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THE ROMAN MINT AND EARLY BRITAIN.

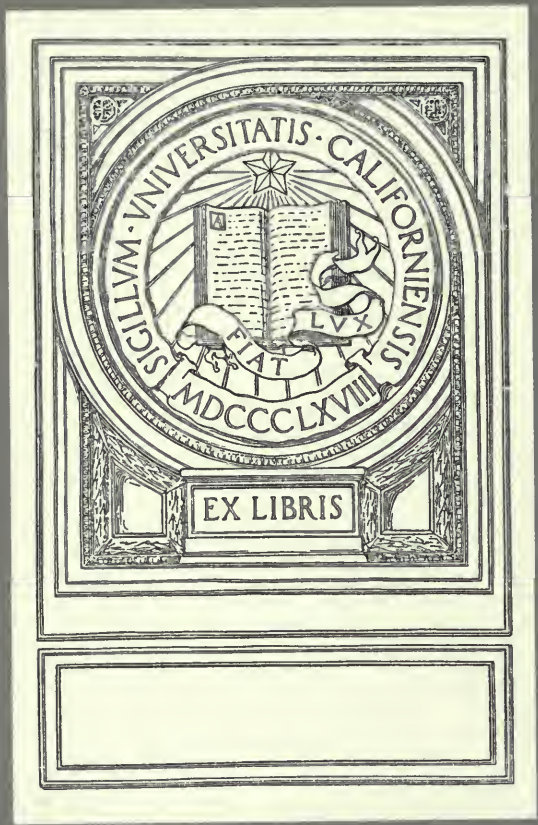
BY

W. SHARP OGDEN.

Reprinted from THE BRITISH NUMISMATIC JOURNAL, Vol. V. 1909.

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1909.



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THE ROMAN MINT AND EARLY BRITAIN.

With Plates and Illustrations.

WM. SHARP OGDEN, F.S.A.



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THE ROMAN MINT AND EARLY BRITAIN.

BY W. SHARP OGDEN.

THE little discs of embossed metal which we call coins, whether made of gold, silver, or the amalgam of copper and tin known as bronze, are the most enduring if not imperishable records of nations and peoples that have long passed away ; and as a medium of universal intercourse have, for nearly thirty centuries, probably effected more for civilisation and progress than any other work created by human ingenuity.

Of all the evidences of departed empire few are so changeless and none so indestructible as the productions of the mint ; they are the faithful representative of art in all its phases from the archaic to absolute decadence, of customs, beliefs and national aspirations, disasters or successes ; they render to us the lineaments of the great or notorious personages of history, and of those who otherwise would be little more than a name. In their production the most famous artists have expended their utmost skill, and owing to the metals of which they are made, we receive many of them precisely as when produced ; their size and shape have also protected them from injury, where larger or more imposing objects have either perished or been wilfully destroyed ; and thus we have preserved and handed down to us a series of monumental histories at once faithful, attractive and enduring.

Conspicuous amongst these in majestic amplitude and in unbroken succession for many centuries, are those of the Roman masters of the world, ranging from the rude but vigorous days of the early republic, to the magnificence and luxury of the Cæsars and thence to the gradual decline and ultimate evanescence of the decrepit

and worn out empire. In its protracted course they cover the most important period of human history, providing a record without parallel, and standing as a beacon midway between the obscurity of civilisations past or decadent, of dying nations, and the coming of a brighter dawn.

One of the most admirable features of Roman polity was the instinct of duty, of personal surrender to national claims, and the right of the state over individual liberty. This, together with a decorous reverence of the gods, encouraged and morally demanded the best efforts of all citizens for the public weal, receiving in return, the inheritance as a *Civis Romanus* the measure of advancement due to individual intelligence and capacity.

Amidst the greatest excesses of the republic and the empire and in the most disastrous times, we find that this inborn sense of duty and faithful adherence to established, if rigid rule, enable the state to quickly overcome its difficulties, to bring order out of chaos, and thus to compel obedience, even in its remotest dependencies, until exhausted by continual warfare, debased by oriental luxury and barbarian admixtures, the empire passed away: but the proud actuality of ROMA ÆTERNA ceasing from the vitality of mortal force, was etherialised into a serene immortality as the *mater orbis* of duty, order and law; for the obscurations of time are powerless to efface the example and teachings of her majestic and virile rule.

Much of our knowledge of the social life of the Roman people at the beginning of the Christian era is derived from sources which time has darkened and ignorance, prejudice or the barbarian defaced; we stand as it were in the midst of ruined temples and fallen columns, confronted by the mutilated statues of the gods and the great beings of the earth, which, in "disastrous eclipse," still command our wonder and reverential admiration, whilst we deplore the ruin that has overtaken them.

The coinage issued from the Roman mint covers a period extending over eight centuries, or approximately from the middle of the fourth century B.C., to the close of the fifth century of the Christian era. In its course of expansion from a limited and almost

unknown republic to that of the greatest of empires, we must be prepared to discover extraordinary variety of type, and much diversity in design and fabric.

The limited establishment which Rome first possessed seems to have been similar to that of the Etruscan and other cities and communities of the Campagna, and was certainly very much inferior in every way to the constitution of the contemporary Greco-Italian cities and colonies. As Rome increased in power and expanded in territory, the surrounding mints of these were absorbed or generally suppressed, and the currency was chiefly supplied from a central *officina* at Rome, which, combined with the exchequer, in course of time employed several thousands of artisans. This central *officina*, however, as distant provinces were added to the empire, was supplemented by a large number of local, provincial or colonial mints, ranging from Iberia in the west, to Syria and Egypt in the east, and from the cities on the Mediterranean coast of Africa in the south, to Gaul and Britain in the far north. All these colonial mints either came under, if existing, or were established by the senate, subject to the central *officina* at Rome; most of them appear to have been continuously active, and many were certainly quite as prolific as the parent mint, especially during the third and fourth Christian centuries.

The early history of Rome and central Italy is largely traditional, but from the pages of Livy we gather that there was a primitive currency of bronze, rough in its workmanship and heavy in its fabric, which we identify by the name of *æs rude*. This was of irregular form and devoid of device or lettering, but adjusted by weight to the Roman pound.

Tradition asserts that it was Servius Tullius, 578–534 B.C., who first issued the minted bronze currency known as *æs signatum* and *æs grave*, but the earliest pieces we possess are, from their style, adjudged to be of not earlier date than the middle of the fourth century B.C. These early pieces have more the appearance of weights than coins; they are also of inartistic and careless fabric, and evidently not struck, but cast in a complete form in a rough and ready fashion. They comprise the *as* of twelve ounces and its divisions—*semis*, *triens*,

quadrans, *sextans* and *uncia* = an ounce, and are particularised thus :—

Name.	Obverse design.	Reverse design.	Mark of value.
<i>As</i>	Head of Janus ...	Prow of Galley.	I
<i>Semis</i>	„ Jupiter ...	„	S
<i>Triens</i>	„ Minerva ...	„	• • • •
<i>Quadrans</i> ...	„ Hercules ...	„	• • •
<i>Sextans</i>	„ Mercury ...	„	• •
<i>Uncia</i>	„ Roma ...	„	•

These pieces in fabric and general character resemble the currency of neighbouring communities, the type of each of which is usually distinct, but from the frequent absence of inscription it has not been found possible to locate or determine all varieties.

As Rome advanced in power these communities came under her rule, and she gradually but continuously during three centuries reduced in weight the whole of this heavy currency, until in the year 89 B.C., the *as* had shrunk to half an ounce or one twenty-fourth of its original weight. Shortly afterwards, the mint ceased to coin in any other metals than gold and silver, until it was reconstituted by Augustus in 15 B.C., when the mintage of bronze was resumed.

The later issues of the *as* and its divisions are of reduced size and weight, but generally of better design and work—many also are evidently struck from dies ; it is singular, however, that both methods of production appear to have been in use at the same time ; the mint, with apparent indifference, issuing coins of high quality of design and carefully made, side by side with roughly cast pieces, almost, and in some cases entirely untrimmed from the mould.

All of the earlier issues are of a bronze composed of copper and a base alloy such as lead, tin being either absent or only perceptible in a very small proportion, and the larger pieces frequently show where

this inferior alloy has perished and disappeared. The persistent use of this coarse and, indeed, in some cases almost barbaric species of coin, is the more surprising when we compare it with the smaller, beautifully designed and executed money, issued by the Greek cities and colonies on the coasts of Italy and Sicily; much of which must have freely circulated in and around Rome.

The author of *Historia Numorum* pointedly remarks :

“The dates of the several series of *as grave* are frequently no less difficult to fix than the places to which they belong. In this matter we must not be deceived by style, for the rudest and most clumsily executed pieces are not necessarily the earliest, as would doubtless have been the case if the art exhibited upon them had been of native growth, but this is not so. The art-work of the *as grave* is everywhere borrowed from that of the Greeks, and the degree of excellence attained in any particular district depended upon the closeness of its relations, direct or indirect, with some Greek city, or at least with a population imbued with the spirit of Greek art.”

At a later period, however, when these cities and colonies came gradually under the rule of Rome, we find her imitating them in more ways than one; the massive cast pieces of the *signatum* or *grave* types are no longer issued, their places being supplied by others evidently designed by artists of Greek origin, many of these being struck from metal dies upon cast or cut flans.

The national coinage in its origin was solely of bronze, but as the *spolia* of war gradually enriched the state a coinage of gold and silver was also issued, the senate placing the *ærarium* under the charge of two quæstors. In the year 27 B.C., however, Augustus arrogated to himself the privilege of coining gold and silver, and for about twelve years no bronze money was issued. Probably the existing supply was abundant, owing to the quantity of colonial and other foreign moneys of that metal circulating as small change. The enormous quantity of bullion obtained from the east by the recent conquests would also naturally reduce its market value and consequent purchasing power, hence the senate may have considered it advisable to suspend for a time any further issues of bronze, especially as the mint officials would be fully occupied with the coinage of gold and silver.

When the minting of all three metals was resumed in 15 B.C., Augustus reserved to the *princeps* the sole right of coining gold and silver, but restored to the senate full control of the bronze, or ancient state money; and, with the exception of Nero, this arrangement was respected by succeeding emperors until the senate became little more than a name.

The quite recent acquisition of the tin and copper mines of Britain may have been the reason why Nero resumed the coining of bronze. The treasury was exhausted through his excessive and prodigal expenditure, and the volume of his magnificent bronze coinage is a remarkable testimony to the amplitude of material, much of which must have been obtained from Britain.

The coins of *orichalcum*, or bright yellow bronze, are said to have passed at a higher value and even double that of the ordinary bronze, but any decree to that effect must soon have become inoperative from the intermediate shades of colour produced by various alloys.

A mural painting of extreme interest, discovered at Pompeii in the Casa del Vetti in the year 1895, gives a symbolic group of *amorini* engaged in the various duties of officials and workmen of the mint. Plate I, Fig. 1. The figures are seven in number, ranged side by side, the action running from right to left, and the earnest gravity of the busy little winged boys is depicted with graceful humour and considerable artistic skill.

The subject really comprises three groups, each of which is solely employed on its particular work, thus, the three *amorini* on the right hand are engaged in smelting or casting and dressing the flans, the left hand pair are striking the coins, and the central group represents the chamber of account or treasury. The subjects are arranged so naturally that there is no break or severance in the design, which, at a glance, is that of a frieze of several figures engaged in united action.

The primary, or right hand group, Plate II, Fig. 2, are founders and smiths. The occupation of the first workman is somewhat uncertain; he is bending over the lower part of the furnace and



FIG 2.—PREPARING THE FLANS.

THE POMPEIAN FRESCO.



manipulating a large circular object that may represent the lid or cover of the chamber in which the flans were cast. But keeping in view the occupation of his mate, it seems more likely that he is quickening the furnace fire with bellows of a circular form. Bellows of this kind are still used for forges and smith hearths, and date from an immemorial antiquity. On the other side of the same furnace, which is surmounted by a bust of Vulcan, the second figure is superheating with a blow-pipe the separated flans, which are probably on a metal pan inside the upper part of the furnace, for he is evidently controlling something there with the large pair of tongs which he grasps in his right hand. The third figure is seated immediately behind him, and is busily engaged in dressing the heated flans into regular form on a small upright anvil, and freeing them from any imperfection due to casting or severance, or, possibly, minting coin of small fabric.

Just as these three figures typify the founders and smiths, so the left hand group shows the method of minting the heavier bronze coin, Plate III, Fig. 3. We see a pair of *amorini* admirably portrayed and full of action; they stand on either side of a large metal anvil which is fixed on a massive wood base. The first is holding the large hinged-dies at arm's length upon the anvil, while his companion is swinging the sledge-hammer with both arms above the head, thus prefiguring the extreme force required in the operation, and proving beyond doubt that the mintage of the larger bronze coins, at least, required more than one pair of hands. Attention may be directed to the technical accuracy shown in the placement of the figures, the striker not being directly opposite but on one side of his mate, and thus averting danger from any mishap from the hammer-head. Leaning against the wood base of the anvil, on which there is also a small or hand anvil, there rest another pair of tongs, or dies, and a smaller hammer with a shaped head; these were, perhaps, required to correct any slight imperfection caused by the striking.

Between these groups to right and left, and occupying the centre of the picture, is a third group of two figures, Plate III, Fig. 4, which, there can be no doubt, is intended to represent the higher officials of the treasury, namely, the *monetarii*. The principal figure, which is

fully draped and displays larger wings than the other *amorino*, is seated upon a cushioned bench, his feet resting upon a footstool; he regards with an air of authority the youthful official standing before him, who, with a pair of hand scales, is demonstrating that the newly minted coin is of full weight. To the right is a stand or pedestal, upon which rest three tiers of shelves bearing small round articles resembling coins, and which are probably intended to represent gold, silver and bronze money. The whole is surmounted by two pairs of scales, the upper pair being of very large size and evidently intended for weighing in bulk.

Over the entire scene, and resting upon the horizontal upper border, there are two peacocks with an elaborate floral ornament between them. See Plate I. This is, no doubt, to give a dedicatory character of the whole to Juno Moneta, whose image, so entitled and with this bird by her side, appears frequently upon imperial coins, and, in turn, the bird itself was named *Junonia ales*. This remarkable fresco is a charming example of playful imagery which some Greco-Roman artist produced for a patron, whose family was or may at some time have been connected with the consular or imperial mint at a period not later than A.D. 79, when Pompeii was destroyed. Consular silver inscribed ·T·VETTIVS·SABINVS·, and, perhaps, a colonial *æ* of Augustus with Æ under the bust, may reasonably be associated, if not identified with the family.

Notwithstanding the fanciful and figurative character of this fresco, it is a pictorial record of the highest value, not only in being by far the most graphic and detailed representation of the procedure and operation of the mint that has come down to us, but also in illustrating the tools, implements and methods of their manipulation, and when these, together with such of the actual tools as have survived, are compared with the evidence of manufacture furnished by the coins themselves, we are enabled to apprehend more clearly than ever hitherto and with greater certainty, the system and process not only of the Roman mint but probably those by which the bulk of all ancient coins were produced.

When the Casa del Vetti was discovered and excavated in 1895

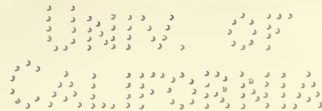


FIG. 3.—STRIKING THE COINS.



FIG. 4.—APPROVING THE FINISHED COIN.

THE POMPEIAN FRESCO.



it was found to be one of the finest houses in Pompeii, some of the rooms still containing statues and fountains of marble, the walls being decorated with this fresco¹ and many other paintings in the Greco-Roman style.

Great as was the area of ancient Rome, its colossal public edifices and palaces, multiplied with such ostentatious magnificence by some of the imperators, are darkly contrasted by the narrow roadways and piled up dwellings of the plebeians, most of which were four storeys in height, and friendly neighbours could touch hands across the street.

The *officina* of the mint in the fourth century B.C. was undoubtedly located on the Mons Capitolinus. Livy, book vi, 20, says that the site of the house of Marcus Manlius was "where the temple of Moneta and the mint office now stand."

But as Rome expanded and became a city of spacious and magnificent buildings, the restricted area of the Capitol would not allow the continuance there of a department of the exchequer employing vast numbers of officials and workmen. This section, therefore, which included the workshops, must have been removed to a conveniently adjacent position, especially as the *Ærarium* proper, or treasury, was in the vaulted basement of the Temple of Saturn, which stands at the foot of the Capitol. Between these, and quite in touch with both, we have the extensive range of massive and gloomy vaults known as the *Tabularium*. These are built against and partly under the Capitoline Mount, with the summit of which they communicate by an ancient stone stairway. They are probably the work of Q. Lutatius Catulus, to whom the senate entrusted the rebuilding of the Capitol after the fire of 83 B.C. The *Tabularium* was the Public Record Office of the day, where the bronze tablets upon which the national archives were inscribed, were compiled and kept, but neither the preparation nor the conservation of these could have required more than a portion of this immense structure, which, from its contiguity to both the *Officina* and the *Ærarium*, was in every way

¹ I am indebted to Mr. E. J. Seltman for the photograph of this fresco, the procurement of which in an untampered state appears to have been attendant with considerable difficulty.

suitable for the workshop of the mint. The *Tabularium* may have been confined to the upper storey, the last vestiges of which were removed in the sixteenth century, when an inscription was found containing the words SVBSTRVCTIONEM · ET · TABVLARIVM. Failing proof to the contrary, we may not unreasonably assume that the *Tabularium* and this, the working section of the mint, to which it was to some extent allied, were associated jointly in the same building. Notwithstanding the paucity of direct or explicit records, we are enabled to draw a not improbable picture of the routine observed in the *officina monetalis*.

In gloomy vaults then, such as these, lurid with the glare of furnaces and forges, stifling with heat and deafened by the clang of hammer and anvil, the great army of workmen of the mint carried on their daily toil. At the furnaces, ready for smelting, are piles of ingots and broken bronze, the *spolia* and fruit of conquest, the fitments and decorations torn from buildings destroyed to make way for newer extravagances, defaced statues of disgraced celebrities, worn out armour, arms or utensils, and the countless metal articles of general use, which then were almost invariably of bronze. All these were swept into the mint to provide material for the constantly increasing demand for ready coin "to pay the legions."

Near these furnaces the moulders are engaged in making and firing the terra cotta matrices for the casting of the flans, or plain discs of metal. When these moulds are prepared they are arranged in rows side by side, and probably also secured by metal bands, to facilitate the casting from ladles filled at the large metal pans of the smelting furnaces. As the moulds cool after the casting, they are separated and the cores that formed the attached flans are broken or cut asunder; then the rough discs of metal are placed in the smaller or blow-pipe furnace for reheating, and thence passed in a malleable state in single pieces to the trimmers, who at small bench-anvils dress them into a perfect form ready for the striking.

The flans thus prepared are then collected, and in shallow metal pans are again sufficiently heated to receive without fracture the percussion of minting: the frequency of slightly cracked coins, or those

with fissured edges, after the first century A.D., is mostly due to carelessness or haste in this respect. The actual minting of the larger bronze coin was certainly performed by two, and probably by four persons; two of whom were holders and two strikers, and all of them standing around each massive minting *incus* or anvil. As shown on the Pompeian fresco, this was fixed upon a base of wood, apparently formed from a section of tree-trunk, in order to soften or deaden the concussion of heavy blows, and it is interesting to observe that a similar method is in use by smiths at the present time.

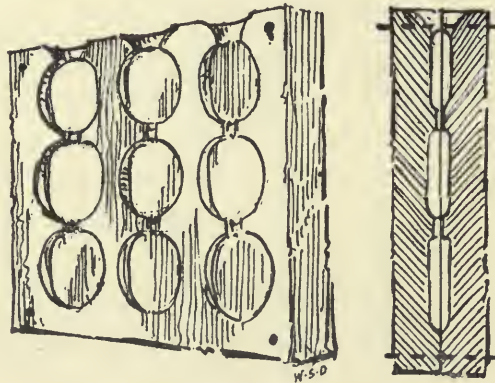
Official No. 1, who is evidently the foreman, controls and works the bronze dies, which are attached to, or encircled by hinged metal rods; these at arm's length are steadied on the anvil, whilst No. 2 carefully places between them the red hot flan; the two hammermen then swinging their massive double-faced sledge-hammers over the shoulder, each deliver a single blow on the minting irons and the work is done. No. 2 then replaces the struck piece with another flan and the newly minted coin is passed before cooling to the finisher, who, adjacent at a small hand anvil with a pane, or single-faced hammer, deftly supplies any finishing touches required, and this done, the completed coin is passed at once into the treasury for accout and storage.

From the *Corpus Inscriptionum* we learn that in a certain *officina* there were the following officials: the *optio*, or manager; seventeen *signatores*, or die sinkers, and sixteen *officinatores*, or chief workmen; these may have worked single-handed striking gold, silver, and small bronze at the hand anvils. Also eleven *suppostores*, die or flan placers, and lastly, thirty-two *malleatores*, or hammermen; the last named were probably in the proportion of two to each die-placer, leaving the remaining third as trimmer or finisher. To these officials we may add that of the *exactor* or superintendent, and the *flatores*, melters, and casters.

The creation of the pattern or model and the preparation of the matrix or die were, no doubt, made under much more agreeable conditions and surroundings than the casting and minting, and quite apart from the clash of metal and clang of the forges. Many artists

must have been engaged on this section of the work, and some were evidently men of great ability, of probably Greek or Greco-Roman birth. The work of the latter class, both as regards conventionalised portraiture and figure design of graceful art, is at once perceptible as of very high quality, and is readily distinguishable from the reproductions of less skilled men.

Interesting comparison may be made in the varying quality of work to be found in any single type of the same imperator, from the refinement of the original to its gradual degradation at the hands of copyists of inequal ability, many of whom were little better than mere mechanics.



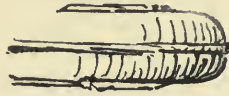
MOULDS FOR THE FLANS. FIG. 5.

The terra cotta moulds, or *formæ* as they were called, in which the flans or, in some cases, coins were cast, were square and flat in shape, resembling a tile, and, probably, they were prepared somewhat in this way:—The internal faces were first coated with wax to prevent adhesion, and then whilst plastic, actual flans or coins would be placed in rows upon the under half, as close together as practicable so long as each was apart. The upper half then being placed in position, both were pressed close together and the true position maintained by metal pins inserted through each corner. On the matrices being separated and the flans or coins removed, each half would exhibit a correspondence of circular depressions, either blank or reproducing the design of the coins in intaglio, and channels were then cut between each depression. At the top when the tile-shaped matrix was set on edge, a wider and

funnel-shaped mouth, to facilitate the free admission of the molten metal into and through each row of depressions, would be made, and it is very likely that strips of connected flans may have been used as cores and left in the moulds whilst they were fired, thus ensuring matrices of more perfect form, and avoiding the risk of warping or other distortion. When the moulds were ready for use they probably appeared somewhat like Fig. 5.

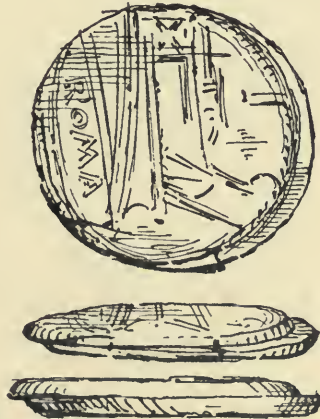
If a number of these moulds were placed close together, side by side, it would enable the workman to pour the volume of metal required more quickly than if each mould were filled alone, and thus it would facilitate readiness of production.

The *as grave* of the republic were undoubtedly produced in this way, for, looking at the coins, we find that the edge frequently retains a little rib or seam in the centre, which probably arises from the moulds being partially worn on the meeting faces from long use, thus :—



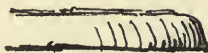
CENTRAL SEAM LEFT BY THE MOULD. FIG. 6.

We occasionally come across examples showing imperfect work, such as where, owing to the corner pins having been omitted or having worn loose, the moulds have moved and distorted the coins or flans, thus :—



EVIDENCES OF SLIPPED MOULDS. FIG. 7.

Examples of this kind betraying careless work are of value as determining whether a particular type or piece was cast or struck, which is not always an easy matter to decide from its mere appearance when round and perfect ; for the defective cast coin carries a complete impression on each face, whilst the coin struck upon a defective flan has only one perfect side, the other having the relief more or less off the flan ; to some extent it also affords evidence of the minting irons or dies being connected in a fixed position and not adjustable to each face. A variety of this kind of mould is of Greek or Syrian origin, and to some extent obviates the difficulty of the seamed edge ; here the full, or nearly full, thickness of the coin was impressed on one side only, the other half of the mould being either quite plain or bearing little more than the figure or relief, thus :—



FLAN FROM MATRIX SUNK IN ONE FACE, ONLY, OF MOULD. FIG. 8.

The coins issued in Egypt under the empire followed this method, which had been introduced into the Egyptian mints by the Ptolemies, who brought it from Greece : it was also used throughout Syria and in many colonial mints. Probably it commended itself as the readiest and easiest way to the comparatively unskilled *monetaarii* of obtaining plain flans, as only one matrix was required, any plain surface serving for the other. The casting likewise was not affected by slipping or any other movement.

An archaic type of cast coin is of almond-shape, Fig. 9. This species of *æs grave* may have been a survival of eastern methods, or devised to facilitate the readier casting of a greater number at once.

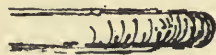


ALMOND-SHAPED COIN. FIG. 9.

The little pin-holes found on Ptolemaic bronze coins of all sizes, even to the smallest, have been regarded as due to a method employed for correctly centring the dies on the flans in the striking. Carelessly struck pieces, however, disprove this, just as coins of irregular shape show that they were not the centres for finishing on a lathe. May they not be the holes from a pair of toothed forceps, a handy tool for holding the newly minted coin which, when placed between the pointed jaws and secured by a tap of the hammer, would be conveniently trimmed and finished by the workman?

The ever-increasing requirements of the empire for a larger volume of the bronze currency evidently put a strain upon its productive power that it was unable to bear whilst continuing its customary and primitive methods. Hence various mechanical appliances were introduced, but from this time forward under Hadrian and his successors, we find that frequent and increasing evidences of declining taste and skill—hasty and consequently careless work, followed by official mutilation, replace the beautiful medallic character of the coins of the earlier imperators.

The flans of the bronze coins from Augustus to Hadrian were, as a rule, very carefully made, being cast with a rounded edge in such a skilful manner that the best preserved examples show little or no signs of subsequent trimming or dressing, Fig. 10. Flans of this



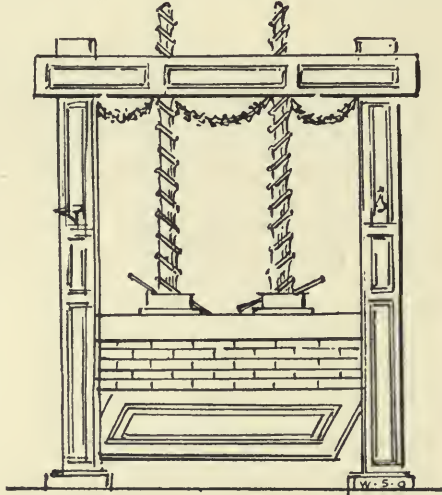
A CAREFULLY FINISHED FLAN. FIG. 10.

superior make were cast from moulds of the kind described by Pliny, who writing about the year A.D. 79, says they were "made of a kind of stone indestructible by heat"; possibly none of these stone *formæ* have survived, mint authorities in all times taking care to destroy superseded or useless tools and appliances, but there can be no doubt of their existence and use at and before the time of Pliny.

The decadence of art had commenced even before the reign of Hadrian, and from his time onwards its downward course becomes strikingly apparent. His incessant travels throughout the provinces of the empire brought him into contact with, and apparently imbued him

with a love of novelty not always controlled by taste or judgment, when, as in the vast constructions he raised in Rome and at Tivoli, his personal intervention is only too apparent. At the mint, therefore, we are not surprised to find traces of modification and innovations evidently introduced to facilitate its productiveness, which, extensive as it undoubtedly was, would seem, even in the reigns of Vespasian and Trajan, to have occasionally been unequal to supply the demands of an empire so largely extended by those emperors, many of whose coins exhibit traces of hasty and imperfect work.

When Hadrian, therefore, tranquillised, consolidated and civilised the conquests of his predecessors, his vast expenditure called for other and readier methods of increasing the output of coin. Generally his bronze coins are smaller in size and thicker, the weight remaining about the same ; many are struck from cast flans with hammer-dressed edges, possibly to correct the imperfections of careless or hasty work. Others were evidently produced by a quite new method, the flans being cut or



TORCVLVM. Fresco at POMPEII

FIG. II.

stamped by means of a toothed cutter of circular form somewhat similar to the shell punch of to-day, from plates of cast or beaten metal ; this may have been performed by hand, with punch and hammer or

by machinery such as the screw-press—the *torculum*. We have a representation of such a machine in a wall painting in the Fullonica at Pompeii, Fig. 11. Here, evidently, it is a clothes press, but this is immaterial, as the principle of the *cochlea*, or screw, once in use its application was certain to become general. The painting gives no indication of the material of which the machine was made, but probably, as shown it was of wood, and a similar press with the screws and plates made of metal, with the handles long enough to be worked by more than one man, would be capable of cutting metal and also many flans at each compression.

Many of the coins show beyond question that their flans were produced in some such way as this and not by casting. The traces of the cutter resemble milling, thus :—



FLAN STAMPED FROM SHEET-METAL. FIG. 12.

The incised lines are vertical and regular, and cannot be mistaken for file marks. In well preserved pieces they are patinated and this serrated edge is precisely in the same condition as the surfaces, thus proving that it was owing to the method of production.

No doubt when Hadrian was travelling through the eastern provinces he inspected colonial mints, from some of which, as early as the Claudian age, were issued bronze coins with flans undoubtedly cut by curved if not circular chisels ; possibly these suggested the improved and readier method of the screw-press, to obviate the necessity of flan casting and subsequent hammer dressing.

The cutter, or screw-press, appears to have continued in use as long as the larger bronze coins were issued, but the old system of flan casting was never altogether superseded, and under the easy government of the Antonines and the quick succession of the imperators who followed, the mint visibly declined in the quality of its work. Evidences

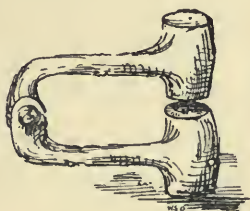
of hasty production and consequent want of care are shown in the flans being often too small to receive the entire die, or so badly cast as to be unduly thin at the points of severance, and thus incapable of proper hammer dressing, which frequently is also very imperfectly performed. Many too are badly centred or much cracked, owing to the flans being struck when over-cooled or not sufficiently heated. In addition to these defects may be noted a disregard for size and weight, and finally the intolerable abuse of official mutilation when completed. All these deteriorations point to the constant and increasing demands which at times must have been beyond the mint's power to legitimately comply with, and hence naturally followed an almost continuous decline in both quality and fabric, that was only occasionally arrested by short periods of tranquillity and prosperity.

The forms of the various dies and the methods of their manipulation are tolerably clear to us, partly from the few examples which have survived, but also from the evidence which may be gathered from the coins themselves, especially from those of careless or otherwise defective work, which have escaped the usual wear and tear. The *sestertius* from the time of Hadrian onwards was gradually reduced in size and weight, occasionally so much so that many $\text{æ}1$ of the third century are identical in size with $\text{æ}2$ of the previous centuries. Notwithstanding this, however, the facial diameter of the dies remained almost unaltered, the result being that the flans were often too small to secure the full charge even when properly centred. Imperfectly struck pieces show that the dies had a plain margin of about one-eighth of an inch wide outside the beaded circle enclosing the charge.

When in use the obverse die was apparently the top or uppermost, as most coins are more sharply struck on that face than on the reverse. This may be specially observed in the "brockage" or incuse pieces, which have the head incuse as well as in relief. Unless these were struck from an obverse top die there would be a sensible flattening of the relief. Pieces of this kind were undoubtedly produced at the mint at the time when their dies were in daily use. They were probably thus prepared for use as seals, being generally of the obverse face and too well centred and struck, to be merely chance or careless productions.

In pieces of small fabric "jumped," or double struck, examples are not uncommon, and indeed occur quite frequently in the various and very carelessly minted issues of the latter part of the third century A.D. Many of these have a suspicious look as though produced by casting, and, inferentially, by the forger, but this is not so, for one and occasionally both sides of the coin show distinct repetitions of the pattern where the flan has moved or "jumped" between the dies. When we find a piece of this kind with two sharp and clearly struck heads, whilst the reverse is from a much worn die, it is evident that such a coin, notwithstanding its suspicious appearance, could only have been struck and not cast, and also that the dies were of unequal age or use.

The dies themselves appear to have been attached or hinged together; those for gold, silver or the smaller bronze were probably manipulated single-handed, which may also account for the rarity of imperfectly struck or "jumped" pieces of the first two centuries (Fig. 13):—



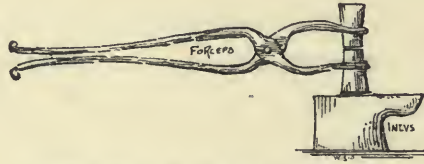
HINGED DIES. FIG. 13.



MEDIEVAL MONEYER'S PASS. FIG. 14.

A further illustration of this method and curious also as showing its survival until a comparatively recent period, is given in Fig. 14, which represents the reverse of a so-called "moneyer's pass" prepared at the mint of Cremieu, *temp.* Charles VIII. of France, 1483-97. Here we have the hinged minting irons and the two kinds of hammers exactly as shown on the Pompeian fresco. But those dies required for minting the larger bronze *æ1* and *æ2* must have been controlled and worked in an altogether different manner, for it would be impossible for the most muscular artisan to efficiently manage a pair of dies merely gripped by forceps or tongs; therefore it is evident that the larger

dies were attached to, and worked by long handles strongly hinged together, or welded to forceps, or gripped by hinged metal rods twisted round each die like the withes of a smith's cutter, thus:—



DIES HELD BY FORCEPS. FIG. 15.

There are several reasons for regarding one or all of these methods as in use at the national mints. First, because from the coins we see that when minted the dies were in a uniformly relative position, as the devices are either top to top, or top to bottom, and seldom or never in the irregular positions seen in early mediæval hand-hammered money; where, as occasionally happens, the relief is a little out of true position, it is probably owing to one of the dies working loose in the gripper. Secondly, because as is shown by badly centred pieces, the dies were mechanically fixed, for where the flan has not been properly set between the dies, part of the impression has escaped on each face of the coin, and thus left each edge with an undue margin. Pre-imperial and colonial pieces on carelessly cast flans show this also very clearly, for where the two sides of the flan do not correspond, the fixed dies have given a complete impression to one side only, the other receiving but a portion of the device.

Thirdly, the dies must have been held and controlled at arm's length, certainly for the larger bronze coins, otherwise it would have been impossible for the workmen holding them, to avoid the danger arising from mis-strokes or slips of the hammer; the Pompeian fresco forcibly illustrates the method of swinging the heavy sledge hammers used, and double struck coins show that two strokes at least were required to give the heated flan a satisfactory impression.

From the prodigious force required to give such high relief in a metal so hard as bronze, it is clear that the dies must have been made in a form suitable to receive and transmit the requisite force with the

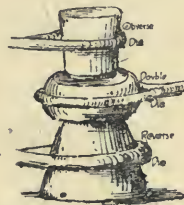
least possible strain ; their depth therefore must have been at least equal to two or three diameters, and the whole may have had somewhat this appearance :—



PROPORTIONS OF THE DIES. FIG. 16.

The *æ2*, however, do not always show the same relative precision of obverse and reverse as the *sestertii* ; pieces are frequently met with on which the figure on one side is somewhat, if not quite, crosswise to that on the other. Many are also imperfectly centred, the flan receiving on one or both sides a portion only of the die, hence it is evident that from some cause there was not the exactitude observed in the minting of these as in that of the larger pieces, although the method of production may have been similar, and not like that of the smaller coin.

It is conceivable, therefore, although it is offered here as a mere suggestion, that to economise labour and facilitate production there may have been introduced an intermediate double die, which, inserted between the hinged dies, would allow the ready minting of two coins at one operation ; some such device as this would account for any imperfection in centering or irregularity of position in obverse or reverse, and may have resembled Fig. 17.

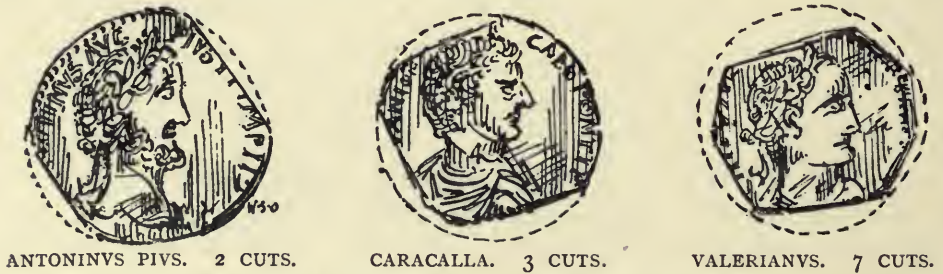


A POSSIBLE INTERMEDIATE DIE. FIG. 17.

At this period also, the mint authorities appear to have first resorted to the extraordinary and most reprehensible practice of

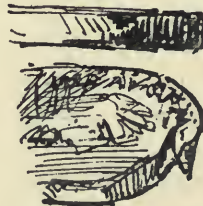
mutilating, by shearing or cutting, the newly minted bronze coins previous to circulation. That this mutilation was effected in the *officina* of the mint appears to be beyond question, for none of the imperial coins previous to the reign of Antoninus Pius show any traces of reduction by cutting. However battered and worn by use, they are always found of perfect form, thus proving beyond question that the clipping, so frequent on the first bronze after Hadrian, was not the effect of private rascality which would have treated all alike, but was systematically done and under due authority.

Careful examination of well-preserved pieces shows that the clipping or shearing was performed on the finished coin, and not on the flan; the number of cuts varies from one or two in those of Antoninus Pius and his immediate successors, to four, six, and even eight in those of Valerianus and Gallienus, so that some are hexagonal or octagonal in shape instead of round, thus :—



COINS MUTILATED AT THE MINT. FIG. 18.

Where the cutting has been roughly done under the later imperators, some examples show that it was performed with powerful hinged shears, sometimes so carelessly that the cut extended beyond the piece to be removed, and the half-severed piece has been forcibly wrenched away.



COIN SHOWING CARELESS CLIPPING. FIG. 19.

Hammer dressing to the mutilated part is not infrequent in the earlier examples, and when this was neatly done, it minimises the mischief by giving an oval shape to the coin; but the clipping as performed under the later emperors was outrageous, and so general that round and perfect coins are very difficult to procure.

It is conceivable that this official mutilation of the national currency may have been due to a chronic and increasing shortage of metal, a deficiency, which unless met in some such way, might have reduced the tale of coin required below the fixed quantity requisite for payment of the military. This, of course, might have been met by a permanent reduction in the size or weight, as was indeed the case under Postumus and his successors, but probably the practice began as a mere passing expedient, until its convenience begat frequent usage and at length degenerated into custom. We may theorise, perhaps, that by a legal fiction one *officina* completed a certain tale of coin, and this, after passing the account, was returned or transferred to another *officina*, and there reduced as we have described previous to issue, the metal shearings being utilised for remintage.

That the mint previous to the reign of Aurelian was under lax authority, and subject at times to very great difficulties, is evident from the coinage of Postumus, who was the last emperor to issue the so-called first bronze or *sestertius*. Nearly all his actual coins are of very rude work, and some of his first and second *æ* have reverses from dies of smaller sized coins. He also resorted to the expedient of restamping the earlier and much worn *sestertii* issued from the time of Augustus to that of the Antonines, and still in circulation, but with his own effigy and titles, as if he were unable at the time to maintain the requisite issue of coin in its proper form. Many of these overstruck pieces exhibit clear traces of the effigies and titles of the emperors under whom they were originally issued, where these are not completely obliterated by his own; and among them may occasionally be found the large, well spread, and unclipped pieces issued down to the time of Trajan.

Postumus was the last emperor to issue the *sestertius* even in this degenerate shape, and from this time forwards the older currency is

replaced by one of smaller fabric, generally of excellent work, which in its turn at length almost disappears in the minute coinage of the fourth and fifth centuries. Indeed, many of the small *æs* from Tacitus A.D. 267, to Carinus A.D. 284, are so beautifully executed as to warrant the supposition of their being the work of *signatores*, accustomed to the smaller and finer work required for the dies of gold and silver money, and as the mintage of the precious metals was almost suspended at this period, it is not unlikely that the better class of artists would be retained in preference to others whose work betrays their inferiority, and whose presumed dismissal from office may also be responsible for some, at least, of the many irregular multipliers of the currency, who were much in evidence at this time.

But there is, indeed, much reason to believe that this official mutilation of the coinage was not the only way in which the Roman mint lent itself to irregular, if not fraudulent practices. Of the later consular times we have quantities of plated *denarii* of excellent design and workmanship, which have quite the appearance of the genuine coin, and yet are merely flans of copper or base metal covered with a thin casing of silver. Some of these, we know, were prepared for, or at the instance of unscrupulous politicians or their partisans for gratuities, votive offerings, or payments where lack of means rendered the gift of genuine coin impossible. To produce this class of coin the mint must have possessed special appliances and skilled workmen for their ready fabrication, otherwise the cost of production would have approximated, or even exceeded their current value. During imperial times also, we have plated *denarii* of such perfect make as to be indistinguishable from the genuine coin, except where corrosion or accident has revealed their baseness. These also we may regard as prepared at the mint, probably for offerings and gifts, or bribes to the military, or for free distributions to attain or regain popular favour. The fabrication of this species of "money of necessity" ceased when the *antoniniani*, and other money of debased metal, became a part of the national coinage, for there was no longer any occasion for its issue, and it ceased to be of profit when the government could lower the standard at its pleasure. The pieces of the later emperors of very base metal

that we occasionally meet with, we may regard as the productions of the amateur moneyer, or forger, whose moulds and methods of fabrication are not unknown to us.

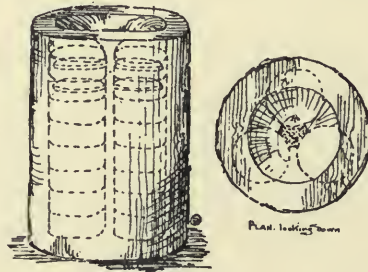
The silver- or tin-washed coins of the third and fourth centuries A.D., of bronze or copper coins come under a different category, and the washing should not be regarded as in any way a falsification of the currency, for the larger pieces, or second bronze, were much larger and heavier than the genuine or pseudo-silver coins. In finds that comprise a large number of pieces, they are mixed indiscriminately with the plain or unwashed money, whilst the silver or pseudo-silver coins are usually found together; in addition to this, the washing was frequently of so slight a character, that in most cases it has almost disappeared from specimens that are otherwise quite well preserved, or practically uncirculated.

Tinning and silvering was an art very well understood by most Celtic peoples, and especially so in Gaul and Britain; therefore such a superficial treatment was not likely to be of use as a means of imposition; at any rate, whether such pieces were or were not imposed by authority at a higher value on issue, the indiscriminate blending of plain copper or bronze with the washed coins seems to indicate that by the populace they were held in no special value as superior money. Possibly, however, this silvering or tinning was a purely decorative affair for festive distributions of money to the populace.

Preferentially, these coins seem to have been used in sacred offerings at springs, fords, and wells presumed to be presided over by local deities. Deposits found at these and similar places are usually in a much corroded state, but some of them show a fair proportion of pieces preserving traces of this treatment. The suppliant was probably wishful to emphasize his devotion by offering the most attractive and seemingly valuable of his possessions. The worn out or discarded coin moulds of terra cotta occasionally found with such deposits may, by an association of ideas, have been also regarded as sacred objects or treated as pious offerings.

The work of the forger, disreputable as it undoubtedly is, should not be allowed to pass unnoticed, especially as at times there may be

some difficulty in deciding the boundary between "irregularity" and absolute fraud. Coin-moulds made of baked clay or terra cotta have been frequently found in almost every country where the Roman held sway. They vary greatly both in quality of make and capacity for production, from single pieces to a considerable number of moulds grouped together; some when found still contained coins, others were evidently rejected or worn out, and so had been cast away as worthless or past use. At Duston, in Northampton, many were found in wells of contemporary date where they had been thrown. These moulds seemed to have been arranged in rouleaux, and then coated with clay to fasten them together previous to the metal being introduced. Again, at Polden Hill in Somerset, several groups of moulds were found; many of these were arranged vertically in triple piles with an outer shell, the metal being poured through the central opening, thus:—



COIN-MOULDS ARRANGED FOR CASTING. FIG. 20.

Some of these still retained the coins cast in them, and the moulds were for producing the coins of the imperators Septimius Severus, Julia Domna, Caracalla, Plautilla, Geta, Macrinus, Elagabalus, Alexander Severus, Julia Mamaea, Maximinus, and Maximus, ranging from A.D. 193 to A.D. 235, a period of over forty years. As many of these personages followed each other in anything but friendly succession, the simultaneous production by authority of these coins was clearly an impossibility.

The above figure (20) shows the ingenious method by which the forger could readily produce his ware, and it has also a scientific compactness that may be the echo of some authorised or colonial mint.

Again, at Damery in Epernay in the year 1829, there were discovered the remains of a coin manufactory which had been destroyed by fire whilst still in use, for amongst the ruined walls were found many earthenware jars or vases full of coins ; one contained over 2,000 of Postumus, and others those of various emperors from Antoninus Pius to Postumus. These were all forgeries of *denarii* and *antoniniani* of poor fabric and very base metal : there was also a vast number of $\text{æ}3$ and small bronze, mostly of Constantine II. and Constans, reputed to have been minted at Rome, Constantinople, Treves, Lyons, Arles, Aquilea, and other towns, but as nearly all were in uncirculated state it is most likely they were produced where discovered, especially as with the moulds there were also found shears and other tools and implements used in coining.

But the forger, perchance occasionally an ex-official of the mint, seems to have been constantly, and for a lengthened period, at work all over the ancient world, and by preference wherever money had a higher value, and was least liable to detection. *Sestertii* even of lead have been dredged up from the bed of the Thames in London, and recovered from excavations in Lincoln and other towns of equal importance, and leaden *denarii* of Trajan and Hadrian have been found at Maryport in Cumberland.

That many of these productions were the work or tools of the forger there can be no reasonable doubt, although the shy and retiring nature of his business renders the discovery of so many of his haunts somewhat remarkable, especially as he is generally compelled to work with limited appliances that are almost as readily prepared as destroyed.

Those, however, of a more important and extensive kind such as the equipment we have mentioned at Damery, must have been at work for many years during the third and fourth centuries, and have employed a considerable number of men. Establishments such as this, in remote districts during distracted times may, under military authority, have been permitted as a kind of irregular mint for the occasional production of money of a sort, or "of necessity," for the payment of the military, and where the regular supply from authorised mints was either intercepted or not forthcoming. If this were so, it

would account for the miscellaneous types of the terra cotta dies with their rough and ready products, and for the absence of regular metal dies.

The scarcity of these forged coins also, or at least of those which we may safely regard as such, is equally remarkable, especially when we consider the vast quantities that must have been produced from so many irregular or fraudulent sources and during several centuries. Probably the chief reason may be that the forger would get his ware as quickly as possible into circulation; hence most of it would disappear with the usual currency of the time, whilst the great mass of ancient coin in the hands of collectors is selected from the numerous "finds" of the present day, many of which from their fine preservation appear to have been the "military chests" of garrisons, and supplied directly from official mints.

Most of the later *denarii*, *antoniniani*, and smaller bronze coins belong to the period when the forger was at work. Yet suspicious as many of these may seem to be, they are mostly genuine, the worn or cast appearance, usually of the reverse, is due entirely to the long continued use of that portion of the minting irons being continued in the service of many successive masters, whose effigies in the upper or obverse half, owing to frequent replacement, are generally quite fresh and sharp.

Improper and severe practices occasionally resorted to for the removal of oxide, or for other cleaning purposes, have subjected many fine pieces to destructive treatment, the hallucinations of imprudent possessors frequently reducing well preserved and genuine coins to a condition in which they are hardly to be distinguished from the work of the forger. The wary student, however, will keep in mind the methods by which the true coin was made, and suffer his judgment to be ruled by this alone.

In the ancient world, the metal or amalgam known to us as bronze occupied the place now held by iron and steel. It was of the highest importance in the production of works of art, and was almost solely used in the manufacture of weapons, tools and utensils of all kinds where strength, lightness and durability were essential. Bronze,

generally so-called, is an amalgam of copper with tin, or lead or zinc, or a combination of all of these metals in the proportion of copper 75 per cent., tin 15 per cent., and lead or zinc 10 per cent., but a higher quality eschews all other alloy than tin, and this in the proportion of $\frac{1}{10}$ to $\frac{9}{10}$ copper. It is remarkable that the earliest productions in this metal approach the higher standard, notwithstanding the evident difficulty that must have then attended the procuration of tin. The best bronzes; whether of arms, coins or other works of art produced in Greece and Syria, as well as the weapons and tools of Celtic peoples, generally approximate this proportion, and an analysis of various ancient articles of bronze given by Dr. Smith in his *Greek and Roman Antiquities* provides us with an interesting confirmation, thus—

“some bronze nails from the ruins of the Treasury of Atreus at Mycenæ; some ancient coins of Corinth; a very ancient Greek helmet, on which is a Constrophedon inscription, now in the British Museum; portions of the breastplate of a piece of armour called the Bronzes of Siris, also preserved in our national collection; and an antique sword found in France; produced in 100 parts, 87·43 and 88 copper, and 12·53 and 12 tin. At a later period to that of which some of the above works may be referred, the addition of a variety of metals seems to have been made to the original combinations of copper and tin.”

We may therefore attribute the high quality of the metal of these early times to the facilities afforded by the Phœnician and Syrian markets, whose adventurous traders sought out, developed and monopolised the remote sources whence the world's supply of tin was obtained.

By some unaccountable supineness or neglect, there has never been any extensive scientific analysis made of the various bronze coinages of the ancient world, although material of the very best kind for the purpose, in the shape of worn-out coins of all countries and periods can be obtained in abundance. Occasional tests that have been made supply interesting data, and it is not unlikely that if this analysis were pursued to any extent and the results duly recorded, it might throw curious and really valuable sidelights on the causes and consequences of many historical events; perhaps substituting fact for

conjecture or, at least, increasing the balance of probability. As, for instance, where some important event resulting in spoliation or conquest was obscure to us from want of proper historical record, if it could be established that the event was followed by a marked improvement in the quality of the bronze currency of the conqueror, and that this might be due to the metal derived from the conquered, then the evidence of such a sudden change would certainly be of value as pointing to cause and effect, and so to some extent determine an otherwise doubtful point.

Examination of the large coins of the early republic, the *æs rude* and *æs signatum*, shows them to be made of a very coarse amalgam of many metals, principally copper, lead and zinc, with only slight traces of tin. They are quite similar to those of the surrounding communities which were successively absorbed, and it was not until the more distant Greek colonies and cities that lined the southern coasts of Italy, and the Phœnician settlements of the Mediterranean came under the dominion of Rome, that its coinage rose in artistic quality, and was made of a higher and more enduring standard of metal.

The successive conquests by the republic, of Carthage and its numerous dependencies, of Iberia, Syria and Greece, for a long time supplied the state with material, the *spolia* of war, of a much better kind than that previously obtainable, for the bronze used in those countries was of high quality owing to the large proportion of tin it contained, the eastern markets being well supplied with that metal by the Phœnician traders. But as Rome, in the latter days of the republic, rapidly absorbed nearly all the known world, the higher quality of bronze was required for the proper equipment of its gigantic military power, the state, no doubt, regarding this as of greater importance than the currency ; hence, after a time, we find the quality of the latter gradually retrograding still further, until it was made almost entirely of copper or copper with base alloy ; and the careless and inartistic nature of nearly all the bronze money from the end of the republic even far into the reign of Augustus, speaks for the authority of the military over civil rule. Gradually, however, the politic and pacific administration of Augustus and of many of his immediate successors established a long

period of almost unbroken prosperity, during which time the personal munificence of the emperors and of many of the great patrician families, inspired by the assimilation of Greek genius and enriched with the spoils and wealth of the world, created throughout Italy, but especially in Rome, a vast succession of edifices of almost unsurpassable magnificence, temples, *fora*, palaces, *thermæ*, triumphal arches, columns, and statues that had been the glory of Hellas in her prime. All that genius could produce, or boundless wealth procure, was gathered within its walls, and clothed its seven hills with a mantle worthy of the gods: even in this our day, although the obliterations of time have obscured its annals, and barbarian and ignorant intolerance played havoc with its material glories, its ruin is the ruin of a Titan, and in its fragments it is Olympian and eternal.

The imperial coinage of this the golden age of Rome, although made and issued as money or coin is medallion in fabric, and the coins really medallions recording its triumphant progress, being, indeed, eloquent witnesses at once of its sovereignty in both art and power. The money of Tiberius, Caius, Claudius and Nero displays both rapid and continuous advancement. The quality of the artist is seen in the beautifully designed and executed figures that grace the reverses, and in the skilful conventionalism that gave a touch of majesty to the imperial or other portraits, not always possessed by the originals.

From the time of Claudius to that of Hadrian the material also is of improved quality, the bronze being much finer and composed almost entirely of copper and tin. Under the milder and weaker rule of the Antonines, however, there is a considerable degree of debasement perceptible, tin and lead forming the alloy in about equal proportions, the copper remaining as before or about 75 per cent.; but with Septimius Severus, his sons and immediate successors, the metal is again frequently of excellent quality. Gradually this, however, was reduced to the previous standard and was followed, later still, by greater debasement that ultimately resulted in the use of practically pure copper.

Experience teaches us that all change is due to some cause, hidden or otherwise, rather than to chance, and in the case of a people

so observant of rule and custom, so averse to change as the Romans undoubtedly were, we should look for a cause arising either from policy or necessity. The history of a people is written on its coinage in more ways than one. Prosperity and a high civilisation are seldom recorded by degradation of metal, fabric or design, and it is rare, indeed, to instance the continuous progress of a nation where its monetary monuments threaten an even occasional relapse into the barbaric.

The mutations of time are nowhere so completely and eloquently expressed as in the extended and elaborate coinage of Rome, from the rude vigour of its mighty youth to the splendour of its manhood, and thence during the slow decrepitude of its decline. For the gradual degradation of type both in portraiture and figurative design, we have ample cause in the invasions and internal convulsions of the empire from the second century onwards, when the insecurity of life and property everywhere caused the prosperity and vitality of art to decline; and although we discover occasional glimpses of spirited work in coins of even the third and fourth centuries, yet the excellence of the preceding period never reappears, and all gradually fades into a complete and final debasement of design, work, fabric and metal.

The historical connection of Britain with Rome and its mint commences with the earlier Cæsars, on whose coins, and on those of Hadrian, the Antonines and Septimius Severus and his sons, the importance of the newly acquired province is frequently attested. Britain's increasing importance is also shown by the establishment of local mints in the third and fourth centuries that produced a vast quantity of the smaller coin issued on the suppression of the *sestertius* in A.D. 267. The London mint appears to have been established by or in the reign of Diocletian, A.D. 284-305, and to have continued in active operation for a little over a century, its latest known issues being those of Magnus Maximus, A.D. 383-388. The coins of Constantinus Maximus, A.D. 306-337, are mostly of very good quality both in design and fabric, and may have been the work of native artists; but all detail of this nature is rather outside the purport of the writer, whose aim is to show how, from an extremely remote period, the

mineral wealth of Britain may have enriched the treasures of the ancient world, when even Rome itself was but in the lap of the gods.

Incidentally, however, it may be remarked that although the first Roman mint in Britain was established either by Diocletian or by Carausius, who may have issued coins bearing Diocletian's effigy and name, there is yet considerable reason for supposing that dies made at the mint at Rome may have been actually used in Britain as early as the reign of Antoninus Pius, A.D. 138–161, for $\text{æ}1$ and $\text{æ}2$ of that and later emperors are occasionally found here in excellent, if not uncirculated condition. Many of these pieces, however, are of imperfect fabric, imperfectly centred, and badly struck, and bear the appearance of having been produced by men inexperienced in the use of dies and other minting tools. That coins of this defective make may have been struck in Britain is not improbable when we consider how advantageous to the authorities would be the power of readily producing coin in a remote province, which was abundantly supplied with both skilled labour and suitable material.

It is a question not easily resolvable, whether, when the Phœnicians first beached their galleys on the shores of southern Britain, they were in quest of the possible or in search of the absolute—of the unknown, or of tin.

Tin to the ancients meant many things other than a mere commodity of value. It was to them not only one of the most valuable of metals, but more essential even than gold; for from its admixture with copper, previous to the introduction of iron, were made the tools and weapons of antiquity, and its use as a creative implement or agent is probably coeval with the dawn of recorded history.

Four countries only are reputed to have produced this coveted metal, two in Asia and two in Europe. The Asiatic mines were in Ceylon and Southern India, and an island off the Arabian coast called Panchaia. Diodorus Siculus, however, says that from this island none was exported, and it is now known also that India, instead of exporting, actually imported from the west the tin she required. Hence we find that the entire supply of tin consumed by the ancient world for at least ten centuries B.C. was obtained from the European

mines ; these were confined to a very small area in Iberia or Spain, and to those in south-west Britain. Cornwall, the portion of Britain nearest to the Cassiterides, was known as *Kernew*, *i.e.*, the Cape of the Horn, its Arabic equivalents being *Karn* = horn and *uwal* = cape ; likewise the Cymric *ystaen* = tin is *Estanua* in the Basque and *stannum* in Latin, probably all derived from the Punic.

Poseidonius, *ob.* 51 B.C., says of Iberia that the extreme north-west of the country of the Artibri was bright with tin, silver and white-gold probably electrum, and that these metals were found in the sands of rivers. Iberia or ancient Spain was sprinkled with towns of Phœnician origin, which were probably founded by these enterprising prospectors whilst over-running the country in search of the coveted metals. At the present time, however, the whole of the tin-bearing area is little more than a square mile in extent. Sir G. C. Lewis says that "we are, therefore, driven to conclude that it was from the Cassiterides, or tin districts of Cornwall and Devon, that the Phœnicians obtained the great bulk of this commodity." Strabo, the Roman geographer, who lived in the Augustan age, has much interesting and valuable information. He says :—

"The Cassiterides are ten in number and lie near each other in the ocean towards the north from the haven of the Artibri. One of them is desert, but the others are inhabited by men in black cloaks, clad in tunics reaching to the feet, girt about the breast, and walking with staves, thus resembling the furies we see in tragic representations" (these were probably Druids) ; "they subsist by their cattle, leading for the most part a wandering life. Of the metals, they have tin and lead, which with skins they barter with the merchants for earthenware, salt and bronze vessels. Formerly, the Phœnicians alone carried on this traffic from Gades (Cadiz), concealing the passage from everyone, and when the Romans followed a certain shipmaster that they might also find the market, the shipmaster of jealousy purposely ran his vessel upon a shoal, leading on those who followed him into the same destructive disaster ; he himself escaped by means of a fragment of the ship, and received from the state" (*i.e.*, the Carthaginian government) "the value of the cargo he had lost. The Romans, nevertheless, by frequent efforts discovered the passage, and as soon as Publius Crassus passing over to them perceived that the metals were dug out at a little depth, and that the men were peaceably disposed, he declared it to those

who already wished to traffic in the sea for profit, although the passage was longer than that to Britain."

Hence the Carthaginians appear to have arranged a special overseas route between Carthage or Gades and the Cassiterides, probably using quick sailing vessels suitable for light cargoes only, and well adapted for escape if pursued. Strabo adds:—

"There are four passages commonly used from the Continent to the island, namely, from the mouth of the rivers Rhine, Seine, Loire and Garonne; it produces corn, cattle, gold, silver and iron."

The Cassiterides, or Scilly Isles, evidently not being regarded as part of Britain.

"They import from Keltica, ivory bracelets and necklaces, amber, vessels of glass and small wares."

But that tin was obtained elsewhere in Britain is evident as Diodorus Siculus, another writer of the same age, says:—

"Tin is brought from an island in front of Britain" (*Vectis*, the Isle of Wight), "being purchased there from native merchants, and is thence transhipped to Gaul and carried on pack horses to the Rhone." Strabo says, "a thirty days' journey," and quoting Polybius, he adds, "The Marseillse merchants, when interrogated by Scipio, had nothing to tell about Britain worth mentioning, nor yet had the Narbonnaise, nor those of Corbilon, notwithstanding that they were the principal cities of the district."

Herodotus, in the fifth century B.C., shows us how in those early days, even amongst learned men, fact and fiction went hand in hand, for he writes, *b.* 111, *ch.* 115:—

"Concerning the western extremities of Europe I am unable to speak with certainty, for I do not admit that there is a river, called by barbarians Eridanus, which discharges itself into the sea towards the north, from which amber is said to come."

Nevertheless, this river of which he was so doubtful was probably the Albis or Elbe. "Nor am I acquainted with the Cassiterides islands whence our tin comes." This passage points to Britain as the then chief, if not only known source; he continues:—

"However, both tin and amber come to us from the remotest parts. Towards the north of Europe there is evidently a great quantity

of gold, but how procured I am unable to say with certainty ; although it is said that the Arimaspians, a one-eyed people, steal it from the Griffins. Neither do I believe this, that men are born with one eye, and yet in other respects resemble the rest of mankind. However, the extremities of the world seem to surround and enclose the rest of the earth, and to possess those productions which we account most excellent and rare."

That gold was obtained in considerable quantity from the mines of Britain is evidenced by the massive and beautifully worked articles of personal adornment and implements of native work found in Britain and Ireland.

Rawlinson in his *History of Phœnicia*, referring to their over-seas trade, says :—

"Outside the Pillars of Hercules, the Phœnicians had only savage nations to deal with, and with these they seem to have traded mainly for the purpose of obtaining certain natural products, either peculiarly valuable, or scarcely obtainable elsewhere. Their trade with the Scilly Islands and the coast of Cornwall was especially for the procuring of tin. Of all the metals, tin is found in the fewest places, and though Spain seems to have yielded some anciently, yet it can only have been in small quantities, while there was an enormous demand for tin in all parts of the old world, since bronze was the material almost universally employed for arms, tools, implements and utensils of all kinds, while tin is the most important, though not the largest element in bronze. From the time that the Phœnicians discovered the Scilly Islands—the 'Tin Islands' (Cassiterides) as they called them—it is probable that the tin of the civilised world was almost wholly derived from this quarter. Eastern Asia, no doubt, had always its own mines, and may have exported tin to some extent ; in the remoter times, supplying perhaps the needs of Egypt, Assyria, and Babylon. But, after the rich stores of the metal which our own islands possess were laid open, and the Phœnicians, with their extensive commercial dealings, both in the west and in the east, became interested in diffusing it, British tin probably drove all other out of use, and obtained the monopoly of the markets wherever Phœnician influence prevailed."

Some of the ancient writers, such as Poseidonius and Diodorus Siculus, were men of considerable travel, and write of things and places they had seen, and others, such as Himilco, who visited Britain and

Northern Europe in the fourth century B.C., were sent by the Carthaginian government on voyages of discovery.

A remarkable and most interesting account of the methods of Punic or Phœnician enterprise is supplied by the voyage of Hanno of Carthage, along the western coast of Africa. Authorities are not agreed as to the exact date, which is variously estimated between 570 B.C. and 470 B.C. The original account was inscribed on tablets which were deposited in the temple of Saturn at Carthage. These disappeared when the city was destroyed by the Romans, but fortunately a Greek translation has preserved for us the substance of the text, which runs as follows :—

“ It was decreed by the Carthaginians that Hanno should undertake a voyage beyond the Pillars of Hercules (Gibraltar) and found Liby-Phœnician cities. He sailed accordingly, with sixty ships of fifty oars each, and a body of men and women to the number of thirty thousand, and provisions and other necessaries.”

After sailing for two days he landed and founded the city of Cerne, and then, resuming his voyage south, landed the remainder of the emigrants on an island near the coast, ten degrees north of the equator. This island was probably Arguin, which answers to the position and is about the same distance south of the Pillars of Hercules as they are west of Carthage.

After parting with his settlers, Hanno proceeded at once on his voyage of discovery, passing the Senegal and Cape Verde and reaching the Cameroons, where he remarks the volcano and says :

“ The country around seemed full of fire, and in the middle of it were flames far higher than the rest, which seemed to touch the stars.’

It was night when he arrived, but when day came he found the fire was from a high mountain, which he named “ the Chariot of the Gods.” Proceeding still farther south he remarked the savage people, covered with hair. The account continues :

“ Though we pursued the men we could not catch any of them, they all fled from us, leaping over the precipices and defending themselves with stones. We caught three of the women, but they attacked us with tooth and nails, and could not be persuaded to return

with us; accordingly we killed and flayed them and took their skins with us to Carthage. We did not sail further, our provisions failing us."

The native interpreters of the expedition called these strange creatures *gorillae*; in all probability these were similar to the "monstrous apes" re-discovered and so named by Duchailu about 1860.

The original commemorative inscription did not exceed one hundred lines, but Vivienne St. Martin says that :—

"In spite of this extreme conciseness, there is not one of its details, whether of localities or distances, which is not rigorously conformable to the very accurate acquaintance which we now have of these coasts."

Herodotus also, when writing of the Carthaginians, remarks :—

"They say that beyond the Pillars of Hercules there is a region of Libya and men who inhabit it. When they arrive among these people and have unloaded their merchandise, they set it in order on the shore, go on board their ships and make a great smoke, that the inhabitants seeing the smoke, come down to the sea and then deposit gold in exchange for the merchandise; that the Carthaginians then going ashore examine the gold, and if the quantity seems sufficient for the merchandise, they take it up and sail away, but if it is not sufficient they go on board their ships again and wait; the natives then approach and deposit more gold until they have satisfied them; neither party ever wrongs the other, for they do not touch the gold until it is made adequate to the value of the merchandise, nor do the natives touch the merchandise before the other party has taken the gold."

From this it would appear that the Carthaginian merchants were essentially fair traders, and no doubt the methods pursued on the western coast of Africa represent their usual enterprise and integrity as a trading community on other shores.

That the Carthaginians or their Phœnician kindred sailed entirely round Africa is certain, for Herodotus says :—

"The Carthaginians say that Libya is surrounded by water."

By Libya, the ancients understood Africa outside Egypt and the Mediterranean coast; and continuing, he adds :—

"Where the meridian declines towards the setting sun the Ethiopian territory reaches . . . it produces much gold, huge elephants, wild

trees of all kinds, ebony, and men of large stature, very handsome and long lived."

—evidently referring to the various Kaffir tribes of southern Africa.

Rawlinson in his *History of Phœnicia*, says :—

"The mission of the Phœnicians, as a people, was accomplished before the subjection to Rome began. Under the Romans they were still ingenuous, industrious, intelligent. But in the earlier times they were far more than this. They were the great pioneers of civilisation. Intrepid, inventive, enterprising, they at once made vast progress in the arts themselves, and carried their knowledge, their active habits, and their commercial instincts into the remotest regions of the old continent. They exercised a stimulating, refining and civilising influence wherever they went. North and south and east and west they adventured themselves amid perils of all kinds, actuated by the love of adventure more than by thirst for gain, conferring benefits, spreading knowledge, suggesting, encouraging and developing trade, turning men from the barbarous and unprofitable pursuits of war and bloodshed to the peaceful occupations of productive industry. They did not aim at conquest. They united the various races of men by the friendly links of mutual advantage and mutual dependence, conciliated them, softened them, humanised them ; while, among the nations of the earth generally, brute force was worshipped as the true source of power and the only basis of national repute, the Phœnicians succeeded in proving that as much could be done by arts as by arms, as great glory and reputation gained, as real a power built up by the quiet agencies of exploration, trade and commerce, as by the violent and brutal methods of war, massacre and ravage. They were the first to set this example. If the history of the world since their time has not been wholly one of potency in human affairs of ' blood and iron,' it is very much owing to them. They, and their kinsmen of Carthage, showed mankind what a power might be wielded by commercial states."

The conquest and tranquillisation of Gaul by Julius Cæsar brought Rome in touch with northern Europe and the British Isles, and with the completeness that marked his system, although the restless tribes of Gaul required ceaseless vigilance, the dictator passed over into southern Britain, giving the natives a short military parade by way of warning as a notice of changes to come. Probably he intended nothing more than a tour of observation unless forced into hostilities, and his *Commentaries* show with what penetration he remarked the main

features of that part of the island which came under his observation—the appearance and qualities of its people and their customs and productions.

Public interest, quickened, no doubt, by curiosity, drew the Roman over land and sea directly into Britain. Phœnician and Carthaginian guile had hitherto invested these remote “Islands of the West” with fearful and fantastic mystery, but the philosophic Roman swept aside these incredible accounts, as merely fictions invented to conceal the source of treasures invaluable to the state.

During the third Punic war even Scipio could obtain no satisfactory information from the merchants of Massilia as to where the supply of tin was obtained; but when the Carthaginian power passed away, the secret so well kept for many centuries was transferred with the control of the seas into the hands of the Romans; and Publius Crassus, the dictator’s commander in Gaul, at length ascertained whence and how this and other commodities of great value were obtained.

The interval of nearly ninety years that ensued from Cæsar’s landing in 55 B.C. to the coming of Claudius in A.D. 43, may, so far as Britain is concerned, be regarded as a pacific interlude during which the Romans, by the friendly intercourse of trade, would fully acquaint themselves with the mineral and other riches of the country, the localities from which these were obtained and the best methods of controlling and working them.

This pacific interval, during which the Britons, subject to an easy tribute, continued to enjoy their independence, was perhaps owing to the unsettled and rebellious state of the tribes of Gaul and Germany during the greater part of that period, but more probably to the fact that an arm of the sea, narrow indeed, but of rough and difficult passage, separated them from the mainland.

The reign of Claudius marks a period when Rome had reduced to comparative tranquillity and assimilated the vast regions which previous conquests had brought under her sway. Claudius, as an emperor, has met with but scant justice, for contemporary prejudice still seems to overshadow him; yet the recorded facts of his reign show

him to have been a patient, honest-minded and far-seeing ruler, who had the true welfare of his country at heart; his extensive additions to the buildings of Rome were of the most useful and enduring character, and for the public good rather than the outcome of mere ostentatious or selfish gratification: his ministers were selected with judgment. Vespasian and Galba, both afterwards imperators, were appointed to high military commands, and his mild and merciful nature is shown by his treatment of the captured British king, Caractacus, who, instead of being put to the usual violent death, was preserved and assigned a position in Rome suitable to his rank.

The following is a brief recital of the successive stages by which the complete subjugation of all Britain was effected:—

- A.D. 43. Claudius Cæsar inaugurates the conquest, and by his generals, Aulus Plautius and under him Vespasian, reduced a considerable part of southern Britain into subjection.
- A.D. 60. Suetonius resolves to extirpate Druidism, the national religion. This and other very oppressive measures lead to a general rising of the Britons under Boudicca, the suppression of which was only effected after dire slaughter on both sides.
- A.D. 78. Vespasian sends Agricola to conciliate and Romanise the province. He controls the various tribes by garrisons and military roads, establishes municipal institutions, and by just administration effects the pacification of all Britain as far as the Humber; proceeding northwards as far as the Grampians he defeats and subdues the Caledonians, but whilst civilising and utilising the natives he is recalled by Domitian in A.D. 84.
- A.D. 120. The Emperor Hadrian, on his tour of inspection of all the provinces of the empire, visits Britain. He creates or extends, on a pre-existing British basis, the fortified line known as the Roman wall, from Newcastle to Carlisle. Many of the towns are enriched with buildings or enlarged and enclosed by walls and gates.

A.D. 140. Antoninus Pius visits Britain and strengthens the fortifications erected in Caledonia by Agricola, and from similar work repeated by Severus and his successors, it appears that these were regarded as outposts of the empire in Britain.

The successive campaigns of Vespasian to Septimius Severus, by which the entire island was brought into subjection, were, there can be no doubt, the outcome of a desire to obtain and thoroughly search a land apparently so rich in mineral wealth, rather than of mere lust of conquest. It was the custom of the Romans to relinquish any district or country that did not pay the cost of possession; hence the sterile north of Britain was abandoned and Ireland not even invaded; whilst the rich mining districts of Wales and Britain were firmly held until the final retirement of the legions from the island; and we may, with absolute certainty, decide that it was the prolific mines of tin, copper, lead, iron and even gold that attracted the Romans to our shores, and which, to enable them to effectually work, caused them, during their 400 years of occupation, to cover the land with a network of military roads, towns, *castra*, stations and garrisons such as is scarcely to be paralleled out of Italy.

There is also a certain significance in that the two first imperators, who attempted the subjugation of Britain, were both authors and intimately acquainted with the Phœnicians as a people. Julius Cæsar, by his personal conquest of Iberia, was brought into close contact with them as colonists, and must have become well informed as to their manufactures and resources. Whilst Claudius, wisely escaping from the dangers of the court and political life, passed his earlier years in literary studies with the historian Livy; and though of his writings little has survived but the titles, yet it is not without emotion that we may conjecture what is lost to us of antiquarian value in his histories of the Etruscans and Carthaginians.

When the metallic products of Britain first found their way into the East, it was from the hands and by the secret methods and tortuous routes of the Phœnician traders, who at once discouraged competition and entertained their customers with fantastic accounts of our, to

them unknown and semi-fabulous, land. For a thousand years before the Christian era, Syrian, Greek and Jew had marvelled over the mysterious "Islands of the West," hanging, as it were, on the verge of the world, whence was procured the *kassiteros* or bright tin which enriched the markets of Tyre.

"Tarshish¹ was thy merchant by reason of the multitude of all kind of riches ; with silver, iron, tin and lead they traded in thy fairs."—Ezekiel xxvii, 12.

Homer also describes the armour of Agamemnon, as decorated with this metal.

"The beaming cuirass next adorned his breast,
The same which once King Cinyrass possessed,

Ten rows of azure steel the work enfold,
Twice ten of tin and twelve of glittering gold.

His buckler's mighty orb was next displayed,
That round the warrior cast a dreadful shade,
Ten zones of brass its ample brim surround
And twice ten bosses the bright convex crowned."

Pope's translation. Iliad, B. xi, 25-46.

Copper, tin and gold were also used by Hephæstus in welding the famous shield of Achilles.

"In hissing flames huge silver bars are roll'd
And stubborn brass, and tin, and solid gold.

and in its decoration metals of various colours are used, thus —

"A darker metal mixed intrenched the place
And pales of glittering tin the enclosure grace.

This done, whate'er a warrior's use requires
He forged ; the cuirass that outshone the fires
The greaves of ductile tin, the helm impress'd
With various sculpture, and the golden crest."

Iliad, xviii, 545-708.

¹ Tarsish or Tartessus in Iberia to the Jews meant an unknown region at or beyond the extreme west of the Mediterranean Sea.

Hesiod also mentions the melting of tin in a smelting pot. Moses found it among the spoils of the Midianites (Numbers xxxi, 22), and in many other parts of the Old Testament its various uses are referred to.

Hence, it is evident that the commercial centres and markets of the ancient world were fully aware, at a very early date, of its value as an indispensable alloy in all metallic productions, where strength and lightness were of the first importance, and as, so far as we know, little, if any, was obtained from the East, and as the mines and rivers of Iberia supplied but a limited quantity, we are justified in concluding that the British Isles were the chief source whence it was obtained.

Rome undoubtedly obtained her supply from the Phœnicians, who generally found her more ready to take by capture than acquire by purchase. Probably much of the tin or tin-alloyed bronze she obtained was consumed in the manufacture of weapons and tools, as on examination we find that most of the early republican coins are chiefly alloyed with lead or zinc, and it was not until she acquired, by the plunder of the East, such vast quantities of finer metal that we perceive much improvement in monetary bronze.

The Greek, Syrian, and Egyptian bronze, whether in manufactured articles or coin, is usually found to be of good quality, and generally alloyed with tin: and one use of the *spolia* obtained by Rome in her conquests of the East is quite apparent in the finer quality of the coin. But as the store of this *spolia* became exhausted from the vast quantity of arms and other military appliances required in the later wars of the republic, and under Julius, we find the mint recurring to the use of inferior bronze and even copper, of which metals most of the coins of Augustus, Tiberius, Caius, and the earlier issues of Claudius are made.

When Claudius, therefore, in A.D. 43 obtained by conquest the whole of southern Britain he would necessarily secure possession of the tin mines of Cornwall and Devon, and thus with those in Iberia was master of all the known sources of supply.

The later coins of Claudius and those of his successors to Hadrian and Antoninus Pius, are generally of very fine work and excellent metal. Those recovered from the Tiber and similar waters are

frequently quite fresh and uncorroded, their preservation and durability testifying to the high quality of the metal used by the mint at this period.

As previously remarked, the mild and indulgent government of the Antonines is curiously evidenced by the general inferiority of their bronze coinage, which in metal and fabric, no less than by the official mutilation, bespeaks the absence of form and due control. Under Septimius Severus, however, and some of the emperors to Gordian III., efforts were evidently made, with varying success, to restore the bronze currency to something approaching its ancient dignity, but the failing fortunes of the empire, the confusion and discord consequent on the quick succession of rulers, most of whom were little other than military tyrants, and, as though the sources of supply were becoming exhausted, the substitution of coins of small size and value in place of the large and handsome pieces formerly issued, were all factors that at length reduced the mint at Rome to a position inferior to many colonial mints, such as those in Gaul and Britain, and finally in the suppression or cessation of all except that of Constantinople and its daughter mints.

The silence of history, other than by occasional references, would leave much to mere conjecture as to why, from the earliest ages, Britain was such an object of mysterious interest to the ancient world, were it not that by a happy concordance of cause and effect, we perceive the one supplying the requirements of the other.

When and in what way the metal tin was here discovered, it may ever be impossible for us to learn, but it is highly probable that the Phœnician argonauts introduced the art of its manufacture. Hence we may not unreasonably suppose that either the native Britons, or possibly a wandering section of Gauls or Iberians, possessing an acquaintance with the metal, may have been the discoverers. The Phœnician traders would not be slow to recognise the existence of hitherto unknown sources of supply, and it is significant that the use of bronze in Britain is believed to date from about 1500 B.C.

In many parts of Wales and the south-western counties, descendants of the Phœnician or Iberian miners are to be recognised

in the short and dark people, easily distinguishable from the Cymry proper. These immigrants may have been miners or workmen who arrived in considerable numbers when the limited supplies in Iberia were neglected in favour of the prolific mines of Britain.

That the Britain of thirty centuries ago possessed a civilisation of no mean quality is evidenced by the monuments which, owing to their stupendous character, have survived neglect or barbarian invasion. From the intercourse which, from a very remote period, must have existed and been maintained with the mainland, we may reasonably suppose the natives to have been well acquainted with mining and the smelting and working of metals, at a period contemporary with, if not anterior to the first coming of the Phœnician traders. Certainly we may regard this especial product as the loadstone that drew the latter across a wide stretch of stormy seas, preserving the secret of its source with the greatest care, and at all risks, until it was wrested from them by the all-absorbing power of Rome.

In connection with this we may also note the frequent mention by ancient writers of Britain as a gold producing country. It is unlikely that this metal was ever procured here in sufficient quantity to export, but that it was extensively used, highly valued, and skilfully wrought, is attested by the various articles recovered in occasional finds. The extensive series of gold coins of various types and heavy fabric, also shows that there was a plentiful supply for a circulating medium. As these gold pieces are supposed to be of not earlier date than the second or third century B.C., it is probable that a large proportion of the precious metal was received from the Carthaginian traders in payment for the tin and copper exported, especially as Herodotus tells us that "they, the Carthaginians, deposit gold in exchange for the merchandise," in trading expeditions.

Much ink has been spilt in describing the coins of the ancient Britons as barbaric reproductions of degraded copies of a Greek original, the stater of Philip II., of Macedon. Apart, however, from a certain superficial resemblance, which is shared with other contemporary mintages, we may trace, with a far clearer pedigree, their descent from the coinage of Carthage Iberia and Gaul. Those of the first named

rival in quality of design and work the best mints of Greece, and without question were the production of Greek artists. The obverse generally bears a head of Persephone, whilst the reverse is charged with a running or standing horse and a palm tree. This became the usual type for both silver and bronze, just as the boar or androcephalous horse is a usual feature on the coins of Gaul; where on the coinage are also introduced circles, triangles, stars or suns and comets. Now the whole of these figures, such as the horse and palm tree, boar, androcephalous horse, *et cetera*, are the usual types of the gold, silver, tin and bronze coinage of ancient Britain, but with certain distinctive characteristics. Hence, we may infer that the variations indicate local types, and that all are akin to, and founded upon a contemporary currency common to all peoples of the west trading with the Phœnicians and Carthaginian colonies, and to whom the coinage of Philip of Macedon was comparatively unknown.

Much of the asserted degradation of type is also imaginary, being really due to extreme conventionality rather than lack of skill. Many of the earlier or uninscribed pieces exhibit excellent work and even beauty of a kind, together with an amount of technical skill that in some cases might cause us to question their parentage, were we not so well acquainted with the high quality of much of the Celtic metal-work found in this country, and which we are justified in attributing to native artists.

Conjecture is interminable as to how far the rise and fall of empire in the east may have been affected by weapons alloyed and hardened by the tin of Britain, but we find the first use that the Roman made of his metallic *spolia* of war was to convert it into the material of conquest. Rome in 508 B.C. made her first commercial alliance with Carthage; this for 250 years was followed by the aggressive measures that ultimately placed all Italy under her rule, and enabled her to compete with and finally, after three destructive wars commencing 264 B.C., to utterly destroy the power of her great maritime rival, and to absorb her African and European colonies.

Hence the interrogation by Scipio of the merchants of Massilia, Narbonne and Corbilon. Hence also the military promenade in Britain

of the great Julius, who, however, saw little or nothing of the true Britons, for his tour of observation was confined to the south-eastern districts colonised by the Belgæ.

During the ninety years that followed, the empire was established and consolidated, the Britons also contributed the payment exacted by Julius Cæsar, and we may reasonably suppose that this would be paid in such metals as copper and tin, an arrangement as convenient to the one as it was desirable to the other. It is at this period of comparative tranquillity that we find the quality of the coinage of Rome slowly but surely improving alike in artistic quality, fabric and metal.

When Claudius was declared imperator A.D. 41 he did not hesitate to put his historical and antiquarian learning to practical use, by endeavouring to obtain absolute possession of the islands where the metals so essential to them were chiefly procured, and virtually the most valuable part of Britain became a part of the empire in the course of the ensuing twenty years. To its insularity and position as well as its riches, and the character of its inhabitants, Britain, no doubt, owes something of the value placed upon it by the Roman. As an island it was comparatively safe from barbaric invasion, yet in position was readily accessible from the mainland. Its natural features, also, could not fail to attract war-worn veterans accustomed to the woods and swamps of Germany or the barren rocks of Iberia. Here the fertile and well watered plains furnished cattle and grain in abundance, navigable rivers intersected the land, whilst the hills teemed with mineral wealth. The natives, also, were an intelligent and high spirited race, unconsciously awaiting the salvation of discipline.

The Romans were quick to discern which portions were really of value to them, if indeed, which is quite possible, they had not previously become well acquainted with them in the time of Augustus, whose intended annexation of Britain was deferred and afterwards abandoned owing to the unsettled and rebellious state of the Gaulish and German tribes. The judicious administration of Agricola soon effected a complete pacification. Existing towns were extended and fortified,

new settlements created at suitable or strategic points, and the whole country opened up by new roads linking together the existing pathways.

Military rule also took the place of Druidism, and the presence of several legions divided up amongst the various towns, stations and camps, must have had an immediate and salutary effect in enforcing habits of obedience, industry and regularity in a people not always appreciative of their value as essential elements of national prosperity. Thus the Romans had placed at their disposal a vast amount of mineral wealth, ample for all purposes both military and civil, and which after serving the state for centuries, may also have been to some extent a factor in practically removing the centre of power under the Constantines from Rome to Gaul and Britain as nearer the sources of supply.

Special products, valuable of their kind, possess powers of attraction that seem to be alike tireless and irresistible, and some, such as gold, bring power or destruction according to the mental fibre of those who acquire them. With the peoples of the ancient world, empire fell to those with the most effective weapon, just as to-day Victory stands with beating wings upon the projectile of greatest power. To the ancients, and especially to the Romans, the British *ystaen*, the *kassiteros* or *stannum* from the mysterious islands invested by the Phœnician with such fabulous and dreadful environment, came as the most precious gift of Jove, for it was the essential element of bronze, which to them was the metal representing the monopoly of power, that iron and steel exercise in the modern world. In Roman hands it made absolute the power of the sword, creating a despotism, it is true, but that of a kind which, while compelling the subjection and tribute of all peoples to their rule, at the same time either restored or raised them to an ethical standard of justice, obedience and industry, so that when the parent hand grew feeble, it enabled the more virile races to consolidate their force and create the nations as they stand to-day.

Hence we may perceive that indirectly, even in the remotest times, this fatherland of ours was not without its share and part in civilisations,

vanished or absorbed "o'er which oblivion has drawn her darkening veil," and we may reflect with pardonable pride that the empire-building spirit of the Roman, in its greatest and most benignant sense, has to us more than to any other people been so largely bequeathed, and in our hands, strengthened by a Diviner wisdom, has extended and is still expanding even over "regions Cæsar never knew."

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