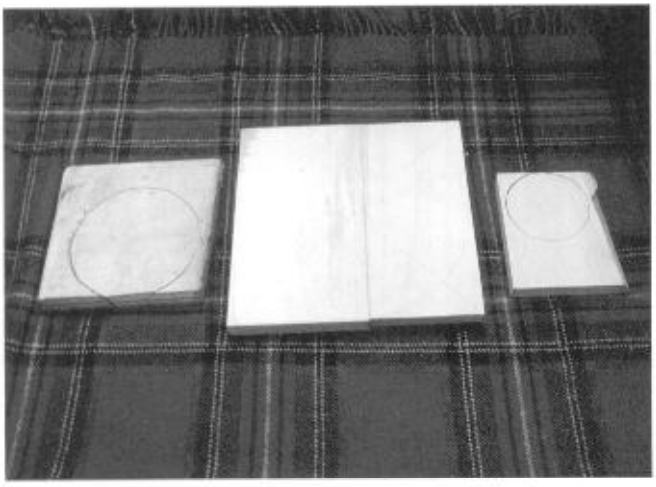
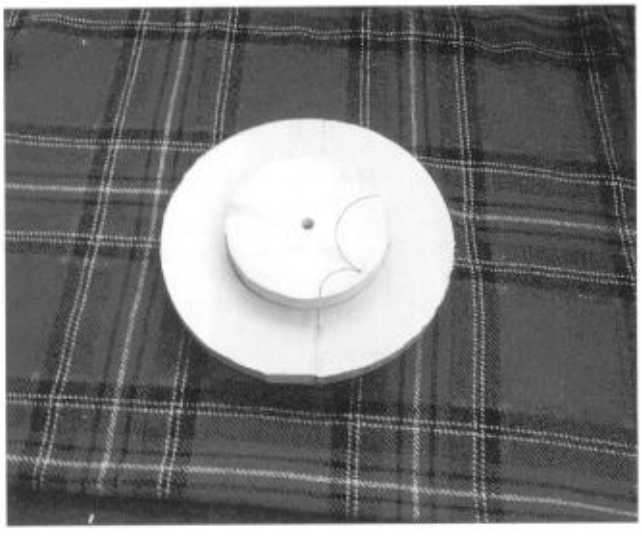


Fig 28.3 The diagonals and the circumference of the Pope Joan board marked out on the two glued lengths of plank. The circumference of the base was marked out on the piece on the left, and the lid for the centre of the board on the right.



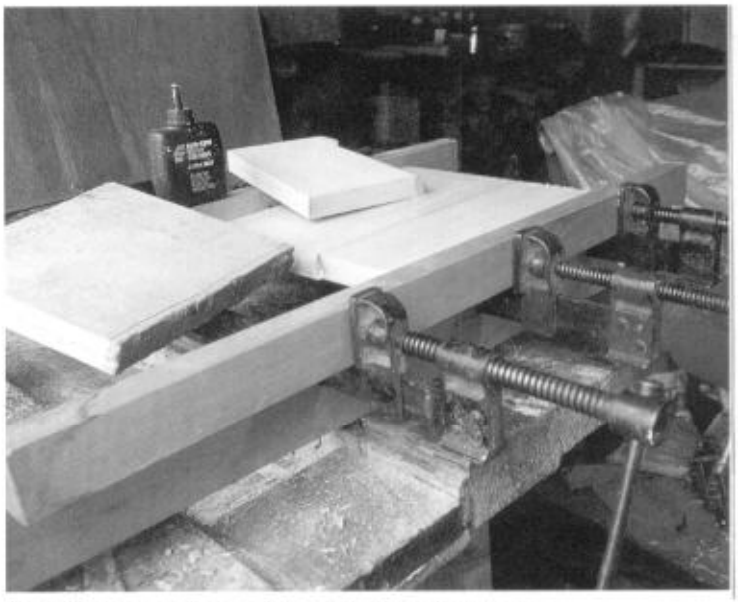


Fig 28.2 Two 12in (305mm) lengths of the plank being glued together with the surplus narrow end, and an offcut from another piece of sycamore.

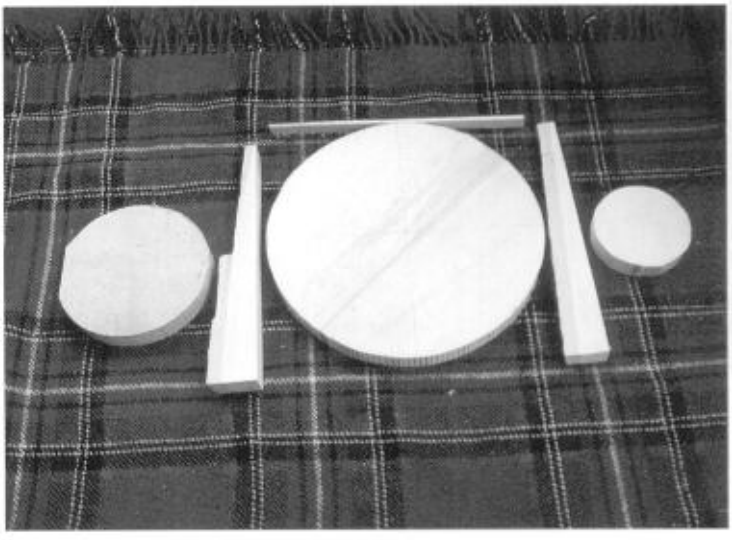


Fig 28.4 The three round blanks were then cut out with a bandsaw. Two surplus strips from the plank provided the partitions.

Fig 28.5 The base was then glued to the upper half of the board which had a faceplate screwed to it. Note the central hole drilled through both blanks at this stage. This will eventually accept the axle on which the two parts rotate. (The two curved lines on the base have nothing to do with the present project.)

Fig 28.6 The base was recessed to receive an expanding chuck, and a deeper hollow made for the larger end of the axle.

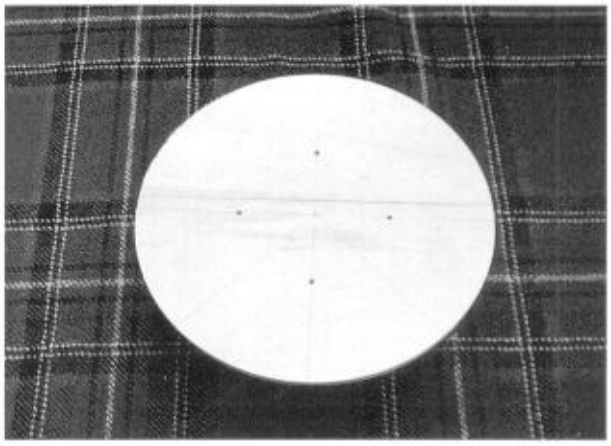


Fig 28.7 The Pope Joan board is shown here the right way up. Note the screw holes from the first fixing, and the eight radii giving the eventual position of the partitions.

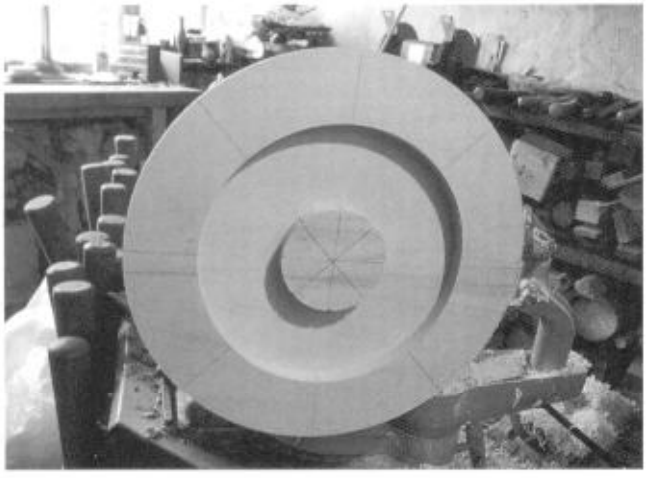


Fig 28.8 With the board mounted on an expanding chuck, a circular trench was cut and the screw holes from the faceplate mounting eliminated.

Fig 28.9 The central well complete. On the right is the underside of the well lid, the topside being glued to a scrap of wood separated by brown paper; the scrap is fastened with four screws to a faceplate. The lip on the lid should be a tight fit in the well.

Fig 28.10 After separating it from the faceplate mounting, the well lid was pushed into the well, and the board itself (still mounted on its faceplate) used as a jam chuck for shaping the upper surface of the lid.

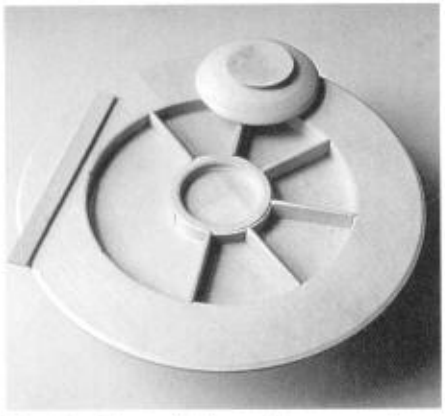


Fig 28.11 The well lid was then removed from the well, and grooves cut with a V tool in the side of the well and the outside of the trench, in the line of the marked radii. Six of the eight partitions can now be seen in position, and the last two are about to be cut, shaped and glued into their grooves.

Fig 28.12 The board seen from below with the axle in position. The top of the axle was glued to the upper half of the board. Take care not to get glue on the lower half, or the two halves will not rotate on each other.

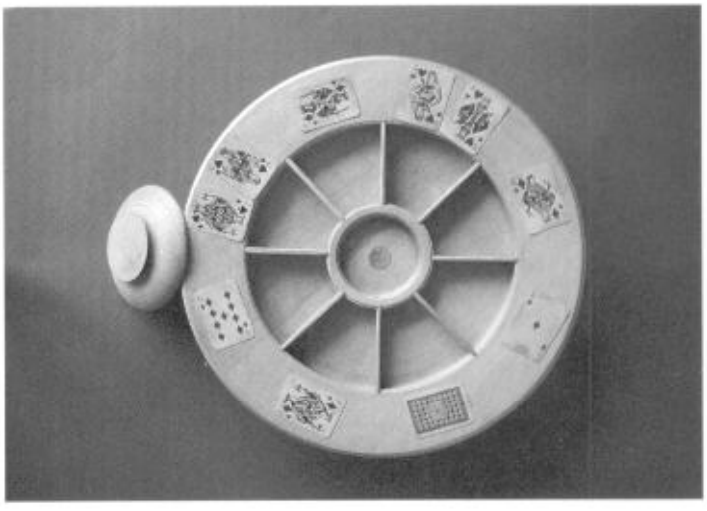


Fig 28.13 The finished board. Note the axle in the centre of the well. Miniature cards were pasted on to the wide rim of the board, and the whole given three coats of clear varnish. The cards are arranged in clockwise order:

Jack of diamonds
Nine of diamonds (Pope)
Jack and Queen of spades (Intrigue)
King of diamonds
King and Queen of hearts (Marriage)
Queen of diamonds
Ace of diamonds
The back of a card (Game)

Fig 28.14 Here, the table is set for the beginning of a game with three players. The dealer, sitting nearest to the camera, has dressed the board with 15 of his counters, and the other two players have their stacks of 30 counters intact. Each player has received his cards with a fourth dead hand on the dealer's right. The last card of the dead hand has been turned up and is the ace of spades; thus trumps for this hand is spades, and the dealer removes the counter from the ace compartment for himself.

The miniature cards are 1¾ x 1¼in (44 x 32mm), and just fit on to the broad rim of the board. Being wise after the event, placing all the cards across the rim instead of only the doubles would have improved the appearance of the board.

THE RULES

Any number of players may take part, each starting with 30 counters. The eight of diamonds is removed from a 52-card pack. A special board is placed in the centre of the table, consisting of a circular tray divided into eight compartments and a central well, all revolving on a pillar.

The dealer 'dresses' the board by placing 15 counters from his own store into the compartments as follows:

6 counters into Pope (the nine of diamonds)
2 counters into Matrimony (the king and queen of hearts)
2 counters into Intrigue (the jack and queen of spades)
1 counter into each of the other compartments: the ace, king, queen, jack and game.

Hands are dealt to each player, with an extra dead hand on the dealer's right, and any surplus cards are added to this. The last card of the extra hand is turned up to decide trumps. If the turn-up is the nine of diamonds (Pope), or an ace, king, queen or jack, the dealer wins the counters in the respective compartment on the board.

The player on the dealer's left leads, and names the card as he does so. The holder of the next card in the same sequence immediately above follows, and this continues until play comes to a halt when no one is able to continue: either the king of the suit has been played, or the wanted card is in the extra hand, or the card has already been played, or it is the seven of diamonds, the eight having been removed to form a stop before Pope, the nine of diamonds. When the jack, queen, king or ace of trumps is led during the game, the player wins the counters in the appropriate compartment, and if he can play the jack and queen, or the queen and king, of trumps he wins the counters in Intrigue, or Matrimony, as a bonus.

The first player to play all his cards wins the counters in Game, and also one counter from each player for every card they hold in their hand. An unplayed Pope card is exempted from this payment.

A game consists of several rounds. Some compartments may hold unclaimed counters from previous rounds. The Matrimony and Intrigue compartments may be heavily loaded or even remain unclaimed through a whole session. The players take it in turns to be dealer.

When no one can follow a card led, the same player leads with any other card he wishes. Sequences are valuable, as they permit a player to dispose of two or more cards at a turn of play. Pope can only be played when the holder has the lead.

If some counters remain unclaimed at the end of the last round, the new dealer deals the pack *face upwards* to the players, and without a dead hand. Any loaded compartment is emptied by the players receiving the appropriate card, the holder of the queen or king of trumps also winning half the pieces in Matrimony, while the holders of the queen or jack of trumps wins half the counters in Intrigue respectively.

29

Go Bowls

One of the most popular table games world wide is known as I-go in Japan, Weich'i in China, Pah-tok in Korea, and Go in Britain. A game for two, it is played on a board marked with 19 parallel vertical lines, and 19 horizontal, making 361 points of intersection. Each player has his own pieces held in a bowl, Black with 181 'stones' made of slate, and White with 180 'stones' of shell. They are discoidal and some 13/16in (21mm) in diameter, slightly larger than the current UK 1p piece. The 'stones' of cheaper sets are usually made of coloured glass.

Starting with the board empty, the players play alternately, placing a stone on

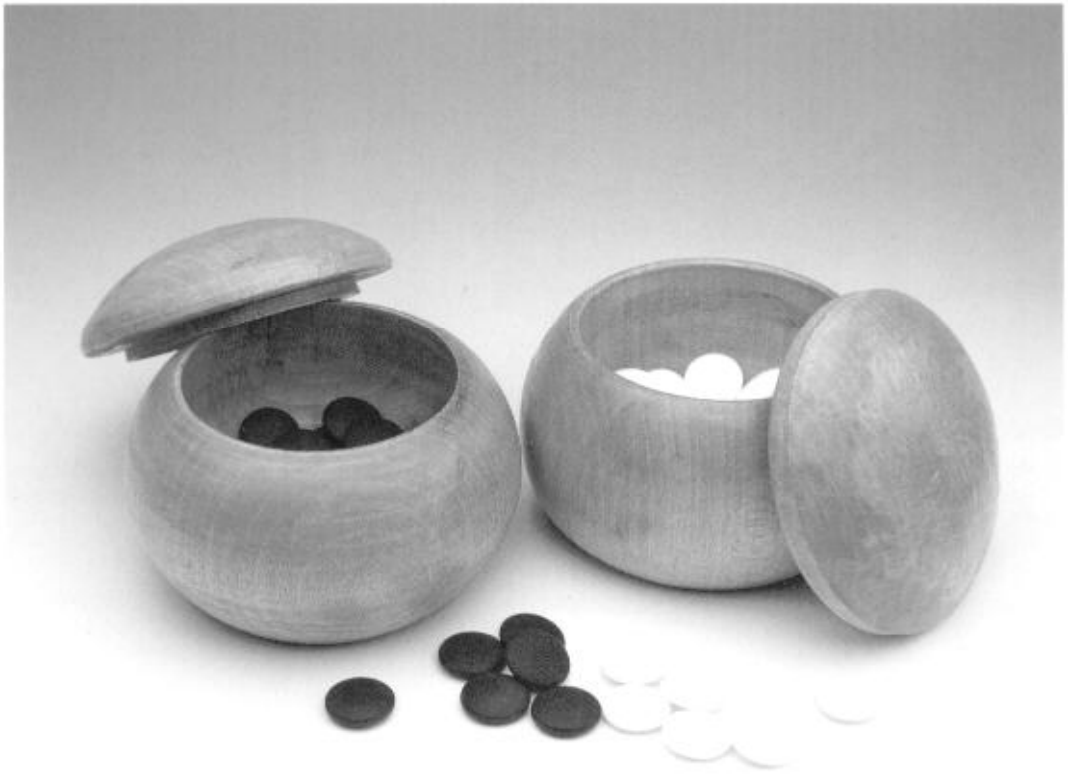


Fig 29.1 A block of holly was first turned into a cylinder 6in (152mm) in diameter.

an empty point of their choice; they compete to control territory, the player commanding the greater area of the board at the end of the game being the winner. As books on playing Go are readily available, this project will be confined to describing the making of a pair of bowls.

Three interesting problems were encountered:

(a) Making the pair as alike as possible.

(b) Producing thin walls, otherwise there is not enough room to hold all the stones.

(c) Holding the lids while hollowing out their undersurfaces.

Traditionally, the bowls are turned in end grain.

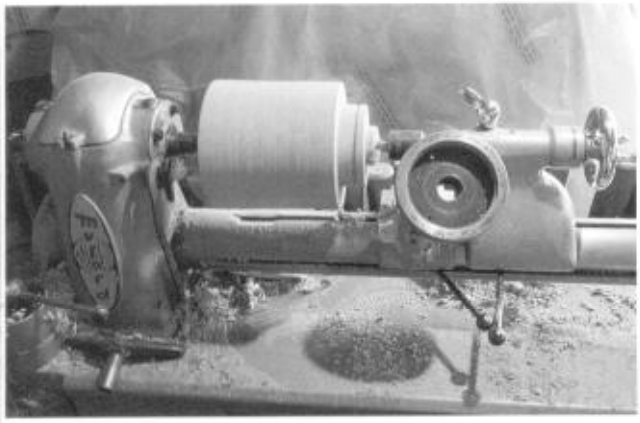


Fig 29.2 One end of the cylinder was then prepared for holding in a Child coil-grip chuck, seen on the right.

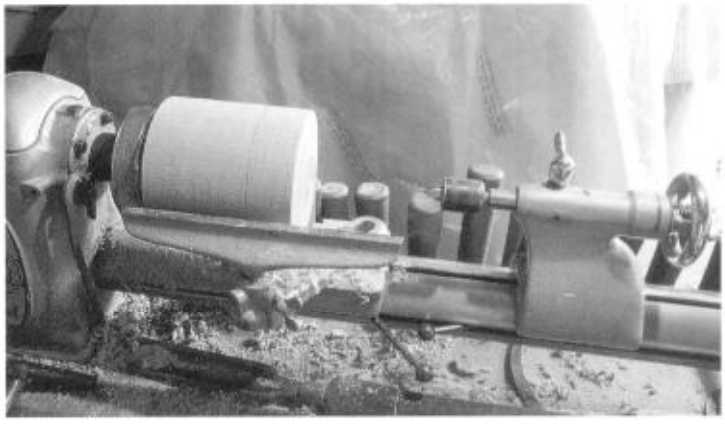


Fig 29.3 With the wood mounted in the chuck, the cylinder was put back on the lathe. A pencil marking was made to show the eventual line of separation of the lid from the bowl.

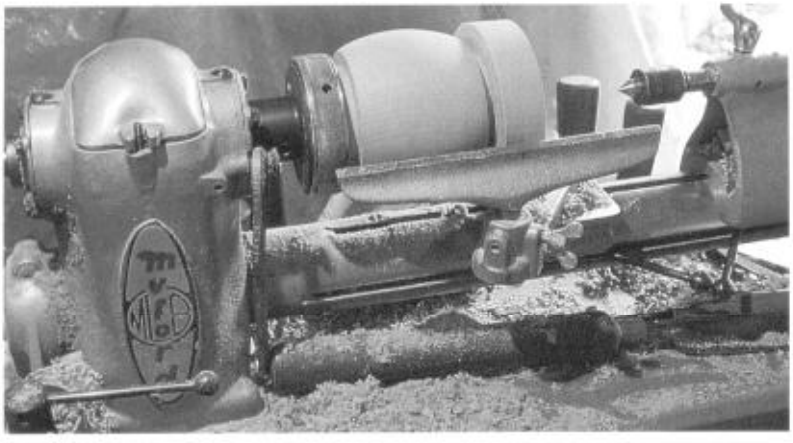


Fig 29.4 Initial rough shaping of the outside of the bowl.

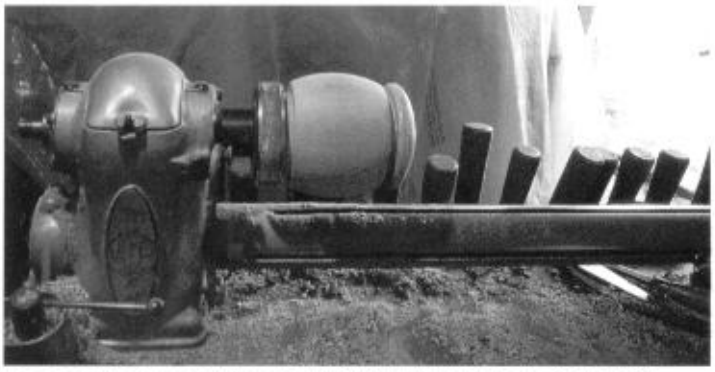


Fig 29.5 The upper surface of the lid was then shaped, and the lid ready for separation from the bowl with a fluted parting-tool.

Fig 29.6 The bowl was hollowed out with a combination of a long, strong gouge and a ring tool. Using one and then the other alternately is easier than using either of them alone.

Fig 29.7 Holding the lid while hollowing out its undersurface presented a problem. This was solved by making a chuck out of two pieces of waste wood which were clamped together with two screws, holding the lid fast between them. The two pieces of wood were then screwed together, with one fastened to a faceplate, the other having had its centre removed with a step cut into the side of the recess. You can see the waste piece removed on the tool rest.

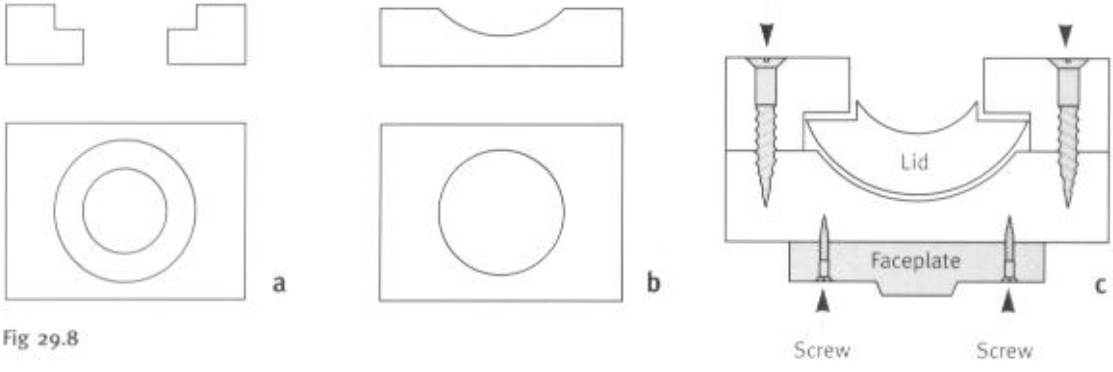


Fig 29.8

Fig 29.9 The front piece was then unscrewed and removed, and the back piece hollowed out to accept the curved upper surface of the lids.

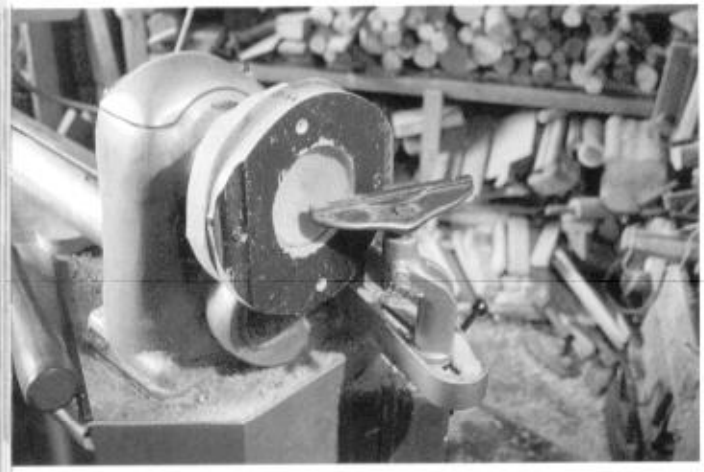


Fig 29.10 A lid was then put into the hollow of the back piece, while the front piece was reversed. The pieces were then screwed together again, holding the lid firmly between them. The underside of the lid could now be hollowed out with ease.

Fig 29.11 There was a flaw in the wood of one of the bowls which was not visible in the original billet. The deficiencies were filled with plastic wood made from holly sawdust mixed with PVA adhesive. The wood filler required sawdust, adhesive, a small spoon for mixing, and a spatula for applying the filler to the bowl. On the right you can see the defective bowl (I did not have any suitable wood to make a new bowl). Behind is the twin bowl, and the two lids; one is finished, while that on the left awaits the hollowing out of its under surface.

Fig 29.12 The flaws in the bowl were then filled. When dry and hard these areas were smoothed and finished with varying grades of glasspaper.

Fig 29.13 An early nineteenth-century I-go board, bowls, and stones of shell and slate.

30

Liar Dice and Cribbage Tray

The idea for this project came from a Mexican Liar Dice tray in leather and green baize bought in Vancouver in 1978, and an ebony and silver cribbage board bought in Aberystwyth, Wales, in 1980. The silver mark is dated 1898 and assayed in Birmingham.

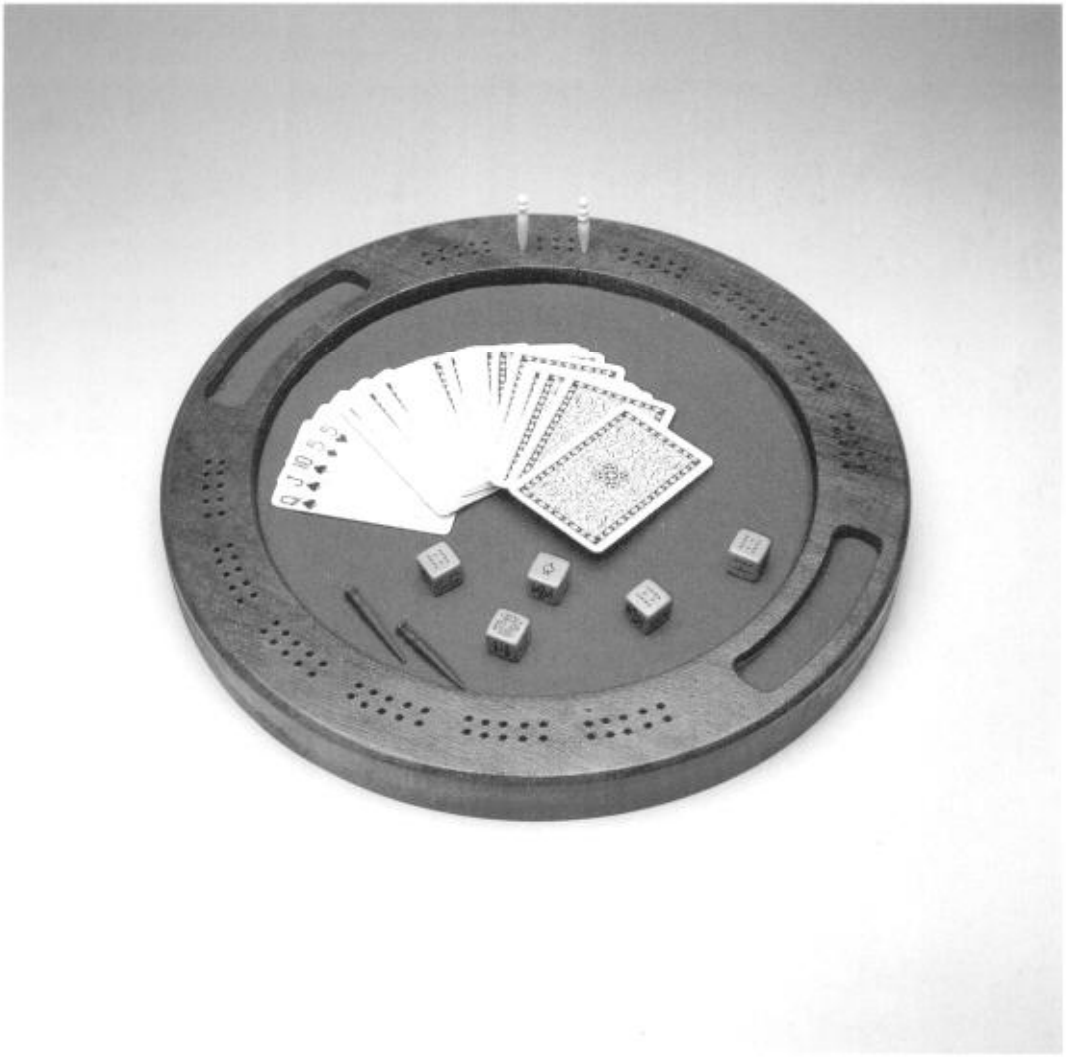


Fig 30.1 The extension bench was clamped to the lathe cabinet with two sash cramps, and the tool rest fastened to it with two bolts.

Fig 30.2 A blank of African mahogany 15in (381mm) in diameter and 1¼in (32mm) thick was used, and fastened to a square scrap piece of wood, itself fastened to a faceplate with screws. The thickness of the blank is optional, and may depend upon what is available. Anything over ¾in (19mm) is adequate.

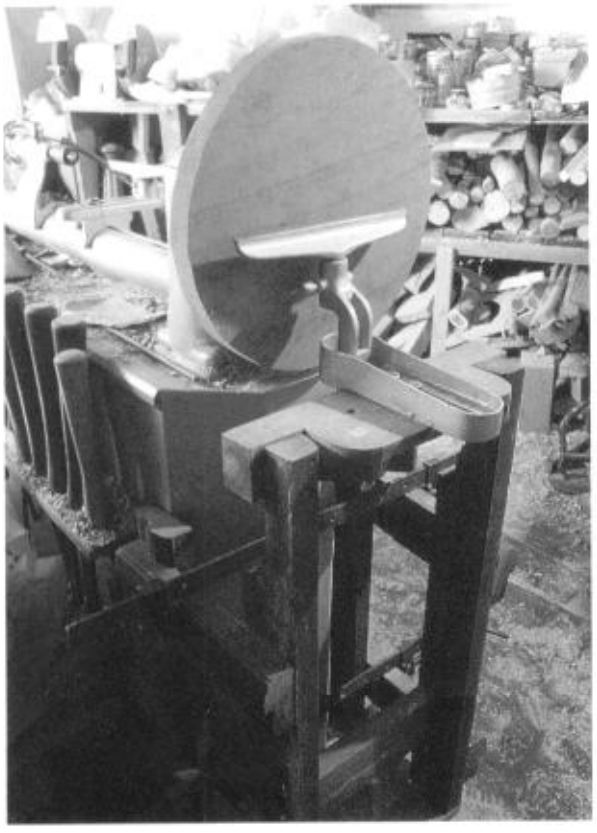


Fig 30.3 Ready to start. Note the tool rest bolted to the bench, itself clamped to the lathe cabinet with two sash cramps. I had to make this adaptation to allow my lathe to take the 15in (381mm) diameter of the blank.

Fig 30.4 The upper surface of the tray was first hollowed out.

Fig 30.5 The tool rest was then moved to turn the edge of the tray, and here is held by one bolt and a G cramp.

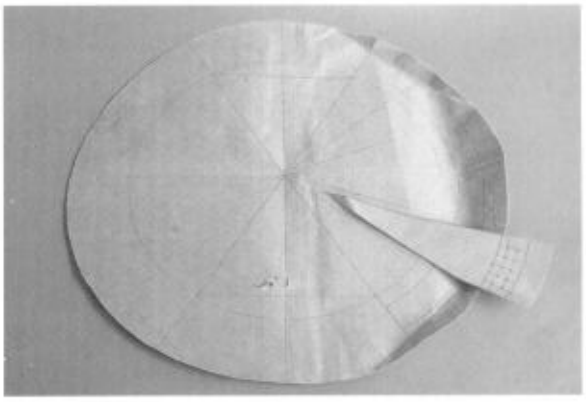


Fig 30.6 Using the board as a pattern, its outline was drawn on a piece of brown paper. The circle was divided at the centre with a protractor into segments of 60°, and two of these segments opposing each other were reserved for the dice stores. The other two segments of 120° were divided into six areas (20° each at the centre) and a duplicate of a 20° segment was drawn and cut out. The periphery of this was divided into five equal sections with two dots on each divider, showing where the peg holes should be.

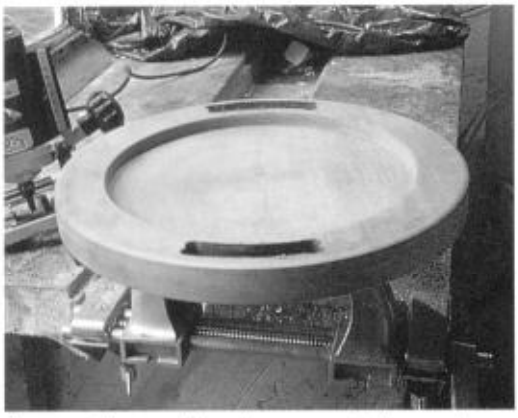


Fig 30.7 The two dice pits were cut with a router, with the edge of the board acting as a guide for the side fence.

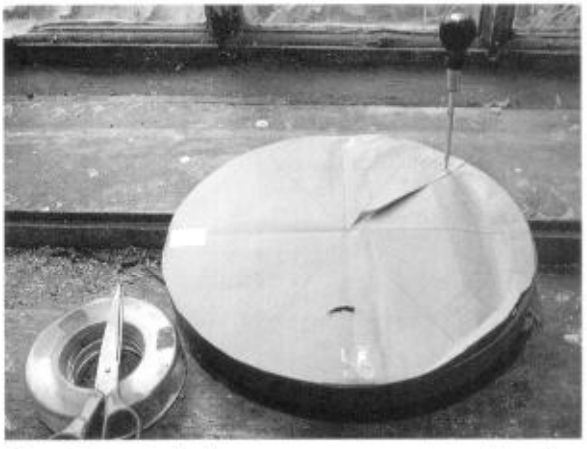


Fig 30.8 I used the brown paper patterns to position the prick marks, which were made with an awl.

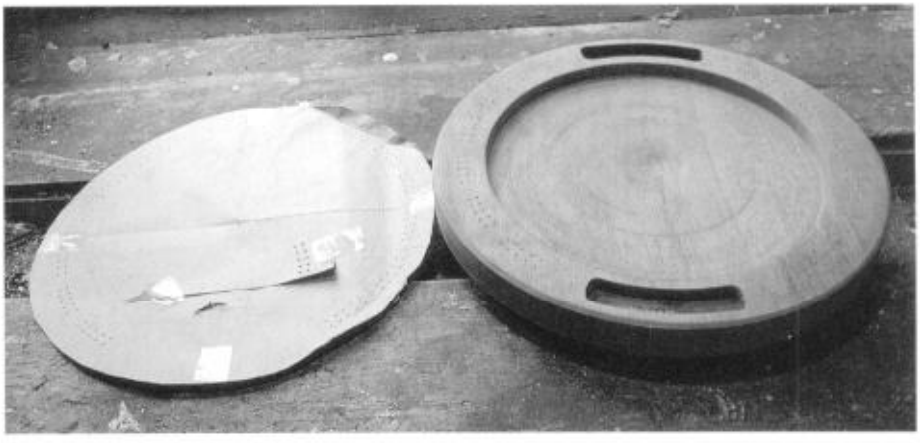


Fig 30.9 The brown paper pattern was placed over the broad rim of the board and the position of the peg holes marked out with a sharp awl. Note the pattern on the left after its removal, and the prick marks in the border as a guide for drilling.

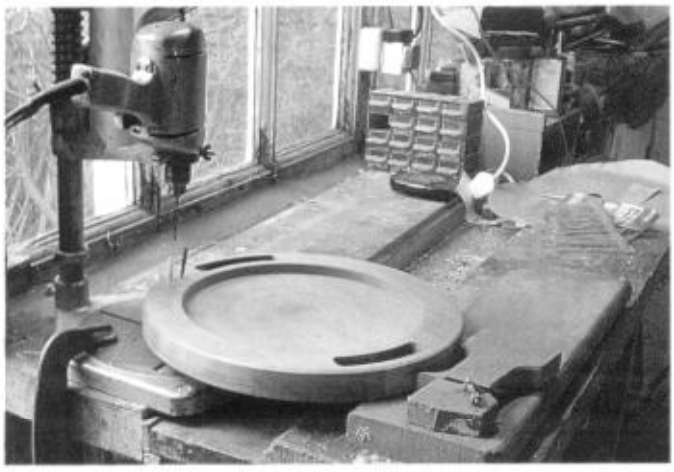


Fig 30.10 Drilling the holes. A red and a white bone marker occupy two of the holes just drilled.

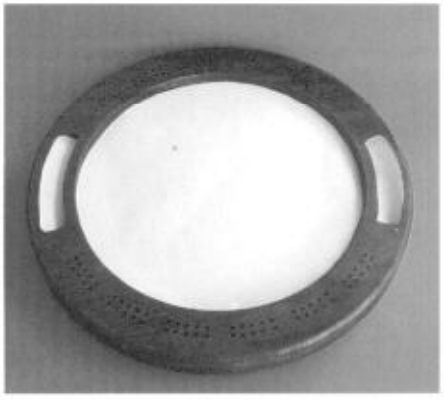


Fig 30.11 Making paper patterns to cut the green baize to exact shape.

Fig 30.12 The finished board with five poker dice.

Fig 30.13 The finished board with a pack of cards and the markers for use in a game of cribbage. The cards are Icelandic. The nine of spades shows tenth-century chess and hnefatafl pieces in the National Museum in Reykjavik; the king of spades shows a bronze statuette in the National Museum in Akureyri of Thor, thought to be a hnefatafl kingpiece.

THE RULES

Liar dice

The game can be played with five standard dice, but it is more fun with poker dice marked with an ace, king, queen, jack, ten and nine. The opening player casts the dice from a cup into the tray, hiding them behind his left hand. He then declares a score which may be true or false, and which may be challenged by the player on his left. If challenged and the throw is as high or higher than declared, the challenger loses a life. If the throw is below the declaration, the caster loses a life.

If the declaration is accepted, the dice, still concealed, are passed on to the next player who may retain or throw any number of dice. The number rethrown must be stated, e.g. 'Throwing three'. He then makes his declaration, which must be higher than the one he accepted when he took over the dice. The player on the new declarer's left may accept or challenge the call.

Order of scoring

Five of a kind (aces count higher than kings)
A royal flush (the five dice in sequence, ace high)
A low flush (the five dice in sequence, king high)
Four of a kind
Full house (three of a kind and a pair)
Three of a kind
Two pairs
One pair
Pryle: a hand without a scoring combination.

If a declaration of five aces is made, the next player may challenge or accept it. If he accepts, he has five throws of the dice to equalize. If he succeeds the caller loses a life, if not, the acceptor.

Each player has three lives, and when these are lost he is out of the game. The first player to lose three lives is granted a bonus fourth life, known as being 'on the parish'. The last player left in the game wins.

Cribbage for two players

A 52-card pack is used, and a cribbage board for scoring. The players cut the pack, low becoming the dealer. Each player has two pegs with which he records his score on the board. If a player's first score was 3, he would place a peg in the third hole in the outer row of his side of the board; if his next score was 6, he would place the second peg in the sixth hole beyond the first peg. On his third score he would lift the first peg and place it this number of holes beyond his second peg. The first player to pass the sixtieth hole twice, that is, to score 121 or more, wins the game. The player's pegs are usually different colours, but this is not essential.

The rules of cribbage are recorded in most books on cards, and will not be repeated here.