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'From Hickory to Carbon Shaft' talk by Tom Tew 16th January 2008



Historylinks Catalogue No. 2004_128_003

Now it gives me great pleasure to introduce Tom Tew. I asked Tom how he would like to be introduced and he said as a golf historian and I have to say no more than that. Over to you Tom.

This evening was advertised as 'From Hickory to Carbon Shaft' and I will actually start from about 1800, but further down the track I've got much earlier history. So we'll go along with this and if there's any time left then we'll try to go further and further back which I think you'll find is quite interesting.

1800 which we associate with the import in vast quantities of hickory. This came in from America and basically we were using at that time for pit shafts and things like wheel axles and axe shafts, that type of thing. It has absolutely the perfect requirements. It's flexible, it has close grain, doesn't splinter and it takes shock. So after a while the club makers got onto this very quickly and started to use it for club shafts and it worked very, very well. So the orders went out and gradually numbers increased and there was a huge demand in America for this type of shaft.

Now what was interesting was that we'd reached a period in golf where things were coming together. The old ash shafts which we'd used up to then which broke quite frequently, they dried quickly, very little resilience and they were always in at the club makers. And bearing in mind at that time is that the clubs were a two-piece item.



So you had the head which would have been of a fruit wood or it would have been blackthorn in this instance beech. And then you had the shaft. Pre-hickory would have been ash. When this broke, it was such a nuisance. Removing all the whipping off by soaking in hot water to remove the glue. The club would have ended up something like this with two flat surfaces. Then another shaft would be added to match its original angle because they were all made individually. So there was a lot of work involved.

So what happened at this stage was that this new wood in hickory came along, much more durable, fabulous. We were up and running and apart from that much more resilient. In particular when we got to the early irons, because these were the clubs which took a shock, they were built like this, this is a nice early rut iron. It was shallow like this and very heavy and you got down when the ball was sitting in horse hooves, tracks, all that type of thing. And so once again hickory was a marvellous contribution to the continuation of golfing then.

Just deviating slightly, if you look back here, there had been pre-1800 a slight decline, there had been a fall of interest in golf. Basically it was to do with, the industrial revolution which was coming through then. More and more people, greater populations in the towns and it was around the towns that people went to play their golf. It was basically on the links and these links were taken up.

For the huge numbers of people who had died earlier than this, they actually used the beaches as graveyards. There was nowhere else to put them down and they were easy to bury. So these links were gradually being taken over. And they found it quite difficult to play their golf as it was played in those days with lots of people milling around. The density of people just came onto these links. They were nice places to walk; we all know that we've got it all around here. The grass was short and the game for the general public gradually receded in the 1800s.

This increase in population also brought with it a lot of disease and the sewer systems as we knew it at that time were virtually nothing at all. There were pits but the country had not got itself organised at that stage.

In 1837 there were 15 golf clubs in Scotland. In 1897, there were 1,193, a massive increase. The impact was on the importing hickory. At the turn of the century, the 1800s, we were beginning to increase its use. This acceleration in its use led to the long nose clubs, absolutely typical. These are about 1860, 1870, as near as I can get. Beautiful shape. 42 inches long, this one. This one, which has been cut down unfortunately, would have been 44 inches, the driver. Both of these clubs would have been played in the era where we use the gutty. Sorry, the feathery.

Now this ball, bear in mind, had been with us since 1520. And here we are in 1820, still using the same ball. It's incredible.



Not only that, not far away from using the same club. So they'd done very, very well. However, as we move on to 1848, there is a revolution in the game because we discover gutter percher. Now this gutter percher comes from Malaysia, from a large tree, which when it was fully grown would have been about 80 feet high and about 3 feet diameter. Quite a

large tree. Originally what they used to do is cut it down just after the rainy season, so it had plenty of sap in it. Then they took the bark off and it oozed, it sort of sweated, gutter percher. That was collected. The natives would collect it up and make it into huge block which set hard until you put it in hot water. It then becomes really slimy and tacky.

Rumour has it that somebody had received something quite delicate from, I think it was India, and it was in a thick wrapping. Gutter percher had been used as a wrapping, to send things through the post. It worked very well. And playing around with it and someone said oh, why not a golf ball? Apparently he made up a golf ball, nice and round, smooth and nice fit, and it worked.

Bear in mind that feathery ball that you're looking at was probably three- or four-months work. So it was a huge benefit from him having something which was almost bouncy, not quite bouncy, but worked with the golf club. So we're still on what I call the scarred head, OK, but now we're using a much harder ball. And of course what happens, it's hit off the toe a few times and it's taken its toll and there's a slight repair there. And here's another one, similar type of period, scared head, been repair into the face here, just constantly hitting this much harder ball.



Now up to about 1890, this gutter percher had been rolled around as a hot blob coming out of the pot. And it was of the same size as the feathery, which was a standard size. It meant that golf was available to the masses because they didn't have to pay this huge amount for the feathery ball. And not only that, the feathery ball could not be used in wet weather. It saturated and when it was hit hard or hit badly, it would just split open. They would go through them like nobody's business. So you couldn't play with them in wet weather and they were very expensive and they split frequently. So they were really bad news and yet we'd had them for hundreds of years.

So what happens then is that they find that when they make this brand-new gutter, gutty ball and play with it, for the first four or five shots, knocking it along the ground, nothing happens. Gradually, as it acquires lumps and bumps and cuts and nicks, it's starting to fly further. And they realise that it's the aerodynamics of the ball. A smooth object doesn't go through the air so well because you've got this force against it, whereas if you have something which is of an irregular shape, it breaks the force up and it goes further. So at that time, they used to hammer it. They would hammer it. It would sit in a wooden cup and they would hammer away at this thing, turning it over and over. And then they started to use the ball at that stage. There was one other interesting thing about it. They discovered that if they cured it for a certain period it worked much better. What actually happened was that they let it dry until, effectively, you had like a dry covering of the ball and the centre of the ball in fact, hadn't gone solid. So you had a soft centre and where have we seen that? The Dunlop 65 is exactly what that is, it had this soft centre.

Then these balls became a lot more sophisticated. They started to make these moulds for them. This mould, as you see here,



is full of dimples. The gutter percher was put in the mould, roughly of the size, and then there was a press which would come down and press it out. After a few minutes you would take it out nicely dimpled.

The idea of having a surplus round it is, is that you didn't want anything that got holes in it. So you always put that tiny bit much more in the mould, so that when you squashed it out you always had a surplus. But it didn't matter because this was taken off with a pen knife and back into the pot and it was used again. So there we then have, and we are now talking 1895-1897, the gutty, which revolutionised the game.

And that's reflected in that in 1897, 1,193 golf clubs in the UK, Scotland and England. Let's say, golf was very popular then at the turn of the century. Let's say each club had 200 members, reasonable assumption. And at that time a normal set of clubs would have been about seven. If you fancied yourself it might be eight, but if you were just Mrs Mop it might have been five. But say we say seven clubs. So we've got 1,193 golf clubs, we've got 200 members at each club, with seven clubs. That gives a grand total of 1,670,200 golf clubs belonging to those 193 clubs. One million, a million and a quarter golf clubs. That was just for the people that played at the golf club. There was young Billy down the road who had his dad's clubs and da-di-da-da. So you can see the impact that hickory had.

And when the gutter percher came together and the whole thing took off it is basically the foundations of the game we play today.

Now, what then happened of course was that up until the 1880s, 1890s, we were still playing more or less with the same club. At that time, in order to save the faces that were being badly damaged by this ball, they started to put inserts in. And here's one with a leather insert I had a laugh in that one of the Park family was advertising a club called the Rhino. But it was because it had got rhino skin in there. Fortunately it didn't last very long, otherwise I'm sure there wouldn't be too many rhinos around. But such an insert became quite important.



The next stage was that there was a huge market and these are the things which drive people's minds really. You know, it's how can I take advantage of this situation. Among the many gentlemen that came along at that time was a gentleman named Forrester. He and his father had come up with several patents for golf clubs. And they patented this golf club which said it is a socket head golf club. What they produced a was a head just like this. So we lost the scarred head

and then we were able to use this socket head here with a normal hickory shaft. It was drilled out and then reamed and this was just driven in, sometimes to come out the bottom. At other times to just finish below the bottom there. And the basics of this club took us right through to basically the club we're using today.

You can still see the shape in the head and, in spite of them going on to a socket head club, they have still retained that lovely shape in the head. Which to me is a real aesthetic thing. It looks like a golf club, doesn't it? So on we go with hickory.

We were still producing the heavy irons because at this time, we are talking now around about 1910. We've still got situations where the greenkeeping isn't exactly what we've got today. And once again we're still mainly playing on links courses. But we are beginning to creep inland mainly because of demand of the ground. Also, of course, a lot of the courses were selected inland because they were well drained, which is what we've all been used to here. Basically sand and gravel, lots of stones. So this type of club became very popular at that time. It was this dish face club. Which was small but was heavy enough to



carry the ball. Bearing in mind, of course, in those days the rules of the game were, where the ball finished you played it. There was no pick and drop. Where's the rule book and all that stuff? The ball finished and that's where you played it. And so this type of club was essential. Slightly heavier, good firm big grip, nice heavy shaft. Good four inches in here, the much earlier one five inches. Just a little bit longer. And that then led us onto probably the beginning of the steel shaft, certainly the steel head. At this particular stage the seven clubs which they would have had in their bag at the turn of the century, six of them would have been woods. And you would have just had this rutting club. It gradually changed and, of course, what people started to realise was that with balls which were continually in development, you could actually control the ball much more. And a really good player could get what we're all looking for, the favourite backspin. It would certainly zip anyway and hold the green, bearing in mind the greens were not the shaven delightful billiard tables that we now have. There was plenty of grass on them.

And so that brings me probably to the type of putter. Now the putters that were used then were really great heavy things like this. Scared head again, same principle. This putter here would go right up to the 1900s, because it was only at this stage that the mechanised grass cutters came in and were able to get quality and much better grasses. We know from our own John Sutherland that he was a seed merchant in this area and they started to really get to grips with the seeding and the qualities of grasses, which became quite a science in his day. So you had to bat your ball through the long grass and these would have been used for something like 50, 75 yards out. I mean that would have been quite a knock along. Mainly we're talking about links golf here in this sort of period.

So we begin now to have quite a rapid change in the ball as well, because the people that were wanting to make money out of this, the ball makers, were producing all sorts of balls. And this is one, this is gutter percher, it's an old one here, gutter percher here, and they put a covering on it, which was not rubber, it was a rubber compound, but not the raw gutter percher. That allowed them to claim that it gave them a softer feel to the ball and a better action and they could putt better with it. Anything to sell more, basically. And these developed right the way through until we got to the ball, which isn't what we've got now, but what we all remember, which was say the Dunlop 65. It had a rubber core ball of some sort, and then it was wound with gutter percher, which was all done by machines. Then it had a very nice coating on it, which allowed them to start to advertise it and identify it, because the rules of golf had changed, you need to identify your ball.

One thing drove the other along all the time. So here then we come to a period around about 1920. They start to put patterns in. This is a resin, synthetic resin, and you could actually buy these from the manufacturer and they would come like this. And your favourite club, which was being badly beaten about by the new ball, you would ask the chap to fit it a new head. And this is one which is done beautifully. There is absolutely no need to put all those pegs in there to hold it in, but it's just a nice pattern, so why not? And it probably sold better. And so then we progress, this one is quite interesting. We progress, then we're getting very, very close to the steel shaft, which is roughly 1920, 22. Not so in this country, but in America. They have started to produce an experiment with a steel shaft. This club here, this club here is 1930.

Roughly, this head would have been 1912. Quite a nice shape, a nice long nose on it, but this has been put in later. This, which is a nice horn insert, which gives it away, because they were put in on all the other clubs.

And in actual fact, from every club, from the beginning, you will always find them with a horn insert, right from the very beginning. That probably comes from the fact that we go back here, because the Dutch, who had started to play a game called Colven type of thing, which was a ground game, they had had their problems, and almost certainly they would have seen this, and the horn was inserted. And there are no clubs, no clubs at all, even the very earliest clubs, in the whole of St Andrew's Collections, that do not carry that horn insert on the leading edge of the base.

So that came right the way through. And here it is here, just signifying the slightly earlier club, but it has a steel shaft. So these were beginning to be sent over. And this one, which I personally got from a member of the Auchterlonie family, this is quite an unusual shaft. That



is virtually brand new, been barely used. But he was telling me that they would receive those at Auchterlonies of St Andrew's, in bundles. And what they did was they went down to the shop, got an old head, nothing very much, pretty cheap head, and they fitted it, screw in there, came out the bottom, little plug in the bottom there. And these were for trial purposes. And that's the way it was going. And this actually feels quite nice. And this is a, this is, it says steel shaft on it, would you believe.

Now some of you might have remembered the Polo, the Polo steel shaft, the chrome ones. So that's a very early one.

Here we're talking about the mid-twenties.

Now just a wee bit of interest in here is that people were getting quite upset because these clubs here, after they're out on a rainy day, they'd come in, they weren't careful and they didn't clean them off. These went rusty very quickly. So what they tried was tinning. So here's a club, a nice early club from J&D Clark of Musselburgh, about 1893, something of that order. Nice long blade, fairly unusual, but it's been tinned. And what I brought along is the same club, the same period, that hasn't been tinned. That's quite interesting, isn't it? Because that's rust. So it actually did work. But it was extra.

There's always some catch. So then we come along to a shaft which probably most of us here will recognise, which is this brown one. And the reason being was that when this first one came out here, it had nothing about it at all. It had just been almost, not quite anodised, but it's been treated in some form or other. It didn't look very nice. And there was a problem initially with these shafts inasmuch that people, their fathers have played with these.

They've got them in the cupboard. Oh, I want to play with hickory. Ah, but these are better. Oh, yes, you've told me that before. It just so happens with our current washing machines. And so in order to try to sell them, they tried to make them look a bit more like hickory. And that is precisely why that pattern is on there and why it came out as a brown covering. Because personally, I think the green covering 's much nicer. But that was the idea behind it.

Market-driven again. So here we have... Oh, I'll just point this out. This is quite interesting.

This is a type of thing which is a most extraordinary club. And I only bought it for that reason. But the game was starting to get gimmicky almost. You know, the club makers were in their element. They couldn't sell clubs fast enough. People were buying them. They'd try anything, just like today. And so they made them of all these weird shapes. They somehow put a synthetic, almost a plasticky face in there with a coloured pattern on it. Just gave it the usual aluminium sole, which turned it out nice. This club is called The Peaky. And I looked it up, and it was because his name's Green, Sid Green. And he had a reputation for coming up with these funny clubs. And at the time he produced this one, he was working in the Middle East, would you believe? Sorry, the Far East. I think it was China or Japan. And I think it's got almost an oriental flavour to it. So there we go.

Incidentally, there is one additional thing here, that in 1895, roughly at the time that we had 1,193 golf clubs in the UK, at that particular time, there were 76 golf clubs in the United States. And with the same formula that amounted to seven clubs per bag, a few more members. That worked out at 150,000 clubs. So they weren't quite up to us at that stage, but they very soon took over. So hickory got itself into a real trouble. They just could not supply the demand.

And I read an interesting article about the hickory trees and that was that in very hilly country the hickory tree at the bottom of the hill was what they called swampy. And the flexibility wasn't the same as the trees further up the hill. And the trees right at the top of the hill weren't as good as those that were only halfway up. And it was quite important. And the beauty of these early days, this is not that early, this is about 1920, but it does explain the use of horses albeit there was good mechanisation at the time. In order to get these logs out in the most unusual places, the mules were used, and that was the only way that they could actually dig them out. So the trees would be dug out and the first thing they did was they cut the log to size. In the pre-1950s, the really early days, they used to split the wood with wedges. And they do say that they made the finest shafts, because the split would follow the grain, and it was the grain which we were looking for, good straight grains. You don't want it running in and out of the shaft. However, the wastage on those was enormous, so that didn't last very long. Eventually they went through the mill, and they were cut into these sticks, what they call staves. And these staves then went along the line, and they were inspected and graded, good, bad and different. Then they were stacked in this extraordinary manner, inasmuch that they were a stave. When they stacked them, there was a stave apart. They layered them so that the air could run through them all the time. And there they would have

dried out until they thought they were ready for shipping, and off they would go. So that, I think, as brief as I can be, and as interesting as I can be, really brings the hickory life into its full life with the golf club. Of course, what had happened was, in the meantime, before we got to this steel shaft, which everybody said, no, it won't happen, it won't work, it'll break, da-da-da-da-da, I don't like this. They were still producing these heads by the thousands, thousands of them. There was a huge demand for golf clubs. And what happened in 1925, the Americans said that steel shafts are legal. And we passed that in 1928. So you would go into one of these supplier's yards and there would be piles and piles and piles of these heads. So what they did, they made this tiny little adapter here. So you could put the adapter into the head and the steel shaft would fit into the adapter. It worked quite well, but it didn't look quite so nice. And I still think, even in spite of that little adapter, they were still left with huge piles of these club heads.

So that moves us on to what I think was the finest days of the golf club, and that's roughly when I started playing. They produced clubs like this, which I think are absolutely wonderful. They've got a nice combination of not too much work in the face, and to take your head cover off one of those and take it out of your bag was always a delight. This one was, this was Ben Hogan's, this was Schlesinger's, and this one was, these two here, those of you will remember the Keyhole Club, which was a really big seller for McGregor's. This was the Keyhole and this was the Tourney, which was a much later one. Still carrying the insert.

So then sadly, I've got a lot full of these, and I won't throw them away either. Sadly, technology moved us along, and this is one I'm sure you'll all recognise. Mr Culloway. So there we are. And just where we'll go from here I'm not sure.

All I know that's improving at the moment is the price. There we are.

I'd just like to run you through this, because I think it's quite interesting. The Football Act of 1424 was a doctrine passed by the Parliament of Scotland during the reign of King James I. It was a banning of the sport of Football, known in the time as "futbal." What were they worried about? Under James II's rule, an act titled "Concerning Wappenschaws" (English: musterings) states; *"...that football and golf be utterly cried down and not used..". And touching football and golf, we ordain that it be punished by the baron's unlaw; and if he does not take it, it is to be taken by the king's officers... And each man within the parish past twelve years shall practice shooting.*"^[5] The ban again is mentioned on the 6 May 1471 under James III, stating *"... that football and golf be discontinued in the future, and butts made up and shot used according to the tenor of the act of parliament."* And finally by James IV, on the 17 April 1491; *"that football, golf or other similar unprofitable sports are not to be played anywhere in the realm, but for the common good and defence of the realm the practice of shooting bows and archery butts are therefore ordained in each parish, under the pain of 40s to be raised by the aforesaid sheriff and bailies from each parish each year where it is found that archery butts or shooting practice is not done as is said."* These Acts remained in force for several centuries; however, all eventually fell into disuse until finally being repealed by the Statute Law Revision (Scotland) Act 1906.

But what is interesting about this, the football, is to take you back to the Romans. They have fabulous records, which is what we didn't have at this time. And they go into great detail about the ball which they used, which was a handball for various games. And when the

Roman Empire came and swept across Europe, they brought their games with them, with the balls. So everybody through Europe, including us here, would have known about their balls. And we would have known that they filled these balls with various contents of whatever game they were using, but often it was feather, mainly it was hair, and there was another one which they called flock, which was sort of a light, fluffy material. And you could pack this into the ball and get it to whatever hardness you want. But the reason it interests me is that to make a ball without gathering an animal skin together you have got to have seams coming down, to make it properly and perfectly round. You have to make it from panels. And the feathery golf ball is exactly that. It's made out of three panels. There's one which goes right the way around there to there, and there's two smaller ones stuck on the end. Effectively, that's a small football, just filled with feathers. So, you know, there must have been something in this. I think so, anyway.

Now, this idea of 1424 went on, and the first time that golf was mentioned was 1457, and this was mentioned again in terms of we were playing too much golf and too much football, and we need archers, and we're still at war with England, and we have to keep our tinder dry, all that sort of thing. Really, they had to repeat it from 1424 to 1502, something like four or five times. They kept repeating it, and generally that coincided with a new monarch. We had James III in 1460, James IV in 1488, James V in 1530, and each time they brought it out again. However, of course, in 1502, James IV came down, and they sat round the table, and Scotland and England were not at war any more. There was a treaty, so we were friends.

What this did, I think, was said, you know, we're a bit better off now. We don't have to worry too much about the archers, so more and more people went out onto the links and played their football and their golf. At this time, 1487, 1494, 1495, 1497, up to six barrels of golf balls, or they just called them balls, six barrels of balls per year were imported into Scotland. That's incredible. It doesn't mention what size the balls were. I think we know that they were probably of various fillings. It would have been the feathery, this flock, and a wood insert.

Now, at this time, there were two types of golf emerging. There was one which was played with a stick, a type of shinty stick, and it was a double-handed grip, and it was played around the major towns and the people would have flocked in on a Sunday and been all together. And it could be termed golf, but it was partway there. I don't think the sticks or the clubs were sophisticated. They were more likely to have been sticks taken out of a hedge. What they used to do with these, of course, was that it was a simple matter with a good stick you could lay it in the embers of a fire, heat it up, and gradually over a period of time, you could actually bend it to a crook shape. And it's actually recorded they had a template to do this.

Now the beauty of this game was, was that it didn't matter when you turned up, you just joined in. Because the idea was, was that there's a big bunch of guys over here, and a big bunch of guys over there, and you're trying to knock this ball past them, and they're trying to do the same thing. They're all scrambling around, whacking each other. Almost what we know as shinty.

Whilst that was going on, we get, the King purchasing golf clubs from the bowyer, the bowmaker, in Perth. He pays 14 shillings for them. It's only the fact that, that these people are in the court, and they must record everything they spend, that we actually find out about

these things. So the King, I'm certain, wouldn't have been playing this game of charging up and down the battling with all his friends. But he was playing a more sophisticated game with a club made by a bowmaker who understood and could work the wood, knew about type of joints and knew when to use whipping. They knew all that type of thing.

And it's my contention, and I argue this many times, that around about this period, there was this divergence. There was the man in the street type of game, which was good fun. And then there was the royal type of game, a chappie who paid 14 shillings, and part of that was for balls, the equivalent of six weeks work if he was in work. So this continued, and so you get this emergence. And to the historian, this is known as the short and the long game. The short game was the sticky type of thing, and the long game was the hit it as far as you could. And the Royalty and aristocracy were basically the people that furthered this. They could afford to pay for the equipment. The featheries were a hell of a price. Three featheries you would get for the cost of one club.

So in, 1503, the King plays golf with the Earl of Bathurst, 42 shillings entry into the treasurer's ledger. Of this amount, nine shillings are for clubs and balls. From here on in, we get regular entries for all to see in the accounts. And I've just put a few of these down here. Twelve golf balls cost four shillings, one golf course cost a shilling. A lot of money in those days. The emergence of the two-piece club. I think at this stage we are now getting, the long game, short game, we are getting into a state where this is not unlike the club that would have been produced at that time. It would have been much heavier here. It would have been an ash stave probably, been quite big here. And it would not have been gripped as we grip it, which is sort of like this. In this case it would have been more a palm type of thing. But some of these early pictures they have of these things, they make incredible swings. You see them right round here, like this. A strange action they have. They'll throw themselves at it.

James IV has this peace treaty in 1502. In 1503 he marries Margaret. That's Henry VII's daughter. And they travel all over the country. They've got nothing else to do. And they go all over the place. None more so that they go down to England of course. And when he's away he trips off and he's recorded at Leith and he's at Montrose and Fontrose, whatever it is. And then he's at St Andrews. So he's spreading himself around and he's quite a keen golfer. And I would imagine if he's entering in bets of that sort of state that he was previously, he must be quite a good player.

So how many golf courses were recorded then in 1512? I would imagine you could almost count them on one hand. So his tour of golf wasn't a great one and it wasn't just that. Fundamentally he didn't go to the golf course, he went to the nearest castle and it took him probably two days.

Did he take his army then? Absolutely. Oh, he had an entourage. They had the bodyguards and a couple of fencers there and whatever, somebody to hold the horses, etc. So there could have been a huge entourage.

At this time, we get the Reformation. Now, this becomes a bit of a setback because at this stage, they really start to put the screw on the man in the street. He's got to pull his socks up, much more disciplined, more work, less play. In fact, they were working seven days a week. And things were tightened up enormously. Sunday was observance day. And so gradually,

the man in the street is being squeezed out. And gradually, this short game as we know it, is gradually fizzled out. And not too many references are made to it after around about this period. 1603, when the Scottish court moves to London. And this, of course, was roughly the beginning of Blackheath Golf Club, the first golf club. We get a mention in Dornoch in 1616. At this particular time, James VI is going to get fed up with the huge bill that is coming into this country for the provision of golf balls and golf equipment from Holland. And at this stage, they're starting to swamp us with all these products. So what he does to try and curb this, he appoints a royal ballmaker. And at the same time, he appoints a clubmaker. The significant thing about the ballmaker is that, believe it or not, he gives him a 21-year exclusive right to produce all the golf balls that Scotland needs and every ball that you make has to carry your stamp.

Now, at the time that he did that, there were about two or three makers of golf balls going around. But this particular chap was favoured. He'd supplied the King with balls before and he perfectly happy with them. He said, you make as many as you can. We are not spending all this money on golf balls from Holland. We can make them in our own country. And the same applies to all our golf clubs. So he stamped the ground there and that was quite a turning point. And so you couldn't buy a golf ball which didn't have the stamp on it and that's the way he kept the business closed. Of course, there was a black market, and the other two golf ball manufacturers kept their little side going and in fact they were still going at the end of the 21 years.

In 1659, there is a record of a shipment of 'Kolf'. This was the Dutch equivalent which we associate with being played on ice. It was shipped to America in 1659 and went to New York. That is on the records. The other thing is that about this time there was quite a lot of art produced by the Dutch. They were very good artists. We were not particularly good at art over here. And they produced pictures such as St. Nicholas's Party, Christmas Party which I think is absolutely delightful. There is also a lovely picture here of a small boy holding what I suggest is a feathery. It might be a bit on the big side, but a perfect scared head club. And it's got the whipping, so we know it's two-piece c 1670.



They produced other lovely paintings as you probably know and have seen. And this depicts 'Golfers on ice near Haarlem' by Adriaen Van de Velde. It raises other contentious business about where did golf start, where did the clubs start.

I've looked at these clubs through my spyglasses as well as I can make out. They look very stickish to me. They've got the shape, but we've already agreed you could make a stick into any shape you wanted. A natural curved shape would do for virtually anything, and in

particular ice. So it could very well be that it's travelled back into Holland. It's very, very difficult to be precise about that because it is not covered well in records.

So the game in Holland, which was often confused with what is called Colf, C-O-L-F was a game which you didn't play to a hole. You played to two posts which were in the ground or, in many instances, were in ice. And the idea, I understand, was to hit one post and then you had to hit it in just the right space where you could hit the other post. I don't know if any of you have been on ice and just got a pebble and struck it you can't stop it. It was a strange sort of game. Also at that time, of course, the Dutch were very keen skaters and the ice would have been covered with people. It's very difficult to think how they actually got on. So it really could very well be that this game was really quite a short game and had some bank which protected it. I don't know. It's not clearly explained.

So I don't think there's too much to worry about who first started to play golf. I'm quite confident in my own mind that the golf that we play is unique to Scotland. There have been outside influences like the shinty had an interest. There was a lot of shinty played. It came from Ireland in the 1350s, came across with a trade into Scotland and it is still played to this very day.

Of course, the shinty, as we know, they really get stuck in with that. I think that that was a curved stick. The explanation they give in making these sticks, right back to about 1400-1450, is that they used to look for sticks in a bank. They look for root because the root sends out side roots and they cut it off there making a perfect stick. Not too much trouble. There is a little bit of shaving around but that's basically it.

I'm quite confident that shinty has come together a number of times in its history but I'm quite convinced that golf is where it is and it is the Scottish game.

The first iron that was ever made, we know these belong to the Earl of Wemyss. I haven't had the pleasure of seeing them or handling them but they're well illustrated in a number of places and these were really quite early c 1680., which is very, very ancient. They had a curious toe on them as well and this toe was flattened and you could actually play the club sideways if you had a ball deep in a rut. I thought it was quite a nice club and would probably work here at times.

So there we are. There's a quite interesting couple of things here. This is what happens to a gutty ball. This is a brand-new ball I had I got from my friend David Hamilton who makes them and I thought I'd give this a try. I caught it square out in the middle and it split in three. This one I didn't hit so well but I hit it halfway up the ball. There was a huge cut in there. It was no good at all. The feathery I have putted with and it's quite interesting. I putted with this on our first green on Struie. OK, it's got quite a slope on it and it was quite different but I could get the hang of it fairly quickly. You've got to hit it a bit harder. But what was interesting was that as I went to approach the ball to putt it there was a slight breeze and the breeze actually blew it away. You cannot keep the ball stationary. So it does give you an indication that they must have been playing on greens with surfaces like this.

When they made these early clubs they were made by blacksmiths and they would start with a 'billet' which would be hammered. They would work out the length of the blade and it would be hammered down by the blacksmith on his anvil, with a hammer continually heating up in the fire. You can all remember the anvil and it's got some holes in it. I always wondered what they were for. They used to put a big spike in it and it had a taper on it which exactly

measured the shaft. So the blacksmith would then actually beat this molten steel around the shaft like that. There was a prolonged process of bending and hammering, culminating in altering the angle of the head on the shaft to whatever angle he wanted. This would be the length of the club that he wanted to use at that stage. He'd be doing that all day, every day. The demand was for more than he could turn out so the blacksmith's trade was a really good time for them. Of course we got to the stage where the heads became machine cast. This involved a loss wax process with a gravity feed of molten lead metal into a huge cast. They were allowed to cool down and then they were shaken out and snapped off, cleaned up and finished.

And so the mass production of this golf head. There was a machine which was described as a lathe and the head had a 'nose' on it to be held in the jaws and then there was a series of revolving cutters on a cam follower. So you would have a master, actually made out of steel with the cam follower tracing out the master club. It would simply have followed this profile all around and it would have cut this out. Then the head would be sanded down, the nose is taken off and generally cleaned up.

So the days were gone by when clubs were all handmade out of a piece of wood, hickory from America but it could have been beech. The much later version got to a stage which needed even less work by the club maker.

So there we are ladies and gentlemen.

I hope you've enjoyed it. I've certainly enjoyed it. I hope I've taken you along with me as much as I can. That's the lovely game we play and we've all enjoy.