

# John Donegan's watch factory in Ireland

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*In 'The Irish Museum of Time, Waterford, Ireland', published in the December 2022 journal, mention was made of a contemporary description of John Donegan's watch factory, published in the Dublin Weekly Nation newspaper edition of 1 May 1858. This article offers a transcription of this interesting document, with a short introduction and some explanatory insertions.*

John Donegan's firm in Dublin made many clocks, ranging from mantel to turret clocks. However, they were particularly notable for the 22,179 pocket watches they made, including their gold and silver cases. This was over a period of almost fifty years, from 1845 to 1892.

Donegan started in partnership with John Wright as 'Donegan & Wright', but quickly took over on his own. He was a fervent nationalist and closely involved with the Catholic Church. He greatly increased the watch-making business and expanded into ecclesiastical accoutrements. He was very generous to charitable causes and much revered by the public. Despite his stated wish for a modest funeral, it became a massive public affair after his death in 1862.

His brother Patrick Donegan carried on the business, followed by Patrick's son Patrick Junior. However, John Donegan's name was always put on their watches. Watch production basically ceased in 1892, and the firm closed after Patrick Junior's death in 1926.

Luckily, two of the firm's massive ledgers were saved from destruction by the horologist William Stuart, and survive in excellent condition. His 'Works Ledger', typical entries of which are shown on the next pages, details the construction of more than ten thousand watches, meticulously costed under twenty-eight headings. This covers watches numbered 8,196 to 18,594, made from 1859 to 1881.

His 'Sales Ledger', typical entries of which are also shown on the next pages, details the sale of more than nine thousand watches under seven headings. These are numbered 12,545 to 22,179 and were sold from 1865 until basically 23 May 1916. The armed Easter Rising had started in Dublin a month before that final date and perhaps triggered the end of production.

Pages 522 to 527 offer a transcription of a contemporary description of his factory as published in the *Dublin Weekly Nation* newspaper on 1st May 1858.

It is anonymous, but clearly was written by Joseph Chapman who had published details of the Donegan firm in the same newspaper six years earlier, using similar wording. Chapman was Chairman of the Board of Irish Manufacture and Industry, and both a 'Clock Manufacturer' and a 'Working Watchmaker' and a friend of Donegan.

Similar early descriptions of British watch factories are rare,<sup>1</sup> and none seems to be anything like as detailed as this newspaper article.

At the time it was written, Donegan was employing up to a hundred workers in his watch factory. The names of seventy-one are known, all male and described as 'Assistants and Workmen', along with four un-named apprentices.

Interestingly, included was a finisher, 'Mr. James Mudge'. Coincidentally, Archibald

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1. Editor's note. We are aware of a small number of comparable documents, listed in the appendix, and shall be interested to learn of any further examples.

DESCRIPTION OF MOVEMENT	No.	Movement	Dial	Motion	Cap	Case	Joint	Jewel	Escapement	Spring	Chain	Hands	E. Tuning	Polishing	Gilding	Balance	Engraving	Glass	Finishing	Examining
12/ S 16	11	139	12/6 3/6	2/6	"	13/6	9	11/6	2/6	6	1/4	1/-	37/3/-	2/4	1/6	2/-	4	12/7/6		
		140	"	25/-	1/6	"	17/6	9	11/6	2/6	6	1/4	1/-	3/-	2/4	1/6	2/-	4	12/7/6	
		141	"	28/-	1/6	"	18/4	9	11/6	2/6	6	1/4	1/-	3/-	2/4	1/6	2/-	4	12/7/6	
14/ Plain		142	7/6	1/2	2/6	1/6	14/-	9	2/6	2/6	6	1/4	1/-	1/-	2/4	1/-	1/6	4	22/6/6	

These are typical entries from his 'Works Register'. Its printed headings are continued on the opposite page. Each starts with the cost price of the rough Lancashire movement, and then gives his factory cost for each process. Number 11139 is a size-12 gold watch with a three-quarter-plate 'skeleton' movement. The last is a size-14 'plain' silver open-face watch.

Number	Date of coming into Stock	DESCRIPTION	First Cost
15618	10. 4. 73	Gold Lever Skeleton hunter Com. Bal	ex. co. v
19	24. 5. 73	Sil. Lever 3 pair hunter	
20	24. 5. 73	Sil. Lever plain hunter	
15621	10. 5. 73	Silver Lever 3 pair hunter	

This shows entries in his 'Sales Register'. The first is a gold hunter lever watch, with a three-quarter-plate movement and a compensated balance.

Buchanan was born in Londonderry, became foreman to Mudge & Dutton, married Dutton's daughter, and set up business in Dublin in 1779. Perhaps James Mudge had a distant connection with the famous Thomas Mudge.

Sub-headings (in bold between square brackets) have been added here for clarity, and some additional information has been put in square brackets. There is a long preamble, and the description proper starts under the sub-heading 'Watchcase making'.





£	s.	d.	Examiner	Date	Finisher	Date	TO WHOM SOLD	£	s.	d.	
cr	cr	R					Mr Hugh Donegan	27 November 1862	12	15	0
cr	cr	E	Owen	15/1/62			Mr Thos Carroll	4 April 1864	20	0	0
cr	a	E	Owen	24/1/62			Rev J. C Smith	21 Decr. 1863	18	5	0
o	i	i	Turran	24/5/62	Lepp	24/4/62	Mr Andrew McCade	1 Jan. 1864	5	0	0

This shows the total cost in a code (using some word like 'chronology'), with name, date and price for each purchaser. Unusually, the first was sold to a member of the Donegan family, and apparently at a cheaper price.

When Sold	TO WHOM SOLD	Selling Price
24 2 73	Mr L Ivers Knoxville U.S.A.	22 0 0
25 7 73	Mr M Lynch	7 7 0
20 6 73	Miss Curran 30.11.74 Mr Fallon 70%	6 6 0
23 5 73	Mr Mulligan	7 7 0

This shows the date, to whom sold, and the price. The first was sold on 24 February 1873 to Mr. L. Ivers, Knoxville, U.S.A. for twenty-two pounds. Knoxville is near Nashville in Tennessee.

Photos on the left page.

The dial of a Donegan gold watch that was specially commissioned for a member of the Catholic hierarchy. His 'Works Register' says its multi-colour gold dial (depicting St. Peter's Basilica in Rome) cost 21 shillings. This compares to fourteen pence for a basic enamel dial. The presentation inscription on its case has unfortunately been filed off, presumably for recent commercial reasons.

Next to it, its 14-size movement, number 8473. Its imported rough movement cost nine shillings, namely 4½ per cent of its total production cost of about ten pounds. The following is a breakdown of its costs in shillings and pence (with the total range of such costs in brackets). Rough movement 9/= (7/6 to 14/6), balance 1/6 (1/= to 18/=), jewellery 11/9 (2/9 to 18/9), movement engraving 4/6 (4 pence to 16/=), finishing 27/= (6/6 to 48/=), examining 7/6 (6/6 to 10/6), glass 4 pence (4 to 27 pence), case 108/= (13/= for silver to 257/= for gold and enamel), escapement 2/6, chain 1/4, motion 2/3, cap 2/=, gilding 3/=, polishing 3/9, etc. It was sold to Mr. [Phayse?] on 25 January 1860 for £15-0-0.



A Donegan dial clock of about 1860. Both 'Donegan' and 'Dublin' are surrounded by green shamrocks, a symbol of Ireland, and the hands have shamrock ends.





A gold sweep-second chronograph, no. 3993 of 1852, with Donegan's early address of '5 Upper Ormond Quay, Dublin' on its dial. However, the vast majority of Donegan watch dials have his later address of '32 Dame St. Dublin'.



A small (6-size) gold and enamel watch no. 10810, with a crowned Irish harp that symbolises 'Royal Ireland'. The numerous shamrocks were originally filled with green enamel, but presumably after being damaged, all such was removed to make it more presentable. It was sold on 15 April 1862 to 'Mr. O'Byrne, London', for £20-0-0.



One of Donegan's astonishing 'Harp' clocks, of which at least eight are known. Standing nine feet (275 cm) tall, they date to the 1860s and incorporate a mercury barometer and thermometer. They were all made of Irish oak, covered with Celtic symbols, including a crowned harp, Irish pikes, shamrocks, an Irish wolfhound, two round towers, a lyre, and a Giant's Causeway base!

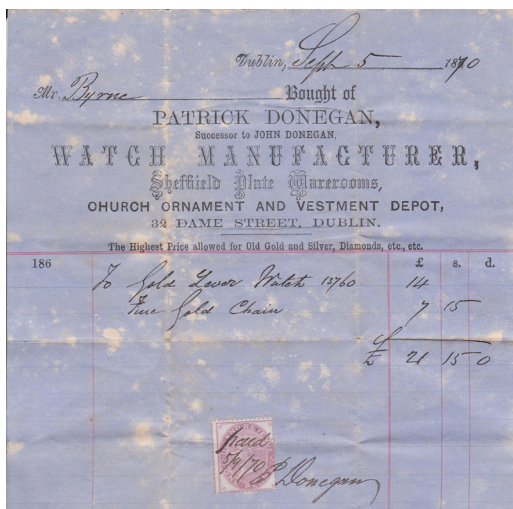




John Donegan's impressive memorial grave in Glasnevin cemetery, north of Dublin's city centre. It is in a privileged section, reserved for friends of the famous Irish patriot Daniel O'Connell. Donegan had made a gold watch for him, with his house 'Derrynane' engraved on its gold dial, in 1846.



Right: invoice for gold lever watch 13760 and a fine gold chain, dated 5 September 1870. The address is 32 Dame Street, Dublin. After John Donegan's death in 1862, the business was continued by his brother Patrick.



All photos on these pages were taken by the author.

## A Day in an Irish Watch Factory [1858]

### [The background to watchmaking in Ireland]

When we speak of a day in an Irish Watch Factory, we have no desire to mislead our readers, native or foreign, by suggesting that there are many such establishments in Ireland. The truth is there is in all Ireland but one; and we should be more strictly accurate in saying ‘a Day; in *the* Irish Watch Factory’.

To many this fact will be new. Many will hear with astonishment that in a country like this, there should be but one Factory for the Manufacture of an article so extensively used. Others will hear with surprise that even one such establishment exists in Ireland.

Our manufactures are, at best, but few; they cannot fail to be objects of interest and instruction to Irishmen. The history of their rise and progress, their struggles, their success, cannot fail to convey a lesson full of usefulness to such of us as are not ashamed of honest labour, and who have more faith in self reliance and industry than the patronage of mock Kings, or the influence of Lions and Unicorns.

At what period the Manufacture of Watches was introduced into this country we are unable to state; but we find—significant fact—that, like our other Manufactures, it rose and prospered with the short-lived period of National Independence preceding the Union, and perished soon after the great source of protection and encouragement of native industry was destroyed by English jealousy.

### [Three previous watch factories in Dublin]

About the time of the Union [i.e. 1800], there were at least three Watch Manufactories in Dublin:

[Arthur] O'Neill's, in Hoey's Court.

The ‘English Company’, or [James] Pattison [from Coventry], [James] Cheshire [from London?], and [John] Lowe [from England].

And the ‘Dublin Company’, in which we believe Messrs. [John] Gaskin, [George] Warner, [Archibald] Buchanan, and [John] Chancellor (father of the present Mr. Chancellor, Watchmaker, of Sackville Street) were partners.

The ‘English Company’ failed, sometime

about the year 1804; the ‘Dublin Company’ continued in operation until the expiry of its term of partnership in 1808–9, when it ceased; O'Neill's continued in existence up to 1826, when it also disappeared, when in all Ireland there was not a Watch Factory.

For nearly twenty years, or up to 1845, this state of things continued—the Quantity of Watches imported in that time being worth at the lowest calculation, a quarter of a million sterling.

### [John Donegan started]

In the year 1845, one of the Dublin ‘Watchmakers’ [John Wright] conceived the idea of resuscitating the Manufacture, and suggested to most of his fellow tradesmen the desirability of their making a joint experiment, he being willing to take the largest quantity of shares.

The plan was deemed highly ‘patriotic’, but also highly impracticable, and was received with shrugs and shakes of the head. Only one person [John Donegan] was found to join the promoter; and after much anxious hesitation, he resolved to start the project, and trust to energy and merit for success.

He soon found difficulties and discouragements crowd thick and fast around him. He found himself also, in a little time, single-handed and sole proprietor of the hazardous undertaking.

But he was undaunted. He made no clap-trap appeals to mere sentiment, and urged no one to buy a bad watch because it was ‘Irish Manufacture’. He rested his claims to success purely and entirely on the intrinsic merits of his productions, and by these resolved to stand or fall.

For a long time the experiment seemed to hang between failure and success; for a long time its actual profit was insufficient to encourage anyone not endowed with more than ordinary perseverance.

But, happily he who was maintaining this one was possessed of calm, steady, noiseless, but unyielding and irresistible energy. Day by day, success grew more unmistakable; the modest factory of a dozen hands grew to a score, and the score to two score; its fifty or a hundred ounces of gold in the year grew to two hundred, to three hundred, to four hundred. Its five hundred ounces of silver

to eight hundred—ten—twelve—fourteen—sixteen hundred in the year.

Until at length, it is in our power to make the proud boast that *there is not in all Great Britain a Watch Factory embracing as large a complement of departments under its roof as that at this moment is in flourishing existence in Dublin!* The name of the man whose enterprise, patriotism, and energy achieved this success is now a household word in Ireland—JOHN DONEGAN.

#### [Ecclesiastical accoutrements]

The Watch Manufacture is only one of the several branches of Mr Donegan's business. We may, on some future occasion, lead our readers through his other factories, where goldsmith's work, in the shape of chalices, remonstrances, &c., as well as that in which the manufacture of vestments &c., is carried on. For the present, we have only to do with the factory in Temple Lane, where he has revived so successfully the branch of Irish manufacture, which is just now under our consideration.

#### [Watchcase making]

To the courtesy of Mr [Michael William] O'Brien, the gentleman under whom this important branch is worked, we are indebted for the favour of this visit, and we cannot speak too highly of the kind readiness he displayed in enabling us to prosecute satisfactorily our enquiry.

On entering a room on the ground floor, we find at one end two fireplaces similar to those used in an ordinary forge. But the fires they hold are designed to operate on no ordinary metal. Crucibles lie close by, and in one a mass of gold is being melted for alloy, while on a stand close by, in a bath of vitriol, lies a goodly weight of the precious metal ready to be assayed.

For this purpose, it is sent to the proper government office (in the Custom House), where its proportions are declared. If too soft (pure) it is again melted, and still further alloyed until metal of the required proportions is obtained.

The mass of gold is next passed to the rollers—three or four of which occupy the middle of the room. Between the revolving solid cylinders of these machines, the gold is

rolled into plates of the required thickness, until a sheet of gold is passed on to the cutter, who cuts it into discs the requisite size for the back, cover, &c, of the watch.

Each disc, however, being as yet quite flat, has to receive the concave shape. For which purpose it is passed to a stamper, where by being placed over a cup of the required concavity, a die of convexity to match is struck on it, imparting to the gold plate the requisite shape.

The sides have next to be made. For these, strips of gold are cut about a quarter of an inch wide and of length determined by the circumference of the watch. Each is bent in ring shape, and the ends soldered together with 'gold solder'. Three of such rings (one such ring makes the 'rim' for holding the glass) are next soldered together, edge to edge one over another, the middle one being a simple 'tire' [ie. 'tyre'?] the upper and lower ones 'bevelling' inwards, so as to receive or meet the bevel of the convex back and lid.

The 'side' thus constructed is placed in a lathe, where it soon assumes a 'true' circular shape and has a 'bed' turned in its upper and lower edges to receive the edges of the back or lid.

Meantime, the back also has been turned and dressed—gold dust and shavings flying about the lathe as carelessly as sycamore wood at a bed-post turners. The back is now pressed into the bed cut in the lower edges of the sides which is then hammered over it sufficiently to keep it firmly in its place. We have now the shell or case of a watch.

The pendant has yet to be affixed and the joints (or hinges) put in, &c. The pendant is cast in its usual shape and finished by turning. One end is then firmly riveted into the watch. Where the joints are intended to be made, strengthening pieces, or 'bearers', are firmly soldered in, as the mere thickness of the case would never be sufficiently strong for a hinge joint requiring a pivot to pass through.

In these hinge joints, as well as in the pendant of hunting watches, a small tube is required—for a pivot to pass through in the former case, for the pushing piece to throw up the lid in the latter.

This tube is of gold, and though not thicker than a cambric needle, has its tubing quite perfect, so as to admit a pivot or bar to play



freely in or through it. We were for some time perplexed to know how such a tube could be drilled through; our perplexity was soon solved by seeing a piece of it made.

A narrow strip of gold is rolled exceedingly thin; one end of it is hammered as nearly as possible into a tube shape by beating round the edges to a meeting. This end is passed through a small circular hole—say a sixteenth of an inch in diameter—in a steel plate, caught at the other side in a pincers and pulled through.

This operation at the first application imparts to the narrow strip the half-tubular shape of an eave gutter; but at each repetition the strip is passed to a still smaller hole, until both edges meet—indeed until it is impossible for an untutored eye to detect any trace of the edges, the tube resembling rather a piece of gold wire.

#### [Hallmarking and watchcase finishing]

The watch-case is now ready for the 'Hall', i.e., to be sent to receive the brand or mark indicating the purity of the metal. A number of cases are taken to the Custom House, where a portion of the metal is scraped off from part of each, and assayed. If found up to the 'hall standard', the mark is stamped thereupon, and the grain of gold scraped off for test returned, as the value of a number of these test grains would amount to a very large sum.

In the process of 'marking', the cases are more or less put out of shape, so that they need to be once more put in the lathe, turned, dressed, &c., when they are ready for the 'finisher' whose department is on the floor next above—whither we now proceed.

As we pass out we observe that the floor of the room is ribbed with strips of inch scantling, running parallel, about four inches apart.

'Why is the floor thus covered with these strips?' we ask.

'Oh, that is necessary to prevent the gold dust, shavings, &c., now lying on the floor of the room, from adhering to the soles of our boots.'

'What! and does the gold dust lie about in that way?'

'Yes; this room is most carefully swept every morning—the sweeping of this room is worth nearly two hundred pounds a year!' A

truly Californian idea it will be admitted.

#### [Rough movements or 'frames' are imported from Lancashire]

In the next room, what are commonly known as 'the works' of the watch are 'finished' and put into the case, the manufacture of which we have just witnessed.

It is not generally known that in the manufacture of a watch, complete from first to last, there are no less than *fifty-four* different and distinct trades called into requisition.

One supplies the dial, and nothing else; another the cap, another the fusee, another the barrel; another makes only 'third and fourth wheels', another manufactures nothing but the mainspring.

These again are subdivided. In dial making one man cuts the copper dial discs; another is a 'dial enameller', another, a 'dial painter'. And so on. Most of these trades are grouped, and known by the general name of 'movement manufacturers'.

The movements used by Mr Donegan are brought in their rough, machine-cut shape from the Lancashire movement manufactories—the value of one such as it reaches Dublin, and ere it has been wrought by his workmen, being about twelve shillings.

It consists of:—dial, cap, frame, motion, fusee, barrel, third and fourth centre wheels, cap-spring, stop, and stop-spring, ratchet work, and detent work.

#### [Movement finishing]

A 'movement' is given to a 'finisher', who takes about five or six days to work it into shape; pivoting, polishing pinions and wheels, and pitching the depths, i.e., regulating the depth of the teeth or cogs of those minute wheels, the error of their being a hundredth part of an inch too deep or too shallow, causing the watch to 'stop'.

In the room which we have now entered, a number of men are engaged at this work. When they have completed their task, they bring the movement to the examiner, who sees that the work has been properly done.

He then, if the watch is not to be jewelled, makes the balance-spring, inserts it, and brings the watch to time. Before this workman, and suspended from the ceiling hangs a pendulum of the length required to vibrate seconds.



Ever and anon he drops his eyeglass, through which he has been grinning at the interior of the watch, and gives the pendulum a touch—ditto the balance-wheel, and once more the glass is jerked into the grip of the eyebrow and cheek-bone.

Indeed, nothing strikes one more forcibly on visiting such a factory, than the peculiar expertness of the workmen in locking their magnifying glasses in the cavity 'neath the eyebrow'. They throw the glass towards the eye, and catch it with the eyebrow as they would with the mouth catch a piece of bread thrown towards it.

### [Jewel cutting, drilling, and polishing]

In the case of Jewelled Watches, the movement having been examined, is sent to the jewellery department to be jewelled; and to this department, the most curious and wonderful of all, we now proceed.

It needs no deep reflection to understand that in the fixing of the points in which the pivots of the wheels are to play, a misplacement the thirtieth part of a hair's breadth would be fatal to accuracy in the timekeeping of a watch.

To ascertain or indicate this point is easy enough; but to ensure that the centre of a drilled hole, large enough to admit a jewel fixed in a case, will be that point, in the first instance, and in the second, that the hole in the jewel in which the pivot is to play, will also be that same point, is a rather delicate and difficult undertaking when we reflect that it can only be achieved by (1) the hole in the jewel being 'true' in *its centre*; and that the circumference be perfectly 'true' from that hole; (2) that the hole in the case or mounting of the jewel to receive it, be equally true to the circumferences of itself and of the jewel; and (3) that the hole in the frame to receive the mounting containing the jewel, be true to the ascertained pivot-point.

These various operations are being performed in the room we have entered.

The jeweller takes out a drawer with subdivisions, in which rubies, carbuncles, crystalites, &c., lie in heaps like beads, or in small irregular lumps like clear gum arabic. From amongst the latter he takes a piece large enough to make a jewel the size required.

On the bench before him is a mill or disc

of copper, into the surface of which diamond dust has been beaten or 'charged'. This mill or disc is, by means of the lathe, made to revolve rapidly; to it the workman applies a little diamond dust, mixed with oil, and holds the crystalite against it with his fingers until a flat is ground, first on one side, next on the other.

The crystalite is now cemented with great firmness to the end of a bit of brass or holder in the lathe, one flat, or surface outwards, so that the revolutions of the lathe make the crystalite revolve upon its centre.

It is now to be turned; but what tool will cut it?

None, save of one material—*diamond*—and accordingly a chisel-edged diamond is used, and so the adamantine crystalite is 'turned' as a bit of boxwood by a turner's chisel! It now has a true circumference and the next step is to drill or turn in the true centre the pivot hole.

The drill for this purpose is truly a curiosity. It is a diamond chisel-edged, yet as fine as a bit of a cambric needle, about the sixteenth of an inch long. The hole is drilled half from one side or flat at a time; as the drill would break away the inner surface when coming through, if driven quite through at once. The drill, of course, is merely held or pressed against the jewel, which revolves in the lathe.

The crystalite has yet to be polished. This is done by still finer diamond dust, applied on the end of a bit of copper, pewter or horn—the lathe being made to revolve with the utmost possible rapidity. The jewel is now ready for mounting.

### [Jewel mounting]

A hole exactly its size is turned in a bit of brass, the edges of the holes being slightly bevelled, or a rabbit or bed is left at bottom, upon which the jewel rests whilst the brass is pressed over at the top so that it is held perfectly firm in its mounting. The outer edge or circumference of this brass frame or mounting is next turned true from the drilled hole in the jewel as a centre; there only remains to have the mounted jewel fixed in whatever point in the movement has been ascertained as the true pivot point required.

This is the most difficult task of all, since a hole in some cases, more than a quarter of an inch in diameter has to be turned with

wondrous accuracy around a point as fine as the end of a bee's sting—and the edges of the hole thus drilled must, like those of the jewel mounting, have a bed or bevel to receive the latter, as its inner edge had to receive the jewel.

This is accomplished by a newly-invented piece of machinery, too difficult to describe without the aid of diagrams: suffice it that in the process of drilling the hole the workman is enabled to perceive if it varies a five-hundredth part of an inch from the true centre.

Into this hole, the mounted jewel is placed, but inasmuch as it may be necessary to take it out of the movement at a future time—in cleaning or regulating the watch for instance—it is necessary to fix it in some way admitting of its removal if required. Accordingly, two small screws are placed in the watch frame, one on each side of the jewel mounting, so close as that half the head of each screw projects over the latter and holds it in its place. Thus is the process of 'jewelling a hole', completed.

#### **[Dust cap gilding]**

Meantime the gold case has been forwarded to the engraving department for ornamentation, and the brass cap, &c., for ornamental engraving and gilding, and to this quarter of the building we now wend our way.

On entering it, the first object that attracts attention is a Daniels three jar battery, engaged in the process of coating the brass caps, &c., of watches with gold. Here is a most interesting instance of scientific discovery most powerfully aiding art. Into a bath of a solution of pure or virgin gold, with Cyanide of Potassium and distilled water, both wires of the battery are led: on the positive wire is hung the cap or other brass work to be coated; on the negative wire the bit of virgin gold which is in a few seconds to part with some of its substance for the benefit of ornamentation of its 'companion of the bath'.

No sooner is the bit of brass hung in the bath on the positive wire, than the process of coating becomes plainly observable, until in a few seconds the article is taken out covered with pure gold.

The bit of precious metal that hangs on the negative wire, of course, is gradually worn out in imparting this glittering coat to its baser companion.

**[The following section illustrates the strong anti-colonial feelings in Ireland at the time, but has no horological content!]**

We could not help reflecting, while watching this curious process, that it was one the principle of which is repeated very often in the lives of men.

How many a brazen knave or a booby, clinging to the positive wire of favouring circumstances, filches the lustre of honesty and genius from some simple unfortunate whom adverse destiny has hung upon a negative wire in the bath of poverty!

Then, again, it seemed to us a beautiful and perfect illustration of the blessings of British rule. Behold a British three thousand gun battery. Behold Mr. Bull on that positive—very positive—wire; behold Ireland, India, or China on the unhappy negative. Now a bath of legislative amelioration, made up of cyanide of Spooner and distilled cotton, with a solution of Indian, Chinese, or Irish gold, completes the apparatus.

Observe how the civilising process goes on. Observe how the gold coating accumulates on Mr. Bull; how the gold of India, China, and Ireland wastes and melts and grows small by degrees and beautifully less.

In a little while it is all gone; Mr. Bull has absorbed it, and he shines before the world not only in the abstracted wealth but the abstracted talent, genius, and bravery of the nations he has absorbed.

#### **[Frosting the dust caps]**

The coated watch-caps are taken from the bath and held against a rapidly revolving brush, made of strong hair or wire, the effect of which is to impart to the coated article that beautiful gold frosting which may be observed on the cap, &c., of a new watch.

#### **[Watchcase engine-turning and engraving]**

The engraving of the cases we found, to our great astonishment, was in great part done by a truly astonishing piece of machinery—a 'Rose Engine'. The variety and beauty of the figured patterns that this machine can turn on a case is astonishing. The graver is held stationary; the case being fixed in the engine, which rotates in an oscillating motion in accordance with the pattern which is determined by the workman adjusting the mechanism of the 'Engine'.



Of course a great deal of the ornamental engraving we observe on highly-finished watches is done by hand; but one can scarcely form a conception of the cunning workmanship executed by a 'Rose Engine'.

The case, being turned, engraved, and polished, is now ready to finally receive the movement which the examiner and jeweller had completed. It is accordingly returned to the examiner, who re-fixes the movement in it.

### [Watch-glass making]

At this stage it is necessary for us to note the labour of another department which, however, is not on these premises, but is carried on in another of Mr. Donegan's factories, whither we proceed to witness it—the *Watch-glass* manufacturing department.

On entering the laboratory of the Watch-glass Maker, we observe that on one hand the room is piled with hollow glass globes about eighteen inches in diameter; while directly in front of us, through a small aperture—about four inches wide by two inches high—in a brick wall, the dazzling glare of a furnace at white heat is observable. Out of this aperture juts a flat piece of iron, upon which, just at the edge of the glow, are seen some roughly cut discs of glass ready for 'bending'.

The large glass globes alluded to—resembling huge bubbles—are blown in the Liffey-street Glass Works. The Watch-glass Maker takes one on his lap, and places upon it a pattern-size watchglass or disc of any other material of the proper size. In place of using a diamond, he takes from the fire an iron rod, which he draws around the edge of the pattern on the globe. When he has, with the red-hot iron, thus 'scribed' on the globe the size and shape of the watch-glass, he wet his finger, touched the invisible heated ring, and—crack!—out fell the disc of glass from the globe! But it does not come out perfectly in one case out of five: he has to trim the piece to circular shape, which he does with a scissors, trimming the glass disc as a tin-worker would one of tin.

The glass has now to be bent. It is placed convex upwards on the iron jutting out of the furnace hole, and pushed in within the influence of the heat. In a little while it becomes softened, and the workmen, taking

in each hand a plain strip of iron, uses them with the glass as if with the ends of a lead pencil in each hand, we turned round and round, on the flat, a penny piece lying on the table, at the same time slightly pressing its edges towards its centre. This, it will be seen, imparts to the softened disc of glass that rapid round on the edges, which may be observed on watch glasses.

This "bending" operation over, the glasses are passed to the lathe room, where the edges are turned in "true" circular shape—the glass being cemented on the end of a revolving bar in the lathe, and powdered emery applied to grind down the edges.

The grinding, of course, muffs or clouds the edges. This effect is removed by applying pumice stone, and finally putty powder, which smoothes and polishes the glass, which thus finished, is forwarded to the watch factory.

The rest is simple; the movement is placed in the case, and the watch, now complete in all his parts, forwarded to the warerooms in Dame-street.

### [Finally]

It is impossible to quit our subject without wishing that we had many such instances of the successful establishment of Native Manufactures to chronicle. What Mr Donegan has done in Watch Manufacture, may be achieved by others in other branches of trade, now altogether unknown in this country.

But we are far from sympathising with men who expect to trade upon the mere cry of 'patronise Irish Manufacture', meaning 'buy our inferior article at our own price'.

What we contend for, is that Irish men ought to be able to produce articles capable of commanding a preference on their merits, and not dependent for support solely on an ephemeral enthusiasm.

What we contend for is the practice of that National virtue so powerfully inculcated by our illustrious countryman, Mr. Smith O'Brien—self reliance, which enriches and elevates individuals and nations—self reliance, which has achieved so signal a success in the instance of the Irish Watch Factory in Temple-lane, Dublin.

## Appendix

The following three descriptions of clock- and watchmaking manufacturies in England, published in the early 1850s, have all been reprinted in *Antiquarian Horology*.

A description of the clock factory of J. Smith and Sons in St. John's Square, Clerkenwell, London was published in *The Illustrated London News* in September, 1851, with four engravings: 'The turret clock shop', 'The brass foundry', 'The regulator and general clock shop', and 'The clock case shop'. It was reprinted as 'Visit to a Clerkenwell Clock Factory' in *Antiquarian Horology*, Autumn 1980, 274–280. It was also reprinted in *J. Smith & Sons of Clerkenwell Facsimiles*, a book compiled by Chris McKay, 2001, Pierhead Publications Limited, and in Derek Roberts, *British Skeleton Clocks* (Antique Collectors' Club, 1987), pp. 260–267.

'A Visit to the clock factory of John Moore and Sons, Clerkenwell-Close London', was published in *The Illustrated Exhibitor and Magazine of Art* of 16 October 1852, with four engravings: 'Engraving of the turret clock proposed for the Royal Exchange by Messrs. Moore and Sons', 'Ornamental eight-day clock, to be shown in the Great American Exhibition of 1853', a cross section showing on the ground floor 'Wheelcutting shop and 'Smith's shop', on the first floor 'Church &

turret clock shop', and on the second floor 'Musical & house clock shop', and finally 'Another view of Moore's large wheel cutting engine, engraving from *The Penny Magazine*, 1842'. It was reprinted in *Antiquarian Horology*, Spring 1992, 69–73.

Charles Dickens, 'Time and the Hour', a report of a visit to the watchmaking business of Rotherham in Coventry, published in *Household Words*, 1852. There are no illustrations. It was reprinted in *Antiquarian Horology*, September 1968, 458–461, and discussed in Joseph McKenna, *Clockmakers and Watchmakers of Central England* (Mayfield Books, 2002), pp. 69–70. Note: Dickens did not actually visit Rotherhams himself, the report was by Harriet Martineau.

David Rooney alerted us to the existence of two comparable documents, although – especially the latter – these were not of conventional domestic clock or watchmaking factories.

The first is an extensive and detailed description of Gillett and Bland's factory, published in *The Croydon Advertiser and Surrey County Reporter*, 11 October 1879.

The second is a similarly lengthy description of John Sandys's factory in Clerkenwell (clockmaker-turned-electric-telegraph-instrument-maker and maker of time balls), published in *Daily News*, 5 April 1852.