

How Games are Made.

BY WILLIAM G. FITZGERALD.



F M. Paul Blouet and our other Continental critics—would they were all as fair as genial “Max O’Rell”—were to speak of us as a nation of sportsmen, instead of shopkeepers, the comment would be at once more appropriate and more to our liking. For it has passed into universal tradition that where-soever two or three Britons are gathered together, there also is played one or other of our national games. Quite recently we learned that golf-links had been established at Newchwang, in remote Manchuria, to the dismay of the Taotai of the district, who suspected that the evolutions of the players were part of a subtle plot designed to hasten the dismemberment of the Celestial Empire; and the Earl of Sheffield himself assures me that he was bowled out by Alfred Shaw in a cricket match played on the ice fjord at Spitzbergen, by the weird light of the midnight sun. I would have reproduced a photograph of the bat Lord Sheffield used on this interesting occasion, were it not that the question arose: In what wise, externally, does it differ from its fellows? Truly this was something of a poser, even for a writer in search of pictorial curios; so I prudently let it alone.

Croaking pessimists who from time to time lift up their voices and bewail (usually through the columns of a daily paper) the decadence of the national vigour, should repair without delay to the vast establishment of Mr. F. H. Ayres, in Aldersgate Street. Here one finds workshops covering three or four acres of priceless land, and a staff of nearly six hundred hands, who share between them in wages some £40,000 a year. The annual wood bill alone is more than £15,000; and very strange and fearful are the names of a few

of the rarer woods. Think of amboyna, cocobola, cocus, and cog; king, lance, myall, partridge, pimento, quira, sabicu, thuya, yamaquay, zericote, and zebra-wood!

My first visit to this hive of industry was not a success; I defy any man to receive and digest a mass of technical information while circular saws are screeching, and chips from embryonic bats are falling like leaves in autumn. The first illustration given here depicts one of the wood-yards on the roof, where as many as 50,000 “clefts,” or rough bat blades, are stored at one time; before being taken down to the workshops, these clefts are left to season for a year or two.

The timber expert, seen on the right in the photograph, buys the willows growing. Persons who have trees to sell write to the firm, and occasionally a “parcel” of a hundred willows is purchased at one time, the average price of each being three or four pounds; the expert judges the tree by the leaf and the bark. Was there a record tree? There was. This arboreal treasure was found at East Dereham, in Norfolk, about three years ago; it was about sixty years old, and was 15ft. in circumference. Having arrived at the place, the foreman engaged four or five men to fell the giant willow—a task involving two days’ hard labour. The record price of £60 was paid for this tree, but what of that? Notwithstanding its great size, the grain of the wood was perfect, and no fewer than 405

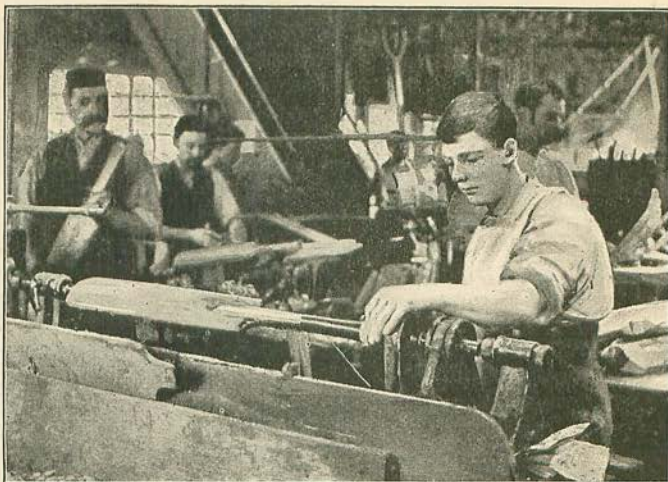


ROUGHING OUT BAT-BLADES.

guinea bats were cut from this willow. The Australian players, Turner and Giffen, ordered three dozen of these same bats, and took them from London with them.

When the rough bat-clefts are thoroughly seasoned, they are drawn out into shape, planed, pressed, handled, strung, sand-papered, and oiled. Some of these processes are shown in the next picture. The handle of a first-rate bat, by the way, is made up of sixteen pieces of cane glued together; and in this one department twenty tons of East Indian cane, worth £30 a ton, are used every year, together with its complementary quota of more than half a ton of the finest Scotch glue. The string used on bat handles is Dutch flax, which is purchased in large quantities in 11b. reels. One pound of this twine will string two dozen bats. A whole reelful is boiled in a gipsy pot with pitch, oil, and resin, so that it may become of a dark-brown hue, and the string is automatically cleaned with felt as it leaves the pot.

The mode of stringing is extremely simple, as may, perhaps, be inferred from the accompanying illustration. The operator simply takes a finished bat, fixes it between two spindles, and causes it to revolve swiftly,



BAT-STRINGING.

while he himself pays out the twine with never-failing judgment. Altogether the annual output of bats from this house ranges from 23,000 to 30,000, including the exports to Australia and South Africa.

Having traced the evolution of the perfect bat from its parent tree, I then turned my attention to the ball. Here is a corner of a big workshop, wherein a number of men are engaged in the manufacture of regulation five-and-a-half-ounce cricket balls, of which many hundreds a week are produced. The cores are of cork and worsted, and each ball passes through the hands of seven men, reckoning from the preparation of the raw cowhide. This hide is stained

red, and then cut and stitched into hemispherical caps, two of which are forced together round a composition core placed in a mould beneath a press, such as is seen in the illustration. The seam is afterwards stitched, and the unsightly and somewhat flattened ball is then pressed into shape and greased.

It occurred to my inquiring mind to ask why cricket balls are



MAKING BATS.



SEWING AND PRESSING CRICKET BALLS.

no little peril, he seems to be a critical and interested spectator. The original of this picture is an oil-painting by Hayman, which hangs in one of the spacious rooms of the grand pavilion at Lord's. The figures are portraits; the quaint-looking wicket-keeper being none other than the great Hogarth himself.

In one of the yards before the big warehouses at Ayres' may be seen piles of ash logs

invariably red; this, it appears, is based upon sound scientific observation, for red can be seen on grass much better than any other colour. "We have sent a few green balls to the Cape," remarked the foreman of this department, "but they were for use on a cocoa-nut-matting pitch."

I reproduce here a very interesting old print depicting a cricket match in 1741. To the scientific batsman of to-day this may appear cricket *pour rire*, but it is evident that the players were very much in earnest. Look at the man intrusted with the scoring: he marks the runs by means of notches cut in a stick, and though his position is apparently one of

for making tennis rackets. These logs, each five or six feet long, come from the eastern and southern counties; from them are cut slender rods, or racket sticks, which are steamed for half an hour or so, and then bent about an iron frame—an operation requiring the nicest judgment. Freshly bent shapes are sent at once to one of the seasoning yards, nearly roof-top above the busy city; and here one beholds with curiosity long vistas of what appear to be dog-kennels, but with no sides, and each containing a few rows of racket frames. Nearly 20,000 frames are stocked in this one yard, and they make no further progress till they are about nine



From the Painting]
Vol. ix.—78

CRICKET IN 1741.

[by Hayman.



THE GREAT RACKET-ROOM.

months old. In due time, however, the frame is taken down to the great racket-room here depicted, and is fitted with a cedar handle. Holes are then drilled in it, after which it passes into the stringing-room. Here the racket receives about 36ft. of gut, and is then ready for sale. The gut used will stand a strain of 2,000lb., and costs 3s. 6d. per hank of 18ft. (wholesale price, of course). The huge quantity of 96,000ft. per week is sent from the store-room to the workshops, and last

season the firm made upwards of 54,000 rackets. The next illustration given shows the interior of the football-room. Hides for football cases are bought already dressed, and are cut into the required sections by the men. In a Rugby ball there are but four sections, but there are eight in one of the best Association balls, which are now completely sewn up, and not laced as formerly; the output during the season is fifty-six dozen a week.

The making of boxing-gloves, and the covering of cricket and football leg-guards are carried on entirely by girls. Every week ten or twelve skins of chamois or tanned cape, each skin a yard square, are cut up according to zinc patterns and sewn by machinery or by hand. Thirteen girls are employed on this work, and each can finish three sets of boxing-gloves in a day. The horsehair for stuffing sometimes costs 8d. per lb., but is purchased in immense bales when it happens to be cheaper.

Considered as a fashionable sport, archery is far from being inexpensive. Colonel



STRINGING TENNIS RACKETS.

Walrond, of the Royal Toxophilite Society, assures me that many of his fellow-members possess half-a-dozen bows which cost from ten to twenty guineas each, not to mention various sets of arrows at two guineas a dozen. The bows are made of yew, lance, beef, partridge, and snake woods; some are made in two or



MAKING GUARDS AND BOXING GLOVES.

SEWING FOOTBALL CASES.

was slowly increasing in diameter, and proceeded to give a few details. It takes him four or five hours to make a 48in. target, which weighs 16lb.; and he uses eighteen trusses of straw every week. The canvas is supplied to him in pieces measuring twelve yards by six; and besides cutting it out, he has to paint

three pieces. A "self-yew" bow, however—that is, a bow made of one piece of choice yew—may retail at thirty guineas; the string used is specially-prepared Flemish cord.

I give here a reproduction from a photograph of the target-making room, in which are stacked bales of rye straw and rolls of canvas. When it was hinted that the place was dangerous by reason of its liability to fire and the temptation to sleep away the hours of labour, the industrious target-maker pointed out that the stock of straw in the room was strictly limited to half a ton; and as regards my other insinuation, why, he was only paid for what he did. The target man then put down his work, which



THE TARGET-ROOM.



TURNING CROQUET BALLS.

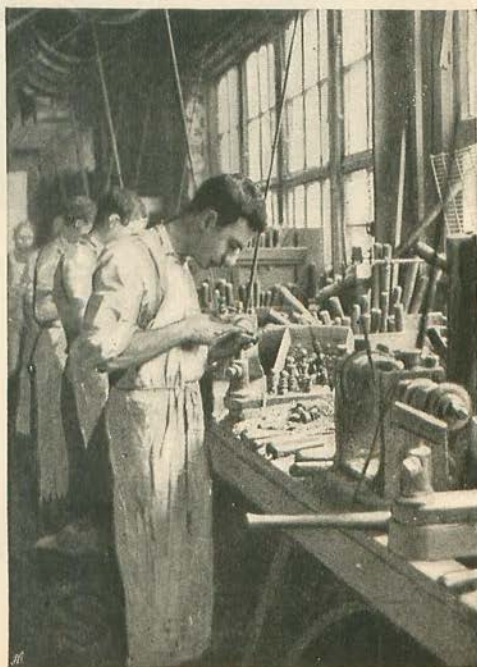
the coloured circles and golden centre with the scrupulous care of a Royal Academician. Of course, he uses compasses, and is altogether a bit of a scientist in his way.

As I roamed helplessly about these immense workshops, I wondered dimly what became of all the shavings and sawdust. Far below are the two great boilers, more than 20ft. long and 7ft. high; and these are incessantly fed with chips, which are either collected hourly by special men, or are shot down from all parts through a protected opening. The stoker estimates that he shovels away two tons of chips and shavings every day. The sawdust is contracted for, and is produced at the rate of four or five tons a week.

In another building are the engineers' shops, where five gross of cast steel golf-irons are turned out every week, and nearly 800 gross of croquet arches in the season between February and September. Photography was out of the question in this strange place; but it certainly was most interesting to watch the turners finishing golf-irons, which, by the way, undergo four processes and have seven different angles. These men wore curious and cumbersome spectacles in order to protect their eyes from the metallic dust and the streams of fiery sparks that flowed from the implement in hand. Croquet, I am told, is fast regaining favour.

Nothing can be more astonishing than the celerity with which the man in our next picture transforms a block of box-wood, measuring 6in. by $4\frac{1}{4}$ in., into a perfectly spherical croquet ball; he measures the wood from time to time with a pair of calipers. A stock of 150 tons of box-wood is always kept; and fresh supplies are imported from Asiatic Russia in logs 3ft. 6in. long. Perhaps, the most important branch of work carried on in the immense turners' shop is the making of chess, which is shown in our photograph. Sets of chess are made of box-wood, rose-wood, ebony, bone, and animal and vegetable ivory; they range in price up to £20, and are sent to all classes in every part of the world, from Oriental monarchs to lonely Canadian settlers. In the manufacture of chess and draughts, twenty men are regularly employed; and I stayed for a few moments to watch one of these who was carving heads. The first tool he used was a circular saw; and with this he cut little bits from a big piece of rough ebony. He then mounted a toothed wheel $1\frac{1}{2}$ in. in diameter, set it revolving swiftly, and held one of the bits of ebony to it.

Gradually one could see that by deft manipulation the familiar head was growing under the turner's hand; another and smaller wheel was presently mounted, and so

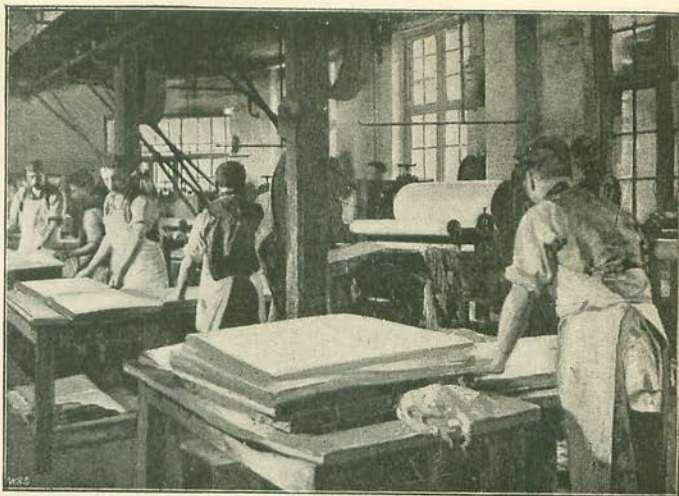


MAKING CHESS-MEN.

on until the last circular saw had no greater diameter than the head of an average pin. There were seventeen changes of tools, but the entire process took no more than a quarter of an hour. An expert man can produce four dozen heads per day.

Lest any of my readers should marvel at the mention of vegetable ivory, I hasten to explain that it is a sort of solid Brazil nut, which is bought in sacks by the ton.

My next visit was to Goodall's enormous factory at Camden Town, where over 2,000,000 packs of playing-cards are produced every year. The staff here also numbers hundreds of men, and there are five or six artists whose sole duty is the designing of the backs. No fewer than twenty distinct qualities of playing-cards are manufactured on the premises, the retail price ranging from 9d. to 3s. 6d. per pack. Of course, there are hundreds of different designs and patterns. The first thing I noticed, on the occasion of my visit,



PASTING MACHINES AT WORK.

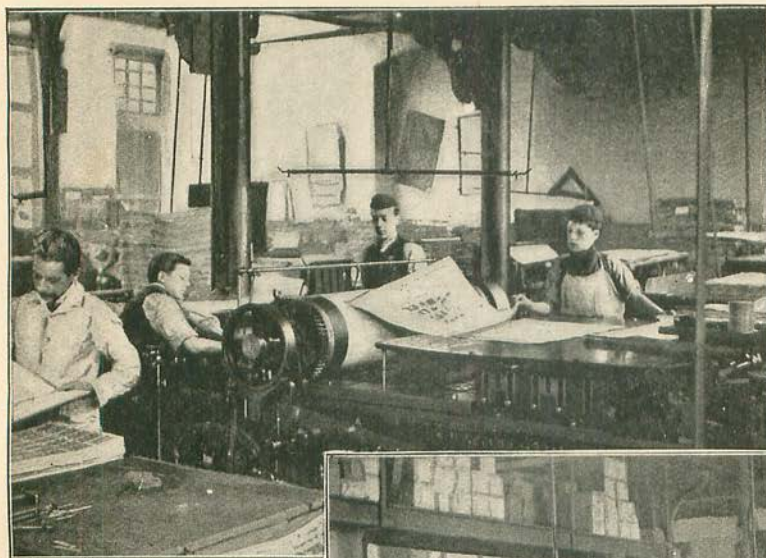
was the vast quantity of paper: it was there in thousands and thousands of reams, for there is literally no end to the making of playing-cards.

I was then conducted into the paste-making department, a view of which I reproduce. The big copper at the far end holds 100 gallons; and every week the astonishing quantity of 4,000 gallons of paste is made, in which countless sacks of the finest flour are consumed. My cicerone was courtesy personified, but he gently refused to work out how many packs of cards equalled a quartern loaf in point of flour used. The next illustration shows the pasting-machines at work. In this department the sheets of paper are pasted together and subsequently squeezed in a hydraulic press to remove the superfluous paste. These sheets are then taken to the drying-room, which is heated according to the state of the atmosphere; the drying has to be most carefully looked after, for if the temperature is too high the board begins to curl.

When thoroughly dry, the rough boards are ready for the rolling-machines, and after having been rolled they are enamelled and printed on the faces. Common cards require but two printings, but the best require five. The backs are subsequently printed in a spacious room crowded with intricate machinery; and then, as may be seen in the accompanying photograph, the big boards are stacked in piles, each sheet being a complete pack of cards. In this state they are left for some little time in order that the ink may become perfectly dry. At length they are ready for glazing and finishing, and



THE PASTE ROOM.



THE PRINTING-ROOM.

when this is done the boards are cut transversely by an ingenious bladed machine, and swept aside by a little girl who manipulates a lever. Both these processes are shown in the illustration.

The long sections are then passed on to another girl, whose machine stamps out the single cards of identical denomination



LAYING OUT PACKS.



CARD-CUTTING.

with marvellous rapidity. Yet another girl is intrusted with the "laying out" of the cards. She takes the piles of newly-cut cards and sorts them on a counter into their various denominations, keeping a sharp look-out meanwhile for marked or damaged cards. When all

the piles contain fifty-two of the same card, they are again "laid out," but this time each pile gradually becomes a complete pack. If for home use, the packs are then wrapped in the Government seal, the present duty being 3d. on each pack.

I have not included bicycles in this article; had I done so, I might have been led on to yachts and race-horses, and then my subject would have



MAKING BILLIARD-TABLES.

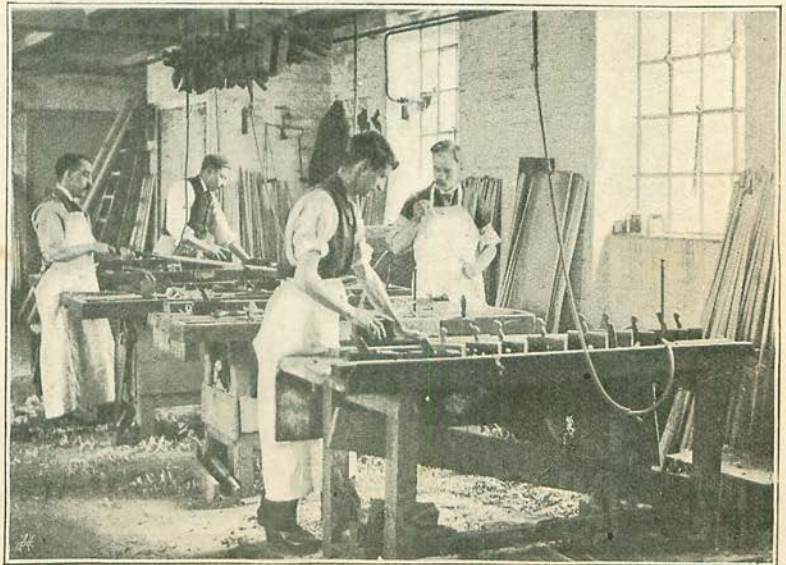
become rather unwieldy. This would indeed be an incomplete article, though, without some little account of the making of billiard-tables and their accessories; therefore it was that I sought out Mr. James Burroughes, of the firm of Messrs. Burroughes and Watts, who employ 420 hands and turn out 700 tables every year.

Mr. Burroughes will sometimes stroll down to the East and West India Docks for the purpose of buying in a little "parcel" of timber for £5,000 or so. As a rule, the parcel consists of a ship-load of square mahogany logs from Honduras, Cuba, or Mexico; and when the expert has satisfied himself as to the quality of the wood by plunging a gouge into one of the logs, he concludes the purchase, and sends the timber by barge to his own mills, where it is sawn into planks of various sizes, and then stacked for from four to six years before being used. The illustration shows the interior of the

frame-room, where skilled workmen are busy finding the level of a table. Carving the legs of billiard tables is a separate branch of the business; it is done by outside master carvers, each of whom employs his own staff. For the most part, the design is furnished by the firm, but occasionally it is sent in by the customer's own architect. The romance of trade is nowhere more fully exemplified than in this parti-

cular branch. The slate quarries of Wales have to be blasted to supply the bed; for every billiard-table contains five slabs, each weighing 4cwt. The almost impenetrable wilds of Africa must be searched to find ivory, which is getting scarcer every day; and even when the tusks are in the hands of the turner, it requires the experience of many years to be able to pick out with confidence the part which alone will make a perfect ball.

In the hills and plains of Saxony only are found the flocks whose fleeces are sufficiently



THE CUE-ROOM—SHOWING PLANES.

fine to weave the cloth; and the rubber for the cushions is made from the isolated caoutchouc trees of malarious Para, near the mouth of the Amazon.

The next view shown is the interior of the cue-room; the cues are of ash, spliced into ebony handles. This reminds me that great billiard champions form strange attachments to favourite cues. Peall once showed me his pet cue, and pointed out that it had been repaired so many times that it was not a little difficult to find even a small section of the original wood. In the illustration, all the planes used in making a cue are shown on the bench.

The firm's average sale of billiard-balls is 950 per month, which is equal to the produce of ninety-five elephants; about ten balls are cut from each pair of tusks. At the works one may see a little closet wherein is stored the standing stock of 20,000 balls, valued at £16,000.

Mr. Burroughes buys his ivory at the periodical sales that are held in the London Docks, when parcels of 100 tons or so are put up for sale; and I may mention that the quantity of ivory imported into this country alone last year was 11,757cwt., which means 60,000 tusks. Forty years ago one could buy a first-rate set of billiard-balls for eighteen shillings; at the present day such a set could not be had for less than five guineas.

In the accompanying illustration the billiard-

ball turners are seen at work. "There are thousands of turners in the kingdom," says Mr. Burroughes, "but not one in a hundred will turn a billiard-ball so as to produce an absolutely perfect sphere." Each ball is carefully tested to insure accuracy; but besides the size, the weight also must be exact, for this is essential to the correct playing of the game of billiards. A set of match balls weighs 14oz. Billiard-balls are finally polished with whiting and water.

A certain proportion of our supplies of ivory comes from Asia, but the greater part, and that the best, comes from Africa. In fact, a large quantity of what is nominally East Indian is really African, for it is sent from Zanzibar and Mozambique to Bombay, and such parts as are not required for bangles and carved work are then shipped to England. More or less comes from Burmah, Siam, Ceylon, Sumatra, and Java, the Siamese being the best of the Asiatic, which is apt to discolour. My informant reckons that fifty years hence there will be practically no ivory at all, the present annual mortality of African elephants, for ivory export, being about 65,000. Besides this, the chiefs in the interior keep the choicest tusks for the decoration of their temples, houses, and graves. Civilization is making such strides in the Dark Continent to-day that it is high time some ingenious person devised a really perfect substitute for ivory.



TURNING BILLIARD-BALLS.