

One Year's Hard Cash.

By J. HOLT SCHOOLING.*

(Fellow of the Royal Statistical Society, etc.)



FROM time to time there have been printed in magazines descriptive accounts of the Royal Mint as regards the working processes by which our supply of change—from five-pound pieces to farthings—is manufactured and distributed. But, so far as I know, there has never been prepared any concise account of the extent of the Mint's operations as regards its output of hard cash, nor any attempt to show these, in some instances, astounding results in a form that enables them to be readily understood by us in whose pockets jingle the coined results of the work of a very industrious department of the State. Let us then consider the working of the Royal Mint from a fresh point of view, and see what we can make of the facts placed at the disposal of everyone by a man who literally "coins money"—the Deputy-Master of Her Majesty's Mint.

Diagrams Nos. 1, 2, and 3 relate to our modern coinage only. No. 1 illustrates the proportions of gold, silver, and bronze coins, respectively, to the coins made during the ten years 1885-94. Here are the actual figures upon which No. 1 has been based:—

	Number of Pieces.	Per-centage.
Gold coinage during years 1885-94	72,477,708	or 15.5 per cent.
Silver " " "	192,139,058	or 41.1 " "
Bronze " " "	202,531,840	or 43.4 " "

Total number of coins made } during the ten years 1885-94 } 467,148,606 100.0

We cannot, of course, assume that these results for the ten years 1885-94 also represent the proportions of gold, silver, and bronze coins respectively to the whole existing coinage of this country, because the number of coins of each class now in circulation can only be estimated, whereas the above results are the actual Mint figures for the period stated. They show us what has been the coinage of gold, silver, and bronze coins respectively during an appreciably long span of the Mint's operations, and we see that the number of bronze coins is nearly three times as large as the number of gold coins, the pieces of silver coined being nearly as numerous as the pieces of bronze. (See No. 1.)

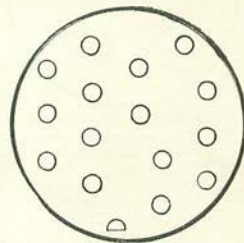
When we deal with the respective values of the three groups of coins—see No. 2—we obtain results very different from those which relate to the respective numbers of gold, silver, and bronze coins. The figures

upon which diagram No. 2 has been computed are:—

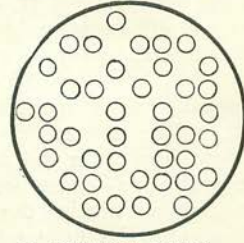
	Face-Value.	Percentages.
Gold coinage during years 1885-94	£ 57,671,768	or 83.9 per cent.
Silver " " "	10,439,823	or 15.2 " "
Bronze " " "	584,416	or 0.9 " "

Total face-value of coins made } during the ten years 1885-94 } 68,696,007 100.0

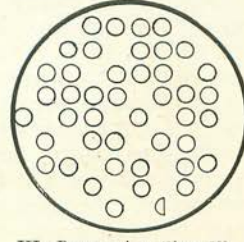
The face-value of the silver and bronze coinage is considerably greater than the actual value of the metal of which these coins are made. In fact, as regards the silver coinage, an "unofficial" coiner might almost be tempted to buy silver at the present market price and make good coins of it, at a profit, if he could work on a large scale, and if he could dispose of his wares when coined. The cost of the silver bullion for these coins, whose face-value is stated at £10,439,823, was very little more than one-half of this amount, so that, in round figures, the Mint makes a yearly profit of half a million sterling upon the silver coinage. The



I.—Gold coins: 15½ per 100



II.—Silver coins: 41 per 100.



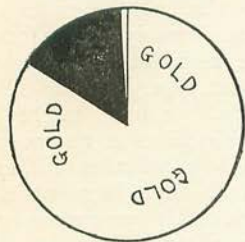
III.—Bronze coins: 43½ per 100.

No. 1.—Each of the above three large circles represents One Hundred Coins of the Realm. The little discs inside each of the three circles show, by their number, the respective quantities in every one hundred coins, of:—I. Pieces of Gold. II. Pieces of Silver. III. Pieces of Bronze. [Computed on the whole coinage for the ten years 1885-94.]

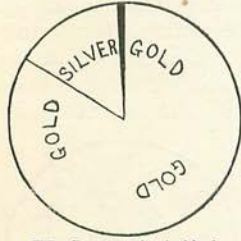
* Copyright by John Holt Schooling, 1895.



I.—Gold coins in black.



II.—Silver coins in black.



III.—Bronze coins in black.

No. 2.—Each of the above circles represents the FACE-VALUE of the "Moneys of the Realm" coined and delivered into Store at the Royal Mint during One Year. [Computed on the average yearly coinage for the ten years 1885-94.] The black part of each circle represents the FACE-VALUE of:—I. Gold Coins. II. Silver Coins. III. Bronze Coins.

value of the bronze coins is relatively so small, that in parts I. and II. of diagram No. 2 their value shows only as a very narrow white streak, and in part III. as a very narrow black streak. Moreover, the percentage 0.9 above is a little too high for the value of the bronze coins, and the percentage 83.9 is a little too low for the value of the gold coins—these are, however, the nearest figures within the limits of precision shown by the little tabular statement just given. Concerning the profit made by selling the bronze coinage at its face-value, the amount paid by the Mint for bronze bullion [during the ten years 1885-94, to which the coined value of £584,416 relates] was only £97,747, or (say) a cost to the Mint of only £16 to £17 for the metal composing every £100 worth of bronze coin made: a very profitable business.

The see-saw between gold and bronze, with silver sitting in the middle to keep things steady, is further illustrated by No. 3, where gold—as in No. 1—has again to go down bottom while bronze comes up top.

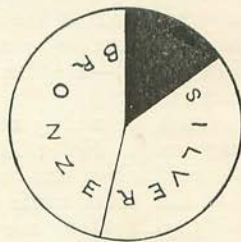
This diagram No. 3 illustrates the respective weights of the three groups of coins, and it has been based on the following figures:—

	Tons.	Percentage.
Gold coinage during the years 1885-94.....	453.4	or 15.1 per cent.
Silver " " " " " "	1,162.1	or 38.6 " "
Bronze " " " " " "	1,392.0	or 46.3 " "

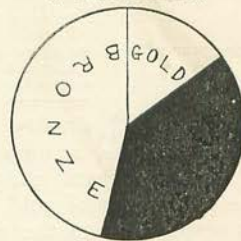
Total weight in tons of coins made }
during the ten years 1885-94... } 3,007.5 100.0

We see that on the score of *weight* the bronze coinage outstrips the gold coinage still more than on the score of "number of pieces"—see No. 1 and the tabular statement about the *number* of coins made. The weight of the bronze coins is more than three times the weight of the gold coins, and, for the third time, silver occupies the middle place between gold and bronze: compare diagrams 1, 2, and 3.

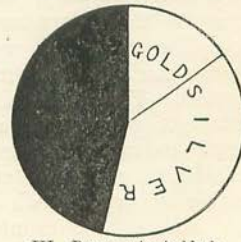
It may be of interest if I give here a condensed summary of the coinage during the ten years 1885-94, and which splits



I.—Gold coins in black.



II.—Silver coins in black.



III.—Bronze coins in black.

No. 3.—Each of the above circles represents the WEIGHT IN TONS of the "Moneys of the Realm" coined and delivered into Store at the Royal Mint during One Year. [Computed on the average yearly coinage for the ten years 1885-94.] The black part of each circle represents the WEIGHT IN TONS of:—I. Gold Coins. II. Silver Coins. III. Bronze Coins.

up some of the results already quoted for gold, silver, and bronze, respectively, into the results for each different coin. Here it is:—

Moneys of the Realm coined and delivered into Store in the Mint office, from the 1st day of January, 1885, to the 31st day of December, 1894.

	Number of Pieces.	Face-Value. £
GOLD COINAGE.		
Five-pound pieces	73,360	366,800
Two-pound pieces	135,064	270,128
Sovereigns	41,800,397	41,800,397
Half-sovereigns	30,468,887	15,234,443
Total 1885-94	72,477,708	£57,671,768
SILVER COINAGE.		
Crowns	4,885,848	1,221,462
Double-florins	2,689,830	537,966
Half-crowns	20,792,024	2,599,003
Florins	15,061,860	1,506,186
Shillings	53,143,200	2,657,160
Sixpences	57,903,120	1,447,578
Threepences	37,341,216	466,765
Fourpences— <i>Maundy</i>	169,896	2,832
Twopences— <i>Maundy</i>	57,024	475
Pence— <i>Maundy</i>	95,040	396
Total, 1885-94	192,139,058	£10,439,823
BRONZE COINAGE.		
Pence	93,219,840	388,416
Halfpence	78,848,000	164,267
Farthings	30,464,000	31,733
Total, 1885-94	202,531,840	£584,416
Grand Total, 1885-94	467,148,606	£68,696,007

[NOTE.—In the Face-Value column the results have been shown to the nearest pound, in order to avoid shillings and pence.]

The above statement refers to the coinage for the ten years 1885-94, so that by dividing any of these results by ten, we may at once obtain the yearly figures which relate to our One Year's Hard Cash.

I have done a little sleight-of-hand with the 467 millions of coins just detailed in the column headed Number of Pieces, and have embodied the results in diagram No. 4, called The Popularity of the Penny. Coins, like every other commodity, are subject to the tides of demand and supply, and we may be quite sure that nothing but an incessant demand for pence would cause the Mint to turn them out in such quantities that they easily take the first place in this diagram, which may be explained thus:—

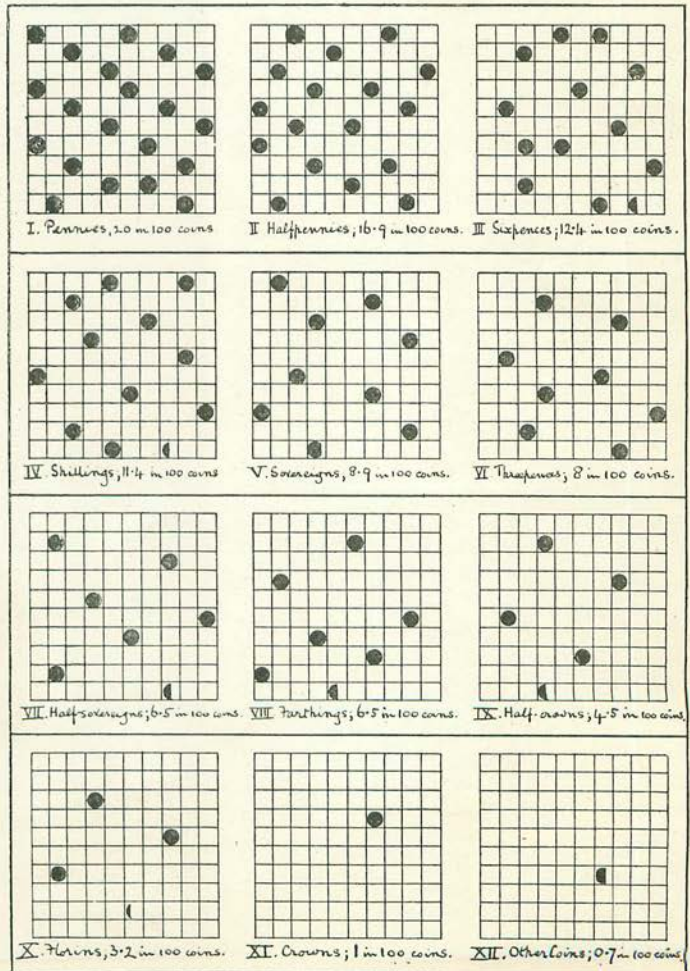
Each of the twelve large squares in No. 4, numbered I. to XII., represents one hundred coins of the realm. The black discs in each of the twelve large squares show, by their number,

how many coins of the value named there are in every 100 coins made; and this set of twelve squares, viewed as one consecutive series, indicates the respective degrees of popularity of the gold, silver, and bronze pieces of our coinage. [No. 4 has been calculated on the whole coinage of the Royal Mint during the ten years, 1885-94.]

It is certainly interesting to note the following sequence of our coins as regards their popularity:—

1. The Penny.
2. The Halfpenny.
3. The Sixpence.
4. The Shilling.
5. The Sovereign.
6. The Threepence.
7. The Half-sovereign.
8. The Farthing.
9. The Half-crown.
10. The Florin.
11. The Crown.
12. Other Coins: these include, in the order stated, the double-florin, the Maundy fourpence, the two-pound piece, the Maundy penny, the five-pound piece, and the Maundy twopence.

Diagram No. 4 shows graphically, and also by numerical statement, the extent of the difference between the popularity of each



No. 4.—The Popularity of the Penny.—For description see text.

coin, from the popular twenty pennies in every 100 coins, to the solitary crown-piece in every 100 coins—gold, silver, and bronze. Curiously enough, the half-sovereign and the farthing are equally popular: both coins thrive to the extent of 6·5 in every 100 coins made.

Apropos of farthings, I had occasion while I was preparing this account of the coinage to use a quantity of farthings for a certain calculation, and I experienced more difficulty in getting them than if I had wanted an equal number of half-sovereigns. The Bank was unable to supply any coin below the halfpenny, and, being advised to "try the drapers," I mustered my courage, and in reply to the obsequious question of many shop-walkers: "What is your pleasure, sir?" meekly replied, "Five shillings' worth of farthings, please, or as many as you can let me have." I don't remember ever to have seen important-looking men so much taken aback by a simple statement, and I could not get any farthings "at the drapers." At last I unearthed a lot at a sweetstuff shop, but the difficulty I had to get those farthings proved to me that they really do not deserve a degree of popularity higher than that eighth place which they occupy in No. 4 diagram. If I could, I would have placed the farthing among "other coins," right at the tail of the list—the getting of those I wanted bothered me so, and I believe the people thought I wanted to gild them, and pass them as half-sovereigns. I always look the other way now when I meet those insulted shop-walkers.

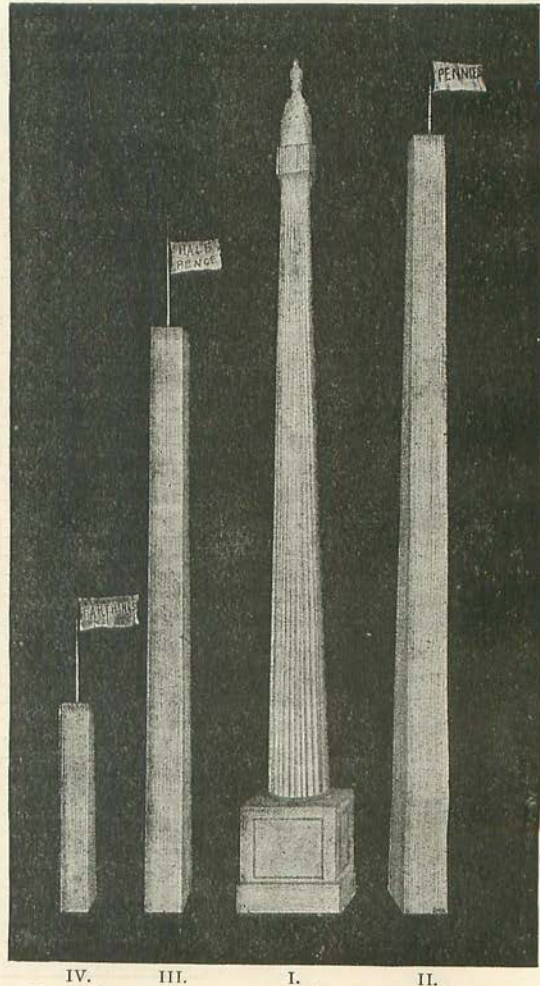
Taking this vast total of 467 millions of coins made in ten years, and allowing 300 working days in each year and 10 working hours in each day, no fewer than 15,572 new pieces of money are made in every hour, or just on 260 new coins per minute! An astonishing result, especially when we note that excessive care is given to each of the many operations, and that many freshly made coins are rejected during one stage of their examination on account of trivial defects which disqualify them from ranking as good pieces. These rejected coins are not included among the 467 millions just mentioned; they are sent back to the melting-pot, for it is considered cheaper to make them all over again than to touch them up by hand with files, etc., as is done in some countries, in order to make faulty coins comply with the stringent regulations as to weight, etc.

The Supremacy of the Penny shown by No. 4 suggested to me that a more extended investigation of our bronze coinage might lead to some interesting results. Therefore, I obtained the facts relating to bronze money for the whole period of its coinage, *i.e.*, from the first issue on December 17, 1860, to December 31, 1894. During the thirty-four years' existence of bronze money, its issue from the Mint has been as follows:—

	Number of Pieces.	Face-Value.	Weight.
		£	Tons.
Pence	356,882,400	1,487,010	3,319
Halfpence	299,162,400	623,255	1,669
Farthings	121,534,080	126,598	339
Total	777,578,880	£2,236,863	5,327

[These quantities include the 1,700 to 1,800 tons of bronze coin made by two Birmingham firms, under the superintendence of officers of the Mint, when, in 1860, the substitution of bronze for copper money necessitated a very large coinage during a short time.]

The results just stated may astonish some readers who are able to grasp the meaning of



No. 5.—Our Supply of "Coppers."—For description see text.

such a large number as $777\frac{1}{2}$ millions of bronze coins, but they will not convey much meaning to the majority. Therefore, I have thrown these results into the graphic form exhibited by No. 5—Our Supply of Coppers—which may be described thus:—

Part I. of this diagram represents the Monument, 202ft. high, which is the scale of the drawing.

Part II. of No. 5 is a solid square tower, consisting of ten thousand vertical columns of pennies, each column being 184½ft. high: this tower of pence is 10ft. 1in. square.

Part III. is a solid square tower consisting of ten thousand vertical columns of halfpence, each column being 138½ft. high: this tower of halfpence is 8ft. 4½in. square.

Part IV. is a solid square tower consisting of ten thousand vertical columns of farthings, each column being 49½ft. high: this tower of farthings is 6ft. 8in. square.

Parts II., III., and IV. of No. 5 have been carefully computed, and then drawn to the scale of the height of the Monument, and this extraordinary quantity of bronze money has been issued by the Royal Mint since the introduction of the bronze coinage in the year 1860 up to the 31st December, 1894. The face-value of these three towers of bronze coin is nearly 2½ millions sterling; they contain more than $777\frac{1}{2}$ millions of coins, and they weigh 5,327 tons!

This, then, is the meaning, exactly described, of the great towers of "coppers" seen in No. 5; and, truly, the results astonished even me, who calculated and drew them.

In diagram No. 6 we have a contrast between the values of gold, silver, and bronze coins, respectively, that makes our pence look rather small, despite their gigantic proportions exhibited by No. 5. Parts I., II., and III. of No. 6 represent the face-value of one ton of gold, silver, and bronze coins, respectively. The little square at the top of No. 6 represents the value of one thousand pounds sterling, and it here serves as a scale of

measurement. As regards the value (£420) of one ton of bronze coin, this has been computed on the coinage during 1885-94, and it is liable to some variation for the following reason. When the bronze money was first authorized, in order that the penny might not be inconveniently large, or the halfpenny and farthing too small, the latter coins were ordered to be of greater weight than the half and the fourth part of the penny, respectively. From this discrepancy it follows that the value of one ton of bronze coin may possibly vary from the £420 stated, but, as this value is based on the results of ten years' work, it is probable that it fairly represents the proportions of pence, halfpence, and farthings that go to make up a ton of bronze money. Incidentally, I may remark that one ounce avoirdupois is equal in weight to three pennies, five halfpennies, or ten farthings,

and this statement shows that the penny is too light in proportion to the halfpenny and the farthing, and that these two coins are correctly proportioned in weight. No one need be in want of an ounce letter-weight if threepennies, or five halfpennies, or ten farthings be at hand. The gold and the silver coins, respectively, are all correctly proportioned to each other as regards weight.

A millionaire might be termed an eight-tonner, for one million sterling weighs nearly eight tons; the few thousand sovereigns over the million which are necessary to make up exactly eight tons' weight are not of much importance to a millionaire. One million sovereigns weigh (avoirdupois) 7 tons 17 cwt. 26lb. 10oz. 95 grains, and if cast into a solid mass so as to make a cube of gold, such cube would



No. 6.—Parts I., II., and III. of this diagram represent the FACE-VALUE in Pounds Sterling—i.e., the *nominal* value—of One Ton of Gold, Silver, and Bronze coins, respectively. The little square above Part I. represents the value of One Thousand Pounds Sterling, and it here serves as a scale of measurement.



No. 7.—“Worth her Weight in Gold.” [Fourteen stone, at £3 11s. per ounce avoirdupois=£11,133.]

measure only a mere trifle over 4ft. each way: so that a million of gold can be packed into a little case that may nearly be spanned by a longish walking-stick—but as this little case would weigh nearly eight tons, it would, like my volumes of “Cruden’s Concordance,” be protected from burglars by reason of its own heaviness.

By the way, talking about weight, the female shown in No. 7 was once represented to me as being “worth her weight in gold.” The fact was mentioned to me by the lady herself, at a registry office, where I once attended for the purpose of selecting a good plain cook. She said that her late mistress said she was “worth her weight in gold,” and so, feeling doubtful as to whether I ought to engage such a treasure, I took the trouble to make the calculation whose result is printed beneath No. 7. When I found that this good lady was worth more than £11,000 sterling, I did not feel justified in engaging her at £18 per annum; such wages are not fair interest on the capital employed. So when people talk about other people, or themselves, being worth their weight in gold, you can use this result in No. 7 as a reliable gauge of their intrinsic worth; if for your convenience you take it at (say) £800 per stone-weight, you will be sufficiently near the mark, for all practical purposes.

At last the slang word “dollar” for a crown-piece is to be justified by the coining of a genuine British dollar—and a very fine coin it is (see No. 8).

At the Court at Osborne House, Isle of Wight, the 2nd day of February, 1895.

Present: The Queen’s Most Excellent Majesty, Lord President, Marquess of Ripon, Lord Chamberlain, Lord Kensington, Mr. Cecil Rhodes.

Whereas it is expedient to provide for the coining of a British silver dollar for circulation in Our Colonies of the Straits Settlements, Hong Kong, and Labuan, and elsewhere;

Now, therefore, We, by and with the advice of Our Privy Council, and by virtue of all powers vested in Us in that behalf, do hereby order as follows:—

(1.) A British dollar shall be coined under the direction of the Master of Our Mint, or at one of Our Mints in British India, and be of the metal, weight, and fineness specified in the Schedule to this Order.

(2.) Such dollar shall have for the obverse impression the figure of Britannia standing upon a rock in the sea, her right hand holding a trident and her left hand resting on a shield, with a ship in the distance and the inscription “One Dollar” and the date of the year, the whole surrounded by a Chinese ornamental border; and for the reverse impression, surrounded by a similar border, a scroll pattern with the Chinese labyrinth in the centre, and the value of the piece, in Chinese and Malay characters respectively, arranged crosswise within the scroll.



No. 8.—The British Dollar lately designed for circulation in the East. [Shown by permission of the Deputy Master of the Royal Mint. For description see text.]

Such, with a few trivial omissions, is the wording of the Royal Order authorizing the coining of a British silver dollar. The facsimile of it in No. 8 is larger than the original coin, which has a diameter of $1\frac{1}{2}$ in., and weighs 416 grains, or less than one ounce avoirdupois ($437\frac{1}{2}$ grains). The "Chinese labyrinth in the centre" is thoroughly Chinese in the sense of being radically different from anybody else's labyrinth—there's no way *in* to the middle, nor out of it! The hieroglyphics on the reverse side of the dollar stand for "one dollar," the Chinese characters occupying the upper and lower quarters of the scroll, while the corresponding Malay characters are to the right and left. It is well to mention this to avoid any mistakes, and, as the Chinese Minister in this country is responsible for the drawing of these hieroglyphics, they may be taken as accurate, unless, by some trick of Chinese subtlety, he has marked the coin "two dollars," instead of one dollar, and has then proceeded to order a large quantity at the one-dollar rate for subsequent sale in the East at twice the price. Will Chinese scholars please check the accuracy of these inscriptions? The dies for this British dollar have been prepared in the

Mint—at the joint expense of the Colonies principally concerned—but the actual coining operations will take place at the Bombay Mint. A large circulation is expected, and two of the largest Eastern banks have guaranteed a minimum coinage of five million dollars annually.

Our own Mint has now enough to do to provide us with one year's supply of hard cash, and in No. 9 I show the nation's hand receiving this supply from the Royal Mint. The cube of metal which is falling from the Mint weighs more than 300 tons, and is composed as follows:—

	Tons.	Face-Value	£
Bronze Coin	139 $\frac{1}{2}$	58,442	
Silver Coin	116 $\frac{1}{2}$	1,043,982	
Gold Coin	45 $\frac{1}{2}$	5,767,177	
Total	301$\frac{1}{2}$		£6,869,601

NOTE.—These weights being, for convenience, approximately stated in tons, will not, if multiplied by the values per ton stated in No. 6, give the exact values here mentioned.

The size of this cube in No. 9, representing one year's hard cash, is only a little more than roft. 4in., but, notwithstanding its comparatively small size, its weight of 300 tons, plus the impetus gained during its fall, makes it a sufficiently heavy mass to be caught and sustained even by the strong hand which waits for it—the hand of the nation—and which has no difficulty whatever in spending this ample supply of Hard Cash.



No. 9.—The Nation's Hand receiving One Year's supply of Hard Cash from the Royal Mint—in the form of a Cube, each side of which measures only roft. 4in.; but this Cube weighs more than 300 tons, and is worth £6,869,601 sterling, FACE-VALUE. [Calculated on the average yearly coinage of the ten years 1885-94, the actual issue for the year 1894 being £6,654,441.]

NOTE.—Some of the calculations and illustrations of this paper necessitated a knowledge of the specific gravity of the coinage. Mr. F. W. Bayly, Assistant Chemist and Assayer in the Royal Mint, has very kindly made some special experiments with various coins, and has communicated the results to me.—J. H. S.